FINAL COURSE
(Revised Scheme of Education and Training)

PAPER : 5
Strategic Cost Management and Performance Evaluation

CASE STUDY DIGEST

BOARD OF STUDIES

THE INSTITUTE OF CHARTERED ACCOUNTANTS OF INDIA

This Case Study Digest has been prepared by the faculty of the Board of Studies. The objective of this digest is to provide good number of case studies for practice to the students to enable them to strengthen their preparation in the subject. In case students need any clarifications or have any suggestions to make for further improvement of the material contained herein, they may write to the Director of Studies.

All care has been taken to provide interpretations and analysis in a manner useful for the students. However, the digest has not been specifically discussed by the Council of the Institute or any of its Committees and the views expressed herein may not be taken to necessarily represent the views of the Council or any of its Committees.

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Preface

Syllabus of the subject links strategy, management control systems and performance management. The various models of performance management, the strategy mapping process, as well as flowing performance measures in performance management, are part of the curriculum. Syllabus comprises many contemporary concepts like supply chain management, 5S, business excellence model, cellular manufacturing, beyond budgeting, performance measurement models etc. Contemporary topics can be assessed mainly through the case studies and case scenarios. The basic objective of a case study is to allow the students to apply ideas and insights from theory to the real-life issues and problems. Case scenarios, as opposed to case studies, are short cases written in a more compact style with an appealing narrative, the case scenario's focus is on covering more depth in a specific area. While case studies provide the width and depth required for a holistic analysis-based-discussion, case scenario enable more in-depth analysis of a given managerial dilemma.

The Board of Studies (BoS) has undertaken the step of developing the Case Study Digest to help the students with better understanding of the subject through a mode of case studies, case scenarios and skilled assessment based questions on different important topics and problems. This Digest and Study Material of the subject complements each other and all the students are expected to make holistic study of both to gain maximum benefit and acquire in-depth knowledge of the subject. The Digest in the subject of "SCMPE" has been developed by BoS taking primary input from real life issues and problems.

The Digest will serve as a revisionary help book towards preparing for examination and help the students in identifying the gaps in the preparation for the examination and developing strategic plan to bridge it. The Digest contains solutions to the cases/ questions which will act as a guide towards developing the skills of students on framing appropriate answer to a problem and thereby to help students to improve their performance in the examination.

Every effort has been made to make this Digest error free, however if inadvertently any error is present and found by readers, they may send it to us immediately so that it can be rectified at our end.

For any further clarification/ guidance, students are requested to send their queries at *scm-final@icai.in*

Happy Reading and Best Wishes!

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Skill Assessment Based Questions

Case Studies

Case Study 1

__BA__ is the second largest airline in the Country "X". Aviation industry in the Country "X" is growing fast. In 2011, 45 million people travelled to/ from/ or within the Country "X". By 2020 that doubled to 100 million. This number is expected to treble to 300 million by 2030. Also, by 2025, Country "X" is expected to be the third largest air transport market in the world, behind the US and China.

Government is trying to meet the significant growth potential of aviation Industry. However, it will create challenges also for the airline industry and its industry partners.

Government also wants to ensure that broader business and policy environment should not place hurdles which inhibit growth and reduce the level of benefits that aviation can deliver to the nation. The industry, its supply chain partners, and the government and policy makers have a clear mandate to work in collaboration towards the common goal of ensuring that aviation's economic and social benefits are fulfilled.

Despite of operating in World's fastest growing market BA struggles for passengers. Also, BA is facing following problems:

- *Aviation Turbine Fuel (ATF) prices constitute about 40% of operational costs in Country "X" and are taxed higher here than anywhere else in the World. The Central government charges 14% duty on ATF. While the state government pile on their own local tax that can go as high as 29%.*
- *The currency depreciation is hitting Airline harder. About 25% to 30% of their costs, excluding ATF, are dollar denominated, from aircraft lease rents, maintenance costs to ground handling and parking charges abroad etc.*
- *With the entry of Low Budget Carriers, full-service carrier like BA that have higher overhead costs have been forced to offer discount to passengers looking for great bargain.*
- *Continuous improvements in tourism infrastructure, tourism policies, human resources development, airport infrastructure density are among the areas that could further enhance Country "X"'s competitiveness. Ease of doing business over the last five years has risen.*

- *The intense competition among domestic airlines carriers, the need to capture a slice of the ever-expanding market and passenger price sensitivity makes the airlines difficult to raise ticket prices.*

Together, these factors have now plunged Country "X"'s aviation industry to its most precarious phase in the last three years or so.

BA is facing huge competition as a "year of sharp U-turns" for "X"'s aviation industry from record profit in Financial Year 2019-20 to mega losses, resulting in direct need of recapitalisation. BA has been appealing to the government for a decade for a reduction in taxes on fuel, but all in vain. ATF is 35-40% more expensive in Country "X" than in the rest of the world, because of relatively high tax rates.

Required

ADVISE the strategy that BA should follow in order to gain superior performance and competitive advantage over its competitors.

Solution

In consideration to Michael Porter's theory about creating a superior performance and competitive advantage, a firm's overall competitive advantage derives from the difference between the *value it offers to customer* and its *cost of creating that customer value*. In order to survive and prosper in industry, firm must meet two criteria– they *must supply what customers want* to buy and they *must survive competition*.

To attain superior performance and attain competitive advantage, firm must have *distinctive competencies*. Distinctive competencies can take any of the following two forms:

Relative low-Cost advantage– under which customers gain when a firm's total costs undercut those of its average competitor.

An offering or differentiation advantage– If customer perceive a product or service as superior, they become more willing to pay a premium price relative to the price they will have to pay for competing offerings.

Low Cost Advantage (Cost Leadership)

BA can enjoy relative cost advantage if its total costs are lower than those of its competitors. This relative cost advantage enables a business to do one of the following:

– Charge a lower price than its competitors for its services to gain market share and still maintain current profitability; or

– Match with the price of competing services and increase its profitability.

Cost reductions in BA can be achieved through yield management with variable pricing depending on capacity utilization with careful monitoring; application of computer and communication technology in cost effective way i.e. selling seats via the internet rather than through travel agents; trimming overhead costs by using lower cost out-of-town airports, no printed tickets, seat allocations, or free meals and drinks; efficient operations i.e. fast turnaround times for aircraft to improve utilization; and no exceptions policies to reduce the cost of handling exceptions (e.g. no flexibility for passengers who arrive late). Cost economies can also be realized from large scale operations. However, it is important to note that as soon as more firms strive to become the cost leader, rivalry become so fierce that the consequences for the profitability in the industry are disastrous.

Differentiation Advantage

It occurs when customers perceive that a business services offering is of higher quality, involves fewer risks and/or outperform services offered by competitors. In other words, customers perceive the service offered by a business to be superior. For example, differentiation may include a firm's ability to deliver services, and other factors that provide unique customer value. BA is a multinational passenger airline. It can adopt a differentiation approach by offering passengers a higher-quality experience than many of its rivals. This allows it to charge a premium for its flights compared to many other airlines.

A differentiation advantage can be achieved by offering enhanced features such as prime landing slots can be obtained at major airports around the world; using superior and advance technology; well-maintained, clean, and comfortable aircraft; training in customer care and the recruitment of high-quality staff; providing complementary services such as in-flight entertainment, high-quality food, and drink. Customer value can also be increased by *subjective features* such as brand image, advertising based on quality of service provided. However, differentiator cannot ignore its cost position. If costs are too high the premium price are nullified.

On successfully differentiated its offering, management of BA may exploit the advantage in one of two ways viz., either increase price until it just offsets the cost of improvement in customer benefits, thus *maintaining* current market share; or price below the "full premium" level to *build* market share.

Alternatively, BA may focus on geographical region and short point to point flights to reduce costs. Michael Porter enlightens focus as attaining low cost or product differentiation for a *particular* buyer group, segment of product line, or geographic market rather than for the industry as a whole. The focuser can attain competitive advantage within a niche, because large firms are either not attracted to niche or have ignored the potential. The narrow focus in itself though is not adequate for a competitive advantage. The firms need to optimize the strategy on two variants: cost focus and differentiation focus. One risk of a 'focus strategy' is that broadly targeted competitors devastate the segment once it becomes economically attractive.

In addition, the currency depreciation is hitting Airlines harder and international overhead costs have risen, the BA should attempt to increase the number of internal domestic flights. Moreover, ATF cost can also be lowered by investment in fuel saving modern Airbuses, however, the reduction in operating costs may outweigh the capital equipment costs.

To gain competitive advantage BA may also assess Value Shop Model. Value Shop generates value by organizing resources (e.g. people, knowledge, and skills) and deploying them to solve specific problems, for example, delivering airline services to the passengers or delivering a solution to the business problem. Shops are organized around making executing decisions- identifying and assessing problems or opportunities, developing alternative solutions or approaches, choosing one, executing it and evaluating results.

In this way, the above discussed strategies may be more appropriate for helping BA in achieving superior performance and competitive advantage over its competitors.

Concept in Practice

Southwest Airlines (SA) targeted on a geographic region and short point-to- point flights to reduce costs. Even though it offered no-frills service (no-frills or no-frills service is one for which the non-essential features like food, entertainment, printing of boarding pass etc. have been removed to keep the price low) and was based in secondary airports, SA improved quality relative to the *limited set of competing alternatives* by offering direct flights rather than connecting flights requiring changing planes at large hub airports. The SA also offered better on-time performance and friendly amenities.

Case Study 2

Bhalla & Singh LLP (BS LLP) *is an accounting firm in form of limited liability partnership with 20+ branches across India, in all major cities. BS LLP offers to its customer services in accountancy, assurance, tax consultancy, business advisory services. Since the country is passing through economic slowdown, hence large numbers of business are entering into either internal/ external reconstruction; resultantly advisory services are in huge demands. The industry of accounting practices in India is mature, despite some of statues enforced recently.*

As part of performance analysis, at BS LLP; partners for each service domain collectively meet with top officers, on monthly basis. Following performance related data (belong to latest financial year) was considered in one of recent conducted partner meeting.

Particulars for BS LLP	***Accounting***	***Audits***	***Tax Consultancy***	***Business Advisory***
Revenue (In ₹ Crores)	*690*	*846*	*145*	*34*
Growth of revenue over previous year	*2%*	*9%*	*3%*	*18%*
Net profit ratio	*5%*	*4.3%*	*6.7%*	*9.8%*
Revenue (In ₹ Crores) of Accounting Industry as whole	*2,518*	*5,430*	*1,652*	*286*

Remuneration Structure at BS LLP

- ***Partners*** *are getting fixed contractual payment apart from share in profit.*

- ***Non – Partners*** *are getting fixed salary apart from variable pay depending upon rating from their immediate boss and peers.*

Client Relation Officer who is working parallel to marketing team, first time participated in monthly performance evaluation meeting and presented following data which contain rating from clients of BS LLP. It is decided that these rating will also be added in performance matrix/ table stated above–

Particulars for BS LLP	***Accounting***	***Audits***	***Tax Consultancy***	***Business Advisory***
Customer Ratings (higher the better)	*3.6*	*3.2*	*3.1*	*4.5*

Required

You are newly appointed management consultant with experience in non-finance performance evaluation techniques. During discussion at lunch table, managing partner (Mr. Singh) explain the above process of performance analysis to you. You quoted about your past experience of implementing non-financial performance evaluation techniques, including Performance Prism, Balance Scorecard and Building Block. Building block sounds interesting to Mr. Singh, he asks you to:

(i) LIST essential components of any performance management system.

(ii) DESCRIBE Building Block Model of performance management.

(iii) EVALUATE the BS LLPs' existing performance management system from perspective of 3 essential aspects of Building Block Model.

(iv) ADVISE the main improvements that introduction of a Building Block approach can bring to BS LLPs' performance management system.

Solution

(i) Essential Components of Performance Management System

Performance management system which is considered as a key aspect of management accounting and must contain following components–

- Establishing **functional** and **divisional organisation's structure** along with determination the level of decentralization.
- Establish **responsibility centres** and identify the person responsible for performance of each such centre.
- Establishing the **system to identify KPI** against which performance will be measure and **establishing the yardsticks**.
- **Review system** in order to compare the actual against standards and required **corrective action.**

(ii) Building Block Model

Building Block model of performance management is developed by Fitzgerald and Moon as a framework to improve performance measurement in **service businesses**.

The model suggests that performance systems should be based on three concepts: **dimensions, standards, and rewards**.

Dimensions (these are critical success factor) - There are six areas upon which company needs to focus in order to improve its performance. The model also suggests that the dimensions can be divided into two sets–

Results – Competitiveness & Financial Performance.

Determinants – Quality of Service**,** Flexibility**,** Resource Utilization and Innovation.

Note – Improvement in results can be ensured by improving performance in determinants.

Standards (these are key performance indicator) - Second aspects of Building Block Model are to establishing the standards or determining the yardstick level. Model also suggests the three properties which must be possessed by performance measure, these properties are–

- Ownership,
- Achievability and
- Fairness.

Rewards - In order to encourage the workforce, so that they can achieve the standards established; model also suggests three properties which every reward should possess. These properties are–

- Clarity,
- Controllability and
- Motivation.

(iii) Evaluation of Existing Performance Management System

The existing performance management system at BS LLP ***doesn't focus upon determinants*** specified by Building Block Model. Prima facie it is apparent from the performance matrix used by partners in their monthly meeting that performance is evaluated based upon financial performance only. Let's evaluate existing performance management system further–

Dimensions

The existing performance management system at BS LLP is allowing to consider the **results** in reference to: (i) Financial performance - it measures net profit margin and change/ increase in revenue over previous year and (ii) Competitive performance – revenue of BS LLP can be compared with industry revenue (segment wise) to calculate market share.

The matrix used by existing performance management system doesn't contain any major information from which performance level of **determinants** can be measured. But recently at BS LLP customer rating is used, which can be taken as KPI for ***quality of service***.

Standards

Presently it seems BS LLP is measuring segment wise performance against performance of industry (based upon revenue) apart from measuring net profit and growth.

Ownership - Since organisation structure is *not clearly defined* in the case above, hence ownership for each of dimension stated above can't be identified in existing performance management system.

Achievability & Fairness – In order to ensure achievability of standard established and fairness of same, presently it seems BS LLP is measuring segment wise performance against performance of industry (based upon revenue), whereas measure net profit and growth against standard established *internally*.

Reward System

Although **non-partners** at BS LLP are getting variable component of their remuneration/ rewards based upon their rating by immediate boss and peer, but the *criteria of rating are not clearly defined* and *weight is also not mentioned* for boss rating and rating by peer. If such criteria are not ration may cause *de-motivation* among staff.

Whereas **partners** are getting fixed remuneration apart from share in profit earned. Here in given case it is not clear whether profit of respective division or entity as whole, BS LLP. It is obvious that, if partners are getting reward based upon measure, *which they can't control* they may be *de-motivated*. This may also not improve the performance of bad performing division, because they are also getting reasonable amount as share in profit due better performance by other departments.

(iv) Advise to Improve the Performance Management System

First and foremost, improvement will be consideration of all the **dimensions** of performance as per building block ensuring that all the *critical success factors* for performance should be measured. This will help BS LLP considering the importance of *flexibility*, *resource utilization* and *innovation*.

Flexibility is important from the prospective from delivery of service, the manner and *timing* and of *delivery*.

Since staff is the *key resource* at BS LLP, hence essential it is to ensure optimum and effective **resource utilization**. In order to measure the productivity of the staff, *hour charged* as percentage of *total available hour/ total hour paid* can be computed. This ratio will also signify the peak and off period.

Although the scope of **innovation** is not much available in accounting firms, but still use of *IT tools* can improve the utility for client. Moreover, innovation can be seen as offering *new range* and *category of services*.

Further, while identifying the parameter for evaluating performance; the Building Block model will help to set the **standard**s against which performance is needed to be measured. Such standard should be *achievable* and *fair*, which should encourage the *motivation* among staff. Such standard may be financial and non-financial. Building Block Model will not only set the fair standard, but also help in establishing the mechanism that how such standard should be established.

Building Block will also help in reviewing the **rewards system**, in order to *motivate* both Non-Partner Staff and Partners at SB LLP. Reward should be based upon those criteria for which worker is *responsible* or *has control*, so partner at SB LLP must get the share in divisional profitability and non-partner worker must get the variable based upon *their productivity* (which can be measure either by self-appraisal or 360^{o} degree.

Case Study 3

Bhatia Motor Works (BMW) *is one of the renowned coach builders (fabricator) in North India, with a mission to design and fabricate high-quality buses that are innovative in style and engineering; whilst maintaining standards of reliability. BMW has market both locally and internationally.*

Human resource at BMW is highly skilled and well versed with latest tools and techniques of respective functional area. BMW is innovative company and always try to improve its performance.

Till date standard costing at BMW is limited only up to calculation of variance. Analysis and classification of variances are never performed. But newly appointed cost controller is highly motivated. Recently, post his appointment, the budgetary system at BMW was revamped drastically as part of cost efficiency drive. Same was done to give best response to variance identified, if any. Not only this, but cost controller is also interest in incorporation of relevant costing and learning curve in standard costing and budgetary control system. With help of management accountant, he able to fetch following data, pertaining to different divisions–

Fabrication division *of BMW manufactures two products seat handle (product code B-SH-101) and seat cover (B-SC-102) with BMW logo imprint on both apart from fabrication. Product B-SH-101 takes 6 men hours to make while product B-SC-102 takes 12 hours. In a month of 25 actual working days of 8 hours each, 1,200 units of B-SH-101 and 750 units of B-SC-102 were produced. BMW employs 75 men in the department responsible for producing these two products. The budgeted hours are 1,86,000 per annum. No. of budgeted working days were 26 but due to break-down, production function actually remains in operation for 25 days only.*

Painting Division

The budget was prepared by management accountant for painting division based upon performance report of last year, he assumes that workers learning curve rate will be 95%. But workers are skilled and specification of task is well known to them, so they assure their manager of 90% learning curve rate (learning index value will be -0.152). Since BMW believe in participatory budgeting, hence management accountant revised the budget estimate post feedback from worker's group.

In each month 15 buses are made ready for delivery after painting & fabrication. It is estimated that initial bus will take 20 hours for painting. It is estimated that learning will be terminated post 6th unit.

Extracts and Values from tables

Log 2 = 0.3010, Log 3 = 0.4771, Log 5 = 0.6990; Antilog of 1.1827 is 15.23, Antilog of 1.2808 is 19.08 and Antilog of 1.1948 is 15.66.

Required

(i) Is favourable variance being conclusive proof of efficiency, or investigation of variances is essential? ILLUSTRATE.

(ii) EXPLAIN planning and operating variance.

(iii) 'Standard cost used for variance analysis is not always relevant cost'. EXPLAIN the importance of relevant cost while determine standard cost for variance analysis.

(iv) 'Largely the standard yardsticks are static in nature, during a particular period for ease of variance analysis for said period; but not in case of labour related standard yardsticks; due to learning curve' ASSESS the validity of the statement, in light of need of recognition of learning curve, while establishing the standards.

(v) COMPUTE revised budgeted labour hours for management accountant incorporating learning curve.

(vi) EXPLAIN and INTERPRET control ratios.

Solution

(i) Investigation of variances are essential

Variance identified post comparison of actual cost against standard cost are not a conclusive sign of performance. No doubt variances are strong indicator of the potential problem. However, investigation of root cause of the adverse variances is necessary. Some of variances are composite of in nature (for e.g., material usage variance can be further classified in material efficiency and material yield variance) hence break down them in part and investigation of each element becomes essential.

So even favourable variances need to be investigated. To understand this statement a suitable illustration can be of raw materials that too in competitive pricing environment. Suppose inferior quality good (whose price is comparatively less) is ordered, on the one side favourable price variance will arise; on the other side most likely there will be substantially more scrap & rework, and thus a higher usage variance.

(ii) Planning & Operating Variances

Planning Variance – These variances are arising due to revision of standards. In order to compute planning variance original standard needs to be compared with a revised standard. Revised standard is that standard, which may be used as yard stick, if what happen earlier known to person responsible for planning. These are also known as planning variance

Operating Variance – These variances are on account if variance of actual performance or results from revised standard.

(iii) Variance Analysis and Relevant cost

Traditional approach to variance analysis is to compute variance based on acquisition cost (incurred out of pocket) and standard price for the acquisition of such resources. This may be misleading when resources are scarce in nature, because if scarce resources are not effectively used; it will not only increase the purchase cost (because finance cost is also incurred in addition to acquisition cost) but also result in loss of contribution.

Hence it makes sense, if we incorporate relevant costing to variance analysis; in term of contribution lost on scarce resource/bottleneck activities. To illustrate, while computing material usage variance, lost contribution should be embedded in standard price (to reflect how efficiently, scarce resources is being used) as follows–

$$(Standard\ Quantity - Actual\ Quantity) \times\ Relevant\ Standard\ Price$$

Where, relevant standard price is standard cost of acquisition of scarce resource (material) added by contribution lost (for else product, where this material; otherwise supposed to be used)

(iv) Recognition of learning curve while establishing the standards

Learning Curve recognises the progression of learning potential of people, it presumes worker become quicker if he repeats the process. Now this presumption has implication on standard setting process, in regard to computation of labour related variance and interpretation thereto.

Due to learning curve, *standard time established* soon become outdated yardstick for performance evaluation, hence computing labour variance with such out-dated standard date is meaningless from prospective planning and control.

Hence in order to accommodate, rapid change in form of reduction of time required/taken producing further each unit of same product with identical specification; effect of learning curve should be considered while computing labour variance. Effect of learning curve should be in embedded while setting the standard.

Even in case of material related variances, learning curve has critical implication; because while producing identical product for second time or thereafter; there is high probability of elimination of defect and wastage. Same may improve both the material price and usage variances. Variable production overhead, which are associated to labour hours may also impacted by learning curve. Hence considering the effect of learning curve is essential for material and overhead variances too.

(v) Revised budgeted hours

A learning curve is geometric with the general form $Y = ax^b$

Whereas–

Y = cumulative average time per unit or batch.

a = time taken to produce initial quantity.

x = the cumulative units of production or, if in batches, the cumulative number of batches

b = the learning index or coefficient

Time taken to paint 6th unit is **13.08 hours** i.e. (91.38 – 78.30) (See working note 1 & 2)

Time required to paint unit 6th onward **= 13.08 hours** (because learning curve will cease post 6th unit)

Revised budgeted time required to paint 15 buses **= 78.3 hours** (for first 5) **+ 13.08 hours × 10 units** (next 10 – 6th to 15th) = 78.3 hours + 130.8 hours **= 209.10 hours**

Working note 1 - Time required for painting first 6 buses

$$
\begin{aligned}
Y &= 20 \times (6)^{-0.152} \\
\text{Log } Y &= \text{Log } 20 - 0.152 \times \text{Log } 6 \\
\text{Log } Y &= \text{Log } 20 - 0.152 \times \text{Log } (2\times3) \\
\text{Log } Y &= \text{Log } 20 - 0.152 \times (\text{Log } 2 + \text{Log } 3) \\
\text{Log } Y &= 1.3010 - 0.152 \times (0.3010 + 0.4771) \\
\text{Log } Y &= 1.3010 - 0.152 \times (0.7781) \\
\text{Log } Y &= 1.3010 - 0.1183 \\
\text{Log } Y &= 1.1827 \\
Y &= \text{antilog of } 1.1827 \\
Y &= 15.23 \text{ hours}
\end{aligned}
$$

Time required for painting first 6 buses is 91.38 hours (15.23 hours × 6 buses)

Working note 2 - Time required for painting first 5 buses

$$
\begin{aligned}
Y &= 20 \times (5)^{-0.152} \\
\text{Log } Y &= \text{Log } 20 - 0.152 \times \text{Log } 5
\end{aligned}
$$

$$\text{Log Y} = 1.3010 - 0.152 \times (0.6990)$$
$$\text{Log Y} = 1.3010 - 0.1062$$
$$\text{Log Y} = 1.1948$$
$$\text{Y} = \text{antilog of } 1.1948$$
$$\text{Y} = 15.66 \text{ hours}$$

Time required for painting first 5 buses is 78.3 hours (15.66 hours × 5 buses)

(v) Control Ratios

- **Activity Ratio** measures the level of activity attained over a period by expressing number of standard hours required for actual production as percentage of the budgeted hours, as follows–

$$\frac{Standard\ hours\ for\ actual\ production \times 100}{Budgeted\ hours}$$

  = (16,200/ 15,500) × 100 = **104.52%**

  104.52% signify that BMW is need to work 4.52% extra than what it budgeted for to manufacture what actually it manufactured.

- **Capacity Ratio** indicates the actual utilisation of budgeted hours. It is a measure which express actual working hour as percentage of budget hours (or maximum possible number of working hours).

$$\frac{Actual\ working\ hours \times 100}{Budgeted\ Hours}$$

  = (15,000/ 15,500) × 100 = **96.77%**

  96.77% signify that BMW actually worked for 96.77 hours against every 100 possible hours.

  Or Budgeted Capacity is utilised up to 96.77% and 3.23% capacity remains unutilised.

  Note –

  Instead of formula used above, **Capacity Usage Ratio** can also be measured using below mentioned formula–

$$\frac{Actual\ hours\ worked \times 100}{Maximum\ possible\ working\ hours}$$

- **Calendar Ratio** is a measure where actual number of working days are expressed as number of working days during budgeted period.

$$\frac{Actual\ number\ of\ working\ days\ in\ a\ period \times 100}{Number\ of\ working\ days\ in\ related\ budgeted\ period}$$

  = (25/26) × 100 = **96.15%**

- **Efficiency ratio** indicates the degree of efficiency attained in production. It is expressed in term of standard hours for actual production as a percentage of the actual hours spent in producing that work.

$$\frac{Standard\ hours\ for\ actual\ production \times 100}{Actual\ hours\ worked}$$

= (16,200/ 15,000) × 100 = **108%**

108% signify that efficiency is 108% or task for which 108 hours is available finished in 100 hours.

Working Notes 1 - Calculation of standard hours for actual production

Sr. No.	Product	No. of Unit produced	No. of men hour required per unit	Total Standard Hours
1	Seat handle (B-SH-101)	1,200	6	7,200
2	Seat cover (B-SC-102)	750	12	9,000
Total standard hours for actual production				16,200

Working Notes 2 - Calculation of monthly budgeted hours

Annual budgeted hour =1,86,000

Monthly budgeted hour = 1,86,000 hours/ 12 months= 15,500

Working Notes 3 - Calculation of actual hours for actual production

Sr. No.	Particulars	Quantum in No.
1	No. of days production function worked	25
2	No. of hour in day	8
3	No. of worker in division	75
Total actual hours for month		15,000

Note – All calculations are on monthly basis.

Case Study 4

Style-inn Fabric & Clothing (SFC) *is manufacturer of clothing fabrics to be made up into dresses and suits. SFC established long ago back and presently enjoys the reputation as producer of quality fabric. SFC producing fabrics from high quality synthetic yarns with all standard features which other fabric manufacturer offers. Designs of fabric are old fashioned (traditional in nature) as SFC was established long ago.*

Management team at SFC shown believe in integration (vertical and horizontal) and diversification (product range or market reach) as tool of risk reduction and value enhancement (profit too). SFC opts for un-organic forward integration to gain control over value chain by acquiring 'Skylark Designer Clothing' (SDC). SDC is operating in designing and weaving of fabric into fashion wears. SDC is targeting the customers who are in age group from ***40 to 60 years*** *and belongs to* ***price sensitive*** *income group. SFC in this way is able to reach to end consumer through retailers by manufacturing cloth themselves. Acquisition of SDC by SFC remains largely successful as result in relative high increase in sales and profits, both.*

Problem Point

But the sale & profit are not growing at same old rate now, top and bottom line witness the slowdown, which may be due to exhaust of synergy benefits. Retail stores through which SFC sold its material also find it difficult to make reasonable amount of sale. SFC starts exploring new retailers. But due to presence of large number of supplier (of manufactured cloth), buying power of retailers is high; resultantly SFC has to rest at unacceptable low margins.

Down the Line

SFC is considering of acquisition of one of ***cloth retail chain****, named 'Paridhaan' in order to deliver fabrics to the customers directly and eliminate retailers in order to boost its profit margins.*

Required

(i) DRAW Value Chain and EXPLAIN briefly.

(ii) What do you mean by competitive advantage and how it can be attained? EXPLAIN.

(iii) IDENTIFY strategy SDC opted to gain competitive advantage.

(iv) DISCUSS 'value chain effect' of forward integration (acquisition of SDC) on SFCs 'competitive ability and cost competency'.

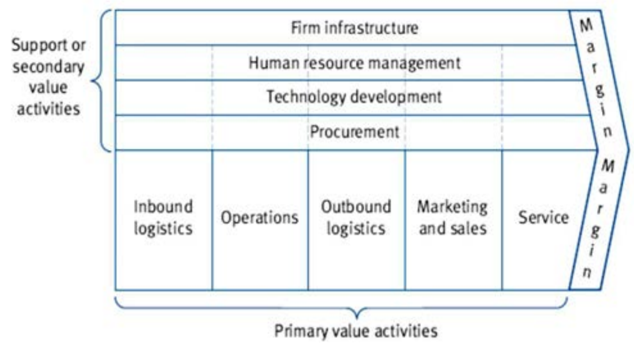
(v) EVALUATE possible acquisition of cloth retail chain 'Paridhaan' by SFC.

Solution

(i) **Value chain** (suggested by Michael E Porter*) describe those activities of organisation, those add value to input before it become output. Value Chain can be expressed as way of assessing and explaining current competitive advantage while identifying cost drivers.

*Note - Michael E Porter, in 1980 wrote a book 'Competitive Strategy; Techniques for analyzing industries and competitor' in which he explained value chain. In 1985 he along-with Miller suggested value chain as part of bigger network i.e., Value System. It split down company's activities between those which are 'primary (Those result in production of goods/rendering services)', and those which 'support (assist in such production)' these primary activities (as shown in figure below)–

Porter's value chain



Concept of Value

Successful organisation able to create value for its customer (end user) either by offering differentiation (more utility through customized/unique product/services at same price) or cost competitiveness (same utility at par to competitor, but at lower price).

(ii) **Competitive Advantage** is ability to generate more economic value than competitor. There are three generic strategies, suggested by **Michael E Porter (In another book which he wrote in 1985 on 'Competitive Advantage – Creating and Sustaining Super Margin')** through which an organisation could achieve competitive advantage–

Scope/Scale of Strategy		Competitive Advantage can be obtained through	
		Lower Cost	Uniqueness
Competitive Scope can be	Broad Target (Industry Wide)	Overall Low **Cost Leadership**	**Differentiation**
	Narrow Target (Particular Segment)	Cost **Focus**	Differentiated **Focus**

a) **Cost Leadership**, where there is great emphasis on keeping costs down. This opens up the profit margin by lowering costs, ideally more than any competitor can.

b) **Differentiation**, where a better product or service is sold. This opens up the profit margin by raising selling prices.

c) Additionally, an organisation can choose a **focus strategy**, where the organisation concentrated on a small segment of the market. Within the focus strategy, the organisation must choose whether or not to become a cost leader or a differentiator.

(iii) Strategy at SDC

Since SDC targeting the customers who are in age group from 40 to 60 years, and belongs to price sensitive income group, hence strategy opted to gain competitive advantage can be considered as **Cost Focus**.

(iv) Value Chain Effect at SFC

Acquisition of SDC by SFC can be termed as forward vertical integration. Any forward vertical integration can be justified because it ensures **increase in profit, effective control over market as well on pricing** and **finally brand building by reaching to target group**. SFC's **main objective behind SDC acquisition was getting control over value chain** and **increase in profit.** SFC has precluded the possibility of other ways of increasing fabric sales for e.g., exporting.

SFC extends the value chain. Earlier it was restricted up-till sale of fabric to garment manufacturer, but now SFC reach out to retailers to sell the in manufactured garments. **Scope of value addition to end user increased but value system become more complex** reason being two systems now merged into one value chain.

SDC (which is acquired by SFC) is believing in ***focus strategy*** *by restricted its market to the 40-60 years aged and price sensitive income market. This may be a* ***sensible strategy for a company engaged in designing of cloths, but surely not for a manufacturer of fabric****.*

Effects of forward integration on competitive ability and cost competency (Importance from cost perspective)

a) Post integration SFC has to operate **two production lines** (different set of Men - Workforce, Machine and Methods - product and production layout). One being spinning the fabric and being manufacturing of cloths. Resultantly **transfer pricing** will be *cost aspect* which need to be decided.

b) Since the **operation is sequential in nature**, first weaving then stitching; hence any mismatch in capacity, lead/run time of both the production lines **may result into increased cost of either warehousing or idle capacity**. (may result in additional working capital required or loss of contribution)

c) **Carrying Cost** (warehousing cost) will also increase on account of **manufacturing of cloth ahead of retail demand**. (again, additional working capital may be required)

d) For SFC, it may become **difficult to compete with other fabric manufacturer**; because due to diversion of **management focus** in two production line (may lose cost competitiveness) and SFC is now directly impacted by customer/ consumer who has verity of option apart from SFC's cloths to choose between.

e) Since design of fabric (manufactured by SFC) are fit for traditional wear, but expertise of SDC is in fashion wear; **so designer at SDC may resent** the lack of freedom. (integration of objective and culture is essential to overcome)

(v) Although, the intention is to earn more of the value in the value system, but possible acquisition of retail chain **'Paridhaan' (forward vertical integration into retail outlets)** has its own pros and cons for competitive advantage.

Expected Benefits

a) SFC will have full control over the production, pricing and marketing. So, acquisition of Paridhaan will give strength to SFC for keep relying upon **differentiation strategy**.

b) Since SFC will reach to end consumer directly, hence will have access to entire customer related data. Such data can help SFC to **understand customer specification** and do customization in product as per requirement of specific customer group.

c) Since post acquisition of Paridhaan, SFC will have exclusive retail chain; hence **reduce the competition** from other brands whose products are lying along-with SFC products at selling shelves of retails.

Anticipated Drawbacks

a) Managing retail chain will open another area of operation for SFC (Own retail chain is capital intensive business rather labour intensive – high amount of capital will be invested in properties – even then outcome depends upon location of stores) and increase **operating as well as financial risk** too.

b) Since SFC manufactures fabric, which is good for **traditional clothing** only, hence limited range of products may be available for sale at exclusive showroom/retails shops of SFC (through acquisition of Paridhaan); so, **may not be able to attract requisite number of clients** to cover the fixed cost.

c) In order to complete product range SFC may have to **complement its product with product of another manufacturers**; this may be not possible in cost effective manner.

Conclusion

SFC should acquire retail chain 'Paridhaan', mainly as a response to reduce the competition from other brands whose products are lying along-with SFC products at selling shelves of retails and to reach end consumer directly to understand their needs. However, acquisition would not be so easy due to the high amount of capital investment is required. In addition, cultural changes are also essential to from overcome the traditional shell.

Overall, the benefits of acquiring retail chain do, however, need to be compared to the financial cost and other qualitative factors.

Case Study 5

Marcus Neo-Fashion Limited (MNFL) is leading brand in fashion world. Company is dealing in both fabric and readymade garments. Since the company was established long ago, hence has well established SOPs. Management at MNFL is highly concerned with performance and productivity.

In order to determine and appraise the performance, MNFL conducts fortnightly meeting of heads of different responsibility centres apart from quarterly master meeting. In master meeting each of such departmental head need to present report for his department on following aspects–

Performance Matrix Dashboard at MNFL

Criteria	*Indicators*
I	*Average Capital Employed in department with detailed information of source and nature (working or permanent capital)*
II	*Revenue and Earnings*
III	*Output (in terms of no of units and per employee productivity)*
IV	*Existing Clients and New Customer added with data on market share*

In one of recent such master meetings, which was chaired by CEO, newly appointed VP-HR quoted 'Intellectual capital is as critical as financial capital in order to ensure smoothening, success and sustainability of any business' hence employee where so ever lagged in technical skills, it is essential and important to work on his skills in order to enhance the productivity. VP-HR said at MNFL ratio of skilled, semi-skilled and unskilled worker are 1:2:6, which needs to be worked at. He also insists to roll-out new wage policy which should support 'Performance Related Pay'. He said, 'I don't know much about enterprise performance, but I strongly believe that performance indicators must include performance of employees in term of their skill and knowledge'.

Immediately VP-Finance said existing performance matrix is essentially focused EV/ EBIT and returns on capital hence sufficient from prospective of performance appraisal. Hence there is no major need to consider impact and effect of human capital. He also added that entities revenue is growing @ of 14% and earning is growing at 12% which 4% on higher side then industry. He said present rate of ROI is 11.5% which is better than industry average of 9%; and Market Cap is also doing well.

VP-Finance countered by VP-Planning & Operations, according to him 'skilled labour will be added advantage in order to develop 'zed' culture i.e., zero accidents, zero defects, zero delays, zero inventory, zero breakdowns, zero changeovers, zero waste'. He also said skilled labour can also add value by incorporating innovations. He quoted presently average defect rate is 1.5% of total production.

On this VP-Marketing add 'skilled employee means better process and better processes leads to competent value chain which can serve highly customised product; hence preconceived quality (conformance to customers' need) leads to strong brand equity.

Chief Information officer support VP-Marketing and VP-HR by quoting the position of brand can be improved by product development. Newly developed product will meet and set, latest style statement in market; eventually help MNFL to acquire new customers within existing marketing without incurring much on advertisement or sales and promotion. Skilled labour can easily bring innovation to the product.

Required

Post conclusion of meeting, CEO requested you (Management Accountant) to–

(i) DESCRIBE performance management indicators.

(ii) DISCUSS need of non-financial performance indicators at MNFL.

(iii) TABULATE role of non-financial performance indicators considering the indicator or measures suggested by VP-HR and Chief Information officer.

(iv) Briefly EXPLAIN different models of non-financial performance indicators that MNFL can apply.

Solution

(i) Performance Management Indicators

Performance Management System plays a key role in developing strategy; it is require measuring the current performance and establishing standard. For performance measurement, certain indicator can be established & such indicator may be–

- **Financial** Performance Indicator e.g., ROI, EPS and EBITDA
- **Non-Financial** Performance Indicator e.g., Balance Scorecard

Performance indicator having **objectives** of

- Evaluating the achievements of organisation objective
- Compensate manager

(ii) Need of non-financial performance indicators

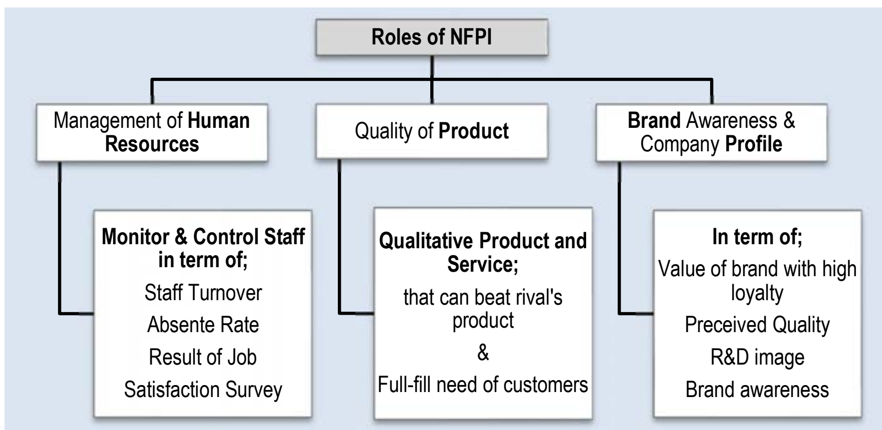
Since financial performance indicators are profit oriented only, but strategy needs to be sustainable apart from profitable. Hence in order to overcome the inadequacy and unjustifiable nature of financial performance indicators, non-financial performance indicator need also to be used. Hence **opinion framed by VP-Finance is not tenable** that revenue and earnings growth of 14% and 12% respectively, apart from ROI is 11.5% is sufficient to evaluate performance.

Non-Financial Performance Indicators are sustainable action-based indicators. For example, employee training/ health & safety will increase the profit & let them feel empowered, hence NFPIs are equally important to consider. Similarly putting effort in research and development to yield innovative product will result in high brand image & high intellectual property rights.

(iii) Role of Non-Financial Performance Indicator (NFPI)

As already stated, Non-Financial Performance Indicator consider non-monetary aspects of performance such as–

- Skill, Attrition and Job Satisfaction of Human Resource
- Quality of Product
- Brand Equity



(iv) Different Models of Non-Financial Performance Indicators that MNFL can apply

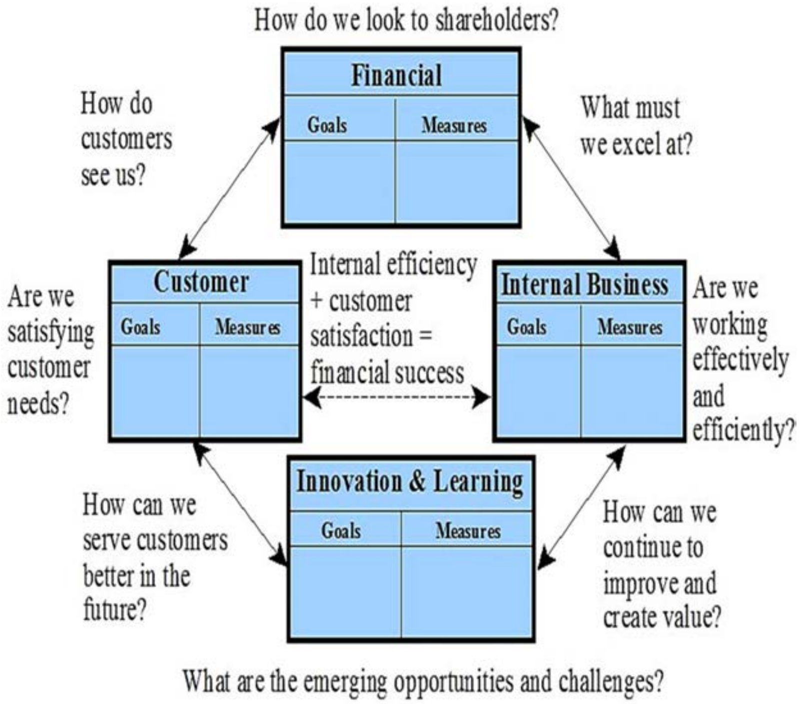
Top bosses at MNFL wish to consider non-financial indicators apart from financial indicators, hence following models of non-financial performance indicators can be applied–

Balanced Scorecard (By Robert Kaplan and David Norton in 1990)

Balanced Scorecard can equip, MNFL with a management system (which is more than just measurement system) that is better, in terms of ensuring availability of information to business manager to make better decision and evaluation thereof, by establishing goals and measures in regard to four perspectives–

- Innovation, Learning and Growth Perspective – Suggested by VP – HR
- Internal Business Process Perspective – Suggested by VP – Operation and Planning
- Customer Prospective - Suggested by VP – Marketing and Chief Information Officer

- Financial Perspective – Already under consideration



Innovation, Learning & Growth Perspective

- Employee training & corporate culture attitudes in order to ensure individual and corporate improvement.
- People are main resources in an organisation because they are only repository of knowledge.
- It constitutes essential foundation for success of any knowledge worker organisation (learning and growth).
- Learning is something more than training. Purpose is to improve ratio of skilled, semi-skilled and unskilled worker (1:2:6); not by hiring but by inculcating learning into exiting workforce.

Internal Business Process Perspective

- This perspective refers to internal business process.
- This perspective allows the manager to know how well their business is running.
- This perspective needs to be carefully designed/ explained by those who know these processes most intimately.

Customer Perspective

- Recent management philosophy has shown on increasing realisation of the importance of customer focus.
- Customer Satisfaction is very important for any business, because if customer is not satisfied, then will find other supplier to fulfil their need.
- Customer base should be categorised and analysed.

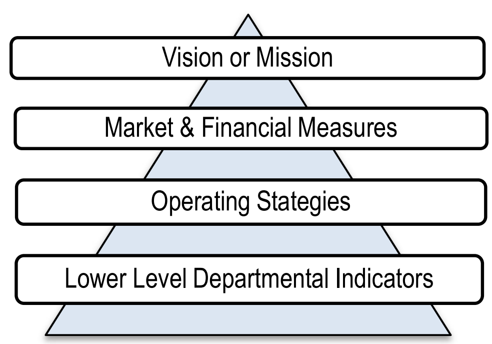
Financial Prospective

- Kaplan and Norton don't disregard the traditional needs of financial data.
- Ensuring availability of accurate financial data on timely bases is one among the priority of management – process of storing and retrieving financial information should be centralised and automated.
- There may be needed to include additional financial data such as risk assessment and cost aspects.

Expected benefit to MNFL of implementation of balance scorecard includes holistic approach, overall agenda, objectivity, management by objective, feedback and learning and system approach.

Performance Pyramid (By Lynch & Cross)

Performance Pyramid which contains hierarchy of financial and non-financial performance measures, **can help MNFL in considering customer and market as part of performance indicators apart from financial aspects**. There are the 4 level of pyramid.



Level 1

Corporate Vision and Mission defines how organisation will achieve long term success & competitive advantage.

Level 2

In order to achievement of Corporate Vision and Mission the focus is on–

- Market Related Measures
- Financial Measures

Level 3

Operating Strategies become guiding force to achieve strategic objective, which includes Customer Satisfaction, Increased Flexibility and High Productivity.

Level 4

Status of level 3 driving forces can be monitored using the lower-level departmental indicators such as Quality, Delivery, Cycle time and Waste etc.

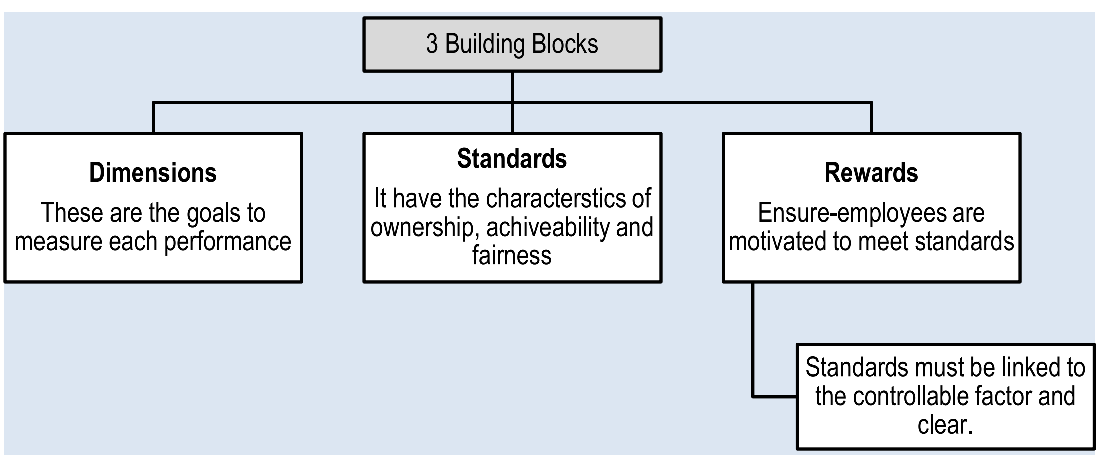
Note – There is **drawback of pyramid** that it does tend to concentrate largely on *shareholder* & *customer*.

Building Block Model (By Fitzgerald and Moon)

Building Block Model an approach to performance measurement in business services. There are three blocks Dimensions, Standards and Rewards.

- Dimensions are Critical Success Factors (CSFs)
- Standards are Key Performance Indicators (KPIs) and
- Reward is essential in order to keep workforce energetic and motivated – hence should be performance related.

MNFL can use the Building block model to identify the CSFs and then determine the KPIs. These both CSFs and KPI will become the part of performance matrix at MNFL.



Performance Prism (By Andy Neely and Chris Adams)

There is limitation of balance scorecard that is only two set of stakeholders, which are shareholder and customer. MNFL can overcome that limitation of balance scorecard by using Performance Prism model.

Performance Prism framework can help the top bosses at MNFL to consider wide range of stakeholders including activities, communities, consumers, employees, legislators, regulators and suppliers with five focus areas.

Five Focus Area's

- **Stakeholder Satisfaction** - Identify the stakeholder and understand their need
- **Strategies -** Should be drafted in order to fullfill stakeholder's need
- **Process** - Critical processes to fulfill such needs & strategies
- **Capabilities** - Capabilities need to operate our processes more effectively and efficiently
- **Stakeholder Contribution** - Need from our stakeholders to maintain capabilities

Case Study 6

***Dream Homes**, a US based MNC, started its Indian operations with opening of few stores in its nascent phase. In recent times, it started running nationwide stores in India selling range of home-based products right from home improvement tools, decors, electronic appliances to small kitchen utilities like steel pans, nonstick dishes, kitchen organizers, knifes, cardboards, countertop stickers, ice cream molds, chocolate molds and alike. It had gained wide popularity particularly among the ladies' group of India since its expansion of the product line. Previously it was selling just the intermittently purchased home-based products like furniture and appliances. It was the extended accessibility to daily utilities that elated the ladies' group about visiting the stores. Some women referred Dream Homes as the one stop search for all their necessities.*

Dream Homes manufactured some of the products rather than making an outright purchases and sales thereof of all its products. To make various kinds of furniture and kitchen based small utilities, it derived its raw materials directly from local market which were mostly the recycled materials like plastics, scrapped items, used furniture and alike rather than the raw wood, forest products and firsthand products. Its raw materials were therefore capable of generating various forms of work in progress. The work in progress and finished product relation worked in similar fashion. From a particular WIP, it was capable of generating multiple outputs. Therefore, the firm kept its material cost low and primarily relied on the recycling process, thereby keeping up its pledge to serve the environment.

***For the in-house manufactured products**, the materials department of the firm functioned in the below manner:*

1) *The manager of the department kept a watch on each type of inventory levels in the warehouse.*

2) *He then estimated the required production based on historical demand and long-term forecasting policies of the firm.*

3) *A room was also left for safety stock so that any unforeseen delay in delivery of the goods could be covered.*

4) *Based on the existing inventory and production plans and safety stocks, inventory replenishment levels were calculated.*

5) *Once the stock reached its reordering level, an order to replenish the stock was being sent to the vendor.*

6) *Based on departmental orders, vendor delivered the materials.*

To manufacture the finished products i.e., to convert raw material to finished good, the intervening time was 3 weeks. It will take approximately take 4 weeks to deliver the in-house manufactured product from the time order is received. The standard lead time of similar products in industry is 2.5 weeks.

***For products purchased out-rightly**, a purchase order was prepared by the purchasing department based on the inventory in hand and expected demand. Some of those products did show a sketchy demand pattern, with surge in demand for lame reasons. However, the department did not take into account safety stocks for any of these purchased products, since the cost to maintain such inventories were high and the costs of these products itself were high enough. The problem however was failure to meet surprise orders or sudden increase in demand.*

People were getting busier and there was hardly any time to procrastinate buying things they need until they could visit the stores based on their availability. Moreover, it was just the metro cities, that had overwhelming number of stores, but states like Gujarat and Odisha remained an untapped target with very few stores only in the developed parts of the cities. Dream Homes' agenda was not just to add more variety to its existing offerings, but to reach people all around the country since it perceived manifold needs were yet unmet.

Going digital was a challenge since its popularity was limited to its store locations and therefore it was dubious of its acceptability among the nationwide customers. It was prepared for an extensive marketing of its digital channels though and funds were not a problem. Having heard about the peaking demand of businesses for E Customers, it was supportive of the idea and considered to follow the suit.

From its US operations, it was very well aware about the expectations of its E Customers and the quality of service they desire from their E Sellers. They tend to be progressively demanding and expect their orders to be processed in couple of hours after being placed.

They do not want to grapple with the tracking information of their package. They need real time update of their package location so that there are no abrupt surprises about the delivery time and the condition of the package. They like to purchase from E Sellers who offers competitive prices accompanied with free shipping and on time delivery. That is all too much for a developing market like India.

The labor cost is relatively low in India but the infrastructure in not adequately sound to guarantee the same level of service at their expected prices. Indian market is not similar to the US market, there being an immense cultural gap. The income of the middle-class people is also not remarkably high and hence they can spend sparingly on things that are not paramount on their list. Kitchen items though marked as "necessities" by the women section of the society were not real necessities in economic sense. Hence the firm thought of applying the paradigms of Target Costing to set the prices of their online products such that they remain competitive before their E Customers.

The firm also needs a flawless Supply Chain Management (SCM) System in Indian environment, but the back-office team of the firm had little knowledge about this aspect of the E Commerce project and it did not see the light of the day. Now they need you to help them shape up the SCM look of Dream Homes.

Required

Given the facts of Dream Homes, answer the following questions:

(i) DISCUSS the suitability of Target Costing concept to Dream Homes?

(ii) Critically ASSESS its current inventory management system and RECOMMEND suitable changes in light of its business strategy.

(iii) ADVISE the SCM look for Dream Homes as per their requirement.

Solution

(i) Usually, we notice a suit of prices of products being determined based on the cost of their production, keeping a room for desired margin. In contrary to this, the then originated Japanese concept tells us to estimate selling price at first place, to be determined based on the price the market is currently willing to pay for a similar product. Thus, the prices here are not based on the cost of their products rather costs have to be targeted and thus the name "Target Costing". This means once price is determined and profits are set aside, the remainder becomes the costs to be achieved. In striving to reach the cost goal, myriad managerial techniques and tools like Value Chain Analysis/ Value Reengineering, Six Sigma, are used. These techniques are used keeping in mind the focus (i.e., to control cost in order to meet the target without compromising the quality and value to be derived from the product). As such, various costs incurred with respect to product like design cost, manufacturing cost, storage cost, transportation cost are destined to be controlled.

Target Cost concept is very much relevant in Dream Homes' situation since it is considering to digitize its business where *competition is intense* specifically with regards to the prices of similar products. Since the products offered by Dreams Homes *lack much differentiation*, **the unique selling point of the firm can be to offer quality products at low prices**. Further, E Commerce will mostly require the firm to operate as per Just in Time (JIT) approach that will reduce inventory maintenance burden and also reduce wastage, thereby controlling costs. Thus, Target Costing and E Commerce go hand in hand.

We must also keep in mind that the firm can apply Target Costing concept to both its manufactured products and the products purchased out-rightly. For the merchandise goods, Dream Homes can plan to control various fixed cost (i.e., storage and inspection cost) and variable cost (i.e., selling cost) incurred to handle such goods such that lower prices can appeal wider customer base. Moreover, to achieve low costs for its supplied products, it will have to enter into *long term contracts* with dedicated suppliers. Considering the E Market, the scope of its operations will expand and therefore the demand may also increase. Thus, suppliers can funnel the discounts in form of low prices only if a commitment for long term purchases is made by the firm.

(ii) **Currently**, Dream Homes operates physical stores at which time inventories of raw materials, WIP and finished products are maintained at the stores and in warehouses considering the demand directly dependent upon the store locations. It has been blocking large assets in form of various *inventories piled up* to coordinate its production and retail function.

The three forms of inventories related to products that Dream House manufactures are maintained in a *traditional manner* which seems to be out of the place for an E Retailer. Dream House forecasts demand based on its *internal policies* and *historical trends*. Today demand in every sector of the market changes by leaps and bounds, so using historical data is not at all recommended. *Demand forecasts should be pulled by current market trends* and *prediction of future market sentiments*. For example, Corona Virus pandemic has drastically changed the face of world, where demand for some products have taken a leap while some will continue sitting on the shelves for a prolonged period. People are refraining themselves from going to stores and online retailers like Amazon are reaping the benefits from this situation.

In the process of maintaining inventory, Dream Homes is also building up *too much safety stock* which takes up cost and space. The *lead time of the firm* is *remarkably high* relative to industry standards, which is untenable in an E Environment. Failure to accommodate customers request as per industry norms, means *losing a large chunk of customers* who do not want to wait.

Now when the firm is thinking of **going digital**, the scenario will be totally different. With the switch over to ecommerce, production and purchase mechanism will also have to undergo a drastic change. *Just in time purchasing* and *production technique* will put an end to the harrowing task of inventory management. In this form of pull system, purchasing of merchandise goods and production of in-house goods will be based on online customer demands and Dream Homes will have to accordingly coordinate with its suppliers to supply the right quantity of raw materials required at the right time. JIT inventory management calls for having the inventory as and when needed also taking care of massive holding cost suffered related to large build ups. The trick is to set up plants in close proximity to chain of suppliers' location to ensure several pick-ups each day rather than holding on to bulks. ERP and other sources of *electronic data interchange* between supplier and Dream Homes will act as backbone in supporting the JIT activity. In this environment, Dream House will also be able to *reduce the lead time* to deliver the ordered products from 4 weeks to around 2.5 weeks by *streamlining the flow of information* in entire supply chain.

For the products purchased from its suppliers, it is recommended that Dream Homes should employ ***vendor managed inventory technique***. Under this, rather than firm controlling the inventory management system, it is the suppliers who manage it. This is implemented by allowing the suppliers of the firm to access the inventory information from all locations i.e., warehouse, retail stores and distribution centers. They access the inventory data and then decide accordingly on sending/ replenishing the inventories. For example, using the point of sales technology, data from stores can flow to centralized database showing units sold and units in the stores, that can be accessed by suppliers to anticipate demand and refill requirement in each store. Similarly, to manage the inventory at warehouse, RFID (radio frequency identification) technique can be used to pick up, process and ship the order. For an inbound shipment too, this technology can easily scan the product information in seconds, leaving no room for human intervention. The access of this real time data can be allowed to vendor, to manage Dream Homes' inventory.

In a nutshell, the onus and cost of inventory management passes on to the suppliers, thereby underpinning the cost leadership strategy of Dream Homes. Low cost of inventory management will consequently reduce the overall cost of inventory and thus help, in achieving set cost targets.

(iii) The supply chain management system of Dream Homes can be designed in the following manner:

a) As already known, E Commerce firms works on low inventories relative to physical stores, therefore Dream Homes is pondering about changing its inventory management technique. So, it is time for the firm to focus on *building strong collaborations with suppliers* so that the lead time of orders placed by Dream Homes can be kept at minimum. Quality of the product offered by such suppliers also cannot be overlooked anymore since E Sellers not only make speedy shipments but also guarantee hassle free returns of the delivered product if their products fail to meet the specifications given in their website. Strong tie up with suppliers will assist the firm in meeting the ever-changing demand of its customers in this technological landscape.

b) Moreover, by implementing *vendor managed inventory*, as an effective SCM tool, much of the onus of inventory management for its purchased products will shift onto suppliers.

c) For the in-house manufactured products, Dream Homes needs to ensure that there is pool of dedicated suppliers in the country who can supply expected materials on a timely basis. Further, in the areas where there is dearth of such suppliers, it will have to arrange transportation of the finished goods. To keep the overall cost of product low, it should abide by the cost per touch inventory system (successfully employed by the prominent furniture brand IKEA. It relies on the concept of passing the cost savings to its customers by putting up their products together in easy to assemble packaging enabling their customers themselves to select and pick up the product from the store. In a nutshell, less the products get touched in shipping and subsequent storage process less will be the overall cost of product).

d) Most E Retailers maintain number of distribution centers close to their customer locations such that the outbound logistics process works in a seamless fashion and customers end up receiving their packages on the promised dates. For this to happen, Dream Homes should be ready to *make large capital investments in setting up distribution centers in the densely populated parts* of Indian cities.

e) For the picking process of the goods in line with the order, it can make use of *multi-faceted robotics technology with some human participation*. This technology can assist human pickers in locating the required goods faster and with minimal error, thereby speeding up the entire flow.

f) In the marketing section of supply chain, Dream Homes should *use skillful data scientists to pull overwhelming data based on customer searches* which can be analyzed to recommend products most useful to them. Further it could resort to TV advertisements, public banners and other prominent modes to propagate the digitization of its business.

Case Study 7

Bread and Butter Company (BBC) *started its business a couple of years ago down when customers preferred bread to other food items in their breakfast. Today the market has seemingly turned narrow for bread or sandwiches. The high nutrient rich breakfast like corn meal, rice crisps and oats meal are taking over the market share as opposed to bread butter or a simple sandwich which appears to be aged old talks. BBC was about serving the kind of bread their customers wanted. The breads were custom made, ready in no time on order, and delicious, exactly how they need to be. The prices charged for the products offered were on high end since it was the only store of its kind in the area covering 50 kms of east Georgia. Georgians were fond of the unique service offered and the taste filled their morning experience with happiness.*

The business prospered and profits increased phenomenally on a year-to-year basis. The prosperity called for additional space and resource requirement. BBC contemplated that since they would have to hire more staff to meet the increasing demand and the space, they were trying to lease was more than what they could use, they planned for add-ons to their current production line "breads and sandwiches". They started selling frozen food items, deserts, beverages, and meals for train passengers. The Bread and Butter Company was now known as "Just Taste It" (JTI). They started to hire new people with flawless cooking skills. There seemed to be more supply than the demand and it appeared that commoners had great cooking talent and were interested to learn more to take it to an altogether newer level. The staffs were welcomed to share their unique recipes and team gathered to prepare items based on the ones selected and approved. The employees started preparing meals on a prior anticipation of demand including excess meals for any stock outs. In a month or so, the warehouse seemed to be a chaos full of raw materials purchased from various suppliers based on suggestions of staffs and prepacked meals. The kitchen was out of space to accommodate the current staffs comfortably. The myriad ideas took JTI in a mirage creating problem in coordination among staffs since many of their ideas had to be dropped and others that were welcomed created a negative cost benefit equation.

The bread and sandwich business was hit by the negative publicity of the train meals business since JTI had to compromise on quality to earn enough profit to keep the meal business up and running. Gradually the loyal clients turned down on them and started to switch to other caterers. The management of JTI was wondering if at all the business should be continued since there were not enough orders and the pre prepared meals are getting wasted thereby burdening the firm with huge costs. The frozen items, desserts and beverage business were the only support they had. Clients continued to buy those items considering frozen items, desserts and beverages were just bought and served to them on a margin. JTI ended up losing customers trust and had no other option but to stop preparing anything for them. They thought of bringing a changeover and presenting themselves as retailers rather than preparers of meals, breads and sandwiches. The management of the company was in desperate need of a savior that could prevent the demise of JTI.

One of the management people, Mr. Juniorson contacted you and approached you for some valuable ADVICE in this regard. He also came up with their income and expenses (refer Annexure) so that you could provide some insights on how to overcome the loss-making situation and rebound back to a prosperous profit earning history.

Required

Consider yourself as a management accountant who was referred by one of the friends of Mr. Juniorson. He has following questions in his mind that clogged all doors of ideas to revive.

(i) What are we doing wrong?

(ii) Is there any way JTI could continue its current business?

(iii) We need to save on costs and regain the lost trust of customers. How do we do this? You see there was no dearth of loyal foodies when we use to sell just breads and sandwiches. Even though we charged high prices back then we never had to confront such predicaments we currently are in.

ANNEXURE

"Just Taste It"

Statement of Income

(Amounts in ₹ 000)

	Year Ended December 31,		
	2019	**2018**	**2017**
Revenue			
Breads and sandwiches	*41,000*	*45,000*	*49,000*
Desserts and frozen food	*92,000*	*79,000*	*68,000*
Beverages	*47,000*	*34,000*	*30,000*
Meals	*77,000*	*1,20,000*	*1,34,000*
Total	*2,57,000*	*2,78,000*	*2,81,000*
Costs and Expenses			
Food items as raw materials	*1,10,000*	*95,000*	*78,000*
Ready-made frozen	*33,455*	*28,727*	*24,727*
Desserts purchased	*46,920*	*40,290*	*34,680*
Beverages purchased	*39,048*	*42,857*	*46,667*
Labor	*40,000*	*35,000*	*31,000*
Other operating expenses			
Rent	*11,000*	*11,000*	*11,000*
Insurance	*5,000*	*5,000*	*5,000*
Rewards to staffs	*5,500*	*4,000*	*2,400*
Packaging cost	*4,000*	*3,400*	*2,800*
Transportation cost for meal delivery	*3,500*	*5,500*	*6,000*
Total	*2,98,423*	*2,70,774*	*2,42,274*
Net Income	*-41,423*	*7,226*	*38,726*

1. *Since beverage market was competitive commanding high profit was never an expectation.*
2. *Frozen items were sold at a markup of 10% on purchase cost Georgian preferred frozen foods and fresh foods equally.*
3. *Desserts are all time favorite irrespective of seasonal variations.*
4. *Of the deserts and frozen revenue, 60% sale was dedicated to desserts.*

5. *50% labor was identified towards meal preparation,40% towards sandwich and breads and rest 10% for serving desserts. Beverages did not take labor hours since they could be refilled in self-serving dispensers through which clients were served. Once they served themselves with their choice of beverage, they stood in lines to complete the billing of the service.*
6. *Of the cost of food as raw materials, only 40% was dedicated to earning bread and sandwich revenue.*
7. *Rewards to staffs were paid on basis of their recipes being approved.*

Product/ Service Wise Analysis (₹)			
	Year Ended December 31,		
	2019	***2018***	***2017***
Revenue from breads and sandwiches	*41,000*	*45,000*	*49,000*
Less: Cost of food items	*44,000*	*38,000*	*31,200*
Less: Labor	*16,000*	*14,000*	*12,400*
Gross Profit	*-19,000*	*-7,000*	*5,400*
Revenue from desserts	*55,200*	*47,400*	*40,800*
Less: Cost of desserts purchased	*46,920*	*40,290*	*34,680*
Less: Labor cost	*4,000*	*3,500*	*3,100*
Gross Profit	*4,280*	*3,610*	*3,020*
Revenue from frozen food items	*36,800*	*31,600*	*27,200*
Less: Cost of frozen food items	*33,455*	*28,727*	*24,727*
Gross Profit	*3,345*	*2,873*	*2,473*
Revenue from beverages	*47,000*	*34,000*	*30,000*
Less: Cost of beverage products	*39,048*	*42,857*	*46,667*
Gross Profit	*7,952*	*-8,857*	*-16,667*
Revenue from meals	*77,000*	*1,20,000*	*1,34,000*
Less: Cost of meals			
Food as raw material	*66,000*	*57,000*	*46,800*
Labor	*20,000*	*17,500*	*15,500*
Other operating cost directly identified	*9,000*	*9,500*	*8,400*
Profit	*-18,000*	*36,000*	*63,300*

Solution

(i) The idea to expand the business by diversification of product line and adding new products/services like frozen items, train meals, and desserts, delivery of foods to passengers at train were all directed towards *growth* and a *better future* for business. This gave an *additional edge* over other bread manufacturers in the area since the more products offered the more awareness among the customers. However, the manner in which the business was executed seems to *lack proper planning* and *organization* which is very much needed for survival of any business. Further a business success depends on the *execution of correct strategies* meaning doing the right thing at the right time and in the right manner. So, let us see what were we doing and what should have been done.

Manufacturing process in any business is a combination of series of activities, where we need to identify which activities should be chosen and which should be excluded. This calls for application of ***lean thinking*** in the conduct of those activities. The concept was originally introduced by producers of a Japanese car manufacturer company named Toyota. They were of the view that to make a production process efficient *waste of all forms must be eliminated* from such process. *They identified those activities as waste which consume resource but are of no value addition from an end consumer perspective, thereby increasing the overall production cost and time.*

Basically, they meant that not only the design of the product or the utility of the product but the production process itself should be *customer focused*. This is possible when we can segregate each activity as *value creating* and *non-value creating activity* from customer's view. In order to do this, we need to list all our production/ service activities and then map each activity keeping customers' value in mind. During this mapping, we consider location of each machine, each human resource and the effort required to move resources in order to be at the production location. Then an attempt is made to *eliminate all the non-value creating activities* listed.

Having enumerated the idea of lean manufacturing, let us see how this could be applied in JTI's scenario. There are number of things that need attention. First of all, the lean thinking is based on *just in time production* whereas JTI is producing on prior unexpected demand basis for the fear of stock outs. We must remember that when operating in service industry and that too when dealing in food items, *maintaining quality of the food items* (considering the perishable nature of some items) becomes the *top priority*. We must design the production process in such a manner that safety and retaining the nutrition of the foods to be served remains ahead of everything. Customers always desire their foods to be fresh and to contain all the expected nutrition value. In such a situation, pre preparing the meals and storing them is not only a non-value-added activity but also a prolific challenge to the food safety requirement. Thus, going by the lean concept, *JTI should prepare meals based on orders received or should pack meals just enough to serve the customers on the same day.* This is one of the mechanisms not only to work smart but also to drive two forms of waste palpable in the production process, one is the *cost of storing* the pre prepared meals and the other is the *wastage of prepared food* that was prepared in anticipation of stock outs. Preparing fresh food will not only be a better value addition approach from customers' perspective, but it will also *boost quality* and *reinforce customers' trust* thereby adding a *competitive edge* over others.

Next change over required would be to ***switch the basis of commission paid to staffs***. Currently staffs receive commission for the recipes approved irrespective of the cost incurred to JTI in implementing such recipes. Executing any recipes requires assembling of raw materials to prepare the food item, which bears a *financial impact* on the firm. Purchase of raw materials from various suppliers based on staff recipes and their suggestions have led to huge cost burden on the firm leading to a *negative cost benefit ratio*. Purchase activity is a significant puller of cost and therefore purchase department is considered as a *cost center*. *Systematic operation of purchase department is highly imperative to control cost and achieve efficiency*. *Purchase activity should be related to production activity which is a direct factor of demand. Therefore, rather than acting on staff suggestions, purchases should be made based on requisitions from production department which has to operate based on just in time approach.* Moreover, it is also felt that staff participation has not been guided in the right manner since it has resulted in *more disharmony than teamwork*. Rewarding them based on their recipes rather than asking them to redirect their cooking efforts to the financial interest of the firm and to the satisfaction of the customers, sounds an incorrect encouragement. Working at below the optimum coordination levels result in under use of skill and cooking talent which is truly perceived in this situation.

The other issue perceived is the ***disorganized warehouse*** due to lack of systematic purchases and over involvement of staff in purchase activity. To achieve maximum production efficiency, building a favorable working environment is utmost necessary. This requires providing cooking staffs with organized clean kitchens and limited access to warehouse. Further limited access to warehouse will help to keep it *more organized*. Currently it seems storage facilities of raw materials and food items are totally messed up. We need to introduce an effective housekeeping system such that warehouses are *organized systematically* with all raw materials arranged employing specific techniques like 5S for storage and organization. This will lessen the time required to locate them when on demand thus removing the bottle neck developed due to time consumed for non-organization.

(ii) The current business situation appears to lack planning and systematic approach. With a strategized planning focusing *customer satisfaction* in mind, JTI will be able to continue its current production activity instead of its planned switch over to just retailing activity. When looking at the financial figures, we have five products to focus on. Currently JTI only manufactures two of those and they are breads & sandwiches and train meals. The other three are just purchased and served at a margin.

It should be noted that sandwich business got a hit due to *quality compromise* in meals business and thus to revive this business, we must not only control quality of sandwiches but also *re boost trust of customers* in the train meals.

The beverage business is good and requires a *little amendment* since beverages will have to purchased and served for a margin. So, it is not a cause of much concern.

Now coming to frozen food items and desserts, it is recommended that JTI should make a detailed financial analysis of *buy vs. manufacture* option considering all the related costs and revenue. In some cases, in-house production of these items has proved more profitable to firms rather than just an outright purchase and service. Moreover, JTI would need to keep in mind the current resources available and the possible resources it could gather provided it decides to switch over to in-house production, given the financial positivity.

For the meal business, as suggested above, the *production process needs a complete change* over right from the just in time production to systematic purchases and implementing housekeeping system for achieving organized storage facilities. These strides will help to reinforce *customer trust* in the train meals and thereby rebound the entire JTI business. As we can see that meals business *will have to be systematized first* so that the sandwich business can see a positive business environment. The meal business is directly *dependent on maintaining quality* which can be perceived by it turning into a loss-making business of ₹1.8 Cr. in year 2019 which used to produce profits of ₹6.33 Cr. back in year 2017 and ₹3.6 Cr. back in year 2018.

(iii) Regaining customer confidence is no rocket science for JTI since it had successfully proved its success in past when it was known as the Bread and Butter Company. The company was known for its *quality* and customers did not resist paying a higher price for celebrating their happiness in the food they want. Due to series of undesired happenings, the focus of JTI shifted from customer, which it needs to bring back. A correct focus can ensure its move in the guided direction.

So JTI needs to perform as per *customers' expectation* bringing to their table what they exactly want, also ensuring a *positive cost benefit ratio* for the firm. It requires *reengineering* of the way they currently work. This is the key to turn things favorable and ensure business success irrespective of what industry we choose to operate in.

For cost saving strategies, JTI needs to associate some direct cost to the revenue it earns. For example, *commission paid* to cooking staff should be based on the *customer satisfaction* which is key to increased revenue in service industry. We can keep a control mechanism for this. Asking the customers to *rate their experience* with the food and the staff service would help the firm to improve with the changing needs of customer and rate and reward their staffs. This will ensure that the firm incurs costs towards generation of revenue. We also need to know what kind of transport mechanism is used to deliver the meals to customers on train. To save transportation cost, it is better to use in-house transportation vehicles rather than outsourcing the activity. This will ensure *timely* and *responsible delivery of meals* at reasonable cost to the firm. Further we must not forget that *redesigning the meal preparation process* will call for less storage and therefore less packing. This will save significant packing costs.

Case Study 8

Welcome Foodies (WF) *was a small restaurant in and around the busy city of Newtown. The city was located in the banks of river Terresa and was known for its tourism value. The visitors often passed days visiting the prominent natural attractions and the scenic beauty brought them back again. They also treasured the culture of the town and adolescence of the local surroundings. It was simple down to earth. It was untouched by man-made interventions like infrastructures and celestial buildings. The people down there had the culture of visiting bars and restaurants at the evening time to undo the monotony of the day. They liked sitting with their friends, close relatives and chit chatting their busy schedules and what special they did throughout the day, how things went fuzzy, which ought to have been straightforward. The not so civilized 'life' went calm until the development of a highway that connected Newton city to the "infrastructural sound" city called Angel. In no time, the Newtown found itself crowded and overburdened to accommodate the daily passengers from highway and near surroundings. This made the State government consider the development of infrastructure in the Newton and additional hotels to welcome the growing tourism business. This led to a drastic changeover in the restaurant business of Welcome Foodies.*

It started getting busier and was brimming with food lovers all over the day. WF being a family owned and self-funded business took this ambience as a door of opportunities to recover the previous losses it had to book long back at its outset. It was thinking to expand its business and open new restaurants in the town, but the funding was yet a trouble since its credibility was questionable to lenders. WF could borrow just enough funds from its familiars to hire additional staffs to serve the growing crowd. Albeit the new staffs were recruited, they lacked proper skill and knowledge of the service industry that WF was into. Most of the staffs were the local people of the city who knew no fancies of alluring the customers with their smiles and warm heartedness. They had to work overtime for low pays since WF was in debt, paying the peaking expenses of production and processing of food items. Given the rising bills and heightening cost of raw materials, it had to escalate the prices of the items served in the menu card. Notwithstanding the rise, the WF chain was easy on their guests' pockets compared to other posh dine place out in the city and so the customers resisted subtly and then continued to walk in as before.

The operating efficiency of the restaurant began to decline with the increasing numbers, also somewhat perceived by the incoming customers. The owner heard his customers' conversation:

Customer Mike: *Hey there how are you doing? Well! I wonder why we have to wait so long when many tables are lying empty. Doesn't the restaurant feel like harassing their customers without any cause? My mood gets ruined for the wait and I plan to seek other nearby places to dine. What about you?*

Customer Davin: *Yes, you are right. I also feel like claustrophobic having to dine among the proliferating crowd. Hey, guess what, I heard the owner is short on finances and he could hardly do anything to get himself out of this hell, at least not in the near future.*

Customer John: *The waiting time is ridiculously long. I mean I had to wait 20 minutes on a peak Friday, which I do not mind but here I believe they hardly care to manage this.*

The lines got bigger on the Fridays and weekends since the cleaning boy and his partner used old cleaning techniques and were reasonably slow. Several people went ahead and decided to leave rather than wait any further.

The hospitality business demanded unwavering flawless customer service which started to shake. Because of dearth in finances, enough staff could not be placed at required locations which turned things chaotic.

The kitchen environment was not sound either. They used outdated equipment to prepare the food stuff and the manual cleaning of dishes was a big trouble altogether. With the increasing demand for service, no adjustment was made to the number of kitchen equipment. The short number of kitchen staff tried their best to manage things in order, but they could not help to deliver with required speed since they had to clean the equipment manually before every use. The ingredients of the items were not well arranged adding to stress and the wait time of service. Some items like onion garlic paste, boiling of vegetables, chilies, sauces and pickles ought to have been prepared before the restaurant opened for guests. No such arrangement was in place. Some raw materials were in short supply while some were more than the demand, which perished. There were three chefs in the kitchen each specialized in a given cuisine. However, they were not groomed to switch efforts in times of necessity, they but were asked to do this anyways and the results were atrocious.

Sometimes the guests found their tomato soup containing odd ingredients like mushrooms or potatoes and sometimes the guests so claimed 100 % vegetarian dish was found to comprise fish or chicken remnants. This situation called for significant quality issues on the processing of food in the most unexpected manner one could think of.

Moreover, the lax kitchen staff had the customer request on their table, which they did not accede in the order received. Some orders were served early while some customers kept seating for long time, waiting for their food to show up on the plates.

The billing machine was not modern and cashier had to manually enter price and other specifications of each item ordered and served.

Most of the times, the only supervisor was found snuggling in his chair. He did not care to advice the waiters and other assistant staffs to improve. As a result, staffs persistently made same mistakes and guests were forced to report the complaints to the restaurant manager, who was also the owner. No leadership role was identified among the staffs.

Some staff took leave on weekends and returned on Tuesdays. They lacked motivation to stay during the peak weekends. When any staff was missing from his respective role, the manager replaced the position since he wanted to save on currency.

The hygiene of the place was also questionable. The floors were watery and smelt nasty, the tables seemed to have contained foods, oils and spilled over sauces. The guests carrying their kids were nervous about their small ones slipping over the floor. On a total, it raised concerns *about cooking and cleaning habits of the staffs working there, thereby escalating the health risk of the guests.*

The business saw its doom and the customers began looking for dining options in the surrounding area.

Consider yourself as the family advisor of Mr. Bean, the owner and successor of his father's business. He is aware that you have a cost management degree and are working in one of the multinational firm's accounting department. Luckily, he has had the chance to hear about your achievements of successfully implementing strategies to assist the firm in rejuvenating its struggling business and now he wants you to work on turning things around for his restaurant business. He had tears in his eyes while narrating the entire story.

Required

(i) DISCUSS which managerial technique could be used to "turn things around" as Mr. Bean wants?

(ii) How could this be done? RECOMMEND improvement techniques in each area of disparity.

Solution

The current situation of Welcome Foodies, a small family-owned restaurant, resembles lot like that of dissociation of staff efforts, unplanned activities and need for reengineering of business activities. The processes there contain lot of known defects that are being continuously overlooked. There are several quality issues as well, not just in some phases of the service but holistically in series of activities. So, when defect is the prime issue to focus upon, we look for total quality management to render the product/ service defect free to ensure the long run success of the business, but here we need to take a step further discussing the roots of the issue rather than just simply working on the symptoms. For example, long wait time of guests is considered as symptom, while the root cause is disorganized staff team and non-strategic output towards a destined focus, i.e., customers. Frankly, we are talking about **Six Sigma** strategy to get the changeover done.

While people often relate six sigma methods to manufacturing firms and the industry itself, service industry could very well adapt it pragmatically. The forerunners of the technology were Motorola and General Electric who gave a scientific solution to the all-pervasive quality issue evidenced in the day today businesses. Quality issue in physical product means compromise in the shape, size, color, design, taste, or any other form that reduces its true expected utility. Quality issue in service on the other hand means variation in the customer's standard experience set as per industry norms. Defect therefore means a quality issue that leads to the failure of any product or process. Six Sigma entices one not just to deliver defect free product/ services but also to reduce waste by eliminating errors. The steps involved to improve existing business processes are define phase, measure phase, analyze phase, improve phase, control phase. Now let us see how we can implement each phase to improve the WF's business situation.

Define Phase

This is the foundation of other phases of the methodology on which they rest. Under this phase, we *identify the processes that need improvement*, *the goals* and *scope of improvement*. In WF's case, the goals of improving the service process are below:

a. Exuberating the customers' overall dining experience including reduction of total wait time.

b. Achieving enhanced staff communication and coordination ensuring unclogged flow of information.

c. Ensuring the rendering of ordered food items as per description in the menu card.

d. Kitchen chefs to prepare and process food items as per their skill set.

e. Reduction of the overall processing time of food items once orders are received.

f. Resolving hygiene concerns.

Measure Phase

Under this phase, we are primarily concerned with gauging the problem, meaning seeking a quantitative tool to define the problem so that it can be used to *measure the current performance*.

Moreover, we also need to employ effective data collection techniques to obtain data about the current performance. The success of this phase depends on the validity of the data collected.

We must keep in mind that only when the current performance is quantifiable, we could compare it against the standards to identify the variation. These are the traditional steps to bring about an improvement in any process.

We catalogue numerous basis to measure each issue to be improved as indicated in the goals above.

a. Number of customers leaving the restaurant for having to wait too long.

b. Number of unhappy customers not returning back.

c. Number of complaints reported against staff misbehavior.

d. Average wait time per customer.

e. Average food processing time per simple item and per complex item.

f. Number of accidents due to nasty floors.

g. Number of complaints against food quality and order mismatch to description in the menu card.

Analyze Phase

This phase involves establishing the *root cause of the symptoms* palpable in the deficient service process.

In WF, it would be vital to itemize the entire restaurant *service processes* in the order of their occurrence. This can help firm to look at things in a serial manner rather than taking plethora of activities all at once.

a. Customers enter the restaurant.

b. Receptionist greets and asks them to wait in the waiting area until their names are called upon.

c. Cleaning team clean the tables once the guests are done eating.

d. Receptionist calls the guests in the order of their arrival.

e. They enter the dining area, seat on the indicated table, place order of the food items of their choice from the menu card.

f. The waiters take the order to the chefs in the kitchen for preparing the ordered stuff.

g. Kitchen chefs prepare and process the food ordered, served on plate, to be taken up by waiters.

h. Waiters serve the food to the guests and check with them for coming requests.

i. Waiters keep visiting kitchen and serving stations to get the requested stuff on the table.

j. Finally, guests finish their dine; request the staffs to furnish the bill of the service.

k. The cashier prepares the bill, taken to the guests for payment.

l. Guests pay the bill and leave the restaurant.

m. Cleaning team again starts the cleaning process to make room for other guests in the waiting area.

In this way, the whole process gets broken down into small sub processes. This is the true effort involved in analyze phase. Once all the activities carried out are identified we need to bifurcate them *into value added* and *non-value-added* activities, basically we need to pull the bottlenecks out of the entire process to bring efficiency.

Improve Phase

This phase is all about *recommending alternatives* and *implementing them* to resolve the established issues. For example, if the issue at hand is about two cars falling short for picking up the employees to render an effective pick drop facility, the alternative is to employ more buses or cars to do the same. Where the firm is unable to do so, it can resort to third party services who deliver this form of service. It will end up in choosing the alternative that is financially more feasible.

In our case, we can clearly perceive humungous scope of improvement. First of all, we must keep in mind that the **effective wait time of customers** in the service business is a *critical factor for success*. The long wait time of customers in the waiting area can be directly ascribed to age *old cleaning techniques* of the staff. The idea here is to introduce *innovative techniques of cleaning* the tables such that it takes hardly any time to get the table ready for oncoming guests.

Next it is also evident that **staffs of WF are not well groomed and lack appealing strategies** to enhance the dining experience of their guests. Organizing frequent *training sessions* to boost their marketing skills like placid smile and greeting the guests with warm-heartedness; keeping up a continuous check of their requests and fulfilling them on timely basis; making them aware of any special coupon or discount that the restaurant puts up; can all bring a drastic change in the customer's apprehension of the WF's services. *Hiring people with supervisory acumen* will help staffs to be aware of their scope for improvement and rule out their possibility of repeating same mistakes.

Now let us see what could be done on **improving staff coordination**. Staffs should be motivated to work as a team rather than on stand-alone basis since it is the combined effort that is representative of WF identity. Any bottleneck in unbound communication should be outrightly removed so that things flow in a streamlined fashion. It is also necessary that WF *hire additional staff* to meet the growing need of the city such that manager can dedicate himself to the top priority matters rather than playing multiple roles. An *efficient reward system* should be put in place to ensure each staff's effort in the process is recognized and rewarded for. This will motivate them and push their determination to work productively rather than missing on peak weekends and returning on Tuesdays. If they work with efficacy during their normal hours, the need of overtime would also reduce.

Finance requirements can be fulfilled by *building up good creditability* among customers such that an effective business plan itself can propel the lender to provide the required finances.

Further, more kitchen equipment will have to be purchased and cleaning techniques have to be explored such that **kitchen staff work productively rather than working laboriously**. Just three chefs sound like a real short supply of cooks, driving them to prepare things they are not trained for. The WF should adopt *strict food processing policies* such that chefs are allowed to prepare only cuisines for which they are groomed. This will ensure *complying with strict food quality standards* to accentuate no compromise in food quality. Moreover, a *fixed processing time* of both simple and complex items should be specified and it should be the policy of the restaurant to abide by the same.

Organizing kitchen equipment and food ingredients would eliminate the additional time required to locate them. WF can apply **5S methodology** here to cleaning out the working area and maintaining the cleanliness to improve process quality. 5S means sort, set in order, shine, standardize, and sustain. WF needs to ensure that no unnecessary items like perished ingredients/food items, old equipment, and old cleaning tools are seating in the kitchen **(Sort)**.

To bring in more efficiency, we must place frequently used items in easily accessible locations and place occasionally used items at bay **(Set in order)**. For example, a veggie sandwich making store can organize its veggie counters near to its ordering and processing center, so that it takes them less time to prepare sandwiches once order is received. Scientific arrangement helps not just in saving time, it also boosts workplace cleaning. With order comes cleanliness in the workplace **(Shine)**. WF should adopt best practices of the industry or make one to be adopted as the constitution **(Standardize)**. For example, in present case, we need chefs to prepare food items only for they are specialized. Monitoring the adopted practices under 5S model is also no less important. This ensures that we can upgrade those practices if situation demands **(Sustain)**.

Prefixing startup items like sauces, pickles and serving them with *starters* will help eradicate the wait time once guests are ready with their orders. Employing *advanced food processing machineries* will drive efficiencies and help meet new standards of WF.

The hygiene concerns can be easily dealt with by applying *planned* and innovative *cleaning ideas* to clean the dining and waiting area and using *sign boards* to warn the subsisting guests of the ongoing cleaning process.

Bringing in *automatic scanners* and *advanced technology* will eradicate the **manual entry of order details and their prices** to prepare the bills, thereby ruling out the possibility of manual errors and thefts.

The Control Phase

This phase deals with adequate determination to put into practice the policies developed under the "Improve Phase" and ensure its *persistent compliance* in the rendering of the service. Once the policies become *culture* of the people, it would be hard to be discern them without such policies. As part of control phase, the changed *performance is measured at regular intervals* to establish any variances from the expected standards.

Case Study 9

Mrs. Kates *is a retired dedicated mom taking care of her family and doing every bit to give the best of the upbringing to raise her son. Back in Mrs. Kates graduation days, career in accounting business and economics used to grow but there is a drastic change since those times. It was then not so troublesome task to clear the graduation and get an alluring job. One could easily leap in and land up to a nice little 9 to 5 job as what we say. Life was easy as no one was busy. Records were all in the real physical books which were disappearing in modern times with the advent of internet and it is the Mac generation. Eyes were less strained and brain at placidity. No emails to check and no formalities to make. No exaggerations of staying late in office to get rewards and promotions. Moreover, people were easy to deal with, they had patience to listen till end and would react after giving a deep thought.*

Days changed, months passed and went thereby a couple of decades when Mrs. Kates had a full-grown son, Mr. Dude needing to be admitted to a college in this rapidly changing and booming era. She wanted Dude to be in a college that had "history of good academics", focusing on all round development of student, also meeting the needs of being flexible for a busy student life. She was low on her budget and therefore wanted someone or if the college itself could help her in financing the college education of her son. She was born and brought up in a small town called Dohapur and lived there all along her life. She was lucky to go on a 5 days tour outside of her country, visiting metropolitan cities of United States like New York and California. She was taken aback by the speed and transcendency of the states she visited. She wanted her son to learn some aspects of that life so that he could adjust with the fast pace and stride with passing time. Therefore, Kates started looking for education opportunities in her nearby city called Vilaspur which was just couple of miles away. There were two eminent colleges in the city each providing accounting, economics and taxation courses. Dude had little interest in economics, so Kates did not force him to jump in.

Dayawan College of Commerce (DCC) and Hridyam Commerce Institute (HCI) stood in direct competition to each other and met most of the characteristics expected of by Kates. She was excited to know about them and that they had a well renovated huge college campus where student outside of the city could stay and accomplish their education goals. The city was expensive and so were the colleges. Now she started pondering about the educational cost and began to seek sources that could lend her son educational assistance. To the much of her try she came to know from her close friends, that DCC took in students with weak financial standing but with strong academics. Actually, the college was named after the founder Dayawan Desai who was a great social activist of his time and during the last few years of his life he vouched to build a great co-ed college in his city for lower middle-class students who get left behind only because of their economic condition. The efforts from his history and the legacy created successful businessmen and women, tax consultants and economic scholars. HCI College on the other hand was also down to earth and did not bias among lower and higher class. They charged relatively low fees compared to DCC was popular among youth and gave great professionals who after their graduation from the college pursued further studies.

From last few years, many students were complaining about the rapidly increasing tuition rates, to which they went on a student strike demanding rate cut. Colleges had been very specific in relation to quality and touted that teaching fees and academic development cost had been increasing enormously which had to be substantiated by increase in costs of books and tuition. Failing all attempts, many students decided to switch to a mix of part time lectures and part time job through which college cost can be met and the burden on their families can be balanced. They required college to plan the class schedules innovatively so that students' studies do not get hampered and at the same time they can continue their jobs. Both of the *colleges were trying to come up with online courses and distance learning materials to assist their students in the event their student failed to attend any lectures. In addition, HCI is also planning on hiring additional freelancers to work with students during evening time to groom their skills and assist them do well in their studies.*

The reward system of the colleges is not clear and there is less information on how teachers are being motivated to serve the students to the best of their interest. However, college image and brand totally depend on the efforts of the teachers/professors. The total revenue generated in the city from college business is around ₹ 500 lakh. The revenue generated by DCC in the most recent year is ₹180 lakh and by HCI is ₹110 lakh.

Dude developed a solidarity among his class friends and decided to go to DCC as this was the college where his other friends were wanting to go. However, Kates was concerned that Dude could spoil his career if he concentrated on picking things other than his studies. She wanted someone to guide her based on facts and figures of both the colleges so that an informed decision could be reached. She had modest savings from her job and wanted to spur her son to value those and understand the sheer importance of her precious student life which once gone will never be back. To harness all the information she had, and relying on your omnipotent knowledge, Kates went to you and provided you with facts (Annexure) about the two colleges.

In a nerve-racking voice, she remarked would you need any other information for your research to be extensive and serving my purpose? She continued, it was her serendipity to have gone through many troubles and find such detailed information and that she will try to gather more if she could. You in a calming and consoling voice said her that information was more than needed and it was really appreciative of her to pull in so much detail. It was all her love and care for her son that transpired on to the papers. She went by thanking you for considering her case and agreeing to help her son, Dude to make an informed choice.

Now you began contemplating of what could be done and exactly which models to be employed to get the job done and render a research driven analytical advice. After a day of pondering, you recollected of having learned the Fitzgerald and Moon's "Building Block Model" and started to gather all the facts she provided. Now you gave a thought, that basically there are two questions to be answered for her enquires to be resolved.

Required

(i) Could 'building block model' be applied to her case and if yes EXPLAIN the model in brief?

(ii) EVALUATE the performance of the two prominent colleges.

Annexure

DCC and HCI facts and figures for the most recent year 2019

	Dayawan College of Commerce (DCC)		***Hridyam Commerce Institute (HCI)***	
	Budgeted	***Actual***	***Budgeted***	***Actual***
Number of enquiries for admission				
Accounting	*5,000*	*4,000*	*4,200*	*4,000*
Taxation	*4,000*	*3,800*	*4,100*	*3,900*
Total	*9,000*	*7,800*	*8,300*	*7,900*
Students turning up for application				
Accounting	*3,500*	*3,000*	*3,500*	*3,800*
Taxation	*3,200*	*3,000*	*3,850*	*3,800*
Total	*6,700*	*6,000*	*7,350*	*7,600*
Percentage increase in revenue		*10%*		*7.90%*
Net profit		*₹50,00,000*		*₹27,00,000*
Number of lecturers				
Accounting		*14*		*11*
Taxation		*12*		*8*
Total		*26*		*19*
Number of teachings days in a year		*250*		*250*
Number of days lecturers received		*240*		*230*
Students passing		*5,700*		*7,500*
Students getting jobs		*5,100*		*7,000*

Solution

(i) Fitzgerald and Moon's building block model commonly known as building block model is a performance management theory model developed by Fitzgerald and Moon. This model has been built on the premise that service industries could employ this model to evaluate their already in place performance standards and make hence forth improvements or could start from scratch building performance measurement criteria using this model. Since both colleges are engaged in rendering educational services to students, they very well fall within the ambit of service industries.

This model is named as building block since it has been built on three blocks which are namely:

Dimensions

Think "Dimensions" as both *financial* and *non-financial goals* of any organization since both these goals serve as the *factors critical for its long run success*. Dimension commonly means attributes to be measured and here we measure two financial attributes and four non-financial attributes of any organization which can be enumerated below:

	Dimensions
Financial (Results)	
	Competitive performance
	Financial performance
Nonfinancial (Determinants)	
	Quality
	Flexibility
	Resource Utilization
	Innovation

Standards

Think standards as *targets* that are to be achieved based on which performance attributes as listed will be measured. For the standards to be aggregable and acceptable by the concerned department or the responsible individuals, such standards must possess three features which are *ownership*, *achievability*, and *equity*.

Rewards

Think rewards as *source of motivation* that can drive the staffs to work wholeheartedly towards the achievement of set targets, so that the organization can successfully achieve both its financial and non-financial goals in the long run. Now the reward structure/ system again should possess three qualities which are *clarity*, *motivational* and *controllability*.

(ii) Mrs. Kates wants us to evaluate two prominent colleges of Vilaspur city and come up with some conclusion. Going by the facts provided by Mrs. Kates it appears that both the colleges are doing well overall. However, the exact position of the colleges can be known from a detailed analysis of both *qualitative* and *quantitative* information available to us. This means we have to count both the financial and non-financial goals of each organization to precisely state how have been doing.

Financial performance can be measured by percentage increase in revenue and net profit margin. DCC remains the best performer on absolute revenue and profit although it performs so inadequately on other measures. This suggests that it may not be making the necessary investment in service and quality to satisfy the students' needs.

Competitiveness can be measured by relating number of students enquiring and finally turning up as an applicant, i.e. how successful the organization is at converting enquiries into applications. The take up rate for HCI is higher as compared to DCC. This could be due to relatively low fees charged by HCI.

This can also be assessed in terms of sales growth, market share and growth in customers. We cannot measure year on year growth for revenue and profit as prior year data is not available, but we can compare present market share which is greater for DCC.

Quality of college tutoring can be measured by relating number of students passing out of total students and then by comparing students getting job from total students passing. In this aspect HCI is a lot better college than DCC.

Flexibility means responsiveness to changed demand and here we notice HCI is planning to hire freelance lectures to help students during their evening time once they are off from their work. This aspect is really appreciative and suggests a farsightedness of the college management.

Resource utilization means the productivity of the service staffs and in this case, they are lectures/ professors. This aspect can be measured using the relation between teaching days available and number of days actually served. DCC has higher resource utilization ratio compared with HCI.

On the other hand, we apprehend some form of staff shortage in HCI when considering the total number of students served in HCI comparative to DCC.

Innovation suggests coming up with new and innovative mode of service delivery in context with the changing demand/environment. In present case we know that most of the students are working simultaneously to meet their college education cost. In regard to this situation, there is a need to bring in more online courses and distance courses, virtual classes so that time cannot be the barrier in learning. Both colleges are striving for the same and they stand in close competition as this regard.

Considering both the financial and non-financial goals of each college we can claim that HCI delivers a superior quality service, flexibility, making innovative attempts at comparatively lower price to meet the emerging needs of the students, which acts as a competitive edge over its direct competitor DCC.

Workings

Dimensions	Measurement criteria	DCC			HCI		
		Budget	Actual	Rise	Budget	Actual	Rise
Financial (Results)							
Competitive performance							
Accounting	No. of application/ No. of enquiries	70.00%	75.00%	7.14%	83.33%	95.00%	14.00%
Taxation	No. of application/ No of enquiries	80.00%	78.95%	-1.31%	93.90%	97.44%	3.77%
	Market Share (in Revenue)		36.00%			22.00%	
Financial performance	% increase in revenue		10.00%			7.90%	
	NP margin		27.78%			24.55%	
Nonfinancial (Determinants)							
Quality	Students passing/ total students		95.00%			98.68%	
	Students getting jobs/ students passing		89.47%			93.33%	
Flexibility	See explanation						
Resource Utilization	Teaching days/ days served		96.00%			92.00%	
Innovation	See explanation						

Note

We do not get into discussing the standards and the rewards block of the model since Mrs. Kates was not able to provide much college information on these aspects.

Case Study 10

Pariksha Commerce Test Ltd. (PCT) *is an organization which provides service of test series of various commerce courses to facilitate students who are going to appear for such examination. PCT provides test series for 11th & 12th standard (Commerce) for CBSE as well as various other state boards; B.Com., B.B.A., M.Com., and M.B.A. of various universities; CA, CS and CMA. Company's Head Office is placed at Delhi NCR with branches and Test Series Centers (TSCs) in various cities of India. Now it is the only organization which provides test series of various courses and guidance of study and has students across India. It has also started online test series facility for students of remote locations who do not have access to travel at any of the TSC. In addition to Test Series, it provides support in preparing a reading plan, providing guidance on paper writing and counselling students, if required.*

You are appointed as Cost Management Officer (CMO) of the PCT. In the Introduction Meeting, CEO, Mr. Parikshak, after brief introduction of organization addressed you, "We are rapidly growing education empire and having large student base across India. To reach here, we have faced lot of problems, but it has been overcome. I want to share few of them to make you better understand the organization. Recently, at the biggest TSC, in Delhi, printer was not working and there were almost 450-500 students sitting and waiting for question paper. Outsourcing of print was costly and time-consuming option, so that we had mailed question paper to all of them to save time and cost. Now this approach has been applied at the most of the TSCs i.e. students come at TSC, we mail them question paper and they appear for test. It saves our printing cost. Irony is that non-maintenance of Printer can also save the cost! It may be little difficult for students to read question papers from their mobile phone or tablet, but they will be comfortable soon as "Change" is the law of life and Business too! Further to reduce advertisement cost, we have dropped the contract with Ms. Takshi Sharma, famous film star. We had contracted with her for advertisement on TV for 3 years. She was brand ambassador of 'Pariksha'. Though we got many students due to TV advertisement, we decided to drop the contract as we have enough students and as of now, there is no competition, as such, hence no need to advertise for coming 1-2 years.

Further, we have reduced cost of question paper preparation. Up to last month we had, preciously, 57 members in question paper preparation team. They were drafting new questions for every test. Now we are having, preciously, 22 members in such team, less than half of we had. They are drafting less new questions and preparing paper with questions from past papers and other material of respective course. In our student support and student counselling team we had, preciously, 68 members, 42 for face-to-face counselling and 26 available on phone call. Now there are only 30 members, 12 for face-to-face counselling, and 18 available on phone call at our most profitable TSCs. This may require less infrastructure facility at our few TSCs which is cost beneficial for us.

Oh, I forgot to tell one of the reasons behind reducing advertisement cost is that, after analysis of financial statement, our CFO had suggested that our advertisement cost was comparatively higher than other companies working in education field as well as with our previous years.

These are the major problems we faced and changes we made during the year. Hope this set of information will be helpful to you to commence your work. Till now, we have managed cost management department very well, as you can see from the instances I narrated, however due to heavy workload and growing organization, now we are unable to handle these all alone, so we need your support in success of the organization. Thanks for listening me and you are free to ask anything, anytime. Thanks."

After conclusion of his speech, you thanked him back and moved to your office to start work. You were thinking about strategy of paper less question paper, misuse of mobile phone or tablet during test and other matters as told to you.

In that moment, your phone had buzzed, a notification from Newsagram, an application providing news across world. Notification was about the contract between Abhyas Education Ltd., giant educationist of India and Mr. Shamkar Datta, a film star having one of the highest fans following all over India, regarding advertisement of newly introduced test series by it for commerce and science stream across India.

After proper analysis of new competitor and its products, you informed to the CEO. Discussion and various meetings had been called and after that CEO decided to do more marketing to defeat the competitor. For that the CEO approached new brand ambassador, namely Mr. Prakash Rao, more famous film star than Ms. Takshi Sharma and Mr. Shamkar Datta. This deal was little costlier, still to be in market it was required.

Now the CEO is feeling that some blunders have been made by him in handling of cost management department. Hence, he approached you to analyse various decisions made. Further, he asked you to apply any of the value chain analysis or value shop model to deal with the situation, as he thinks both are the same.

Required

In this regard, you have been asked following questions:

(i) Whether approach of the organization to manage the cost is of the Traditional Cost Management system or the Strategic Cost Management System? EXPLAIN.

(ii) LIST out the general limitations of cost management system identified in (i) and then correlate them by identifying the problems faced by the organization.

(iii) EXPLAIN the differences and similarities of Value Chain Analysis and Value Shop Model to CEO and IDENTIFY which model can be applied in the organization.

(iv) DISCUSS importance of Strategic Cost Management.

Solution

(i) Traditional cost management system involves allocation of costs and overheads to the production and focuses largely on managing costs through cost control or cost reduction. The underlying assumption was that with reduced costs (direct) and overheads a firm could earn better profits. Strategic cost management is the application of cost management techniques to improve the strategic position of the business, reduce its costs and maintain the effective control of costs. It also involves integrating cost information with the decision-making framework to support the overall organisational strategy. It is not limited to managing costs but using cost information for management decision making. The cost management techniques should be such that they improve the strategic position of a business apart from focusing on managing costs.

In the case of PCT, approach is of managing costs by reducing number of employees, switch to paper less question paper, reduction of advertisement expenses etc. It focuses on managing costs only and not on ***improving strategic position of business***. Hence, it can be said that the approach the organization to manage the cost is of the Traditional Cost Management System.

(ii) Following are the limitations of the Traditional Cost Management System:

- The ***focus is on managing costs*** approached via responsibility centres or product cost issues. However, a broad cost reduction programme does not work effectively in today's business environment.

  The PCT focuses on managing costs by switching to paper less question papers, reduction of employees and reduction of advertisement cost without thinking of requirement of business environment.

- Traditional cost management system has ***internal focus*** and does not look at the external factors of competition, market growth, customer requirement etc.

  At the time of dropping contract, with Ms. Takshi Sharma of advertisement, was ignorance of competition. 'Enough students at the organisation' was just internal focus which leaded to ignorance on entry of new competitor. Additionally, other cost reduction decisions may not fulfil requirements of students.

- A broad cost reduction programme could lead to ***inferior quality*** of products & services which might drive away customers resulting in lower sales and profitability.

  Due to reduction in members of paper preparation team, quality of question paper may also degrade. Further, reduction in members of student counselling team may lead to heavy workload on employees and due to that quality of service may also degrade.

- The ***expectations of modern customer*** are quite different. An excessive focus on cost reduction could impact the quality of product and services and alienate the customers.

  Degraded quality of question papers and reduced student counselling team may lead to dissatisfaction in students. Further, question papers on mobile phone or tablet may be misused by students who are forced to give test. This may lead that students get higher marks in test series, however actual marks in exam may be lesser; this may lead to dissatisfaction to students' parents, ultimate customers of the organisation.

- Traditional cost accounting systems ***rely on accounting data*** which can be misleading at times. Financial statements can be a great reporting tool but might not be able to assist in strategic decision making. It does not consider dynamics of marketing and economics.

  One of the reasons of reduction in advertisement cost was relying on financial statements, as suggested by CFO which might be less helpful in cost management decisions.

- There is a ***limited focus on review*** and ***improvisation*** of existing processes and activities.

  Non-maintenance of printer was lack of review by the management and to overcome such problem they had mailed question paper to students, sitting at Delhi TSC, was an improvisation of activity.

- Traditional cost management is a ***reactive approach*** to cost management.

  When it got the information of arrival of new competitor, it approached to Mr. Prakash Rao for advertisement, at higher cost which was reactive approach of situation.

- It has a ***short-term outlook*** e.g., saving costs on an annual basis.

  At the time of dropping the advertisement contract, it thought that they did not require advertisement for 1-2 years. Approach was to save cost for short term and that approach leaded to higher cost by approaching new brand ambassador, Mr. Prakash Rao.

In general, PCT has been caught in the narrow-minded approach and decided for broad cost cutting. It also compromised on the fundamental business aspects like human capital development, quality, research and development (R&D), operational competitive edge, and other qualitative aspects which are of strategic nature.

(iii) Value Chain Analysis:

Value-chain analysis is a process by which a firm identifies and analyses various activities that add value to the final product. The idea is to identify those activities which do not add value to the final product/service and eliminate such non-value adding activities. The analysis of value chain helps a firm obtain cost leadership or improve product differentiation. Resources must be deployed in those activities that are capable of producing products valued by customers.

The concepts, tools and techniques of value chain analysis apply to all those organisations which produce and sell a product or provide a service.

The various activities undertaken by a firm can be broadly classified into Primary activities and Secondary activities. Primary activities are those which are directly involved in transforming of inputs (Raw Material) into outputs (Finished Products) or in provision of service. Secondary activities (also known as support activities) support the primary activities.

Though, secondary activities are not directly involved in creation of product, it doesn't mean that they are of less importance as compared to primary activities.

Value Shop Model:

This concept aims to serve companies from service sector. In value shop principle, no value addition takes place. It only deals with the problem, figure-out the main area requires its service and finally comes with the solution. This approach is designed to solve customer problems rather than creating value by producing output from an input of raw materials. Value shops mobilizes resources (say: people, knowledge or money) to solve specific problems such as curing an illness or delivering a solution to a business problem. The 'problem' could also be how to exploit an opportunity. The shop process is iterative, involving repeatedly performing a generic set of activities until a solution is reached. The model has the same support activities as Porter's Value Chain, but the primary activities are described differently.

In the value shop they are:

- Problem finding and acquisition
- Problem solving
- Choosing among solutions
- Execution and control/evaluation

It is advisable to apply Value Shop Model in the PCT, as priority should be given to solve problems faced by the students. Satisfaction of students is only way to grow.

Case Study 11

DIC *is one of several insurance companies which offer insurance policies covering general risks relating to individuals and his/her family members. Since past three years DIC has seen the volume of business increase, but profits have remained static due to declining margins. Cost efficiency is a major factor in the success of the companies in this industry, because competition within the industry is high.*

Some of the processes within DIC are computerised. However, many of the processes which involve communication with customers are still paper based. Responses to telephonic queries from customers involve paper-based communications. Additionally, sales staff visits potential customers in their homes to try to sell them insurance policies for their homes and their possessions. These transactions are again paper based. This process is often slow and has led to complaints from both customers and the company's sales staff. DIC has also been receiving regular complaints from current and potential customers about errors in the paperwork that they receive. The number of complaints is increasing day by day.

The Board is worried about growing popularity of new style of business using the Information Technology. The Board intends to streamline the business model as much as possible, re-engineer the business processes and to increase the profitability of the company. It was finally decided that there is a need for a Business Process Re-engineering (BPR) programme to be conducted and the Board has asked the management accounting department to help with the planning and implementation of the programme.

DIC intends to computerise fully, all of the work done. However, while some members of the staff are welcoming the BPR programme, others have expressed concern about business process reengineering and its implications for them.

Required

(i) How BPR can be implemented? ADVISE.

(ii) DISCUSS the improvements that might be expected from introducing BPR.

(iii) RECOMMEND, performance targets which DIC could introduce to ensure that the re-engineered processes enable it to achieve its key business objectives.

(iv) Why DIC's staff might be concerned about BPR and its implications for them? EXPLAIN.

Solution

(i) To implement BPR, firstly, each business process of DIC needs to be divided into a series of processes. Then each business process requires to be documented and analysed to find out whether it is essential, whether it provides support to other valuable processes and whether it is adding value. Any process which does not add value or does not provide essential support to the value adding activities must be removed. Those processes remain; require to be re-engineered/re-structured, so that can be as efficient as possible. For DIC, technology should be introduced to improve these processes. However, DIC must ensure that the statutory compliances regarding these processes are not undermined.

DIC is facing a hyper-competitive marketplace where customers expect superior benefits. BPR activities would help DIC in understanding those processes which DIC’s customers value the most and remove those that are not valued. It is likely that BPR may increase costs in short-term as investment in technology. However, this would also reduce substantial levels of manual activities and processes, thereby providing speedy services to customers. In long term, this would result in high levels of efficiency, profitability and better levels of customer satisfaction and retention.

(ii) Improvements expected by implementation of BPR

Fast information processing and error reduction – The processes at DIC have not been updated to take advantage of the Information Technology systems that are widely available today. In particular, relying on a predominantly paper-based system makes DIC's processes much slower than they need to be and it also increases the chances for errors as information is manually recorded and then transferred between departments. A new electronic database-led system is the need of the hour, where any information can be entered into the central database on a real time basis, and the system can then be continually updated for other staff to use. Therefore, no paper-based transfers of information will reduce delays in systems and reduce the risk of errors occurring.

For example, if an enquiry is received over a telephone, staff can access the database and gather all the relevant information of that particular customer. This faster response time and error free feedback should lead to improved customer satisfaction.

Better facilities for salesperson – Having an online real time database and improved technology might also help the sales staff when they visit potential customers. If the salesperson can access the database remotely from their laptops, they can get every minute detail of policies and premiums and so could potentially make a decision about a policy application then and there. Thus, speeding up the process should directly address the complaints of slow processing of files.

For example, If a sales person goes to sell the X policy to the potential customer, however if the customer is interested in Y policy, the same can accessed immediately online.

Motivating staff leading to overall improvement – The advance technology provided to the salesperson will not only encourage them to do their job more effectively, but it will also motivate them. Moreover, customers are likely to have a more favourable impression of the salesperson if they provide a quick and efficient service more importantly which is error free. This, in turn, will lead to the salesperson making more sales and likely to increase their motivation still further. Therefore, leading an overall improvement.

Parallel processing – The paper-based nature of DIC's current system means that tasks have to be done sequentially. However, one of the principles of BPR is that linked activities should be conducted in parallel rather than sequentially. In this case, if DIC improves its Information technology systems and stores customer details digitally, staff may be able to deal with different aspects of a customer transaction in parallel, thereby speeding up the transaction process.

For example, if a customer wants to pay premium for its existing policy at the same time wants to enquire about a new policy, both can be done.

(iii) Key business objectives

The areas of concern of DIC are reducing the time taken to process transactions and improving the quality of the paperwork and so it is likely that it will have business objectives relating to these areas.

DIC should have performance measures looking at these areas, in order to assess how well the re-engineered processes have helped to improve performance in relation to them.

Performance targets

Speeding up the process

The slow speed of the current process is a major source of complaints; therefore, DIC desires to speed up the process. Slow work pace can be among the most difficult problems to resolve unless organisation/(s) have standards or goals against which to compare actual performance. ‘Number of transactions completed within a given time needs to be measured'. For example, Data entry people may be expected to process so many entries each day from the paper-based data however on real time data entry this task will be done immediately without any delay. In changed environment, performance can be measured by computing various metric such as number of policies issued on time, number of transactions completed successfully, number of claims settled on time.

Error free Work

The impact of errors may be in increased cancellations or lapses, financial compensation payments to customers, and a poor market image leading to reduced sales and market share. Reducing the number of complaints about errors in paperwork should be the main motive. One of the key aims behind the BPR exercise is to help DIC reduce the number of errors in the paperwork which a customer receives. Setting a target to reduce the number of complaints about errors will help to achieve its key objective. Target could include a percentage decrease in complaints, lapse rates, or cancellations, an increase in business growth.

(iv) Perception of BPR programmes

Generally, people are not susceptible to change. Although the main aim of BPR programmes is to increase business efficiency, there is often a general perception that organisation just wants to do some cost-cutting exercises and this could lead to redundancies or could threaten jobs and prospects. It is likely that this is a major reason in DIC behind the staff's concern.

Resistance may be encountered from the staff as they are concerned about the change and are uncertain about their jobs in near future.

Even if the programme does not actually lead to redundancy, the fact that it will result in the fundamental redesign of business processes is still likely to lead to significant changes which affect staff. For instance, BPR may lead to new patterns of work, changes in people's roles or changes in the composition of work teams or may bring changes in the pattern of working. This uncertainty about how the programme could affect them is likely to make staff concerned about it and may lead them to resist it. Resistance may be exacerbated because the out-of-date processes are likely to have been in place for quite some time and have therefore become ingrained in the staff. This ingrained habit needs a change, which is not acceptable by the staff.

Case Study 12

"W" *is a 'scented decorative items' manufacturing company. "W" has always traded profitably due to targeting the niche market for high-value, decorative items. Decorative items often use waxes other than beeswax and paraffin. Bayberry wax is derived from the fruit of the bayberry bush and has a distinctive aroma making it popular for manufacture of scented items. The market for scented decorative items is a saturated one, but the CEO has identified that "W" could begin selling online. None of "W"'s competitors have a major online presence and "W" itself only has a simple website that lists locations of its stores as well as products information.*

The Managing Director is unhappy about this move. He is aware that "W" has had issues in implementing IT systems in the past. Most recently, "W" planned to implement an online inventory system, which would have allowed stores to check inventory levels in other, nearby, "W" stores. The system was discarded due to increasing costs and issues with the operating system and application software, which were developed in-house by "W"'s small IT team.

The CEO feels that the issues with the earlier IT plans were because of lack of control. "W" has never employed an IT Director and the CEO has therefore recommended that if "W" decides to expand into 'online retailing', this role will require to be filled.

CFO who recently joined the "W" mentioned that operating across large number of states through 'online retailing' involves cumbersome data-intensive exercise for this "W" needs to be integrated through cloud-based ERP program, in addition to other operational requirements. For this, there will also be need for additional budget.

Required

(i) IDENTIFY the issues that "W" may face when launching 'online retailing'.

(ii) EXPLAIN the requirement for IT to be a strategic decision within "W".

Solution

(i) There will be issues that "W" will face with its proposed move into 'online retailing'. These may include:

Lack of in–house IT resources

"W" is presently short of an IT Director to manage the project. While the "W" may be able to hire someone quickly to fill this role, he/ she will lack experience of "W"'s business by the time the 'online retailing' is started.

"W" is having IT team. They may well lack the time or experience for this online project. This shows further investment will be needed to hire additional resources or to buy the new systems from external agencies.

It is also important to note that an 'online retail' system would also be required to have accurate information about inventory levels in "W". It currently does not have an automated inventory control system as this was abandoned. This problem can be resolved with additional investment in cloud-based ERP program.

Setup and running costs

More than anything, investors want to see a return on their investment. However, the cost of setting up and running an 'online retailing' system in "W" may be high. Therefore, in the short term the setup costs may mean that shareholder returns fall.

"W" will need to analyse whether the additional profit it can make by 'acquiring' new customers online will exceed these costs.

Any further investment in human resources will also increase the IT costs.

Technophobia

Staff at "W" may be concerned about not being able to carry out the new jobs required of them or being able to carry out the new jobs required of them but unconvinced of their skills to use new IT system. Therefore, they may resist the introduction of a change that makes them feel or appear incompetent.

In addition, the MD has expressed concerns about the launch of a new IT system, given the issues "W" has faced in the past. 'Online retailing' will need top management support in order to be successful.

Lack of customer interest

It is likely that "W"'s customers will not be interested in purchasing decorative items online. They may, for instance, wish to try out or physically see it for themselves rather than buying it online. Moreover, these decorative items may require very high shipping and handling costs. This will also encourage the purchase at a physical location.

It is not clear from the scenario whether the CEO has undertaken any market research. This would be important before making the decision about beginning 'online retailing', to avoid launching a costly website that fails to catch customers.

Security issues

As "W" will be processing transactions through its website, it will require to ensure that customers are protected from credit card fraud or data errors. Their online stores are also likely to face phishing attacks, distributed denial of service attacks, man-in-the-middle attacks etc. This problem can be resolved by taking steps to offer secure connections and internal data protection.

(ii) It is vital that "W" has IT systems represented at the strategic or board level for various causes:

Competitive advantage

The market in which "W" operates is described as 'saturated'. It will be hard for "W" to capture additional market share unless it identifies a way to *differentiate* itself.

If the 'online retailing' is a success, it will give "W" a competitive advantage over its opponents and as such it should be part of "W"'s strategic decision–making process.

Stakeholders

'Online retailing' is looking good from the long-term perspective, as online selling is in trend now. Therefore, expansion of "W" is of great interest to "W"'s shareholders. As such it is crucial that the directors monitor its progress.

In addition, customers are presently unable to check the inventories within "W". They may be very concerned in an IT system that would enable them to save needless journeys into "W"'s stores for items that are not in inventory.

Cost of IT system

Setting up an 'online retailing' will involve high levels of expenditure for "W". There is the risk of costly mistakes if it is not carefully 'controlled'. This is evidenced by the failure of its inventory control system.

Failure of such a key project could have a major impact on the "W"'s financial position.

Fast moving

Technology is a fast-moving area and even if "W" becomes a successful first mover in the market by selling online, rivals are likely to follow "W" into the 'online retailing'.

In this environment, "W"'s IT systems will need to be continually monitored and kept up-to-date to ensure it remains competitive.

Case Study 13

Safe and Wise Advisory Limited (SWAL) *is well established financial planning & risk advisory firm of the country with nation-wide presence. SWAL is engaged in selling third party products be it financial products or insurance products (life assurance only). Financial advisory business of SWAL is doing well and contributing to the half of gross revenue of group and two-third of overall group's bottom line, but insurance brokerage business is not performing as per expectation. 'Independent and impartial advice' to client is unique selling point of SWAL.*

SWAL was established by Mr Kaushal Jaiswal around two decade ago (when life-assurance business goes private), at then it was one division business i.e., assurance brokerage business. Mr. Kaushal Jaiswal is dynamic leader and presently leading the company as CEO, apart from being major shareholder of the company.

SWAL is widely acknowledged in market for two distinct features, first being presence wide across the nation, in form of 'sub-agency offices' equipped with professionally trained sale staff headed by financial planner or advisor, where customer can take advise and discuss opinion prior to investing/ buying any insurance or financial product. SWAL has 'sub-agency offices' in 580 cities, towns and blocks. Locations are semi-commercial in nature but prominent. SWAL has practice to sign 30-year lease, when so ever taking and 'sub-agency office' on lease in order to reduce the lease cost and bring stability.

Secondly, SWAL sold product of all third parties, hence provide a range of products to its client to choose from. In 2010, SWAL signed a 15-year agency agreement with all 23 life insurance companies recognised then. SWAL's tagline is also depicting the same 'we are ethically committed to understand and deliver your needs'. SWAL believes in organic growth and listed on stock market 3 years back to float additional capital to fund more 'sub-agency offices'.

22 out of these 23 life assurance companies are private and registered themselves with regulatory between the year 2000-2009 for a period of 25 years. Considering the default by few insurance firms and increasing customer complaints, regulator of insurance business in country tighten the registration criteria and harden the norms.

Typically each of 'sub-agency office' comprises three regular and one contractual employee. One being financial planner/ advisor, 2 sales and relationship officer and contractual worker in role of support staff and vested with miscellaneous clerical responsibilities. The on-roll number of employees engaged in assurance brokerage business has been increased to 1,564 from 720 five year ago (up-till 3 year ago number was 845 but since expansion of 'sub-agency' office division it is around 1,500).

Market trend is changing, since the SWAL commence the business. Each of such insurance company, now has their own network of branch offices to sale their insurance product directly; that too at more prominent locations. SWAL counter this, by highlighting its 'independence and impartial advice' practice, although SWAL managed to retain the revenue at same level, but this result in low profitability of 'sub-agency office' business. Now these insurance companies are not authorising any new agent.

Being in service industry and further in order to ensure wider market reach to compensate the loss of profitability in 'sub-agency office' business, SWAL has established own 'E-platform'- 'Policy at you click' to sell the insurance product with total staff of 50 professionals, as a separate division under insurance brokerage business from 'sub-agency office' division. 'E-platform' division is prospering but 'sub-agency office' business is certainly in trouble.

Supported by revenue figures given below (in '000 Crores), analysts reach to conclusion that growth in the assurance brokerage business is slowing down both for SWAL and industry overall:

Market Size/Year	***2019-20***	***2018-19***	***2017-18***	***2016-17***	***2015-16***
SWAL's assurance brokerage business	*326*	*320*	*312*	*298*	*280*
Total market size of life assurance	*2,240*	*2,198*	*2,122*	*2,004*	*1,960*

Revenue earned by each division of assurance brokerage business (in term of age of the client), is shown in table below for year 2019-20:

Division/Age	***20-30***	***30-40***	***40-50***	***50-60***	***60+***	***Total***
'Sub-agency office' division	*2*	*25*	*38*	*164*	*51*	*280*
'E-platform' division	*8*	*28*	*8*	*2*	*0*	*46*
					Total Business of SWAL	*326*

Since the profitability of 'sub-agency office' division is declining, hence the strategic review committee of board of directors are concerned about the company's declining profitability due to poor performance of 'sub-agency office' division and suggest that the 'sub-agency office' division should be sold off and that SWAL shall re-position its assurance business as an online solution.

Extract from financial statement for agency office division only (figures in '000 Crores)

Particulars/Year	***2019-20***	***2018-19***	***2017-18***
Revenue	*280*	*272*	*250*
Profit before interest and tax	*18*	*16*	*31*
Shareholder's' Equity	*156*	*150*	*150*
8% Long term debt	*78*	*64*	*50*
Current Liabilities	*455*	*437*	*395*
Current Assets	*605*	*565*	*540*

Applicable tax rate is 22%. The nature of cost incurred by 'sub-agency office' division is more or less balanced between the variable and fixed. Fixed costs are largely committed in nature.

But the CEO is not agreed to the suggestion made by strategic planning committee, because CEO is of belief that SWAL's USP or original business model is 'sub-agency offices' through which they ensure 'independence and impartial advice' to their clients.

In next board meeting, board is expected to pass resolution on this agenda item in order to decide either to continue or sale the 'sub-agency office' division.

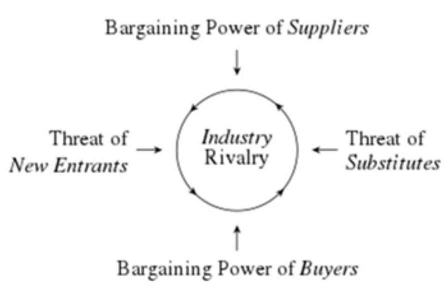
Required

(i) ASSESS the competitive environment of life-assurance business of SWAL (including 'sub-agency office' division).

(ii) EVALUATE the case for holding the 'sub-agency office' division, backed by financial viability among other criteria.

Solution

(i) Michael E Porter, in 1980 in his book "Competitive strategy: Techniques' for analysing industries and competitors" suggested **five force model** to assess the *competitive environment* of an industry. The five forces which are enumerated by this model are the bargaining power of suppliers; the bargaining power of customers (buyers); the threat of new entrants; threat of substitute products; and the level of rivalry among current competitors in the industry.



This model is also named as porter's five force analysis. Since each of these five forces *affect the competitiveness of business,* hence can be used to assess the potential of any organisation or entity; life-assurance business of SWAL (including 'sub-agency office' division) is not an exception to this.

The bargaining power of suppliers

Number of suppliers will decide the dominance they possess in term of bargaining power regarding the price of good and service they supply to business. In case of 'sub-agency office' division following factors will affect the suppliers' power–

Control over Value Chain – By adopting the strategy of forward integration the insurance companies them-selves getting into the direct sale through own network of branch offices in order to enhance their margin or reducing the margin earned by SWAL's 'sub-agency office' division. Since number of insurance companies are neither too less nor too much, hence bargaining power of insurance companies; in terms of percentage brokerage they offered to SWAL is *moderate*.

Importance of product – SWAL is also dealing in financial product's marketing and advisory, which contribute 50% of group sales and around 67% of group's profit; thus assurance business which is no doubt significant but *only choice (business) available* to SWAL. Hence, bargaining power of supplier is *moderate*.

Substitution among the brand – Life assurance product offers similar utility to client; hence easily substitutes among the brands, means if insurance company 1 charge lesser premier then insurance company 2, client will buy assurance of company 1. No doubt switching is less viable once policy subscribed. Since SWAL's 'sub-agency' division is offering the product from all 23 insurance companies, hence bargaining power of suppliers become *low*.

Supply of other factors – Other factor such 'sub-agency offices', which are largely on lease, has 30-year lease, this will reduce the lease cost as well as bargaining power of land-lord apart from bringing stability.

The bargaining power of customers

Whether seller is price taker or makes, this is outcome of bargaining power of customers (true sense competition). If the bargaining power is high seller will become price taker, else he is price maker. Following factors affect the bargaining power of customers of SWAL's 'sub-agency' division–

Number of buyers – In assurance industry the buyers are large (in comparison to few number of suppliers) and diversified, hence their bargaining power is *low*.

Standardised products – Since the life assurance is the product, which is standard from prospective of core functionality, hence buyers can easily substitute brands and can negotiate to reasonable extent.

Switching – Once policy subscribed cannot be easily switched with another, hence due to high switching cost bargaining power reduced to some extent at-least.

The threat of new entrants

Although entry of a new firm to the industry/ market depends upon the level of entry barriers, but if new entity enters into the industry; it will surely bring additional capacity which enhance the stiffness of competition; hence become a kind of threat. In case of 'sub-agency office' division, there are some major barriers to entry–

Less number of new life-assurance licenses by regulator due to tough regulations – As mentioned in the case that after considering the default by few insurance firms and increasing customer complaints, regulator of insurance business in country tighten the registration criteria and harden the norms; hence this may act as entry barrier and reduce the threat of new entrants.

Less number of new insurance agent due to no new authorisation by insurance companies – As market is revamping, the agents is becoming competitor to the insurance companies and as mentioned insurance companies stopped authorising new insurance agents, hence this will act an entry barrier for new insurance agents, which is a great positive for SWAL's 'sub-agency office' division and intact the competitive advantage.

Learning curve and economies of scale – Since all the 23 insurance companies dealing in life assurance and SWAL are 10- to 20-year-old organisations; hence learning curve and economies of scale (shared services for the 580 offices - presence in 580 cities) which they are enjoying may become entry barriers for new firm. Since new firms require huge capital to be at par to such learning curve and economies of scale.

Threat of substitution

Substitution means the product from some other industry which can render the same function which life assurance is rending. The threat of substitute product is *quiet low*.

Competitive rivalry

The level of competition among the players to acquire or retain the market share directly affects the profitability in an industry. Following factor is affecting the competitive rivalry–

Number of competitors and respective market size – Since there are good number of competitors, hence competition will be intense; may cutthroat rivalry. Presently SWAL's insurance business represent 14.55% of market share (in 2019-20) in comparison to 14.29% of market share five year ago, without any major variation, hence possibility of gaining new market share is limited that too at high cost (in form of advertisement and more after sale services).

Lack of differentiation – Standardise product results in high rivalry, since the life assurance is standard product hence rivalry may be high on account of easy substitution effect among the different brands.

Slow market growth – If market is growing at high rate, rivalry may be stiffer or may be moderate; because everyone has reasonable opportunity to grow. The moment growth stagnated rivalry become stiffer because no one wish to lose market share. The industry life cycle curve is flatter here, because during last four years overall industry wide CAGR (compounded annual growth rate) of life assurance business is 3.39%, whereas year-on-year growth from 2018-19 to 2019-20 is 1.91%. Although potential is limited, but competition is still high.

Exit barriers – If the exit cost for player to move out of industry is high, it will have to be in industry and fight for survival, which may make competition tougher. Since agency agreement and lease agreement is already signed by SWAL hence, it becomes difficult to exit from the business, hence need to participate in competition to retain the share.

(ii) Case for holding the 'sub-agency office' division

The strategic review committee suggests that the SWAL's 'sub-agency office' division should be sold off and that SWAL shall re-position its assurance business as an online solution, but the same suggestion firstly needs to be evaluated in terms of *financial perspective* among the other criteria.

The growth in life assurance business is stagnated and industry is in maturity stage of industry life cycle. This is evident from industry size and growth in the same. During last four years overall industry wide CAGR (compound annual growth rate) of life assurance business is 3.39%, whereas year-on-year growth from 2018-19 to 2019-20 is 1.91%. The moment growth stagnated rivalry become stiffer because no one wish to lose market share. Hence, there is intense competition in market. In cases where market witnesses intense competition, operating efficiently is essential and reduction in cost become *key success factor*; in order to offer competitive deals to clients and retain market share.

Hence, it becomes need of hour, that we review the operating processes followed at 'sub-agency offices' to check whether they are efficient or not, in order to ensure greater profitability rather thinking to sale off the entire 'sub-agency office' division.

Now, move to *financial analysis*, which suggests it is beneficial to hold back 'sub-agency' division.

Contribution to the group – Insurance business is contributing 50% of top-line of overall group revenue (and 1/3rd of bottom line), and around 86% (280/ 326) of this comes from 'sub-agency office' division and 'E-platform' division contribute only remaining 14%.

Profitability – Margins are positive. There are two major parameters to evaluate profitability further on–

- Operating profit *(EBIT/ Revenue)* – No doubt, operating profit shrink from 12.4% to 6.43% in three years' time frame. But as earlier quoted, margin is positive and secondly, there is sign of recovery as well. EBIT increased in absolute terms (from 16 to 18).
- Return on capital employed *(ROCE) [EBIT / (Equity + Long Term Debt)]* – No doubt, ROCE shrink from 15.5% to 7.69% in three years' time frame. But reduction in EBIT is not only a reason, another major reason for decline is change in capital structure. Long term debt is increased in absolute terms (from 50 to 78).

Liquidity – Current ratio *(Current Assets / Current Liabilities)* being reasonable measure of liquidity indicates enough liquidity in 'sub-agency office' division to meets it obligation. There is minor decline from 1.367 times to 1.33 times. Component analysis of working capital can be performed for greater insight.

Gearing (Debt / Equity) – Gearing ratio depicts the financial leverage**,** a measure of risk**.** Gearing ratio no doubt increased as result of introduction of debt, from 1/2 to 1/3, but under control.

Some *other quasi-finance* and *significant factors* relevant to the decision of sale of 'sub-agency office' division and full focus on 'E-platform' division–

Client's demography – Clients from all age groups from 20 to 60+ are clients of SWAL's assurance brokerage business. 66.56% (217/326) of revenue coming from clients with 50+ years of age, and 99% (215/217) out of them are associated through 'sub-agency offices', hence holding of 'sub-agency' division become essential. Secondly, clients from all age group may not find it convenient to shift to 'E-platform' 'Policy at you click' and their resistance may result in losing business. Thirdly, they have easily available substitute, because competitors also have branch offices which will give them same feel.

Resistance from employees – Out of 1,564 on-roll employees of assurance brokerage business, only 50 are associated in 'E-platform' division- 'Policy at you click', rest all in 'sub-agency office' division. If SWAL re-structure itself fully as online solution for life assurance then also cannot absorb all the employees, many of them need to be retrenched. Resistance will be there in both the cases because transferred employee may not have requisite skill set, result in poor quality of service and no job satisfaction to employee. Whereas in case of retrenched workers redundancy cost will become additional financial burden. This can be seen as exit barrier.

Legal aspect in term of pre-closure of lease - SWAL has practice to sign 30-year lease, when so ever taking and 'sub-agency office' on lease in order to reduce the lease cost and bring stability. It started the business 2 decades ago and expanded it 3 years ago and many of leases are active right now, in case of pre-closure, it may be possible to bear additional financial burden as per terms of lease agreement.

Loosing USP – **'**Independence and impartial advice' with presence wide across the nation, in form of 'sub-agency offices' equipped with professionally trained sale staff headed by financial planner or advisor, where customer can take advise and discuss opinion prior to investing/ buying any insurance or financial product is USP for SWAL's assurance brokerage business. By disposing the 'sub-agency office' division this central idea, with which SWAL was established may be washed out.

In nutshell, the life assurance market has matured in recent years, and result in low growth potential and lower profitability but still yielding positive numbers. Hence, sale of 'sub-agency' division will adversely hit the revenue as well as profitability.

Case Study 14

A preliminary investigation for the ***Vidyut Dam Project*** *was completed in 1962 in a South-Asian country (here-in-after referred as country) and its design was completed in 1973 with a 600 MW capacity power plant. Construction began in 1979, but was delayed due to economic, environmental and social impacts. In year 1987, technical and financial assistance was provided by the neighbouring country to said country after signing of MoU, but this was interrupted just a year later with political instability. Hence, said country was forced to take control of the project and at the first, it was placed under the direction of the irrigation department of concerned home state of said country. However, in July 1989 the Vidyut Hydro Development Corporation Limited (VHDCL) was formed to manage 1,900 MW Vidyut Hydro Power Complex; wherein 75% stake held by union government and remaining 25% stake by concerned home state government. The 1,900 MW Vidyut Hydro Power Complex comprises of* ***Vidyut Dam & 1,000 MW Vidyut Hydro Power Plant (250MW×4)****, Beejuree HEP (400 MW), and Vidyut PSP (500 MW).*

The ***Vidyut Dam*** *is a 260.61 m (855 ft) multi-purpose high rock and earth-fill embankment dam on the Karaka River near Chapala town. Its length is 574.85 m (1,886 ft), crest width 20.11 m (66 ft), and base width 1,128.06 m (3,701 ft). The dam creates a reservoir of 4.0 cubic kilometres (~32,00,000 acre ft).*

The ***1,000 MW Vidyut Hydro Power Plant (****Vidyut HPP) was* ***commissioned*** *in 2007-08 as a multipurpose project, with variable speed features which can optimize the round-trip efficiency under varying water levels in its reservoirs. Power is distributed to 10 northern states (including concerned home state) of said country. The complex will afford irrigation to an area of 2,71,139 hectares (=6,70,000 acres), irrigation stabilization to an area of 6,07,028 hectares (=15,00,000 acres), and a supply of 270 million imperial gallons (1.23×10^6 m^3) of drinking water per day. 162 million gallons of drinking water for around 4 million people of the neighbouring state, apart from 108 million gallons of drinking water for around 3 million people of the concerned home state. Due to regulated releases from the Vidyut storage reservoir, the existing downstream hydro projects are also benefited by way of augmentation in generation at no additional cost to them. Concerned home state also gets 15% of generated power as free. The total expenditure for this project was USD 1 billion. Since 2007-08, which was the first year of operation, VHDCL has been a profit making company.*

The Vidyut Dam has been the object of protests by environmental organizations and local people of the region. The protest was against the displacement of town inhabitants and environmental consequences of the weak ecosystem. "We don't want the dam. The dam is the mountain's end" was the prominent slogan.

The relocation of nearly 1.5 lakh people or may be even more, from the area has led to protracted legal battles over resettlement rights and, ultimately, resulted in the project's delayed completion despite the fact that land acquisition was started in 1980. There is no master plan for rehabilitation nor even a clear estimate of the number of people affected. According to the 2003 status report of the public work department of Chapala town, the Dam replaced 15,550 families. This estimate excludes a large number of people who lost their lands but have not been officially recognised as project affected. Among those officially recognised, allotted with land of poor quality or with multiple ownership claims.

Near to year 2006, while filling of the reservoir has led to the reduced flow of Karaka River's water from the normal 1,000 cu ft/s (28 m^3/s) to a mere 220 cu ft/s (6.3 m^3/s). This reduction has been central to local protest against the dam, since the Karaka River is considered sacred river whose waters are crucial to religious beliefs.

Old Chapala town shifted and named as New Chapala Town (NCT) which is semi-ultra-modern hill station at height of 1,555-1,855 m above MSL, with better road network and district head quarter (shifted to NCT, earlier about 65 kms away from Chapala). NCT equipped with better health (got 80 bed modern hospital against 25 bed hospital in old Chapala, and also got 5 primary health centres with additional 75 bed facility in total) and education facilities (hostel facility of 900 students, degree college with university campus which can accommodate 440 residential students and faculties, and against 1 inter college in old Chapala, 5 inter-college established (one in NCT and 4 in nearby villages). This all done at project cost.

In addition to the human rights concerns, the project has spurred concerns about the environmental consequences of locating such a large dam in the fragile ecosystem of the foothills of great mountain range. There are further concerns regarding the dam's geological stability. The Vidyut dam is in a major geologic fault zone. This region was the site of a 6.7 magnitude earthquake in September 1992, with an epicentre 55 km (34 mi) from the dam. Dam proponents claim that the complex is designed to withstand an earthquake of 8.4 magnitude, but some seismologists say that earthquakes with a magnitude of 8.5 or more could occur in this region. Were such a catastrophe to occur, the potentially resulting dam-break would submerge numerous towns downstream, whose populations total near half a million.

In spite of concerns and protestation, operation of the Vidyut Dam continues and is completed. But VHDCL was aware of these and tried to respond in a constructive way. The spirit of CSR initiative is depicted by its CSR initiative title 'VHDC Sahridaya' (Corporate with a Human heart), wherein focus areas are:

- *Shiksha - Education Development*
- *Svasth - Nutritional Health and Sanitation and Drinking Water Projects*
- *Nipun - Livelihood Generation and Skill Development Initiatives*
- *Unnaati - Rural & Infrastructure Development*
- *Yogy - Empowerment Initiatives*
- *Srrishti - Environment Protection Initiatives*

Out of these 'VHDC Srrishti" has some special mentions, 'Environment Focused Initiatives' is working with three objectives Soil & Water Conservation, Green Energy Generation & Technology Promotions and Environment Protection & Promotion.

To conserve soil and water VHDCL is working on water harvesting and water harvesting tanks (capacity 3,000 litres each) were installed in the project affected villages for rainwater harvesting. Through this activity, beneficiaries were able to store almost 9 lakh litres of rainwater during monsoon. In addition, VHDCL under this program installed more than 730 LED based Solar Street Lights and more than 180 LED based Solar High Mast Lights in near-by towns and villages in year 2019-20. Moreover, to promote plantation of different fruit, fodder, and medicinal plants, VHDCL planted 2,70,202 plants/sampling till now.

VHDCL has won many awards in last decade in different categories including CSR domain, but most recent and relevant (for case study) among them are→

- *HR Platinum Award for Training Excellence in 2019-20*
- *National CSR Leadership Award 2020*
- *CSR Innovation and Leadership Award 2020*

It not only recognition in term of awards, VHDCL has obtained following Certifications:

- *ISO 9001:2015 Certification (Quality Management System).*
- *ISO 14001:2015 Certification (Environment Management System).*
- *OHSAS 18001:2007 Certification (Occupational Health and Safety Management System).*

Required

*As part of policy initiative, if VHDCL is willing to implement the Triple Bottom Line (TBL) reporting initiative; then **ADVISE** the management regarding dimensions of TBL, and what are perspectives composed by different dimensions of TBL. Also, enumerate the challenges, expected benefits, and initiatives under each dimension in context of Vidyut Dam & Vidyut Hydroelectric Power Plant (1,000 MW).*

Solution

British business author **John Brett Elkington** in year **1994** coined the term **TBL.** Every business needs to be **sustainable, rather than** only **profitable**. A business is said to be sustainable, when management makes sustainable business decisions. To consider sustainability of business decision there are three bottom lines i.e. **People, Planet and Profit** (also known as dimensions of TBL), instead of single bottom line (i.e. Profit).

Here-in VHDCL, shows *strong commitment for CSR* through the certification (regarding quality, environment and safety) they obtained and also through the awards they won (in the domain of CSR and Training).

Dimensions (sets) of TBL

(i) **People,** the **social equity** bottom line relates to corporate governance, motivation, incentives, health and safety, human capital development, human rights and ethical behaviour.

The project has major concerns about the **displacement of town inhabitants,** followed by reduction in flow of Karaka River from the normal 1,000 cu ft/s (28 m^3/s) to a mere 220 cu ft/s (6.3 m^3/s). Former concern is more significant than the later concern, because later was of short duration; it is obvious when the reservoir is filled to its maximum capacity, the flow of the river will again become normal. Regarding the displacement, it is mentioned in the case itself that according to the 2003 status report of the public work department, the Dam replaced 15,550 families. Further, this estimate excludes a large number of people who lost their lands but have not been officially recognised as project affected. Even those officially recognised, allotted with land of poor quality or with multiple ownership claims. This concern substantiates in absence of a full-proof master plan.

It is not the case that local resident were/are in complete distress, they were/are compensated with **alternative and better facilities** and **remedies** as well that too at **project cost**, which includes the:

- Development of hill station to attraction for tourism – The New Chapala Town (NCT) is developed with semi-ultra-modern facility at height of 1,555-1,855 m above MSL as pre-planned hill station which will attract the tourist. By creation of lake due to the impoundment of the reservoir of Vidyut Dam, scope of water sports is there. Hotels, Guides and Tour and travels will cause *employment opportunities* for locals.
- Better road network leads to *ease of living* and *improved communication channels* which also help in establishing suitable industries according to environmental aspects.
- Shifting of district head quarter to NCT results in reduction of distance of travel by town residents to reach to district head quarter for any task by about 65 kms, hence *life of locals will be further eased*.

- *Improved health facilities* - NCT equipped with better health facilities. It got 80 bed modern hospital against a 25-bed hospital situated in old Chapala town. Apart from this also got 5 primary health centres with additional 75 bed in total.
- *Improved Education facilities* in term of hostel facility of 900 students and increase in number of inter-colleges.

Not only the local resident (directly affected), ***other too got benefit from project***, such as 250 cusecs (~162 million gallons per day) of water supply to neighbouring state, which will meet drinking water need of around 4 million people, apart from 167 cusecs (~108 million gallons per day) of water supply to concerned home state, which will meet the drinking water need of around 3 million people. Power is also distributed to 10 northern states (including concerned home state) of said country.

VHDCL showed social commitment through Shiksha, Svasth, Nipun, Unnaati, and Yogy as part of their CSR initiative.

(ii) **Planet,** the **environmental** bottom line measures the impact on resources, such as air, water, ground and emissions to determine the **environmental impact** and **ecological footprints**.

The project has spurred concerns about the **environmental consequences** of locating such a large dam in the fragile ecosystem of the foothills of great mountain range, which will result in **weak ecosystem** and concerns over a **catastrophe to occur** (due to earthquake - the potential dam-break). Regarding the later concern, it is also mentioned in the case that the Vidyut dam is in a major geologic fault zone. This region was the site of a 6.7 magnitude earthquake in September 1992, with an epicentre 55 km from the dam. In response to which the Dam proponents claim that the complex is designed to withstand an earthquake of 8.4 magnitude, but some seismologists say that earthquakes with a magnitude of 8.5 or more could occur in this region. Were such a catastrophe to occur, the potentially resulting dam-break would submerge numerous towns downstream, whose populations total near half a million.

The major environmental **benefit** is generation of 1,000 MW (3,532 MU of Annual Energy) of **environment friendly** peaking power.

In order to leave improved environment footprint and to trade-off the environmental loss caused during construction, VHDCL through **initiative** 'VHDC Srrishti' working on:

- *Rainwater Harvesting* – It has installed the necessary infrastructure in the affected areas to harvest almost 9 lakh litres of rainwater during monsoon.
- *Green Energy Generation & Technology Promotions* through installing LED based Solar Street Lights and LED based Solar High Mast Lights.
- *Environment Protection & Promotion* through plantation of 2,70,202 samplings so far, of different fruit, fodder, and medicinal plants.

(iii) Profit, the **economic** bottom line refers to measures maintaining or improving the company's success in terms of adding value to shareholders.

It is an inherent feature (rather project specific concern) of hydro power projects that the duration of construction is quite lengthy and huge capital outlay is involved. In case of Vidyut Dam too, Construction began in 1979, but was delayed due to economic impact apart from social and environmental pressure. In 1987, technical and financial assistance was provided by the neighbouring country, but this was interrupted years later with political instability. Project then placed under the direction of the irrigation department of concerned home state of said country. However, in July 1989 the Vidyut Hydro Development Corporation Limited (VHDCL) was formed to manage such 1,900 MW Vidyut Hydro Power Complex; wherein 75% stake held by union government and remaining 25% stake by concerned home state government. The total expenditure for this project was USD 1 billion. Since 2007-08, which was the first year of operation, VHDCL is a profit making company.

The initiative includes the feature of variable speed, the 1,000 MW Vidyut HPP has variable speed features which can optimize the round-trip efficiency under varying water levels in its reservoirs to keep the *cost of operation low*.

The quantifiable economic benefits include:

- The generation of 1,000 MW (3,532 MU of Annual Energy) of environment friendly peaking power. This will no doubt lead to industrial and agricultural growth in the northern region.
- 15% of generated power will be given free to the concerned home state, apart from power as per their share, where the distress is caused due setting up of the project. Hence, the state has economic benefit from the project too.
- Irrigation of 2.71 lakhs hectares of area, beside irrigation stabilization of 6.07 lakhs hectares. Hence, supporting other economic activities as well indirectly.

To conclude, the project largely seems **sustainable** as running in *profit* since it was operational, leaving minimal and positive *environmental* footprint, and also payback *society* (especially directly affected local population) with alternate better facilities and compensation (may be with few minor exceptions or irregularity on case-to-case basis).

Case Scenarios

Case Scenario 1

***Corner** is an online Pizza delivery business. Corner is one of the QSR that created its own system, website, and app. Corner's pizza baking points having a home delivery system. Due to popularity of E Commerce awareness among the customers, online food order system come up with new opportunity for food business. Corner has grown rapidly due to boom in online platform. It is now operating around 1,000 points.*

Corner's vision is to increase shareholder wealth by making and timely delivery of quality pizza. Corner provides customize pizzas as per customer's taste. People choose to order pizza online for different reasons not wanting or having time to cook, do not have to wait in a queue for order or taking delivery. During happy hours from 4pm-7pm, baking points have a great deal on both pizzas and beverages. The customers can call, text or order pizzas online. Corner's collection and delivery service uses delivery motorcycles and scoters to transport pizza parcels.

The process consists of a customer choosing the restaurant of their choice, scanning the menu items, choosing an item and finally choosing the place of delivery. Payment is then managed by cash on delivery, or with a credit card, debit card etc. when the delivery boy delivers the pizza at the customer's place of delivery.

Issue

Corner's delivery service is slow. It uses an automated reminder service like Dial My Calls to send updates to customers about the status of their order - when it goes into the oven, when it comes out, when it is out for delivery, and so on. Customers are willing to wait a little longer if they know that pizza is on its way. Slow delivery reduces the taste, aroma and flavor of pizzas delivered.

Recently, financial performance and market share of Corner has deteriorated. The CEO of Corner believes that reductions in customer satisfaction and flexibility, caused by a decline in operational performance, may have led to the recent deterioration. It has been suggested that to use the Lynch and Cross's Performance Pyramid to reverse this deterioration and four new measures for operational performance have been suggested.

Measure	***Description***
Live tracking system/ GPS driver tracker (to choose the best and the shortest routes for food delivery vehicles and to guide the drivers in real time basis)	*Number of successful deliveries per day*
On-time delivery	*% of pizzas delivered within 30 minutes of the booking time*
Fuel consumption	*Average fuel consumption per km travelled*
Improving the taste (It is proposed to use pizza delivery bags to keep the pizzas hot and fresh)	*% of positive feedback*

Required

EVALUATE the extent to which the suggested new measures can be used to manage operational performance at Corner.

Solution

The performance pyramid covers not just only financial performance but also a broad range of underlying processes of business organization which *drive financial performance*. It facilitates to set financial and non-financial performance measures. Non-financial measures are important indicators which can help to attain *long-term* financial performance. The elements of the pyramid are interconnected, and each level in the pyramid backs the one above it. For example, on-time delivery of pizzas will increase customer satisfaction, which will eventually lead to greater market share, one element of the vision.

The left side of the performance pyramid covers external effectiveness, such as *customer satisfaction*, while the right side of the pyramid covers internal efficiency, such as *flexibility* and *productivity*. Operational performance is signified by the four elements, which are quality, delivery, cycle time and waste, at the bottom level of the performance pyramid. Operational performance measure can help the organization to achieve the vision of the organization. Reduction in pizza delivery time and delivery of fresh hot delicious pizza i.e., quality can help Corner to achieve its vision.

Cycle time can be reduced by using live tracking system. Live tracking system is a key to improve *productivity* and *profitability*. It can help in taking well-versed decisions and *schedule pizza delivery more efficiently*.

GPS driver tracker will allow real time monitoring of vehicles and offer detailed insights of fuel usage, driver's behavior, engine's idle time, etc. using this data efficiently; money saving areas for pizza delivery can be identified. Through this tracking system idle delivery vehicles can also be identified. This may lead to an increase in the *number of deliveries per day* and more deliveries, translated into more business.

It can also assist Corner to reduce the fuel consumption and unnecessary overtime costs. Reducing fuel consumption would lead to an improvement in financial performance. Measuring average fuel consumption per km travelled does not, however, relate directly to activity, for example, to the number of pizzas delivered. Average fuel consumption will vary between type of vehicle used for delivery i.e., scooters or motorcycles and conditions of roads in the areas of delivery. Average fuel consumption per km is not a good measure of waste or any other aspect of operational performance of business organization. To be useful in managing operational performance, this measure should be changed to average fuel consumed per pizza delivered which would be an appropriate measure for ***waste***.

A loyal and satisfied client is paramount to success of a food delivery business. With the assistance of tracking system, pizza delivery vehicles will respond to service calls quickly and reach their destination on time. Customers are likely to value on-time pizza delivery very much, this will be one of the main causes, and they will choose pizza from Corner. The proportion of on-time ***delivery*** is a measure of operational performance i.e., key driver for *customer satisfaction*.

Moreover, use of pizza delivery bags to keep the pizza hot and fresh will improve the taste, aroma and flavor of pizzas, which is also related to the ***quality*** element of the performance pyramid and is key driver of *customer satisfaction*.

Case Scenario 2

Surmount Cable Cars (SCC) *engaged in assembly of cabin used on ropeways. In order to assemble cabin, 3 major parts of different shapes and sizes are used. These parts are assembled with help of specially designed dome nut and bolt made of brass (Product Code – Brass DIN 85), which are manufactured by Reliable Hardware and Metal Works. Plant layout design of SCC comprises assembly line, where multiple products are assembled at one point of time. Hence there are multiple workers, who are using such nut and bolts simultaneously. Such nut and bolts come in set along with washer and all three spares collectively consider as set.*

Since the plant facility of SCC is situated in remote area hence majority of worker are either unskilled or semi-skilled and literacy rate is also low among workers. This causes variety of problems including not informing production supervisor, about the re-ordering of such (Brass DIN 85), a class of store and spares items. Due to ignorance in workers towards understanding of the stock levels and their relevance, many a times stock of such spares ordered later then it should be, hence got out of stock. This further leads to stock out situation in some of the cases, which result in contribution loss.

Reliable Hardware and Metal Works (RHMW) is long standing supplier of Brass DIN 85 to SCC, hence reliable in term of both quality and delivery time. RHMW took single day as lead-time to deliver the re-ordered quantity. Despite the reliability of supplier SCC wish to maintain safety stock equivalent to 3 (three) days consumption for production facility. SCC is using latest version of SAP as enterprise resource planning, which is installed just 3-4 month back. Employees are being trained to use the respective modules of SAP and integration among various function/modules is ongoing.

Plant of SCC works for 6 days in a week and during a week period 1,200 units of Brass DIN 85 is required for production. Consumption of Brass DIN 85 in order to assemble the cabin cars are constant through-out the year. SCC during first phase of its drive to implement lean manufacturing, is working on its operational efficiency and tries to reduce inventory by introducing a Kanban system.

Required

> *(i) EXPLAIN the Kanban in inventory management for entity like SCC? Also, EXPLAIN Kanban be applied to non- manufacturing entities?*
>
> *(ii) CALCULATE is Kanban size and number of Kanban required in case of SCC?*
>
> *(iii) LIST the factors to be considered and specific precautions/pre-requisites, prior to SSC took task of applying Kanban system.*

Solution

(i) **Kanban** system is a **visual signal-based** workflow management technique. Taiichi Ohno an industrial engineer, developed the first Kanban system for Toyota automotive in Japan.

Kanban in inventory management

Kanban can be used in **pull system of inventory**, where supplier supplies the material based upon consumption. Kanban (a yellow line, originally used in Toyota) is **visual cue** to worker (may be unskilled or even illiterate) to understand that further material is required. Kanban **reduce the cycle time and enhance the predictability**, in order to promote value to customer. Kanban system hold specific amount of material (divided in **Kanban Size**). Kanban system also maintain information regarding quantity, storage location, vendor and details on product/part.

While calculating *Kanban size* and *number of Kanban required* following **assumption** need to be taken–

- Consumption is constant throughout the period; else smoothing factor need to be used in calculation of Kanban size.
- The supplier will deliver material directly to the point of use area (assembly line) and
- Requirement in term of space to store number of Kanban is met.

Kanban in non-manufacturing facilities

Kanban originally designed for manufacturing entities but **can** be applied to non-manufacturing concern as well, for smoothening of workflow rather inventory management. In Kanban, signal based dashboard is used to **manage and improve the flow of work** to be followed and also categories the work into ***to do***, ***on-going*** and ***done*** (in some of cases ***backlog*** category also be added).

(ii) Kanban Size and Number of Kanban

Kanban Size can be calculated using formula i.e. **(C) x (LT) x (L) x (SF)**

Whereas **C** stands for consumption,

LT stands for lead time (Note – Lead Time should be in terms of consumption pattern means if consumption is considered for week/s time then lead time shall also be considered in term of week/s)

L stands for location of Kanban (Note - When so even any entity implement the Kanban then keep one container of material at both the location (entity it-self and supplier), hence L is 2 unless otherwise provided)

SF stands for smoothing factor, which is used to set-off seasonal variations in consumption; obviously if consumption and level of stock throughout the period remain same then smoothing factor can be one.

Calculation of Kanban Size

C – Consumption per day is **200** i.e., 1,200/6

LT – Lead time is **1** days

L – Locations are **2** (RHMW and SCC) and

SF – Smoothing Factor is **1**

Therefore, the **Kanban Size is** 200×1×2×1 **= 400 Units** in each Kanban**.**

Note – EOQ can also be practice as Kanban size

Number of Kanban depends upon the maximum quantity of inventory which comprises of demand/consumption during lead period and quantity of safety stock. It can be determined using following formula–

$$\text{Number of Kanban} = \frac{Quantity\ of\ safety\ stock + consumption\ during\ lead\ period}{Kanban\ Size}$$

Calculation of numbers of Kanban

Quantity of safety stock in given case is 3 days × 200 (daily consumption) i.e., 600

Consumption/demand during lead period is 1 days × 200 (daily consumption) i.e., 200

Therefore, maximum inventory under Kanban system is 800 i.e. (600+200)

Number of Kanban is **2** i.e., 800/400

(iii) Factors to be considered and specific precautions/pre-requisite to Kanban system

Kanban try to **smoothen the workflow** process by ‘visualise the flow of the work, reducing WIP, managing process, making process policies explicit, incorporate feedback and using scientific techniques’. In order to do so, while applying Kanban system SCC need to consider following factors–

1. Will supplier ready to supply material in the **lot size equal to Kanban Size**?
2. Will **supplier participate** in pull system of inventory and **agree** upon Kanban Stocking program? – reliability on supplier.
3. Will supplier agree to **supply material directly at point of use** i.e., assembly line?

4. Is the **consumption pattern** comprising significant variations or constant throughout?
5. What is **requirement regarding handling and storage** of material?
6. **Contribution margin** on sale of product in which raw material is used.

Note – these factors have major impact on calculation of Kanban size as well.

Some specific precautions for SCC

1. Since the worker are unskilled and literacy rate is low among them hence it is needed to be assured that **worker must understand the visual cue**. Training can be provided to them.
2. **Demand/Consumption need to be predicted with reasonable assurance** in order to implement Kanban, although one thing, which is in favour to SCC is that it knows the consumption of Brass DIN 85 is constant throughout the period.
3. SAP which is used as **ERP** system in SCC, **need to be integrated with suppliers** system in order to practice pull system of inventory and various modules of SAP need to be tightly integrated.

Case Scenario 3

Shakti Automobiles Limited (SAL) *is a leading battery-based e-rickshaw manufacturing firm, under brand 'Shah Swaari' in three models – Super, Star, and Speed. SAL started this business around 5 years back when it was only manufacturer of such e-rickshaw. SAL manufactures all assembly components themselves, irrespective of fact that these components can be acquired from market at a cheaper rate. Major component of total costs in manufacturing of such e-rickshaw is variable in nature. Company was performing well, earning reasonable and enjoyed large market share up-till two year ago majorly due to first mover advantage. But due to increasing competition as new entrant coming into market and rough macro-economic conditions, market share starts shrinking; resultantly profit starts declining. If no major steps taken, then company may run into red in year to come.*

Mr. Pillai, CEO attended some workshop last week, where he learned about the lean management and techniques of cost management. He asked Mr. Reddy, Chief Management Accountant to report on underlying reasons behind current performance with available set of possible solution. Mr. Reddy immediately convened a meeting of top ranked officers, which is chaired by CEO, at meeting.

Mr. Swami, VP Marketing mentioned that it is difficult to maintain same level of sales in upcoming years because price of Shah Swaari is much higher than price offered by all the competitors in market. Quality and features of other are also similar.

Mr. Dutta, Customer Relation Officer also supported Mr. Swami and said that the popularity of their product is declining, he quoted that he receives lot of complaints from buyers in e-mails *and tele-calls due to manufacturing defects, which arise in product within a month period of purchase and frequency of such calls and emails have increased in recent years. He also mentioned that in some cases, customer reported that assembled part did not belong to model they purchased, and some customers say, assembly is not as per specification provided.*

Mr. Sodhi, Head Workshop & Repairs agrees that the repair issues in case of recently sold vehicle have been increased.

Mr. Murthy, VP Production & Operations who recently joined the SAL replied, firstly large percentage of worker are unskilled; secondly due to large amount and categories of raw materials, dumped by store at production floor; that's too well prior to need. These two reasons cause worker fails to differentiate among parts which appear similar. He also mentioned entire business process, especially production process is quite old and contains certain activities which are purely unnecessary, he also highlight importance of industry 4.0 and give stress on business re-engineering through artificial intelligence, machine learning, etc.

Mr. Naidu, VP Purchases immediately responded about economics of discount involved behind purchase of large quantity and also mentioned buying too less may lead to stock-out situation.

Required

You were also presented at meeting as deputy to Mr. Reddy. Post meeting you came back to your desk and start working. Mr. Reddy called to you to his cabin, on reach to his cabin; he asked you to prepare draft of report (ADVISE) seek by CEO; and meet him with copy of draft after half an hour from now.

Solution

Report

Addressed to:

Office of CEO,

Shakti Automobiles Limited (SAL).

Dated – 19th Jan 2021

Report on underlying reasons behind current performance and Lean Management, Cost Management tools

(i) First reason behind weak financial performance is highlighted by Mr. Swami i.e., **Price** of SAL's Product Shah Swaari is much higher than price offered by all the competitors in market. Quality and features of other products are also similar.

Target Costing as cost management technique can be applied. Since market condition are stiff and *bargaining power of customers* is high due to multiple competitors, and these competitors are selling the product at price lesser then price offered by SAL. Hence, price offered by such vendors should be considered as 'Target Price' and after reducing 'Target Profit' from same 'Target Cost' can be identified. Production, operations facilities along with product need to be *reengineered* to achieve such 'Target Cost'.

(ii) Second reason is that SAL manufactures all assembly components themselves, irrespective of fact that these components can be acquired from market at a cheaper rate.

Relevant cost of both, '**Make or Buy**' needs to be compared. As mentioned, that major component of total costs in manufacturing of such e-rickshaw is variable in nature, hence, such major component of costs can be controlled if SAL buy the all the components instead of Making them.

Only those products need to be made in house whose variable cost of manufacturing is less then market price and vice versa.

(iii) Third and major reason is popularity of their product is declining, this is evident from declining in market share and lot of complaints from buyers in e-mails and tele-calls for manufacturing defects.

Since these defects arise in product within month period of purchase. Hence, product needs to be looked at. Further, some of cases customer reported that assembled part is not belonging to model they purchased and some customers say assembly is not as per specification provided. Hence, quality is needed to be ensured in the product delivered.

One of way to look at '**Quality**' is conformance to need of customer, to ensure same Total Productivity Management/ Total Quality Management supported by Six Sigma need to be applied as part of Lean System Management.

Total Quality Management is management of entire process, including planning process, to meet customer's requirements. **PRAISE** analysis can be used in order to achieve improve quality.

Using **DMAIC** (Define, Measure, Analyse, Improve and Control) methodology of **Six Sigma**, existing business process can be improved to ensure customer satisfaction, reducing cycle time and reduction in waste also.

(iv) Fourth reason being large percentage of worker are unskilled. Each worker should be provided with ***requisite training***. Though ***Kaizen,*** workers should be involved into improvement of existing process so that they become able to address small problems or improve a process.

(v) Fifth and second major reason is large amount and categories of raw materials, dumped by store at production floor; that's too well prior to need. This reason may be root cause of one of complaint by customer that assembled part is not belong to model they purchased.

JIT can be implemented as part of lean system. JIT is **pull system of production**, with **single piece flow** after considering **takt time**. In JIT, production facility needs to be integrated with vendor system for signal (Kanban) based automatic supply which depends upon demand-based consumption. Under JIT system of inventory storage cost is at lowest level due to direct issue of material to production department as and when required and resultantly less/no material lying over in store or production floor.

Note - Takt time is the maximum time to meet the demands of the customer, this will help to decide the speed of/at manufacturing facility. Heijunka can be applied in order to *reduce variation* between takt times over the production.

Cost benefit analysis of 'reduction in storage cost along with opportunity cost saved' and 'increase in ordering cost, purchase cost along with stock-out cost' need to be made.

(vi) Sixth reason for low performance is **old established businesses processes**, especially production processes and contains **certain activities which are purely unnecessary**.

Value Analysis needs to be applied in order to ensure maximum value to customer by eliminating activities which are not value generating, this will control cost also, that's too strategically.

Process Innovation and **Business Process Re-engineering** can also be applied. Re-engineering is rethinking and radical design of business process in order to achieve improvement. It will help the SAL to keep them at par with changing technology by synchronization along with redesign, retool the business process.

Further details can be tabled on requisition basis.

Closure of Report

Mr. Reddy,

Chief Management Accountant

(For Management Accounting Division)

Shakti Automobiles Limited

Case Scenario 4

A-One Automobile is manufacturer of Motor Bikes. A-one is based in a country which recently became liberal and global economy. Hence till the time, when businesses in country was controlled by government and the government, in order to maintain price and domestic demand, regulates the market to maintain the uniformity in the prices determined by the entities.

The country is large enough with widespread populations with high density; there is high demand for motor bike as large population of country is in the age group of 18-24 years. A-one automobile enjoys reasonable market share. The new government in country believes in deregulating markets and allows the imports of foreign motor bikes.

Management team at A-One acknowledge that it utmost needs to make changes to its process in order to respond the competition from foreign manufacturers. Further, A-One's Motor Bikes are now being seen as expensive product in comparison to the foreign competition, because A-One motor bikes are costly. Currently, finance department uses traditional standard costing and budgetary variance analysis on the basis of standards set semi-annually in order to monitor and control production activities. Management at A-One plans to improve its performance through the use of Kaizen costing.

Required

(i) RECOMMEND key changes significant to A-One's traditional costing system to support the adoption of 'Kaizen Costing Concept'.

(ii) LIST the impact of implementation of the Kaizen costing approach on the employee management at A-One.

Solution

(i) Key changes to support the adoption of 'Kaizen Costing Concept'–

Kaizen Costing implies that small, incremental changes routinely applied and sustained over a long period, results in significant improvements. It aims to involve workers from multiple functions/ levels in the organization to work together to address a problem or improve a particular process. In other words, it is a costing technique to reflect continuous efforts to reduce product costs, improve product quality, and/or improve the production process after manufacturing activities have begun.

Adopting Kaizen costing requires a change in the method of setting standards. Kaizen costing focuses on "cost reduction" rather than "cost control". It emphasizes on small but *continuous improvement*. Targets are updated continuously to reflect the improvement that has already been achieved and that are yet to be achieved.

The suggestive changes which are required to adopt Kaizen Costing concepts in A-One are as follows:

Cost Control System to Cost Reduction System: Traditionally Standard Costing system assumes stability in the current manufacturing process and standards are set keeping the normal manufacturing process into account thus the whole effort is on to meet performance cost standard. On the other hand, Kaizen Costing believes in *continuous improvements* in manufacturing processes and hence, the goal is to achieve cost reduction target. The first change required is the standard setting methodology i.e., from earlier Cost Control System to Cost Reduction System.

Reduction in the Periodicity of Setting Standards: Under the existing control system followed by the A-One, standards are set semi-annually and based on these standards monthly variance reports are generated for analysis. But under Kaizen Costing system cost reduction targets are set for small periods say for a week or a month. So, the period covered under a standard should be reduced from semi-annually to monthly and the current practice of generating variance reports should be reduced to a month or a week.

Participation of Executives or Workers in Standard Setting: Under the Kaizen Costing system, participation of workers or executives who are actually involved in the manufacturing process are highly appreciated while setting standards. So, the current system of setting budgets and standards by the finance department should be changed.

(ii) Impact of implementation of the Kaizen costing approach on the employee management–

- **Role of Employees** – The relation between management and employees, apart from role of employees will change drastically, because under any system of costing, employees are seen as cost centre and real cause of problem, but in kaizen costing employees are seen as solution provider.
- **Implementation aspects of Kaizen** – It may be possible that at time of implementation of Kaizen due to change in role of employees, they may be not self-motivated to command, control and suggest possible improvement themselves. But this is sure that after reasonable time Kaizen system will increase staff motivation through empowerment.
- **Changes in Culture** – From government regulated culture to employee self-empowered work-culture, will be dramatic change for A-One. Under Kaizen employee group will be assigned with power to make continuous changes rather than just executing the changes approved from management.

Case Scenario 5

Smooth Connect Telecom (SCT) *is the private sector telecom company. SCT is second largest player in telecom sector of country, with subscriber base of more than 10 million. SCT achieved this magnificent growth by acquiring competitor in recent years. SCT deals in fixed line telephone services, corporate services and mobile (cellular) services. SCT is meeting all the requirements from regulator in efficient and timely manner.*

SCT is known for continuous innovation in its services, with changing pace of technology and business need like wise use of Optical Fiber Wire and VoLTE (Voice over Long-Term Evolution) etc. This helps the SCT in acquisition of many corporate clients.

The largest player in telecom industry is Voice Telecom, which is resulting company out of corporate restructuring of state-owned telecom corporation. Voice Telecom still own largest market share due infrastructural advantage over other players in the market. SCT is also facing tough competition from Voice Telecom on pricing and customer volume.

Majority of telecom operators, including SCT and Voice Telecom, usually criticized by customers for poor customer services, misallocation of call duration and call drop; but majority of complaints are on account of–

a. *Calculating wrong tariff, and*

b. *Dull and delayed response from customer care executives.*

Hence by focusing on customer services, if SCT improves its billing process and handles the customer complaints wisely; then SCT can gain competitive advantage over other players including Voice Telecom. In order to improve the quality of customer services, SCT decide to practice Six Sigma initiative.

Required

Enumerate the modus operandi that 'how SCT can APPLY DMAIC method to implement Six Sigma'.

Solution

Six Sigma was first used by Mr. Bill Smith of Motorola Corporation in 1986 for *improvement of manufacturing process* & *elimination of defects*. Six-Sigma seeks to improve the quality of process by identifying and removing the cause of defects (defect can be anything, which lead to customer dissatisfaction). Six Sigma uses quality management and statistical methods with special infrastructure of people. Six-Sigma can be implemented through two methodologies–

1) **DMAIC** (Define, Measure, Analyse, Improve and Control) - Improve existing business process (remove defect).

2) **DMADV** (Define, Measure, Analyse, Design and Verify) - Create new business process (defect free).

DMAIC methodology of Six Sigma implementation at SCT

Define – Define the improvement area

Define include definition of customer requirement or problem faced by customer

First and foremost, requirement of is to ensure customer must be billed correctly, because wrong billing may lead to either of–

a. Delayed revenue – due to litigation for wrong billing

b. Loss of revenue – due to porting to alternate telecom operator by customer

Customer care *executives need to be trained*, so that they can guide the customer in most appropriate way and ensure lowest possible wait time to solve customer complaint.

Measure – Existing process for comparison

Existing performance need to be measured

Since performance need to be measured specially in two domains 'billing processes' and 'customer complaint handling', hence SCT needs to have a system through which it can collect reliable information (likewise number of complaints as percentage of total customers, similarly wrongly billed customers against total customers; is there any process of reissue the correct bill? – if yes –than in how many cases it is issued? and average time to solve complaints) in order to measure existing performance.

Performance is required to be measured against each of *critical success factors* (which will create value for customer).

Analyse – Cause effect relationship between factors of process

Existing process needs to be mapped in order to determine the root cause of problem

SCT should further analyse the information collected in second point (measure) above for determining the performance, in order to reach to root cause of customer complaints and wrong billing; So that necessary *preventive* and *corrective* steps then can be taken.

Improve – Plan improvement on basis of analysis

Existing process need to be improved in order to mitigate the root cause threats

Once the SCT done with the analysis, it has to identify the possible solution to root causes, in order to improve the performance.

Any improvement, which is so ever is suggested; needs to be both **feasible** from SCT prospective and **valuable** from customers' perspective.

Improvement can be done by reissue of bill where it was wrongly issued earlier, if already process of revision of bill is in existence than wait time for reissue need to be curtailed.

Control – Continuous control to identify and correct the process variance

Improved processes need to be controlled continually in order to assure enhanced performance shall be maintained

Post improvement in process (issue of bill and handling of customer complaints), the manager who is responsible for such process at SCT need to assure continuous control over the process, so that customer services should create same value for customer and keep them satisfied.

For monitoring, KPI against CSFs can be established and reported on daily basis, likewise number of complaints (especially which remain unresolved at day end) and wrong billing cases. These KPI will also act as early *signal* to Line Manager or Senior Management.

In order to implement Six Sigma as per DMAIC method, SCT need to form a team of line managers from different processes which need to be improved (or critical from prospective of customer services). Team and implementation project should lead by some senior management person (may be CEO him-self).

Case Scenario 6

Star Tiles Production Limited (STPL) is large manufacturer of floor tiles and interlocking tiles. STPL enjoyed reasonable market share and brand reputation up till couple of year ago. Since then, STPL is facing problem of decline in productivity. STPL deals in variety of tiles with different brand-name, some of their brands are in development stage and some in maturity. Majority of customer are from middle class, who are price sensitive; hence cost of production is critical aspect for STPL and resultantly productivity too become critical factor.

Workers at STPL are allocated with specific roles and responsibilities. Workers are supposed to work strictly according to specific set of guidelines provided by superior. Workers used to complain about job role allocations, because allocations are not as per skill set of workers. In some of case task become monotonous; as learning curve exhausted. Management and operational decision are centralised in nature, participation of workers is limited up-to day end report only.

Remunerations at STPL are paid based on hourly rate. Hourly rate is fixed based upon number of years of working in STPL, irrespective of importance of task allocated to such worker. Since payment are fixed in nature hence workers at STPL are hardly concern about quality. Some of skilled workers are getting less pay in comparison to other staff. STPL recently retrench some of senior workers, who possess reasonable operational skills; but not good in technology part which is essential to operate machines; recently installed at STPL plant.

Since there are varieties of tiles available in stock that's too with different design, hence in past there are handful instances where material delivered to customer was different from what being ordered. Due to large volume of inventory at store, some category of tiles is further manufactured even lying available in store and stock of some remains always short.

Required

You are newly appointed to Management Accounting Department of STPL, Management Accountant asked you to draft a report for CEO, containing brief explanation to–

(i) Productivity, stating in context of what it should be measured?

(ii) Productivity enhancement techniques, which can be applied at STPL in order to enhance productivity?

Solution

Report

Addressed to:

Office of CEO,

Star Tiles Production Limited (STPL).

Dated –11th Apr 2020

Report on Productivity Enhancement Techniques

(i) Productivity - Productivity is all about efficient and effective use of all resources. Resources can be time, people, knowledge, information, finance, equipment, space, energy and material.

Productivity is usually linked to 'time and motion', in order to

- Put pressure on worker to perform faster.
- Increase the productivity either by increasing the value or reducing the time required to create that value.

Note - Responsibility of productivity is largely on the person who organising the work rather individual worker.

(ii) Productivity Improvement Techniques

a) Value Analysis/ Engineering – Value engineering improve value of product at every state of product life cycle**;** Since products of STPL is lying either in development stage or in maturity stage, hence

- **At development stage** – STPL can reduce cost without reducing quality by establishing design and processes accordingly.
- **At maturity stage** – STPL can reduce cost by replacing costly component with cheaper one. But may result in reduction in quality to some extent, hence *consumer behaviour* is important. Since customer base is *price sensitive* hence this strategy may work.

b) Quality Circles – Quality circle is small group of employees, usually in size of 5-6 members in order to–

- Meet regularly to identify, analysis and solve problem of their departments.
- Advice the management to implement new methods to solve work-related problems.

Since STPL facing criticism from worker class and method of working is selected by superior hence quality circle can be solution to these problematic aspects.

Note – This technique originated in Japan in 1960s

c) **Financial & Non-Financial incentives** – Incentives are real cause of motivation to worker and may be financial and non-financial in nature.

- **Financial** incentive includes better wages and salaries, bonus etc**.**
- **Non-financial** incentive includes better working condition, welfare facilities, worker participation in management.

Since the incentive scheme is not linked to employees' productivity and skill hence redrafting of *incentive schemes* incorporating financial and non-financial incentives can promote productivity.

d) **Operations Research –** Management at STPL need to incorporate operation research and technique thereof in the decision-making process. Use mathematical & scientific methods may solve the problems of productivity (by using techniques such as LPP etc).

e) **Training –** Rather than retrenching the employees who are operationally sound and weak in using the technology, they must be trained on technological part. Training is process of knowledge & skill enhancement of employee and will result in increased efficiency of employee.

f) **Job Enlargement & Job Enrichment –** Job Enlargement is **horizontal expansion** of job which *increase* the varieties of job & work knowledge (make job interesting and satisfying), whereas Job Enrichment is **vertical expansion** of job which makes routine job more meaningful and satisfying. With this STPL can solve the problem of monotonous nature of task and can enhance the productivity.

g) **Job Evaluation –** In order to enhance the productivity, STPL should do job evaluation. Fixing value of each job in the organisation. This is essential for moral boosting for employees.

h) **Inventory Control & Material Management –** Optimum usage of material in manufacturing process need to be ensured by STPL, whereas overstocking and under-stocking should be avoided, through–

- Scientific Purchase
- Systematic Store Keeping
- Proper Inventory Control, etc.

Because **overstocking** may result in blockage of fund, chance of misuse/ mishandling & spoilage of material and **under-stocking** results in shortage or sale out situation which result in loss of contribution.

i) **Quality Control –** STPL should ensure identification of causes of quality deviation & correction thereof, in order to produce goods with quality at lowest prices & to reduce wastage.

j) **Human Factor Engineering –** Understanding of technology and human requirement (psychological & physiological character), of task and worker both; in order to ensure fitment of job to men; to increase human efficiency & wellbeing. STPL can do skill mapping as part of this technique.

Further details can be tabled on requisition basis.

Closure of Report

Signature

(For Management Accounting Division)

Star Tiles Production Limited.

Case Scenario 7

ABC Limited specializes in the manufacture of chemical intermediaries in a very competitive business environment. ABC is a public listed company, with majority of its shareholders being institutional investors like mutual funds, banks and insurance companies.

It is located in a water scarce zone in Tamil Nadu. There are restrictions on the tapping and usage of groundwater under the relevant laws. Penal provisions of the law will apply in case of violations. The production process requires water and the amount of water that the company can draw is limited to 19,000 kilo-litres (1 Kilo-litre is 1,000 litres). Purchase of water is not an option as availability is highly erratic and exorbitant on cost.

The company manufactures two types of chemicals "A" and "B" and these are sold in kilograms. The company is in the process of making the business plan for the year 2021.

Based on the actual operating data for 2020 and taking into consideration the inflation and possible price increases that it can obtain from the market, the following product costing details have been arrived at:

Product	***A***	***B***
Capacity Volume kg. (not inter-changeable)	*8,25,000*	*9,30,000*
Selling Price per kg.	*₹2,000*	*₹1,000*
Variable Cost per kg.	*₹1,500*	*₹650*
Water (litre/ kg.)	*12.5*	*10*

Under the relevant income tax laws prevalent, companies with a turnover of ₹250 Cr. (Crores) or less are taxed at a lower rate of 25% as against the normal 30%. The company intends to keep its sales for 2021 equal to ₹250 Cr. or slightly lesser to avail this concessional income tax benefit.

With capacity constraints, the company has calculated that it would be still beneficial for the company to stick to ₹250 Cr. as only a marginal increase in turnover is possible over ₹250 Cr.; after a higher tax @30%, the PAT would be still lower than the PAT arrived at after doing just ₹250 Cr. and availing the lower income tax rate.

CFO asked management consultant to work out the volumes in kg. of products "A" and "B" which would give an optimal (maximum) contribution given the constraints on capacity, water usage and turnover to avail the concessional income tax benefit.

Consultant work out with the following product mix using Linear Programming. She also proposes another mix which does not meet the constraint on water usage where the company could end up drawing excess water than permitted by 113 kilo-litres but would result in an increase of ₹30 lacs in contribution. She says that it is easily possible to do this by managing reporting to the water authorities.

Product		***Optimal***	***Suggested***
A (Volume in kg.)		*8,00,000*	*7,85,000*
B (Volume in kg.)		*9,00,000*	*9,30,000*
Contribution in ₹Cr.		*71.5*	*71.8*
	Constraints		
Sales	*<= 250 Cr.*	*250*	*250*
Volume of "A" in kg.	*<= 8,25,000*	*8,00,000*	*7,85,000*
Volume of "B" in kg.	*<= 9,30,000*	*9,00,000*	*9,30,000*
Water usage (in KL)	*<= 19,000*	*19,000*	*19,113*

Required

The CFO is not satisfied with the calculations. He wants you (Sr. Finance Manager) to come up with a proper DISCUSSION.

Solution

Primary goal of investor –owned firms is shareholder wealth maximisation, which translates to stock price maximisation. Management Consultant's plan is looking good for the ABC as there is a positive impact on the profitability (₹30 lacs) of the company. Also, ABC operates in a competitive environment so for its survival, it has to work on plans like above.

There is second side of coin that cannot also be ignored i.e., **business ethics**. It is easily possible to manage drawing of excess water, but it is not an ethical practice as the company has *responsibilities towards* use of natural resources like water and protecting the environment.

Besides, a whistle-blower complaint to the water authorities can land the company into trouble in terms of penalties, *a financial impact* and also such penalties are disallowed for income tax purposes. It is possible that such a violation may be reported in the media causing *disrepute to the name* of the company. It can also make *investors* in the share market stay away from the company as it has ethical governance issues. The company will face challenges in obtaining other *government approvals* when it will plan expansion as this violation may have to be reported on the applications seeking approvals.

Overall

May be ABC would be able to earn profit due to this plan in *short run,* but it will tarnish the image of the ABC which would hurt profitability in *long run*. Therefore, before taking any decision on this plan, ABC should analyse both qualitative and qualitative factors.

Case Scenario 8

Fashion industry prospered more than any other industry and it kept blooming with new trends being brought weekly and almost all being sold in no time. The NextGen clothing (NGC) into the fashion industry, situated in the outskirts of Deshipur, had several textile plants, nurturing the needs of the community. NGC had a good base of laborers and farmers, few of them aged under 14, from nearby locations enrolled into the program. They had no source of employment past the clothing plants. It gave boost to their living avenues with receptivity to all modern facilities of living. They worked overtime to get NGC to where it wanted to be.

The raw materials did not cost much to NGC, given the local availability and the cheap quality. The low financial cost and the low sale price it offered to its customers allowed it to churn out cotton and viscose fabricated clothes in humungous quantities. The citizens loved the articrafts brought out by the designers and the cotton material pleased them.

NGC had no history of reporting sustainable efforts to build up a strong environment to work in. It reported phenomenally huge profits in past three years, paid out impressive dividends to its shareholders, bonuses and lucrative overtime pays to its laborers. All were happy and no one complained about the sustainability aspect, the duty it owes to its surroundings and the greater environment.

The community focused on the form rather than the substance of it. It kept overlooking the brutal effects of producing cotton and viscose in local farms which was the primary source of raw material for NGC. One day NGC learnt that a scholar born and brought up in Deshipur, studied in Northern America, returned to his hometown. He presented brain storming sessions to the civilized people which made them rethink on their clothing habits. His sessions were summarized below:

Cotton

First of all, the production of cotton involves enormous water usage, which is already a scarce resource globally. Just to manufacture cotton enough to make a t-shirt, involves using liters of water. Above that fertilizers and pesticides employed takes a toll on farmers' health. They *become ill often than not. Not just the cotton producing process is environmentally non tenable, it involved tons of water for spinning the cotton and dying the fabric to make the cloth. The chemical composed water then flows to the nearby rivers and hampers the life of water beings and people around.*

Viscose

This is a semi synthetic matter derived directly from wood pulp and converted into cloth by application of chemicals and water. Most of the deforestation can be ascribed to the paper production and rayon production. The greedy merchants overlook even the protected areas to get the required pulp. The sprouting air pollution and water pollution has left community residents forsaken to cry over their fate. The use of harmful chemicals leads to diseases like cancer and heart strokes.

We, the Customers

The ridiculously low prices of the clothes with the advent of the internet have created a desperate demand of clothes and have led to surge in its buying frequency. Hardly few of us contemplate on how a t-shirt or jeans we are wearing was made, what processes they had to undergo before it took that shape and the extent of loss and injury it caused persistently.

In a nutshell, his sessions were about the ideas hinting at the destructive impacts on environment that NGC is bringing to their plate. They gave a patient listening to all his talks, well fabricated in their native language, free from any fictions.

The training sessions of the scholar, Raghu picked up many ears, it was all over the country and NGC started to perceive this as the verge of its downfall. NGC had to give a rethinking on the way clothes were made.

Required

RECOMMEND ways to bring a turnaround in the reporting framework and go extra miles to do something "sustainable" for the environment.

Solution

Sustainability is a wider phenomenon in itself and cannot be narrowed to just the environment and its people. Ensuring sustainability in a profound context means not just to make the present secure but also considering *the needs of the future for the resources*. This can be done when there is well blend of demand and supply of such resources.

As per the **triple bottom line approach**, in the context of fashion, sustainability is interpreted as using environmentally *ethical means of producing* wearables like clothes, footwears, and other apparels. This approach considers the challenges that a production process brings to the *people* and the *planet* even if of less intensity to the firm itself, in the short run. The triple bottom line counts in the advantage of the *greater stakeholders* rather than the traditional shareholders as noted down from a traditional reporting policy.

Therefore, a sustainable fashion is an undertaking to consider the implications of triple bottom line pillars (i.e., environment or planet, the people, and the profitability of the firm) when producing consumables. This holistic approach looks beyond just the term fashion and does what is to be done to put in place an *ecological balance*.

Once we understand the term sustainability, we now catalog some of the sustainable efforts that are recommended in the situation of NGC and they are:

Producing quality materials

Nowadays firms are resorting to producing cheap materials that cost them less to produce and sell. Bearing the come and go fashion in mind, their produces have less longevity and are more representative of use and throw stuffs. Given the environmental boost, NGC *should use materials that guarantee longer lasting textiles*, thoughtfully designed and priced. This will plunge the need to buy the clothes so often and will enhance the clothing experience of the masses. The highly priced material will lower the demand and keep at bay its accessibility to all. From a short-term perspective, this may sound a financial hit which in the *long term* will prove a *reputational boost* to the firm, given the drastic change in quality it adapts to.

Spreading awareness among the customers

Though many expectations are just around the firms engaged in textile production and sale thereof, the customers are no less responsible in turning down the clothes and discarding them in less environmentally amicable manner. They *do not discard the clothes in the right time* and *at right place*, rendering the clothes unsuitable for reuse. The thrift stores and donation center are propelled to throw such unfit clothes. As per reports, only established donation centers or processing centers are able to sell overwhelming quantities of secondhand clothing and footwears. So, there is a strong relation between the conscious buying choice of the customers and the sustainability in the fashion industry. With less numbers of purchases of good quality pieces, they can support sustainability.

Using organic materials and addressing safety issues

Triple bottom line suggests that reducing financial expense at the cost of health of its people can cost unimaginative money to the firm in the long run. A firm cannot be seen in isolation to its people who work for its interest and the local residents that live around. As indicated from the facts above, we are aware that producing cotton and viscose involved usage of enormous pesticides and fertilizers that ultimately impaired the health of the farmers and other people involved. They end up having life threatening diseases like cancer and heart strokes. *Organic material* does not necessarily eliminate the application of pesticides and other toxic materials; however, it will reduce its usage to an acceptably low level. Though restoring to organic materials would not lead to reversal of harmful effects that occur once the cotton is harvested, it will present considerable relief to the health of its people. The adversity occurring by way of colossal use of water to produce organic cotton as compared to the ordinary cotton has to be kept in mind though. This aspect will *risk the sustainability of the water* for the future generation, an already scarce resource for the present as well.

Moreover, selling the produce for cheap prices, will mean an adjustment to the wages of the laborers and farmers they receive for their hard work. Historically we have seen that firms with an attempt to practice price competition, try to cut down their production cost by compromising the quality of machines they use, providing below standard working environment to their workers, undue firing of skilled people. All of these presents an ongoing challenge to the wellbeing of those people such that they are forced to eke out their living.

Channelizing efforts towards recycling

NGC can introduce *innovative recycling channels* to ensure that customers are enticed to turn over the used clothes rather than throwing them away. Having a *recycling collector* at its store with a catchy slogan like 20% discount on fresh stocks for the used clothes, can help. This effort directs people to resort to reusing their old stuffs so that the landfill pressure reduces thereby *reducing the emission of carbon gases* in the environment. Few firms collect their own products, and after working on them, are sold below normal prices.

Alternatively, NGC can seek the *services of third party* that can help them buying secondhand clothes and sorting those based on their quality and resale the ones suitable for use and get others to the recycling process. Such unsold clothes left over can be used as raw materials by carpet manufacturers or other textile manufacturers.

Compliance to local labor laws

The true cost of any firm is not just the perceivable financial cost that is reported in its annual publications, it also comprises of the *non-financial cost* not counted in the context of financial reports. As mentioned above, the low quality of machines can cause myriad accidents at NGC's plant thereby putting it into legal liabilities which is although a financial cost for the firm but will prove to be *reputational risk* in the long run, a non-financial cost.

Ethical manufacturing also means *complying by the local laws of the country* pertaining to usage of labor. We see that NGC are pulling in children of age below 14 years to get their job done. Rather than defending the rights of its workers, it puts an imminent risk to the local kids. It is against the local labor laws to hire child labor and provoke them to work when it is their right to receive educational and nutritional support at this age.

Producing Poly clothes

We see the most expensive sportswear made out of recycled polyester materials, which comes as no surprise. Thanks to the ethically aware multinational firms. It is suggested that NGC should direct its effort in reducing the negativity of plastic remnants brought into the cycle. The plastic materials like ketchup bottles, pickle and oil containers are processed to a liquid consistency which is then turned into reusable fabrics. The demand for cotton clothes is surging globally and polyester made clothes appears to bring a switch over. Poly clothes have less ecological impacts compared to cotton and are easily recyclable; and consume less water.

Reducing the usage of water consumption

As evidenced from the facts, each cloth made to wear consumes liters of water. This usage of water can be controlled by *manufacturing as per the just in time approach* rather than churning out humungous quantities. This will allow controlled production of raw material on need basis and in turn the limited manufacture of the clothes. NGC can adapt the policy of taking customized order made to manufacture what is ordered for. This will also ensure limited flow of hazardous chemically composed water to the nearby rivers, thus *managing the risk of commoners' lives*.

Overall

Considering the above approaches, it is perceived that NGC can bring a significant positivity to its environment. Being a socially responsible part of the community, *it owes a duty to its surrounding and not just to its capital providers*. Hence it is also recommended that it should hire an expert who can assist it in presentation and preparation of sustainability report (or reporting as per the triple bottom line framework). This report satisfies the informational needs of the *larger stakeholders* i.e., the government, regulatory authorities, employees, local residents and community, and the customers and suppliers.

Once NGC implements some of the suggested sustainable approach to manufacturing clothes, those policies and efforts can be reported in the triple bottom line framework reporting. This will provide a *reputational advantage* and also a *competitive edge over its competitors* in the industry which will bring in financial gains.

Case Scenario 9

Toys Limited manufactures toys and games for the children in the age group 6 to 14 years. They have recently shifted to STEM i.e., Science, Technology, Engineering and Mathematics learning approach. The major games under this category are DO IT YOURSELF (DIY) Kits. Each kit is designed with a specific learning objective. This kit comprises of all the elements which are essential to build the specific project. The number of elements in a kit range from 200 to 350 elements. There is an instruction booklet in the kit which guides the user throughout the project. The users can also use the video support which is provided with specific user login.

In last two months, the customer support division has reported a major increase in the consumer complaints. A critical study revealed that the major complaints were under the category "missing elements" in the kits. Further study revealed that most of these complaints were for the products which had some common elements in the kits. On the other hand, the customer feedback and reviews have been very positive on the "quality of the elements" provided with the kits.

Since innovation is the core competency for this game industry, the company has a dedicated Research and Development team which focuses on three areas-

a. Identification of new learning techniques

b. Development of new games

c. Upgradation of existing games

Under the current system, the games are sold online. The final product is delivered from the central warehouse located in Bangalore. The company holds a minimum inventory of the games at the central warehouse.

The manufacturing facility is located in the industrial area which is around 50 kms from the Central Warehouse. The production plan is based on the demand as per the instructions from the Central Warehouse. The Chief Quality Officer is responsible for the quality of the product right from the procurement of the raw material till the final product is delivered to the customer.

The CEO has called a meeting of the heads of all the departments and suggested them to implement of Lean Management and integrated the same with the innovation in the organisation. After a series of brainstorming sessions, they have agreed to implement 5S lean management system.

Required

ADVISE on implementation of 5S in Toys Limited.

Solution

The current problem emphasises on *"missing elements"* in the kits as one of the major reasons of customer complaints. This highlights that there are issues related with ***workspace organisation***. The positive feedback on the *"quality of the elements"* reflects that the production related process is robust. Considering the above two factors, Toys Limited is required is to maintain *high quality work environment*. Therefore, the 5S concept should be used. 5S explains how a workspace should be organized for efficiency and effectiveness by identifying and storing the items used, maintaining the area items, and sustaining the new order. The 5S lean management system comprises of the five S's Sort, Set in Order, Shine, Standardize, and Sustain.

Sort

This will focus on identifying necessary elements of the kit, *remove the unwanted items* and ensure that all the elements of a particular kit are available. The unwanted items can be provided with RED FLAG so that these can be removed at the earliest.

Set in Order

It will ensure that the elements of the kit are *placed at the properly allocated space* for the kit. It will also help in assigning fixed places and fixed quantity of elements at each space. It is always recommended to have it compact so that it is easy to access.

Shine

One of the reasons why elements might be missing would be mismanaged and untidy workplace. Shine aspect of 5S focuses on *keeping the workplace clean on regular basis*, and also ensuring it is easy to work at the particular workplace. It focuses on keeping tools and equipment clean and in top condition, ready for use at any time.

Standardise

The best practices of the particular work area are standardised. The focus is on *maintaining high standards* through orderliness and as per the required quality and quantity. This includes *steps* which make it easy for everyone to identify the state of normal or abnormal conditions. This can be achieved by placing photos on the walls, to provide visual reminder about the elements properly placed in the kits.

Sustain

For a long-term success, it is important to *sustain the set standards* and *processes*. This involves establishing and maintaining responsibilities amongst the team leaders and members. Ensure that members follow the rules and it becomes a part of their work habit. There should be periodic audit and review of the process for early identification of any issues.

Considering the above aspects of 5S lean management system, its proper implementation will strengthen the way the kits are being packaged and will ensure that the issue of missing elements can be brought down significantly.

Case Scenario 10

Dewar Bikes (DB) is large national bike manufacturing company established in the year 2003. The company has a strong position in the market and has also traditionally achieved a good market share however facing tough competition. The Board of DB recognises that it needs to make fundamental changes to its production approach in order to combat increased competition from foreign manufacturers. DB is now being seen as non-lucrative, pollutive and with less safety features in comparison to the foreign bikes. The Board plans to address this by improving the quality of its bikes as well as financial performance.

The components are sourced directly by DB. Suppliers are located worldwide. Suppliers are evaluated on an ongoing basis, including an assessment of whether to utilise new or alternative suppliers to improve capacity and performance. The company is having lot of components piled up in stock and few of them are becoming obsolete. There is lots of reworking as both internal and external failure are more, so the wastage of resources in reworking needs to be controlled. The Board is convinced that Lean Manufacturing is the best approach to be adopted.

In DB, production process is grouped by function and production teams comprised a number of permanent members, who had acquired their positions through seniority and a few newly selected specialist staff who had yet to discuss their position in any team.

The process of making a bike can be roughly divided into stamping, welding, painting, assembly and inspections, which takes about 11-12 hours in total. The standard time to manufacture a similar bike in industry is 8-9 hours. The nature of end product demand is unstable due to economic factors. However, DB forecasts demand based on its internal policies and historical trends. DB sells its bikes in retail stores located in over 10 metro cities. It focuses on building close relationships with retailers, working with them to sell its bikes in a compelling manner.

Enclosed Annexure

Required

You are newly appointed to Management Accounting Department of DB, Chief Management Accountant asked you to draft a report for CEO, containing–

(i) ANALYSIS of quality costs and ADVISE on two measures to reduce the non-conformance cost,

(ii) ADVISE on implementation of just-in-time purchasing and production.

Annexure

Statement Showing 'Total Quality Costs'

Particulars of Costs	***₹***
Prevention Costs	
Supplier Review	*2,50,000*
Appraisal Costs	
Equipment Testing (₹36 × 1,600 hrs.)	*57,600*
Internal Failure Costs	
Down Time	*15,40,000*
Manufacturing Rework (₹456 × 3,200 bikes)	*14,59,200*
External Failure Costs	
Customer Complaints (₹70 × 2,000 hrs.)	*1,40,000*
Warranty Repair (₹3,120 × 2,600 bikes)	*81,12,000*
Total Quality Costs	***1,15,58,800***

Solution

Report

Addressed to:

Office of CEO,

Dewar Bikes

Dated –06th May 2020

Analysis of Quality Costs

The reporting of quality costs highlights the cost of quality activities at DB. The total quality costs statement clearly displays the relationship between conformance costs (prevention and appraisal costs) and non-conformance costs (internal failure and external failure costs) and the drivers of a reduction in the overall spending on quality. Statement indicates that only 2.16% of the total quality cost is the cost of preventing quality problems while 0.50% is the cost of appraisal activities. Thus, prevention and appraisal costs make up only 2.66% of total quality costs. In contrast, 97.34% of quality control costs are incurred for internal and external failure costs.

Two measures to reduce nonconformance cost

Total Productive Maintenance (TPM) is a system of maintaining and improving the integrity of production and quality system through keeping all equipment in top working condition so as to avoid breakdowns and delays in manufacturing processes. It involves identifying machines in every division (including planning, manufacturing, maintenance) and then planning & executing a maintenance programme covering their entire useful life.

In this case, TPM will help in reducing internal failure cost (i.e., downtime and manufacturing rework cost), which constitutes 25.95% of total quality cost, by keeping all equipment in good working conditions so that there is no downtime or machine breakdown and ensuring that all equipment run smoothly. If machines work properly, the chances of rework will reduce, ultimately will also reduce chances of warranty repair and customer complaints (comprising 71.39% of total quality cost which is a major part of total quality cost).

Total Quality Management (TQM) aims at improving the quality of organisational output, including goods and services, through continual improvement of internal practices. Its objective is to eradicate waste and increase efficiency without compromising with the quality. It requires maintaining quality standards in all aspects of business by ensuring that things are done right the first time so that defects and waste are eliminated from operations.

It appears that DB is not a TQM company at present, due to huge disparity between conformance costs and non-conformance costs. In order to make DB to be successful, all staff at DB must be engaged in the improvement process and share in the continuous improvement ethos. In order to establish a reputation as a high- quality bike manufacturer DB must ensure, staff is having attitude towards the importance of conformance activities, for instance, DB can conduct third party inspection of components at supplier’s workplace leading to maintenances of quality standards.

Overall, while applying above two measures, in the DB, consideration must therefore be given to the optimum balance between the costs of conformance and the costs of non-conformance.

Implementation of Just in Time

Just in time purchasing and production technique will put an end to the harrowing task of inventory management. In this form of pull system, purchasing of components and production of bikes will be based on customer demands and DB will have to accordingly coordinate with its suppliers to supply the right quantity of components required at the right time. JIT inventory management calls for having the inventory as and when needed also taking care of massive holding cost suffered related to large build ups. In this environment, DB will also be able to reduce the manufacturing time around 3 hours by streamlining the flow of information in entire supply chain.

Dewar is assessing alternative suppliers on continuous basis to improve capacity and performance. It means it is changing sources of material regularly or using multi-suppliers. In contrast, JIT is based on reduced number of supplier and move towards single sourcing. It is easier to develop long term cooperative relationships with a smaller number of suppliers. The quality of internal services and an organisation's ability to provide quality products or services to its customers depends upon this relationship. However, this relationship is obviously missing in DB.

DB has close relationship with the retailers but relationship with suppliers is equally important.

It appears that firm is also importing its requirements from abroad. In JIT environment, it is important that suppliers are, to the extent practical, located in close proximity to the manufacturing plant. Carefully selected suppliers are capable of delivering high quality materials in a timely manner, directly at the shopfloor, reducing the material receipt time. Therefore, selection of right supplier located in close proximity to the manufacturing plant is vital for the proper implementation of JIT.

It is also important to note that every supplier is different, but the DB has to be able to view each as one of its part only. The supplier's network must be able to call up and communicate directly with the DB's network, obtaining manufacturing schedules and product specification in real time. ERP and other sources of electronic data interchange between supplier and DB will act as backbone in supporting the JIT activity.

On the whole, DB's management has to treat suppliers as partners with significant influence on the success of the organization.

The functional division is less appropriate in JIT environment. JIT production requires multi-skilled teams. In DB, teams need to be formed to work by product i.e., type of bike rather than by the type of work performed. In addition, staff will need training to work in the new teams, measures surrounding the amount and effectiveness of training will be required. A JIT system works best when employees pitch in with suggestions for improvements. The performance can be measured by computing the number of ideas per worker, the number of ideas suggested in total, the number of ideas implemented, or the proportion of ideas suggested that are implemented.

DB forecasts demand based on its internal policies and historical trends. Today demand in every sector of the market changes by leaps and bounds, so using historical data is not at all recommended. Demand forecasts should be pulled by current market trends and prediction of future market sentiments. However, in case of DB, demand is unstable. In this case, in order to prevent stock-outs, inventory managers can only increase the Kanban numbers of each product; the greater are the variations, the greater is the need of Kanban cards and, thus, the higher is stock level and need more working capital per rupee of sales.

Conclusion

The Board desires to improve the quality as well as financial position which can be achieved through successfully implementation of quality control and lean system. However, the factors discussed above should be taken care of. It is worthwhile to note that any return on investment in proposed system must be viewed long term rather than short term since optimum results may not be realized until the system has been in place for some time.

Further details can be tabled on requisition basis.

Closure of Report

Chief Management Accountant
(For Management Accounting Department)
Dewar Bikes

Case Scenario 11

ABC is a medium size Chartered Accountancy firm having five branches in India. Their major revenue segments are statutory compliances, taxation practice, audit & assurance and consulting services. Their founder partner, in a recently organized year end closing meeting with all working partners, has given the following vision statement for the next year:

'The next financial year, ABC should use results and determinants-based framework for each revenue segment and the current rewards scheme to be remodeled to a clear result oriented one'.

Required

(i) DESCRIBE management strategy, the founder partner of the firm referring to.

(ii) LIST some performance measures that might be used.

Solution

(i) The management strategy that the founder partner of the firm referring to is the 'Building Block Model' as proposed by Fitzgerald and Moon. The model was proposed as a solution to performance measurement in service industry but can also be extended manufacturing field to evaluate business performance. The model requires the establishment of results and determinants-based framework, wherein 'determinants' are the performance areas and the 'results' reflects the success or failure of the determinants. This model also requires setting the fair standards against which performance will be measured and linking the same to controllable factors in order to motivate the staff.

(ii) Some performance measures that might be used in ABC are as follows:

Financial Performance in ABC can be measured through computing gross/ net profit margin, margin per partner, change/ increase in revenue over previous year.

Growth in revenue, success rate in converting enquiries into revenue, retention rate of clients, relative market share and position are measures of **competitiveness**.

Statutory compliances segment will be having characteristics of recurring work, and strict adherence to return filing timelines; hence it is essential to ensure optimum and effective **resource utilization**. In order to measure the productivity of the staff, hour charged as percentage of total available hour/ total hour paid can be computed. This ratio will also signify the peak and off period.

Consulting Services segment will be having characteristics of analytical skills, inter-personal skills and ability to close on prospective clients; therefore, **quality of services** is critical factor for success. Customer rating and proportion of number of errors/ defects to number of compliances submitted can be taken as KPI for quality of services.

Flexibility is important from the prospective from delivery of service, the manner and timing and of delivery. Some performance measures that might be used for this dimension are number of returns submitted on time to total returns, actual number of visits to number of visits planned for specific assignment, number of technical areas like accounting, auditing, taxation handled by each team member.

Although the scope of **innovation** is not much available in accounting firms, but still use of IT tools can improve the utility for client. Moreover, innovation can be seen, as offering new range and category of services. Number of new services offered with in the previous year or three years can be a performance measure of innovation.

Case Scenario 12

'Digital Computers' is a manufacturer and wholesale dealer of electronic goods. In the initial years, the company was performing excellent and was improving year after year. However, from past three years, the performance of the company is towards decreasing trend. In a report, the sales manager stated that sales had been disappointing, and company's sale has gone down drastically. However, the sales manager pointed out that some orders had been lost because the production department had been unable or unwilling to adapt product specifications to the requirements of the customer. Also, one of company's larger customers had returned goods which it claimed did not meet its requirements, and the customer has subsequently not placed any further orders with Digital Computers. In addition, a delay in the completion of another large order meant that some revenue originally budgeted for this year would not now be earned until next year. The employees and managers are not motivated to perform at their best nor are the cycle time and waste at production department monitored.

Summary of Annual performance figure

Particulars	***₹ in Lacs***		
	Actual (CY)	***Budgeted (CY)***	***Actual (PY)***
Sales	*605*	*640*	*603*
Less: Cost of Sales	*343*	*365*	*341*
Gross Profit	*262*	*275*	*262*
Less: Other Costs	*173*	*183*	*175*
Net Profit before tax	*89*	*92*	*87*

The CEO believed that company's performance measures needed to link operations to strategic goals more closely, and they needed to focus on non-financial as well as financial measures. The CEO has suggested that Digital Computers should use a structure for setting targets based on the concept of the performance pyramid and should not focus only on financial performance.

Required

(i) LIST, how the system of performance measurement within Digital Computers could be improved?

(ii) ASSESS how the implementation of a performance pyramid might help Digital Computers achieve its stated objectives for sales and profit growth.

Solution

(i) The performance reporting system of Digital Computers appears to have focus exclusively only on financial performance and does not provide information about effectiveness and efficiency issues which may be affecting the company's performance. Digital Computers can improve its performance by establishing a range of operational measures which should include both financial and non-financial performance targets.

Some of the key pointers which can improve the performance measure at Digital Computers:

- Be allied to *corporate strategy*, which needs to be linked to day-to-day operations of Digital computers.
- Focus on *customer satisfaction* which is of foremost importance as orders have been rejected as it did not meet the requirement of customers, hence increase in *flexibility* needs to be adopted.
- Consider *internal* as well as *external* measures in the company i.e. internal such as *waste* and *cycle time* can be monitored at production department as well external measures like *customer’s requirement* can be assessed.

- Make explicit the *trade-offs* between different dimensions of performance i.e. in order to increase performance on non-financial performance dimension it has to decrease performance on the financial dimension.
- Consider all important factors to assess the performance whether difficult to measure.
- It appears that 'Digital Computers' is having poor communication and information sharing between departments. Therefore, having an integrated communication system across the organisation is recommended.

(ii) Establishing corporate level objectives – Establishing a performance pyramid structure should begin with the overall *corporate objective* or *corporate vision*. In Digital Computer, there may be the objective of increasing profit by a fixed percentage each year and increasing market share. The overall objective should then be used to establish targets at the next level down in the performance hierarchy.

Strategic business unit objectives – At the business strategy level, performance targets should then be created for both *internal efficiency* which includes financial targets and *external effectiveness* which includes marketing targets. The financial and marketing targets should be consistent with each other.

External effectiveness – The *marketing* success is associated with the achievement of customer satisfaction. The success will need an efficient business operating system for all aspects of the cycle from product design to after sales service to customers. *Customer satisfaction* is linked with improved quality as well as focus on delivery of goods provided as per customer specifications.

Internal efficiency – The *financial* success is linked to the achievement of high productivity. This can be gained through reduced cycle time and decreased levels of waste. Quantitative measures of these factors are:

- The average total *cycle time* from customer enquiry to delivery.
- *Waste* in the form of idle machine capacity.

Setting targets – Targets should be identified for productivity, customer satisfaction and flexibility. Targets for flexibility may be qualitative in nature, relating to Digital Computer's ability to adapt product specifications to customer requirements. Targets for measuring customer satisfaction may include targets for reducing the volume of customer returns. For instance, specific quality targets may help Digital Computers to reduce the volume of customer returns. Targets for cycle time and delivery may help the company to complete customer orders more quickly, thereby increasing the amount of orders it can complete in a year and hence achieving its sales target and thereby its profit.

Skill Assessment Based Questions

Question 1

First Source (FS) *is a firm engaged in making glass based high value exotic artefacts targeting premium segment market. Its major supplies thus go to retail shops in shopping malls in cities like New Delhi, Mumbai, and Chennai where such artefacts put on display with a premium price tag.*

FS sources most of its glass ware components from a local supplier in Delhi and assembles the same in small dimensional structures within its shop floor. Later these artefacts are given exotic designs, and embedded with glitter stones, fritter and such other items by five well trained artisans in the shop floor.

The sales in the past six months have not shown an encouraging trend and working capital is in crunch position. The management of FS has received the feedback from most the mall owners that this demand crisis is due to reduced footfalls.

The current position of FS is provided as follows:

	Artefact1 ₹	***Artefact2*** ₹
Maximum retail price per unit (MRP)	*3,000*	*6,000*
Rent to be paid to malls per unit	*50*	*55*
Facilitation costs to be paid to malls per unit	*10*	*15*
Present lower selling price per unit	*2,350*	*4,800*
Cost of glassware per unit	*900*	*1,120*
Cost of assembly per unit	*500*	*650*
Artisan costs per unit	*700*	*1,000*
Variable overhead	*200*	*240*
Fixed overheads per unit	*600*	*900*
Inventories in malls (in number of units)	*621 units*	*121 units*

Good artisans are hard to find, and the artisans that are employed with FS are associated on long term basis, so giving any temporary layoff is also not possible.

Required

ADVISE the management on profitability in current scenario.

Answer

From the circumstances in the present scenario, it is clear that FS is facing a muted demand for its products, due to reduced footfalls. This may be primarily due to a slowdown in the associated market for premium products that have only exotic (as opposed to actual) value.

Artefact 2 is having a positive contribution margin even at low selling prices. Artefact 1 is having a negative contribution margin. Therefore, the management of FS should consider the following points:

To renegotiate with the mall owners on *rental costs*. If that is not possible, then the management has no choice but to sell the Artefact 1 at present price at earliest possible way.

To promote Artefact 1 by making a combination offer with Artefact 2 at a discounted price, taking advantage of the fact that Artefact 2 is still able to generate *profit* on a standalone basis. Hence a combined offer may help to boost its sagging sales.

Discontinuance of further production of Artefact 1 should be done only for a temporary period. The work in progress (if any) should be put on hold, and the management should rigorously find out *cost cutting methods* in its assembly shop. In striving to reach the cost goal, myriad managerial techniques and tools like Vale Analysis, Kaizen Costing, Six Sigma etc. can be used. These techniques are being used to control cost in order to meet the target without compromising the *quality* and *value* to be derived from the product.

Computation of the Contribution in Current Scenario

Particulars	Artefact1	Artefact2
Inventories in malls (in units) - (a)	621	121
Rent to be paid to malls per unit - (b)	₹50	₹55
Rental Cost - (a) × (b) – I	₹31,050	₹6,655
Facilitation costs to be paid to malls per unit - (c)	₹10	₹15
Gross facilitation cost - (a) × (c) – II	₹6,210	₹1,815
Total variable costs (refer W.N.1) – III	₹14,28,300	₹3,64,210
Marginal Costs (I + II + III)	**₹14,65,560**	**₹3,72,680**
Present Lower Selling Price per unit	2,350	4,800
Present Sales	**₹14,59,350**	**₹5,80,800**
Contribution margin (+ / -)	**-6,210**	**2,08,120**

W.N.1

	₹	₹
Cost of glassware per unit	900	1,120
Cost of assembly per unit	500	650
Artisan costs per unit	700	1,000
Variable overheads per unit	200	240
Total Variable Costs	₹2,300	₹3,010
Units	621	121
Total Variable Costs	**₹14,28,300**	**₹3,64,210**

Question 2

The Soup Ltd. offers a range of beauty parlor services like hair care, body care, manicures/ pedicures, skincare, etc. It has 150 Centre/s across the country. The business of beauty parlor is extremely competitive in all region. Each centre operates autonomously and managers are able to offer customize services.

Soup's mission statement is "to inspire and enhance beauty by using knowledge and experience". To establish long term relationship of trust and commitment with clients, Soup wants to provide their client highest level of satisfaction with emphasis on–

- *Service Customization*
- *Professionalism, Work, and Clinical Responsibility*
- *Client's Feedback*

Company has developed a website where it creates blogs, post high-quality content related to beauty tips. Website is also connected to social media to reach customers. If a customer searches Soup's services on search engine, it automatically redirects to the place of nearest service center. Soup's all services are presently booking through online channel.

Results for one of the centre, "Roop", are given below. The column headed "Centre" shows the ***average figures*** *for all Centre/s:*

Particulars	*Roop Oct'20*	*Centre Oct'20*
Revenue (₹)	*91,26,000*	*1,08,66,900*
Gross profit (₹)	*48,50,400*	*51,37,740*
Number of senior Beauticians	*90*	*110*
Number of junior Beauticians	*60*	*55*
Number of website hits	*15,010*	*19,260*
Total number of services booked online and completed	*9,915*	*12,270*
Number of services taken from repeat customers	*1,510*	*1,605*
Total time spent completing jobs (hours)	*24,120*	*25,880*
Number of new service packages	*3*	*2*
Customer percentage in terms of feedback forms showing score of 9 or 10	*86%*	*77%*

Notes

(1) *Beauticians are categorized as 'senior' if they have been qualified for more than three years.*

(2) *'Junior' Beauticians includes both trainee beauticians and beauticians who have been qualified for less than three years.*

(3) *The Roop launched three new service packs during the year:*

- *free coupon of worth ₹ 600 for services over and above ₹ 1,200.*
- *a head massage costing only ₹ 240, instead of the usual ₹ 480, for 10 days advanced bookings.*
- *a haircut ₹ 120 will be charge, which usually costs ₹ 360, for all customers booking hair spa.*

These three new service packs produced revenues of ₹ 7,92,000; ₹ 6,96,000 and ₹ 6,48,000 respectively. Two comparable new service packs developed by other centre/s produced revenues of ₹ 5,28,000 and ₹ 5,04,000.

(4) Customers to rate the particular centre from 1 to 10 in an online feedback form with 10 being the best.

Required

The Chief Executive Officer (CEO) of Soup has recently attended a webinar and heard about Building Block Model of Performance Management. The CEO is interested to know how the dimensions block could be applied at Soup Ltd.

(i) ANALYZE Roop's performance relative to the other Centre/s.

(ii) EXPLAIN how the Standards and Rewards blocks support the Dimensions block in case of Building Block Model.

Answer

(i) Analysis

Competitiveness

	Roop	Centre/s Average
Website hits converted into orders (in percentage)	66.06% (9,915/15,010) × 100	63.71% (12,270/ 19,260) × 100

This ratio shows whether Roop's services are *attractive compared to its competitors*, which is essential if it is going to persist in such a competitive market.

It has performed considerably better than Centre/s average, having converted 66.06% of website hits into jobs, compared to the 63.71% converted by other Centre/s. This is a good outcome.

Financial Performance

	Roop	Centre/s Average
Gross profit ratio	53.15% (48,50,400/ 91,26,000) × 100	47.28% (51,37,740/ 1,08,66,900) × 100

Gross profit ratio is the *measure for financial performance*. It indicates the percentage of revenue which exceeds the cost of goods sold.

Roop's gross profit ratio is 5.87% higher than the average, which is a good result. This could be because of new service pack sales. It is also likely to be because of ratio of senior beauticians to junior beauticians (1.5), which is lower than the average (2) and junior beauticians will invariably be paid less than senior ones.

Quality of Service

	Roop	Centre/s Average
Jobs from repeat customers (in percentage)	15.23% (1,510/ 9,915) × 100	13.08% (1,605/ 12,270) × 100

Quality is a key aspect of Roop's service to customers and *if it is poor, customers will not return*.

Again, Roop has surpassed the other Centre/s on average by 2.15 percentage points. Though, it has a lower ratio of senior beauticians to junior beauticians (1.5) than other Centre/s (2), it might be possible that Roop has a portfolio of enthusiastic staff. So, the quality of work is probably better, thus the higher level of repeat customers.

Flexibility

	Roop	Centre/s Average
Time taken per job (hrs.)	2.43 (24,120/ 9,915)	2.11 (25,880/ 12,270)

The comparison shows that Roop takes longer time to complete a job than the other Centre/s average, which is not really good, and is probably because of they have slightly *less experienced staff* on the whole, but it could also be that they *do a more comprehensive job* than other Centre/s. Given the fact that they have a higher % of return customers than the other Centre/s and they are also graded 9 or 10 by most of the customers (86%). Therefore, this cannot be viewed as too adversely.

Resource Utilization

	Roop	Centre/s Average
Revenue per beautician (₹)	60,840 (91,26,000/ 150)	65,860 (1,08,66,900/ 165)

The *crucial resource in a service company is its staff* and so these indicators measure how this resource is being utilized.

Roop's utilisation of its staff is lower than that of the other Centre/s by ₹5,020 per beautician. This clearly links in with the point that the average time to complete a job is longer at Roop than other Centre/s. However, given that Roop uses a slightly less experienced staff than other Centre/s and the fact that its gross margin is higher than the average, this should not also be viewed too adversely.

Innovation

	Roop	Centre/s Average
Revenue generated from new service packs (in percentage)	23.4% {(7,92,000 + 6,96,000 +6,48,000)/ 91,26,000} ×100	9.5% {(5,28,000 + 5,04,000)/ 1,08,66,900} × 100

Roop is offering a wide variety of service packs to its customers. The ratio of 23.4% indicates that Roop has really outperformed other Centre/s on this front, generating a far larger part of its revenue by the introduction of new service packs, which must have attracted customers. This is a really good performance.

(ii) The **standards** block fixes the target for the performance indicators chosen for each of the dimensions. The targets must meet three criteria – they must be achievable, fair and encourage employees to take ownership. The performance of the organization could suffer if the targets set do not meet these criteria.

The **rewards** block makes sure that employees are motivated to attain the standards. It also examines the properties of good reward schemes which are that they should be clear, motivating and based on controllable factors.

If standards and rewards are set appropriately, the staff will be engaged and motivated and it is then more likely that the goals, i.e., **dimensions**, of the organisation will be achieved.

Question 3

Micro Lite Limited *engaged in manufacturing of casting and capping of PVC pipes used for electronic fittings, which they supplied to various part of country using a well-diversified network of distributors. MLL was established by Mr. Rejul Raheja around 10 year back, since then competition is continually increasing in market as new players entered in market who are ready to sell similar product at relatively lower prices. Mr. Raheja is actively participating in business and hold position of CEO and being a CA by profession; he conducts regular meetings with management accounting department.*

In order to beat the competition, MLL decided to reduce the cost and enhance the efficiency by implementing the strategic cost management techniques, such as cellular manufacturing using lean manufacturing.

Mr. Rastogi who joined the company recently as management accountant, is very enthusiastic about cellular manufacturing and consider same as scientific way of production. He added it will enhance the value creation over value chain. According to him, cellular manufacturing is significant tool to achieve process cycle efficiency.

Mr. Rastogi makes a plan of rearranging the existing machine and human resources who are working on these machines. He tenders such plan (of implementing cellular manufacturing) to Mr. Raheja. Process is also reengineered along with restructuring of production layout. Mr. Rastogi is of belief that with minimal cost (including loss of contribution on account of down time) on rearranging existing resources processing cycle efficiency can be enhanced.

Mr. Raheja is skeptical in respect of expected benefit, so in his reply to Mr. Rastogi agreed to rearrangement plan, but in phased manner rather than pilot implementation. Mr. Rastogi asked to implement his plan (on test run basis) to the one of production engineering department, which is tiny in comparison to other 3 production engineering department. Such selected department is contributing around 12% of total production capacity of MLL. Mr. Raheja in his reply also quoted that go green for next phase will be granted only if during testing phase processing cycle efficiency improved by minimum of 15%.

Mr. Rastogi and his team implement the rearrangement plan on such selected department and practice the reengineered process and rearrangement of machines along with men for 30 days. Recordkeeper provide following PCE data before and after rearrangement.

Activity (part of process)	***Before (in minutes)***	***After (in minutes)***
Moving	*70*	*25*
Inspection	*40*	*15*
Storage	*60*	*10*
Processing	*80*	*40*

Required

(i) EXPLAIN why Mr. Rastogi considers cellular manufacturing as scientific way of production?

(ii) ASSESS, whether out-come of testing phase at MLL is sufficient or not as to expectation of Mr. Raheja, for implementation similar rearrangement (cellular manufacturing) to remaining production departments.

Answer

(i) Cellular manufacturing as scientific way of production

In cellular manufacturing, production workstations and machines are queued in specified sequence to ensure seem-less flow of material over entire production line (Straight Line, U-Shaped or Inverted U-Shaped etc.) to eliminate delay **(Time)** in production and also to eliminate the transportation **(Motion)** of various parts of single product from one production facility to another.

Hence Mr. Rastogi is right in equating 'cellular manufacturing' as a 'scientific way of production' because, it largely rests upon principles of scientific management, suggested by Fredric Winslow Taylor based upon 'Time Study' and 'Motion Study'.

Since in cellular manufacturing **one-piece at a time moves across production line**, hence provide the scope for customisation to product features on the production line in view of specific customer demands. Hence in this cellular manufacturing add value to customer over value chain.

(ii) Assessment of Mr. Rastogi's plan (cellular manufacturing) for further implementation (to remaining production departments)

Mr. Raheja seeks 15% improvement in PCE during testing phase, in order to implement the same for remaining production department. Means if PCE is 10% in existing layout, it shall increase to 11.5% or beyond in cellular manufacturing environment.

There is improvement in Process Cycle Efficiency by shifting to cellular manufacturing system from existing system by 12.44% in absolute term. If we measure percentage increase (relative measure), it will be 38.87% (i.e., 12.44%/32.00%).

Since relative improvement in PCE is by 38.87% against the yardstick of 15% **hence it is advantaged to implement cellular manufacturing to remaining production department also.**

Workings

Computation of the PCE (Time in minutes)

Sr. No.	Activity Category	Before Rearrangement	After Rearrangement
A.	Moving	70	25
B.	Inspection	40	15
C.	Storage	60	10
D.	Processing	80	40
E.	Value added time ...(D)	80	40
F.	Cycle time ...(A+B+C+D)	250	90
G.	Process Cycle Efficiency ...(E/F)	**32%**	**44.44%**

Question 4

Cona Precise Solutions (CPS) *manufactures switchgear and specifically designed the electricity boards, which are sold to customer through wide-spread retailers and distributors network across the country.*

CPS enjoys the high reputation among the stakeholders, specifically workers. The attrition rate at CPS is relatively lower than of other players in the industry; reason for low attrition rate is employee friendly policies, specifically in regard to sharing of profit and employee participation in decision making. Cona Precise Solution applied a profit-sharing plan around three ago. The terms of profit share plan of CPS can be read as follows–

1. *The CPS will be responsible to make available the profit share pool, which will be equivalent to the minimum of following of three limits–*

a. *30% of Earning before taxes, to the extent it is excess of the minimum acceptable target profit margin, or*

b. *0.75% of Gross Revenue, or*

c. *Absolute amount of ₹2.5 Crores*

2. *Minimum acceptable target profit margin will equivalent to the average of last three year's net operating profit of industry group.*

3. *The individual employee will be participated in profit share pool in proportion to ratio of that employee salary to the total salary of all employee of that division.*

Additional Information for year just closed are–

1. *CPS's earning before tax is ₹40 Crores.*
2. *Net operating assets employed by CPS are ₹120 Crores.*
3. *During the year, CPS records the revenue of ₹360 Crores.*
4. *Total relevant payment of salary for the year was ₹42 Crores.*
5. *Industry's average last three year's net operating profit rate is 8% of net operating assets.*

Required

(i) *EXPLAIN profit sharing plan, as performance management tool and group incentive plan.*

(ii) *COMPUTE the will the amount to be make available as profit sharing pool by CPS.*

(iii) *Mr. Vineet Shukla, who is one of the employee of CSP and eligible to participate in profit share plan, if his annual salary is ₹36 lakhs, then COMPUTE the amount of his profit share.*

(iv) *Synthesise profit sharing plan of CPS, in order to highlight major limitation.*

Answer

(i) Profit Sharing Plan

Profit Sharing is a group incentive arrangement where cash bonus is paid to worker or employees, calculated based upon the reported profit of concerned division (responsibility centre) of entity or of entity as a whole. Since profit sharing is based upon the profit, hence can be said a compensation plan based upon short – term performance.

Profit share plan must define the percentage of profit to be shared and who are eligible employees for participation and what will the ratio of participation by each employee/worker in the bonus pool and formula for computing each of these percentage or ratio. The criteria for participation in share may be *score or salary/wage*.

Profit share plan may be used to boost the motivation among the employees to enhance and promote their performance, hence profit-sharing plan can be considered as performance management tool. Profit sharing plan can also be considered as pre-stage of Kaizen Costing.

(ii) **Amount of profit-sharing pool** will be equivalent to the **minimum of following of three limits–**

30% of Earning before taxes, which are in excess of the minimum acceptable target profit margin,

30% of ₹40 Crores – 8% of ₹120 Crores

₹12 Crores – ₹9.6 Crores

₹2.4 Crores

or

0.75% of Gross Revenue,

0.75% of ₹ 360 Crores

₹2.7 Crores

or

Absolute amount

₹2.5 Crores

So, Amount of profit-sharing pool will be **₹2.4 Crores**.

(iii) **Share in profit sharing pool of Mr. Vineet Shukla**

The individual employee will get share in proportion to ratio of his salary to the total salary of all employee of that division.

$$Profit\ Sharing\ Pool \times \frac{Individual\ Employee's\ Salary}{Total\ Gross\ Salary}$$

$$2.4\ Crores \times \frac{0.36\ Crores}{42\ Crores}$$

= ₹ 0.0205714 Crores i.e., ₹ 2, 05,714

(iv) Profit Sharing is a group incentive arrangement, where each member of group will participate in profit sharing pool in ration of either score scored by him/her in *reference to total score*; then it is valid. But if share of profit-sharing pool is calculated based upon wages likewise in case of CPS, then a worker who may be under performing getting the share despite his performance is not acceptable; In similar way, an efficient worker may not get due reward/share. Hence major limitation of profit-sharing plan is due to inherent nature of it.

Question 5

Delight Engineering Solutions (DES) *(a hypothetical company) is manufacturing product CAF-5 from use of single raw material CAI-100. The two major departments operational in Delight Engineering Solution are purchase and production. DES is facing high competition due to large number of competitors in market. Demand of CAF-5 is fluctuating, therefore high storage cost is prime cause of low financial performance. DES Company decided to move from traditional system to JIT system.*

From purchase and store following data is collected. Annual consumption is of 1,800 units of CAI-100. List Price of each unit of CAI-100 is ₹ 4,000. The cost of placing order is ₹ 2,000 and cost of carrying one unit of CAI-100 for a year is 2%. Company presently use EOQ model of ordering.

Purchase Manager further estimated that, if JIT system of inventory is implemented, ordering cost will increase by 50% from current level, whereas carrying cost can be avoided up-to 90%. But there is prospective order of 5 units of CAF-5 which can't be served, due to non-availability of stock and failure of delivery by supplier. Contribution from each unit of CAF-5 is ₹ 1,200. Stock insurance cost will reduce by ₹ 400 on annual basis. There will also be reduction in working capital requirement, which will result in interest saving of ₹ 500 on annual basis.

Further, Production and Engineering department supported by marketing department provide details that presently average production of CAF-5 is 150 units of per month, although for next 4 months expected demand will be 120, 160, 140, 180 units. Maximum capacity from man-hours perspective is 150 units. 20 man-hours required for producing each unit and labour rate per hour is ₹ 3. Casual labour is not available in market. Overtime rate will be 200%. Average monthly cost of storage of each item of CAF-5 is ₹ 65.

Required

(i) EXPLAIN the JIT purchasing and JIT production and the effect of its introduction.

(ii) COMPUTE cost savings if it moves to JIT Purchasing.

(iii) COMPUTE cost savings if it moves to JIT Production.

Answer

(i) **Just-in-time** (JIT) is a collection of ideas that streamline a company's production process activities to such an extent that wastage of all kind viz., of time, material and labour systematically driven out of the process.

JIT purchasing suggests that materials should only be purchased as and when required. While JIT production shows that finished products should only be produced as and when required by customers. Whereas in traditional manufacturing system, to smooth out production and to meet forecasted demand, materials and finished goods are stored in advance.

JIT Purchasing reduces the inventory level which will result in reduction of carrying cost of inventory, as well as reduces the level of working capital which will save the opportunity cost in form of interest expenditure. On the other hand, JIT Production gives opportunity to customize the product as per customers' needs, conformance to customers' need is essential to quality. It also reduces the level of working capital which save the opportunity cost in form of interest expenditure.

Prerequisite of JIT purchasing or production is integration with vendor, if vendor is not integrated properly or less reliable, then situation of stock out can arise and which can result into loss of contribution.

Multitasking by employee is another key feature of JIT, group of employees should be made based upon product instead based upon function. Hence, functional allocations of cost become less appropriate.

Overall, JIT enhance the quality into the product by eliminating the waste and continuous improvement of productivity.

(ii) Cost Savings in JIT Purchasing

Reorder Size under present regime:

Under current scenario reorder size of CAI-100 will be EOQ. Formula for EOQ is mentioned below–

$$\sqrt{\frac{2 \times A \times O}{C}}$$

Where:

A = Annual Consumption i.e., 1,800 units of CAI-100

O = Ordering Cost per order i.e., 2,000 per order

C = Carrying Cost per unit per annum i.e., ₹80 (2% of ₹4,000) per unit per annum

$$\sqrt{\frac{2 \times 1{,}800 \times 2{,}000}{80}}$$

EOQ (reorder size under present regime) of CAI-100 is 300 Units

Cost Comparison under present and JIT regime (annual basis)

Particulars	Present System ₹	JIT System ₹
Ordering Cost (1,800 units/ 300 units) × ₹2,000 JIT-150% of present cost	12,000	 18,000
Carrying Cost (300 units/2 × ₹80) JIT- Reduced by 90% in comparison to present cost	12,000	 1,200

Stock-out Cost (5 units × ₹1,200)	-	6,000
JIT- Reduction in Stock Insurance Cost on annual basis	-	(400)
Opportunity Cost (saved) on reduced amount of working capital on annual basis	-	(500)
Net Cost of Inventory Management	**24,000**	**24,300**
Incremental Cost in shifting to JIT	**(300)**	

Since implementation of JIT Purchasing results in **incremental cost of ₹300** per annum basis, hence it is **not economically worth** to move to JIT system of inventory purchase.

(iii) Cost Savings in JIT Production

Carrying Cost in Present Scenario (for next four months)

Month	**I**	**II**	**III**	**IV**
Opening Stock	-	30	20	30
Add: Production	150	150	150	150
Less: Demand	120	160	140	180
Closing Stock	30	20	30	-
Average Stock*	15	25	25	15
Carrying Cost (₹65 per unit)	975	1,625	1,625	975
Total Carrying Cost for 4 months	**₹5,200**			

**Average Stock = Opening Stock + Closing stock/2*

Overtime Cost in JIT Scenario (for next four months)

Month	**I**	**II**	**III**	**IV**
Demand	120	160	140	180
Production	120	160	140	180
Bottleneck	150	150	150	150
Shortfall*	-	10	-	30
Labour hrs. as overtime required (20 hours for each unit of CAF-5)	-	200	-	600
Overtime Cost (Payment at rate of ₹6 per hour)	-	₹1,200	-	₹3,600
Total Overtime Cost for 4 months	**₹4,800**			

**Shortfall good need to produce in overtime, due to limited man-hour available and casual labour is not available in market.*

Based upon comparative cost for upcoming four month under present and JIT scenario, there is **cost saving of ₹400** (₹5,200 vs. ₹4,800) in move to JIT system production. Hence, it is economically **worth** to move to JIT Production.

Question 6

XEE Ltd. *is a company which manufactures two types of material for engineering applications. It makes these two types of materials in two production lines: Line 1 and Line 2. Line 2 has a different process and is easier in terms of 'getting this fixed at the customers end' and has longer life (1.5 times the life of Line 1 product).*

These are sold in kg. Line 1 has a capacity to produce 6,50,000 kg. per annum and Line 2 has a capacity to produce 2,40,000 kg. per annum.

The company management has given a directive to the CEO, CFO and the Sales Head that in no circumstance the Contribution Margin to Sales shall fall below 40%.

Currently, Line 1 is running at about 92% capacity (3 shifts) and Line 2 at about 33% capacity (1 shift).

The Capacity, costs and profitability data for the year 2018-19 are as follows:

Particulars	***Line 1***	***Line 2***	***Total***
Capacity kg.	*6,50,000*	*2,40,000*	
Production/ Sales kg.	*6,00,000*	*80,000*	
Unit Price/ Costs per kg. in ₹			
Selling Price	*180*	*315*	
Variable Cost	*(108)*	*(189)*	
Contribution	*72*	*126*	
Contribution%	*40%*	*40%*	
	₹ Lacs	***₹ Lacs***	***₹ Lacs***
Selling Price	*1,080.00*	*252.00*	*1,332.00*
Variable Cost	*(648.00)*	*(151.20)*	*(799.20)*
Contribution	*432.00*	*100.80*	*532.80*
Overheads			*(240.00)*
Depreciation			*(93.00)*
Profit			*199.80*
Profit %			*15%*

Scenario 1

At a meeting of the CEO, Sales Head and the CFO; the Sales Head informs the team that there is a potential of a one-time 80,000 kg. of Line 2 product order from a large customer who can commit on delivery schedules for the whole of 2019-20 kg. at a price of ₹ 250 per kg.

The Sales Head also informs that the new customer is aware of the price of product from Line one, the fact that the line capacity is full and the Line 2 product can deliver life which is 1.5 times of the Line 1 product.

The Sales Head also informs that he may have to reduce price by ₹10 per kg. for the existing customers i.e., from ₹315 per kg. to ₹310 per kg.

To a question from the CEO that this would involve additional overheads, the CFO checks on his laptop and informs that for an additional shift of operation of line 2, the incremental overheads would be 6.20 Lacs p.a. per shift (shift supervisors, lighting etc.) and depreciation will increase by ₹16.00 Lacs p.a. per shift.

The CEO poses the following questions to both the CFO and the Sales Head:

1. *Given that the order is one time, what will happen to the fixed overheads committed in 2019-20 and the loss of profits due to reduction in price to existing customers which cannot be increased in the subsequent years?*
2. *The CEO is also concerned about the reduction in contribution % from the management stipulated 40%. To address the issue the CEO asks both the CFO and the Sales Head to come up with an acceptable pricing for Line 2 for the new one-time customer. He indicates to them that the price should be such that the % to Sales to Profit achieved in 2018-19 is maintained.*
3. *Further, the CEO mentions that the new customer should also be convinced of the price to be quoted. He also mentions that the sales from Line 1 for 2019-20 will be at the same level (6,00,000 kg.) and at the same price. There are no changes in costs (both variable and fixed) too.*

Required

You are the deputy to the CFO and you are requested to come up with RECOMMENDATIONS on:

(i) Ideal Price to be quoted for the new customer with reasons to be proposed by Sales Head to the new customer to convince him to accept the price so quoted.

(ii) Reasons to be mentioned to the management on why the price to be so quoted is acceptable despite the fact that it would result in a lower contribution margin % than that prescribed by the management.

(iii) Recommend a strategy in consultation with the Sales Manager to make up for the fixed overheads and loss of profits due to reduction in price for the existing customers of Line 2 product for subsequent years.

(iv) Also arrive at a price to the new customer at or below which it does not make financial sense to quote and get the order from the new customer with explanations.

Scenario 2

In a different scenario where volumes for the year 2019-20 are assumed to be exactly same as in 2018-19 but price of raw material has increased by ₹ 12 per kg for both products manufactured out of Line 1 and Line 2. A price increase by ₹ 12 kg for each of the products will result in a drop in contribution % below 40% for both the products. Calculations indicate that the contribution margin can be retained at 40% if the prices are increased by ₹ 20 per kg.

Required

You are requested to indicate which price increase; ₹ 12 per kg or ₹ 20 per kg has to be obtained from the customer and why?

Answer

Scenario 1

(i) The ideal price would be ₹260 per kg to be quoted to the customer. While the customer has asked for a price of ₹250 per kg, the price of ₹260 per kg is still beneficial to the customer as the life of Line 2 product is 1.5 times Line 1 product priced at ₹180 per kg.

1.5 times 180 is 270 and the customer would benefit even at a price of ₹270 per kg. but is getting a good bargain at ₹260 per kg. This has to be explained to the customer to get him accept the price of ₹260 per kg. as against ₹250 per kg sought by him.

(ii) At this price while the contribution for Line 2 product drops to about 34% but the overall Profitability at profit level is maintained at 15%. The reason for profitability remaining at 15% despite the drop in contribution to about 34% is because overheads and depreciation increase only incrementally and the accretion to contribution at the price of ₹260 form the new customer is at ₹56.80 lacs is far higher than the incremental overheads plus depreciation which is ₹22.20 lacs (₹6.20 lacs + ₹16.00 lacs). This has to be explained to the management.

(iii) As this is a one-time order, the company would be saddled with ₹6.20 lacs (predominantly manpower supervision cost) and a loss of contribution of ₹4.00 lacs due to sale of Line 2 product at ₹5 less per kg. in subsequent years too. Also, a price once reduced cannot be increased easily. To make up for this, the Sales Head should sell at least 15,000 kg. of Line 1 product. This is arrived at by dividing ₹10.20 lacs (₹6.20 lacs + ₹4.00 lacs) by contribution per unit of Line 1 product which is ₹72, 14,167 kg. (10.20 lacs/ 72), rounded off to 15,000 kgs for which capacity is available (50,000 kgs) within the 3rd shift. Depreciation cost for the 2nd shift will not be incurred as Line 2 will be back to single shift operation after 2019-20.

(iv) The incremental costs are the variable costs plus loss of margin on existing customers plus the incremental overheads and depreciation totaling to ₹26.20 lacs. If these are recovered, then there is no loss. The price to be obtained will be ₹221.75. This will be variable cost of ₹189 per kg plus 32.75 per kg which is ₹26.20 divided by 80,000 kgs. At this price there is no loss or gain but it is not worth the effort of running the 2nd shift. If the customer is a hard negotiator and has alternatives, the price to be accepted for reasons other than profits (for example gaining a big customer where there is a possibility of big orders in future) cannot be less than ₹221.75.

Scenario 2

With a raw material price increase at ₹12 per kg, no customer will pay more than ₹12 per kg as the XEE Ltd will have to justify. Though there is a fall in contribution %, to there is no loss to the company as the price increase in variable costs amounting to ₹12 per kg is fully recovered.

Workings

	Line 1	Line 2	Line 2	Total
		Existing Customers	New Customers	
Capacity kgs.	6,50,000	2,40,000	2,40,000	
Production/ Sales kg.	6,00,000	80,000	80,000	
Unit Price/ Costs per kg. in ₹				
Selling Price	180	310	260	
Variable Cost	(108)	(189)	(189)	
Contribution	72	121	71	
Contribution%	40%	39%	27%	
	₹ Lacs	**₹ Lacs**	**₹ Lacs**	**₹ Lacs**
Selling Price	1,080.00	248.00	208.00	1,536.00
Variable Cost	(648.00)	(151.20)	(151.20)	(950.40)
Contribution	432.00	96.80	56.80	585.60
Overheads				(246.20)
Depreciation				(109.00)
Profit				230.40
Profit %				15%

The price of ₹260 per kg. has been derived as follows:

Assume the price to new customer be “X”. Hence

Sales *less* Variable costs *less* Overheads *less* Depreciation = 15% of Sales

(1,080.00 + 248.00 + X×0.80) - 950.40 - 246.20 - 109.00 = 15% of (1,080.00 + 248.00 + X×0.80)

Or 22.40 + 0.80X = 199.20 +0.12X

Or 0.68X = 176.80

Or X = 176.80/0.68= 260

Question 7

NFC Limited *is a company engaged in the manufacture and supply of forgings and castings for automotive and industrial applications. Automotive contributes to 60% of its revenues while the balance (40%) can be traced to industrial applications which amongst others include, Power, Oil and Gas and General Engineering. The company has an R&D set-up which includes new product development. The company recently concluded successfully a Long-Term Settlement with the workmen with an increase in productivity numbers in terms of output per man per day more than offsetting the increase in wages offered to workmen. The company has just completed (October 2018) its strategy and business planning exercise for Calendar year 2019 and beyond. The following is the data on 2018 (estimate) and the business plan for 2019.*

Balance Sheet	***Estimate 2018***	***Budget 2019***
	₹ Million	***₹ Million***
Equity	*3,000*	*3,000*
Reserves (Opening)	*1,000*	*2,250*
Transfer (Current year surplus)	*1,250*	*730*
Debt @10% (pre-tax)	*2,000*	*1,500*
Trade Creditors	*600*	*700*
Total	***7,850***	***8,180***
Plant and Machinery	*4,000*	*3,500*
Inventories	*1,500*	*1,630*
Debtors	*1,600*	*1,770*
Cash	*750*	*1,280*
Total	***7,850***	***8,180***
Profit and Loss Account		
Sales	*9,000*	*10,800*
Less: Expenses	*6,000*	*7,000*
Less: Depreciation	*500*	*500*
Less: Interest	*200*	*200*
Profit	***2,300***	***3,100***
Less: Tax @ 30%	*690*	*930*
Profit After Tax	***1,610***	***2,170***
Less: Dividend and Dividend Distribution Tax	*360*	*1,440*
Transfer to Reserves	***1,250***	***730***

Assumptions/objectives drawn up in the making of the strategy and business plan document are as follows:

1. *To improve shareholder value by attempting to grow EVA substantially over 2018.*
2. *To de-risk exposure to few sectors further by looking at other diverse applications through new technologies, tie-ups etc. This could be in the areas of Defense and Aerospace or even new areas like Electric Vehicles which would be the future in the mobility space.*
3. *To keep investing in R&D to ensure that the company keeps pace with changes in technologies and in meeting customer requirements by developing new products in accordance with their needs*
4. *Financials:*
   a. *An increase of 20% in Sales has been assumed over 2018. This includes an expected market growth of 12%, 3% from a new product "NP" to a large manufacturer (a new customer) for 9 months in 2019. It is expected that the new customer will approve the product by March 2019 (3 months from January 2019 when the approval process will start) so that 9 months sale can be realized. It normally takes 5 months for the approval. The company expects the balance 5% growth from normal new products, new customers, improved service levels in terms of delivery etc. Capacity is sufficient, also aided by the productivity improvement from the Long-Term Settlement with the workers.*
   b. *Inventories: A reduction in number of days inventory held by 5 days has been budgeted. Without this reduction, the inventories would have been ₹ 1,800 Million as against ₹ 1,630 Million budgeted.*
   c. *Debtors: A reduction in number of days sales outstanding by 5 days has been budgeted. Without this reduction, the debtors would have been ₹ 1,900 Million as against ₹ 1,770 Million budgeted.*
   d. *Expenses have been budgeted at ₹ 7,000 Million taking into consideration cost savings. It should have been ₹ 7,500 Million taking into consideration, increased activity levels (Sales), cost inflation including the wage increase from the Long-Term Settlement but without cost savings.*
   e. *No reduction or increase in creditors budgeted except for the increase in activity levels (Sales).*
   f. *Repayment of debt ₹ 500 Million on 31st Dec 2019.*

Required

Your superior, the CFO of the company has asked you to:

(i) PREPARE a Balanced Score Card for Calendar year 2019 including objectives to be included for achieving long term goals of the company. He informs you that the company wants to use EVA as an overall performance measure and a driver to achieve improved shareholder value.

(ii) The CFO also wants you to indicate metrics where possible and but ignore weightages for the perspectives and clearly EXPLAIN the inclusion of the objectives in each perspective of the balance score card.

(iii) You have therefore been also entrusted with the task of PREPARING the Economic Value Added (EVA) with assumptions for the previous year 2018 (estimate) and also for the budget year 2019 and ensure that this forms the predominant basis for the balanced scorecard. Cost of Equity is 14%.

Answer

(i) Balanced Score Card

Perspectives	Objective	Measures	Targets	Initiatives
Financial				
EVA (₹Millions)	▪ Grow EVA	▪ Absolute	▪ ₹1,435 Million	▪ Repay ₹500 Million of debt ▪ Reduce working capital ▪ Improve profit through top line growth and cost reduction
Working Capital	▪ Reduce working capital	▪ Reduce inventory and debtors by 5 days each	▪ ₹300 Million reduction (₹170 + ₹130)	▪ MIS on inventory and debtors on real-time basis ▪ Weekly short meetings on inventory and debtors to monitor and initiate actions to achieve targets

Customer				
New Products	▪ Increase over 2018	▪ As a % to Sales	▪ From x % to y %	▪ Meet *existing customers* with new product offerings ▪ Meet *new customers* and find out their requirements ▪ Participate in exhibitions
On time Delivery	▪ Increase over 2018	▪ % of deliveries on time to total deliveries	▪ From x % to y %	▪ Strengthen production planning and control process ▪ Leverage IT systems for accurate and timely information flow on orders, delivery dates
Internal Process				
Manpower Productivity	▪ Increase output per man per day	▪ As agreed under the long-term settlement	▪ From XX to YY	▪ Training of employees ▪ Improved communication ▪ Improved supervision
Cost Reduction	▪ Reduce cost of Production	▪ Raw material costs ▪ Outsourcing costs ▪ Overheads	▪ ₹500 Million Reduction	▪ Alternate sources for raw material ▪ Improve yields through *value engineering* ▪ *Make or buy* on certain high-cost outsourced components

				▪ Reduction in travel costs (use video conferencing), ▪ Monitor other costs to save
New Product Approval by Customer	▪ For expediting approval of "NP"	▪ Reduction in time taken for approval	▪ By 2 months	▪ Form a task force ▪ Weekly progress monitoring by CEO ▪ Use of PERT/CPM tools
Learning and Growth				
Train senior technical staff in new technologies (products for defense, aerospace)	▪ To keep pace with changing technologies and to de risk exposure to few sectors	▪ Timeline	▪ By MMYY (e.g., Dec 20)	▪ Specific training ▪ Participation in seminars on new technologies
Explore possibilities for tie-ups on products for Electric Vehicles.	▪ Future growth Through products for Electric Vehicles	▪ Timeline	▪ By MMYY (e.g., Jun 20)	▪ Appoint a consultant ▪ To look at possible partner ▪ Prepare a road map to achieve the objective

(ii) Rationale for each of the above perspectives:

a. EVA has been included under "Financial Perspective" as this is what the company intends to drive the same and it is a good measure of shareholder value as it takes into consideration cost of equity which a normal profitability metric ignores. Working Capital is included, as an improvement in the working capital measure would affect cost of capital and hence EVA.

b. New products and improvements in delivery times have been included under "Customer Perspective" as these have to be driven to achieve the sales volumes beyond normal industry growth. This will ultimately improve sales, profits and hence EVA.

c. Manpower productivity and cost reduction have been included under "Internal Perspective" as these have to be monitored and further efforts taken to reduce other costs to achieve the cost reduction planned to finally achieve the profits required to deliver the EVA.

d. As the balanced score card is just not a short-term measure, initiatives on new products, technologies and new markets have been included in the "Learning and Growth" perspectives to plan for long term sustained growth and to ensure that the company stays relevant in a changing business environment.

(iii) EVA Calculations

Particulars	**2018 (Est.) ₹ Million**	**Budget 2019 ₹ Million**
PAT	1,610	2,170
Add: Interest adjusted for tax {Interest×(1-0.3)}	140	140
NOPAT	**1,750**	**2,310**
Capital Employed (see assumptions below)		
Equity (14%)	3,000	3,000
Reserves	1,000	2,250
Debt (10%)	2,000	2,000
Cost of Capital		
Equity (14%)	420	420
Reserves (14%)	140	315
Debt {10%×(1-0.3)}	140	140
Cost of Capital	**700**	**875**
EVA (NOPAT – Cost of Capital)	**1,050**	**1,435**

Assumptions

For 2018 estimated, Capital Employed is opening equity, reserves and debt. Similarly, for budget 2019, for calculating Capital Employed, opening equity, reserves have been considered.

Economic and accounting depreciation were assumed to be the same.

Question 8

ABC Limited *is an auto component manufacturer having a facility in Chennai. It has been in the business for the past 7 years supplying a range of gaskets for automotive applications. It predominantly supplies to car manufacturers in and around Chennai but also in a small way to a few manufacturers based in Pune and Bangalore.*

The promoters have worked previously in automotive industry and have several years of experience in the auto industry.

Quality is of paramount importance in gaskets especially for cylinder head gaskets as any leak (considered a major defect) could severely damage the engine. While the company is certified for TS 16949 standard of quality systems, the PPM (parts per million of defects) of finished products of the company are yet to reach "Zero PPM" levels which are the levels reported by its nearest competitor.

As the supplies are made to auto OEMS (original equipment manufacturers), just in time supplies are a must to avoid line stoppages at the customer end. It has signed purchase agreements with a few auto manufacturers with a clause amongst various others to pay for line stoppages at customers end.

The procurement function plays a critical role as the quality of input raw material can obviously significantly impact the quality of gaskets produced. Also, input material has to be made available in time to avoid stocks outs of raw materials, loss of production and hence line stoppage at customers end.

While the company has taken a conscious decision to keep stock of finished goods at a rate higher than industry to avoid stock outs, it has decided to keep input raw material stocks at low levels to partially manage the impact of inventory holding costs as it has to maintain low working capital levels to save on interest cost.

The sales function besides having the challenge of finding new customers, offering new products and collection of dues is faced with a daunting task of getting price increases arising out of input cost increases from tough auto customers.

Gaskets in general apart from automotive find use in refineries, power generation, chemical processing, industrial machinery, pulp & paper, food & pharmaceuticals and a few other industries viz. textiles and wastewater treatment.

The CFO met the CEO and they discussed declining growth, operating and net margins as well as loss of customers due to price and quality considerations. The CEO indicated that the Board wanted the company to grow double the turnover by 2024 with 2019 as the base. He wanted the CFO to make out a draft Balanced Score Card for 2020 addressing the challenges faced by the company and also its objective of doubling the turnover by 2024, so that this can be discussed with the Senior Management Team and finalized.

Required

You are a Senior Finance Manager of the company and the CFO asks you to draft brief report and he also provides you with newspaper reports on India's move towards BS VI emission norms, the India's plans to move to Electric Vehicles and also about the current slowdown faced by the economy including a severe one in the automotive industry

Annexure

	2019	**2018**	**2017**	**2016**	**2015**
Revenue growth over Previous year	*8.1%*	*8.8%*	*9.7%*	*1.6%*	*---*
Revenue (₹ Cr.)	*400*	*370*	*340*	*310*	*305*
Expenditure (₹ Cr.)	*-359*	*-326*	*-297*	*-277*	*-265*
Operating Profit (₹ Cr.)	*41*	*44*	*43*	*33*	*40*
Interest (₹ Cr.)	*-14*	*-13*	*-12*	*-11*	*-10*
Depreciation (₹ Cr.)	*-14*	*-13*	*-12*	*-8*	*-8*
PBT (₹ Cr.)	*13*	*18*	*19*	*14*	*22*
Operating Profit %	*10.3%*	*11.9%*	*12.6%*	*10.6%*	*13.1%*
PBT %	*3.3%*	*4.9%*	*5.6%*	*4.5%*	*7.2%*

Additionally, the following information is to be noted:

1. *PPM has deteriorated to 115 in 2019 from the best of 25 achieved in 2017.*
2. *Working Capital turns (Sales/ Working Capital) have deteriorated to 34 times from 67 times in 2017.*
3. *The company also lost three of its customers who cited quality and price considerations.*
4. *The company's attrition at middle management was high at 13% compared to industry's 10%. The predominant reasons attributed to this are lack of challenging work and career growth prospects.*

Answer

Report

Addressed to:

Office of CEO,

ABC Limited,

Dated – 24th April 2020

Report on Balanced Score Card for 2020 addressing the challenges faced by the company

The challenges faced by the company can be categorized as follows:

1. Financial: Declining profitability and hence reduced returns to shareholders. Possible causes; Declining sales growth, challenges in getting price increases, increasing cost of quality due to increasing defects (PPM), higher interest costs due to higher working capital.
2. Top-line (sales) related: Declining sales, slowdown in economy, dependence on auto industry, lack of- new products, new customers, and loss of customers.
3. Operations including procurement: Increasing PPM levels, input cost increases.

Balanced Score Card

Perspectives	Measures/ Targets
Financial Perspective	▪ Grow Sales by 10% (over 2019) by December 2020. ▪ PBT Margin for 2020 not to be less than 10%. ▪ NWC turns to be 60 by December 2020.
Customer Perspective	▪ Bring down PPM levels to 50 by March 2020. ▪ Bring down Cost of Product by 5% and share 50% with customer. ▪ Carry out a Customer Satisfaction Survey by March 2020 and implement actions by December 2020.
Internal Perspective	▪ Launch and adopt Total Productive Maintenance. 1. Complete training by April 2020, 2. Launch and adoption from May 2020 ▪ Form a cross functional team for working on, monitoring and improving NWC; through reduction of inventory (reduce number of days FG from xx to yy), speedy collections (reduce number of days receivables from aa to bb), negotiating higher credit from raw material suppliers (increase credit from x to y days). ▪ Reduction in time to launch new products from xx days to yy days.
Learning and Growth	▪ Conduct a market study for entry into manufacture of gaskets for sectors other than automotive as a de-risking and growth strategy. Complete study by June 2020 and action viability study and CAPEX by December 2020. ▪ Revisit and rehash Human Resource Development program to bring in new talents, train existing resources on new technologies, new products by June 2020. ▪ Adopt latest Information technologies for speedy and accurate data analysis and Management Information System for quick decision making, speedier internal operations and quick customer service.

Rationale for the above

1. Tasks included in the Learning and Growth perspectives will help the company's growth as it will *de-risk the threat* from Electric Vehicles which will eliminate the need for internal combustion engines used in fossil fuel driven automobiles. It will also enable the company to enter into other industries where gaskets find use. The Human Resource Development Program will address the dual challenge of attrition and making the current employees ready for new markets and technologies. With Information Technology space changing, adoption of new technologies will help the company staying ahead or in tandem with competition.
2. Including Total Productive Maintenance will help the company address *quality issues* and *productivity of machines*. This along with NWC initiatives will not only improve customer satisfaction but also improve bottom line.
3. Inclusion of PPM, cost reduction and customer surveys will improve Customer satisfaction, customer retention, bring in new customers and stop loss of customers
4. Inclusion of growth in sales targets will help achieve the company's growth objectives. Others like net profit improvement and improvement in NWC will automatically flow from the initiatives in the other three perspectives.

Further details can be tabled on requisition basis.

Closure of Report

Chief Financial Officer

ABC Limited

Question 9

***Mother Co. Ltd** has two business units, viz. a BPO unit engaged into telemarketing, and a KPO unit focusing on business analytics. Recently the CEO was reviewing the half yearly financial data which had the following key indices:*

Turnover of BPO unit at 90% capacity utilization	*₹250 Lakhs*
Turnover of KPO unit at 60% capacity utilization	*₹550 Lakhs*
Profit Margin of BPO and KPO units respectively	*18% and 15% respectively*
Present number of shared employees from the BPO unit to the KPO unit on requirement basis	*10 employees*
Number of hours required on cross training of one employee and the rate per hour	*Approx.10 hours at ₹3,000 per hour*

The CEO's next half year overall target for the company is ₹1,200 Lakhs with a profit margin of 18% for the company as a whole. However, the BPO unit head has told categorically to the

CEO that he cannot spare any additional employee as the BPO is working at optimum capacity. The KPO unit head, on the other hand, finds it cost effective to cross train employees of the BPO for specific tasks instead of hiring directly from the market.

Required

(i) Analyze the strategic problem that Mother Co Ltd is facing.

(ii) LIST few suggestions in brief.

Answer

(i) The present position of the units and the overall company is as under:

	BPO	KPO	Combined
Turnover (in ₹ Lakhs)	250	550	800
Capacity	90%	60%	67%
Turnover at full capacity (in ₹ Lakhs)	278	916	1,194
Profit Margin	18%	15%	16%
Present Profit (in ₹ Lakhs)	45	83	128
Profit at full capacity (in ₹ Lakhs)	50	138	188

In Mother Co. Ltd., both unit heads are focusing only on their respective unit performances rather than strategizing on the company's performance growth as a whole.

Calculations revealed that the BPO unit is a *low margin* high manpower-oriented unit as its overall contribution is just 35% share of the overall company, whereas the KPO is a *high margin* low manpower-oriented unit as its share is 65%.

It is clear that the strategic problem being faced by Mother Co. Ltd is concerned with divisional performance measures in terms of ***goal congruence***. The CEO's target for the next half yearly is really ambitious, and this can be achieved only if goal congruence is met by the heads of both units.

(ii) Few brief suggestions are given below:

- Overall revenue target of 1,200 thousand to be achieved by cranking up the utilization for each division at 100% (still there will be a gap of ₹ 6 thousand).
- Company's profit margin of 16% calculated at full capacity, to be increased by 2% through means of cost cutting techniques.
- Cross training can be helpful in proper utilization of work force.
- The KPO should focus on further cost reduction and improve its % of profit margin.

Question 10

An apparel manufacturing company has a factory in Ahmedabad, making denim clothing for customers of all ages. It sells its clothing from its factory outlet store located within the city. Until 6 months back, the company had a business model wherein the products manufactured at its factory would be sent to its factory outlet store. Customers would visit the store and choose apparel suiting their tastes. Production was based on prediction of customer demand. This "made to stock" model has been placed for many years.

Few months back, the store manager noticed many customers exiting without making any purchases. Tracking this and after obtaining feedback from customers over sometime, it was found that many products were unacceptable to the customers' tastes - either the shade or design of denim was not what they wanted or that the apparel was not of the correct fit for them. The management then decided to provide customers a choice of either choosing from their standard apparel range that has already been made ("made to stock" model) or to offer them a "made to order" option.

The company now displays its range of denim material at the factory outlet. Customers can go through the samples and choose the material of their choice. Company certified tailors would then take measurements based on the customers' preferences. A detailed order customized to the customers' needs would then be drawn up. The factory has set up a separate tailoring division that would stich the apparel specifically for these "made to order" sales. For this new machines and production line resources have been put in place.

Customized products are manufactured and be made available to the customer within 3 working days' time from the date of placing the order. The customer comes to the store and picks up the apparel ordered. For delays beyond this timeline, the customer gets to pay 5% less on the order value. This is done to attract and maintain customers, who would otherwise choose to purchase apparel offered by rival competitors. Therefore, speed of delivery of the customized product is critical for the company. This is the main selling point for the company to operate the "made to order" business model.

If further modifications are needed due to errors on part of the company (quality / finishing issues), the apparel would need to be modified / re-stitched once again. The company will bear the cost of modification or replacement of garment.

This new "made-to-order" has been in place for the past 6 months. At the stage of project proposal, the management found it a lucrative option for the company because:

(i) *Customers are willing to pay a higher price to have customized clothing as compared to the standard fitting.*

(ii) *It would attract more customers to the store*

(iii) *If the model works well, the dependence on the "made to stock" model can reduce. Savings in inventory stock, obsolescence and warehousing costs will benefit the company's bottom-line.*

Customers have been very enthusiastic in availing this customization facility offered by the company. Sales have increased manifold in the last few months. Therefore, the management is interested to understand the metrics related to their “made to order” business mode to assess its success and risks. Some of the non-financial metrics are:

Metric	***Month***					
	1	***2***	***3***	***4***	***5***	***6***
Orders needing modification on account of errors in order taking or manufacturing process (% of sales orders made under "made to order" model)	*15%*	*12%*	*10%*	*8%*	*5%*	*4%*
Orders delivered beyond the 3 working days timeline (% of sales orders made under "made to order" model)	*5%*	*4%*	*3%*	*6%*	*7%*	*5%*
Production downtime (hours)	*44*	*88*	*22*	*141*	*132*	*123*
Labour idle time due to unavailability of material (hours)	*25*	*22*	*17*	*13*	*24*	*22*
Ratio of "made to order" to total sales from the factory outlet (Ratio of sales value)	*16%*	*22%*	*25%*	*32%*	*34%*	*38%*
Repeat orders by customers availing this facility (% of customers giving repeat order / total customers availing "made to order" facility)	*4%*	*21%*	*33%*	*54%*	*60%*	*63%*

Required

ANALYZE the non-financial measures of quality of the division over the six-month period. Focus on the production performance, delivery cycle performance and customer satisfaction.

Answer

Analysis of the operating data of the “made to order” at the business store revealed the following:

Production Performance:

(i) Modifications to orders: This company has to bear the cost of modification / replacement of the garment incurred on account of error in its order taking or manufacturing process. Therefore, orders needing such modification should be kept at the minimum. Such instances were higher than 10% in the first three months. With experience, either in the order taking process or manufacturing process, these errors have reduced substantially in the later months. The managers of the order taking and manufacturing departments need to understand and constantly keep track of these errors in order to keep them at a bare minimum. Management may want to set a benchmark, financially in terms of the cost of modification and non-financially in terms of the acceptable threshold for such instances. Monthly tracking of this metric will help detection of errors earlier.

(ii) Production downtime: Production downtime normally occurs either due to break down of machinery or plant maintenance. It is unproductive time, reducing the machine's capacity. It must be kept minimum. Downtime hours have been steadily increasing in the past 3 months, the overall monthly average being 91.67 hours. The production manager has to analyze and take corrective action at the earliest. Urgency of the issue can be compounded by the fact that sales orders under the "make to order" model have been increasing steadily over the last few months. In the latest month, 38% of the overall sales was from this model. Therefore, the production capacity should be utilized optimally to ensure ability to meet delivery deadlines.

(iii) Labor Idle time: Labor Idle time due to unavailability of material is another unproductive waste of resource. The procurement department can address unavailability of material. On an average 20.5 hours of labor time is idle due to unavailability of the appropriate material. Appropriate steps with suppliers can lead to agreements to ensure seamless supply of material when required. This will enable the company to meet delivery deadlines given to customers.

Delivery Cycle Performance:

(i) On-time delivery: The orders need to be delivered to the store within 3 working days of placing order. The customer picks up the order from the store. Speed of delivery is critical to the company. Any delay beyond this timeline, the customer benefits by a 5% reduced price on the order as compensation for delay. Prompt delivery is also the company's selling point to attract customers, who would otherwise patronize its rivals. On an average 5% of the orders are not delivered within time. Therefore, average delivery success rate is only 95%. The management has to take steps that this is kept to the minimum in order not to stem loss of revenue as also to build brand loyalty with the customer base.

Customer Satisfaction:

(i) Repeat orders by customers: Prompt, quality delivery of the customized order would ensure that customers return in future with further orders. Statistics shows that repeat orders have steadily increased, which is a very positive signal to the management. Initially, only 4% of the customers under this model placed repeat orders. This increased substantially. Now almost 63% of the customers who purchase under this model come back with more orders!

(ii) Sales mix: Popularity among customers for customized services is further validated by the steady increase in the ratio of such sales to the overall sales of the company from the factory outlet. Now, this model generates an average of 28% of the total sales from the outlet, with a likely projection of having a higher share in the overall sales mix. Therefore, the "make to order" model can be termed a success.

Workings

Metric	Month						Monthly Average
	1	2	3	4	5	6	
Production performance							
Orders needing modification on account of errors in order taking or manufacturing process (% of sales orders made under "made to order" model)	15%	12%	10%	8%	5%	4%	9%
Production downtime (hours)	44	88	22	141	132	123	91.67
labour idle time due to unavailability of material (hours)	25	22	17	13	24	22	20.50
Delivery cycle time							
Orders delivered beyond the 3 working days timeline (% of sales orders made under "made to order" model)	5%	4%	3%	6%	7%	5%	5%
Customer satisfaction							
Repeat orders by customers availing this facility (% of customers giving repeat order / total customers availing "made to order" facility)	4%	21%	33%	54%	60%	63%	39.17%
Ratio of "made to order" to total sales from the factory outlet (Ratio of sales value)	16%	22%	25%	32%	34%	38%	28%

Question 11

Kristin LLP sells wide range of household products. The firm has recently received few negative feedbacks about the product and customer services. CEO is not happy with this. As per the opinion of CEO –

“Nowadays when social media play such an important role in making decisions, its crucial to keep an eye on the quality of customer service you provide. If you don’t care about customers’ satisfaction, don’t expect them to care about your services or products. When customer share their story, they’re not just sharing their problems. They are actually teaching you how to make your product, service, and business better.”

There has been considerable discussion at the corporate level as to improve ‘Customer Satisfaction’. Convinced with this logic, firm has invested heavily in customer satisfaction and adopted the following plan of action–

- *providing helpline 24/7 in order to develop personal relationship with customer;*
- *redesign its online platform in order to make it more customer friendly;*
- *rewarding loyal customers by giving them experience, they would not forget for life; and*

- *ease the return and refund policy, offering no questions- asked guarantee is a smart move over competitors.*

The CEO was initially delighted to see that their efforts pay off in the form of higher customer satisfaction score index, however he is anxious to see the corresponding financial results.

Required

Does the seeming lack of improvement in financial performance with customer satisfaction, Kristen LLP should stop investing a superior customer experience? DISCUSS.

Answer

In this case we can see that there are two considerable sides of the question one is customer satisfaction and another one is profitability. By adopting the proposed plans firm manage to get higher customer satisfaction score card and it is expected that with high customer satisfaction, the firm's financial result will improve i.e. increase ROA. However, increasing the customer satisfaction is costly. Plans which are used to increase customer satisfaction will increase the cost of the firm. This additional cost will weaken the firm's ROA by lowing profit and increasing the asset base. The optimum level of customer satisfaction is where the incremental benefits are equal to incremental costs of increasing satisfaction.

While observing the pattern of data, the customer satisfaction has increased from 86 points to 91 points in first three quarters of 2019. At this level, the additional benefits seem to more significant than the additional cost. However, in subsequent quarters, additional cost has increased more rapidly than the additional benefits. Therefore, there is decrease in ROA as we move forward on the index. However, toward the end of 2020, we see a marginal increase in ROA. This is due to the ***lead-lag relation*** between satisfaction and ROA. Increased satisfaction might take some more time, some more quarters to result in higher ROA and the relation might not be linear. However, toward the end of 2020, the customer satisfaction score stabilizes at current levels (93-96 points).

Overall, Kristin should not stop investing in superior customer experience, the lack of apparent pattern in customer satisfaction and profitability could stem from several causes as discussed above. Instead, firm should take decision considering current satisfaction levels, the cost to increased satisfaction, and perception of the increased benefit. Moreover, the firm should also consider the current sales, otherwise it might lose its share to competitor if they do nothing!

Question 12

Olderhelp India is a leading charity working with and for the disadvantaged elderly for over 5 decades. Olderhelp advocates for their needs for universal pension, quality healthcare, action against elder abuse and many more. Olderhelp collects donations and funds and utilises them for the welfare of elders. The governing body of Olderhelp has setup four performance objectives for the three months to 30 Sep 2020:

- *to achieve a level of donation of ₹30,00,000*
- *to keep advertisement cost not more than 3% of donation*
- *to keep welfare cost more than 85% of donation*
- *to achieve 90% of respite care requested from the community*

Actual results were as follows:

	July	***Aug***	***Sep***
Donation (₹)	*7,00,000*	*13,00,000*	*11,00,000*
Advertisement Costs (₹)	*17,500*	*52,000*	*33,000*
Elder's welfare cost (₹)	*5,74,000*	*10,92,000*	*979,000*
Respite care requests (days)	*1,120*	*1,140*	*1,200*
Respite care provided (days)	*896*	*1,003*	*1,104*

The aim is to serve elder needs in a holistic manner, enabling them to live active, dignified and healthier lives.

Required

PREPARE a statement to assist the manager in evaluation performance against objectives and COMMENT on the performance.

Answer

Statement Showing Performance

	July	**Aug**	**Sep**
Advertisement cost as a percentage of donation	2.5%	4%	3%
Target percentage of Advertisement cost of donation	3%	3%	3%
Welfare cost as a percentage of donation	82%	84%	89%
Target percentage of welfare cost as a percentage of donation	85%	85%	85%
Respite care provided	80%	87.98%	92%
Target percentage of respite care	90%	90%	90%

Comment

Total donation received ₹31,00,000 (=₹7,00,000+₹13,00,000+₹11,00,000) have exceeded the target ₹30,00,000. Though there is no fix trend of receiving fund while it is noticeable that there were special fundraising activities in Aug which generated highest receipt.

Advertisement costs have been within the target of 3% in July and Sep but exceeded the target in Aug, more information is needed to establish why this occurred.

For the month of July and Aug the welfare cost are less than the target, while for the month of September Olderhelp have exceeded the target of expenditure of cost.

The improvement in the respite care provided by Olderhelp has been steady and for the month of September the target has exceeded.

Question 13

Innovation Ltd. has entered into a contract to supply a component to a company which manufactures electronic equipment.

Expected demand for the component will be 70,000 units totally for all the periods. Expected sales and production cost will be

Period	***1***	***2***	***3***	***4***
Sales (units)	*9,500*	*17,000*	*18,500*	*25,000*
Variable cost per unit	*30*	*30*	*32.50*	*35*

Total fixed overheads are expected to be ₹14 lakhs for all the periods.

The production manager has to decide about the production plan.

The choices are:

Plan 1: Produce at a constant rate of 17,500 units per period. Inventory holding costs will be ₹ 6.50 per unit of average inventory per period.

Plan 2: Use a just-in-Time (JIT) system

Maximum capacity per period normally……………...18,000 units

It can produce further up to 10,000 units per period in overtime.

Each unit produced in overtime would incur additional cost equal to 30% of the expected variable cost per unit of that period.

Assume zero opening inventory.

Required

(i) CALCULATE the incremental production cost and the savings in inventory holding cost by JIT production system.

(ii) ADVISE the company on the choice of a plan.

Answer

(i) Workings

Statement Showing 'Inventory Holding Cost' under Plan 1

Particulars	Pd. 1	Pd. 2	Pd. 3	Pd.4
Opening Inventory ...(A)	---	8,000	8,500	7,500
Add: Production	17,500	17,500	17,500	17,500
Less: Demand/ Sales	9,500	17,000	18,500	25,000
Closing Inventory ...(B)	8,000	8,500	7,500	---
Average Inventory $\left(\frac{A+B}{2}\right)$	4,000	8,250	8,000	3,750
Inventory Holding Cost @ ₹6.50	26,000	53,625	52,000	24,375

Inventory Holding Cost *for the four periods* = ₹1,56,000

(₹26,000 + ₹53,625 + ₹52,000 + ₹24,375)

Statement Showing 'Additional Cost-Overtime' under Plan 2 (JIT System)

Particulars	Pd. 1	Pd. 2	Pd. 3	Pd.4
Demand/ Sales	9,500	17,000	18,500	25,000
Production in Normal Time	9,500	17,000	18,000	18,000
Production in Over Time ...(A)	---	---	500	7,000
Variable Cost *per unit*	30.00	30.00	32.50	35.00
Additional Cost – Overtime *per unit* ...(B) (@ 30% of Variable Cost)	9.00	9.00	9.75	10.50
Additional Cost – Overtime ...(A) × (B)	---	---	4,875	73,500

Total Additional Payment (Overtime) = ₹78,375

(₹4,875 + ₹73,500)

Statement Showing 'Additional Variable Cost*' under Plan 2 (JIT System)

Particulars	Pd. 1	Pd. 2	Pd. 3	Pd.4	Total
Production (Plan 1)	17,500	17,500	17,500	17,500	70,000
Variable Cost ...(A)	5,25,000	5,25,000	5,68,750	6,12,500	22,31,250
Production (Plan 2, JIT)	9,500	17,000	18,500	25,000	70,000
Variable Cost ...(B)	2,85,000	5,10,000	6,01,250	8,75,000	22,71,250
Total				...(B) – (A)	40,000

* *excluding overtime cost*

Incremental Production Cost in JIT System	=	₹78,375 + ₹40,000
	=	₹1,18,375
Therefore, Saving in JIT System (Net)	=	₹1,56,000 – ₹1,18,375
	=	₹37,625

(ii) Advise

Though Innovation Ltd is saving ₹37,625 by changing its production system to Just-in-time but it has to consider *other factors* as well before taking any final call which are as follows:

— Innovation Ltd has to ensure that it receives materials from its suppliers on the exact date and at the exact time when they are needed. Credentials and reliability of supplier must be thoroughly checked.

— To remove any quality issues, the engineering staff must visit supplier's sites and examine their processes, not only to see if they can reliably ship high-quality parts but also to provide them with engineering assistance to bring them up to a higher standard of product.

— Innovation Ltd should also aim to improve quality at its process and design levels with the purpose of achieving "Zero Defects" in the production process.

— Innovation Ltd should also keep in mind the efficiency of its work force. Innovation Ltd must ensure that labour's learning curve has reached at steady rate so that they are capable of performing a variety of operations at effective and efficient manner. The workforce must be completely retrained and focused on a wide range of activities.

Question 14

Venice Light Works (VLW) *manufactures multicolour glow bulb (MCG-10) used for lighting and decoration. MCG-10 considered as reliable product in market due to zero-defect. VLW sells MCG-10 through retail-chains and individual shopkeeper apart from factory outlet. MCG-10 has demand throughout the year but there is high demand during festival seasons especially ahead of Diwali. Company follows the lot purchase system and manufacture the product ahead of peak season of festivals. Presently the VLW is working at 80% of capacity and manufacture 4,00,000 bulbs annually, at following per unit cost:*

Particulars	*Behaviour*	*Amount (In ₹)*
Direct Material	*Variable*	*22*
Direct Labour	*Variable*	*6*
Factory Overhead		
1. Engineering Cost	*Fixed*	*10*
2. Machining Cost	*Fixed*	*5*
3. Inspection Cost	*Variable*	*5*
Administration Overheads	*Fixed*	*12*
Selling and Distribution Overheads	*Fixed*	*12*
	Total Cost	***72***

Recently the competition in decorative lights & electronic markets has escalated, due to goods imported from Chinese manufactures at cheap rates. Such imported light bulbs are also sold through same shops at which MCG-10 is available for sale. Due cheaper in rate customer prefer imported light bulb rather MCG-10.

To be competitive in market, the marketing department of VLW conducted applied research and suggested that price should be 12.5% lower than the current prices. VLW during last three financial years and during current year records the pre-tax profit @ 10% rate of sale, management of VLW wish to earn the same rate of profit (margin) in upcoming years too.

Production and operation manger is of opinion that cost reduction, in order to be competitive in market may result in reduction in quality, whereas Manger - Quality control suggest, if number of inspection staff increased, then inspection can be performed at each stage and defect can be curtailed at the earliest stage to eliminate rework cost.

Management accountant is of opinion that since MCG-10 is mature product, hence majority of cost associated in production of MCG-10 are committed in nature, price cutting seems difficult; it may hit the top line and bottom line adversely. In response to him, Chief engineer suggest product (MCG-10) can be redesigned; but marketing manager shown his resistance on the suggestion of redesigning of product because according to him 'existing product appearance and features are key reasons for popularity of product in market and leads to sale'.

Required

(i) CALCULATE the price suggested by marketing department.

(ii) COMPUTE the target cost and new margin, appraise percentage decline in margin.

(iii) If proportionate cost reduction plan is applied, then

(a) CALCULATE planned cost reduction for each cost category.

(b) EXPLAIN proportionate cost reduction plan.

(iv) Based upon discussion taken place among the functional manger, EVALUATE the possibility of cost reduction in order to analyse the possibility of application of target costing. Also suggest course of action to adopt.

Answer

(i) Price suggested by marketing department (Target Price)

Current cost per unit – ₹72 per unit

Profit (Margin) @10% of sale price

Sale Price = ₹72 + 10% of Sale Price

So, let presume sale price is 'x'

X = ₹72 + 10% of X

X = ₹72 + 0.1X

X - 0.1X = ₹72

0.9X = ₹72

X = ₹72/ 0.9

X = ₹80

New price will be 12.5% less than current price

₹80 – 12.5% of 80

₹80 – ₹10 = ₹70

(ii) Target cost and new margin

Target Price – Margin (i.e. 10% of sale price) = Target Cost

Target Cost = ₹70 – 10% of 70

₹70 – ₹7 = ₹63

New Margin (under target costing) is ₹7

Percentage decline in margin

$$\frac{Existing\ Margin - \ New\ Margin\ (under\ target\ costing)}{Existing\ Margin} * 100$$

$$= \frac{8-7}{8} * 100$$

= 12.5%

Note

There is decline in margin in absolute term, whereas in relative term the margin remains same i.e., 10% of sale price.

(iii) Planned cost reduction for each cost category under proportionate reduction plan

Amount in ₹

Particulars	Existing Cost	Target Cost
Direct Material	22	19.25
Direct Labour	6	5.25
Factory Overhead		
1. Engineering Cost	10	8.75
2. Machining Cost	5	4.375
3. Inspection Cost	5	4.375
Administration Overheads	12	10.5
Selling and Distribution Overheads	12	10.5
Total Cost	**72**	**63**

Under proportionate reduction plan cost for each category is proportionately reduced in proportion of existing weight. Here, a presumption is needed to be taken that all the cost are avoidable in nature, where as in case of every business; there are some of cost categories which are true sense unavoidable and committed in such a way that, these continue to occur even in shut down situation (e.g. salary to guard, minimum rental for electricity and water meter etc.); same is pointed by Management Accountant, that product is matured in nature (means not in designing or research phase) hence committed cost may be unavoidable in nature.

Note

Student must note that fixed costs are not as same as unavoidable cost. Fixed cost may be avoidable in nature.

(iv) Possibility of cost reduction & Suggested course of action for VLW

Target costing comprises four stages. First being determining the product target price, quality, and functionality; second determine the target cost; thirdly designing the product and production process to achieve the target costing, and fourth use pilot project to evaluated feasibility. Based upon discussion taken place among the functional managers, it is evidential that VLW is presently moving towards third stage.

As stated by management accountant that product MCG-10 is mature nature hence majority of cost are of committed nature, hence may be unavoidable in nature. Product MCG-10 is *material-oriented product* and raw material cost is around 30% of total cost. So, if gain sharing arrangement can be entered with vendor then surely VLW can save some portion of material cost.

As said by production and operation manager, cost reduction may lead to compromise with quality. He may be right, but he needs to look for scientific way to reduce the cost of operations like change in batch size (if required can shift to JIT) or outsource some part of operations; scientific management can also be applied in order to curtail motion time and reduction in labour cost.

Quality Manager is of opinion with extra inspection staff, quality can be assured, but appointment of additional inspector and supervisor will also lead to increase in cost; hence effective way to ensure quality while reducing cost of application of practice of TQM and Kaizen. Kaizen costing will be great help to management of VLW to cut the cost, with support and participation from worker.

Chief engineer suggestion is appreciable, because target costing is most beneficial in those case where the product is in designing and planning phase. As per research around 70-80% of cost is committed at stage of designing of product. It is important to note that the word 'committed' is used as *'not incurred'*; therefore, cost being committed (i.e., not incurred cost) will be incurred when it became due in course of production. But redesigning is not feasible from the prospects of marketing of product as per the statement made by marketing manager.

Marketing manager can conduct applied research in order to develop understanding the temperament of customer of MCG-10, whether they are price sensitive or conformance to need is their priority. If customer found price sensitive (existing recommendation of marketing team shows high possibility of this, because marketing team feels customers can be retained is price is reduced by 12.5%) then product redesign may be opted. But if conformance to need is their (customers) priority, then value chain analysis can be used to identify the activities which creates value to customer and other than these activities (which are not creating the value) can be eliminated in order to reduce the cost.

So, there are possibility to reduce the cost, even if not in all the cost category then surely in some of categories; so that target cost can be achieved.

Question 15

Impax Electronic Limited (IEL) *is manufacturing wide verities of torches operated on power batteries, specially designed for trekking and travelers, apart from domestic use. For which they purchase bulbs from Glow Lights and Bulbs (GLB), mostly G3 1M Screw 7.5V bulb is used in torches. Due to lockdown and outbreak of COVID the demand of torch falls significantly, and factories allowed to work at 1/3rd of capacity. Considering the same production department slows down the production, causing a huge piled-up inventory of raw material. This will be expected to result in high storage costs. Hence to attain cost-effectiveness; IEL decided to move from tradition system to Just-in-Time (JIT) system in a phased manner. There are two major departments operating in IEL, purchase, and production. In the first phase, the purchase department is considering the adoption of JIT purchasing.*

The annual demand for G3 1M Screw 7.5V bulb (bulb) is 24,000 units at IEL. Presently, the purchase price is ₹ 80 per bulb. Currently, the annual demand is ordered in 24 orders of equal size, and the cost of placing an order is ₹ 10 which is expected to remain same in JIT regime too. Material handling, insurance, and other carrying cost is ₹ 2, ₹ 1, and ₹ 1.5 respectively per unit per annum.

Under the JIT system, the price expected to increase to ₹ 80.05 per bulb. GLB is a reputed company for the quality of its products and timely delivery. As a result of frequent orders, the number of orders increased to 120 under the JIT regime, and order size decrease proportionally. Material handling cost is expected to reduce to ₹ 1.2, whereas other carrying costs will reduce by ₹ 0.5 and insurance costs remain at the same level. Lower inventory level will cause a stock-out cost of ₹ 5 per unit on 0.25% of annual demand.

The required rate return for IEL is 16%.

Required

(i) (a) Is the JIT process is different for the purchase and production department? STATE the reason to support your opinion.

(b) STATE any three areas in which JIT purchasing may reduce cost significantly to bring the cost efficiency.

(ii) COMMENT, whether purchase department of IEL should move to JIT Purchasing, presuming the same annual demand.

Answer

(i) (a) Just-in-time (JIT) is the management philosophy based upon demand pull system (rather than supply-push) throughout the plant in order to reduce cost, with a single piece flow after considering takt time.

JIT process is different for purchase and production department, due inherent nature of the function they render; despite the purpose of both is to de-clutter store/assembly line at the production floor and reduce the cost.

JIT if applied in purchases by purchase department then known as **JIT purchasing**, which meant materials should only be purchased, when required for production.

Whereas if JIT applied by the production department, it will be termed as **JIT production** and meant that finished products should only be produced, as needed to meet actual customer demand.

(b) The areas, where JIT purchasing expected to reduce cost significantly are:

1. **Interest cost of working capital** – JIT purchasing will reduce the level of raw materials, which cause a reduction in the amount blocked as working capital; hence interest cost (either actual or opportunity) will reduce too.

2. **Reduction in storage cost** – As we know JIT purchasing reduce the level of raw material stored, hence storage cost is expected to reduce.
3. Since JIT purchasing reduced the inventory level of raw material, hence **sorting** (first S out of 5S) become easy and **motions** (as per motion study) also reduced, which reduce labour and overhead cost as well.
4. Material is purchase as and when required hence **wastage and scarp** will be less due to a relative reduction in evaporation and tendency to obsolete.

(ii) Chart of cost comparison under present and JIT regime (annual basis)

(Amount in ₹)

Particulars	Present	JIT system
Purchase Costs		
= 24,000 units × ₹80	19,20,000	
= 24,000 units × ₹80.05		19,21,200
Ordering Costs		
(number of orders × ordering cost per order)		
= 24 orders × ₹10	240	
= 120 orders × ₹10		1,200
Opportunity Carrying Costs		
= order quantity/2 × (purchasing cost per unit × 0.16 per year)		
= 1,000 units/2 × ₹80 × 0.16	6,400	
= 200 units/2 × ₹80.05 × 0.16		1,280.80
Other Carrying Costs (insurance, material handling etc.)		
= order quantity/2 × carrying costs per unit		
= 1,000 units/2 × ₹4.50	2,250	
= 200 units/2 × ₹3.20		320
Stockout Costs		
= contribution lost × units not delivered/ produced		
= ₹5 × (0.25% of 24,000)	-	300
Total Cost of Inventory Management	**19,28,890**	**19,24,300.80**
Incremental savings in shifting to JIT	**4,589.20**	

Decision

Since the implementation of JIT Purchasing results in an **incremental savings of ₹4,589.20** on a per annum basis, hence it is **economically viable** to move to JIT system of inventory purchase.

Working Note 1 - Average Inventory

Particulars		Present	JIT system
Annual Consumption	…(A)	24,000	24,000
Number of orders	…(B)	24	120
Order Size	…(C = A/B)	1,000	200
Average Inventory	**…(D = C/2)**	**500**	**100**

Working Note 2 - Carrying Cost per unit

Particulars	Present	JIT System
Material handling (reduction of 0.8)	2	1.2
Insurance	1	1
Other carrying cost (reduction of 0.5)	1.5	1
Carrying Cost per unit per annum	**4.5**	**3.2**

Question 16

Royal Bakers *is famous for cakes and cookies. Mr. Das the owner at Royal Bakers is interested in offering affordable products to their customers, hence keen to capture the small scope of cost-effectiveness. Royal Bakers located in the centre of the city where space has a huge cost and royal baker is running out of space during peak hour causing loss of sale. Most of the customer are regular to Royal Bakers. Royal Baker is known for fast service, Mr. Das wish to be true to the tagline 'Close your eyes to wish and open them to find it cooked for you'. The hurdle rate is 12%.*

Non-availability of skilled worker and high attrition rate of worker including chef is the cause of worry for Mr. Das. In order to retain worker, Royal Baker is paying a higher salary than industry standards. The raw material is easily available as and when it is required. Royal Bakers is considering two different models of baking oven machine to replace its old oven. The baking capacity of both machines are the same and both will occupy a similar amount of space.

The first model is the automatic oven which will cost about ₹ 10,00,000. Another model is the semi-automatic oven which will cost at ₹ 5,60,000. The annual operating cost (including depreciation) is 40% of the acquisition cost and ₹ 4,20,000 in case of automatic and semi-automatic oven respectively. After 3 years of use, the automatic oven can be salvage at ₹ 70,000, whereas semi-automatic oven will fetch ₹ 20,000 only. The automatic oven is more advanced and equipped with latest technologies to speed up the baking, because only ingredients need to be inserted in right proportion and mix. Whereas in semi-automatic machine some part of the process needs to be performed manually by the workers.

Required

ADVISE which oven shall royal baker acquire.

Note- You can ignore taxes but need to consider the time value of money; decimal accuracy up-to two digits is expected.

Answer

Statement of the Comparable Life Cycle Cost

Particulars	Automatic	Semi-Automatic
Acquisition Cost	10,00,000	5,60,000
PV of Entire Life Cash Operating Cost (W.N.2)	2,16,000	5,76,000
PV of Salvage Value (W.N.3)	(49,700)	(14,200)
Total Cost of the Oven *over the life cycle*	11,66,300	11,21,800

Note – *Hurdle rate of 12% (marginal cost of capital rate) is considered, for purpose of application of time value of money.*

Working Note 1 – Depreciation

Particulars	Automatic	Semi-Automatic
Acquisition Cost	10,00,000	5,60,000
Salvage Value	70,000	20,000
Depreciable Value	9,30,000	5,40,000
Useful life in a number of years	3	3
Depreciation on SLM basis	3,10,000	1,80,000

Working Note 2 – Present Value of Entire Life Cash Operating Cost

Particulars	Automatic	Semi-Automatic
Annual Operating Cost	4,00,000	4,20,000
Depreciation (see W.N. 1)	3,10,000	1,80,000
Annual Cash Operating Cost	90,000	2,40,000
Cumulative PV factor @ 12% for 3 years	2.40	2.40
PV of Entire Life Cash Operating Cost	2,16,000	5,76,000

**Annual operating cost is 4,00,000 i.e., 40% of 10 Lakhs, in case of automatic machine.*

Working Note 3 – Present Value of salvage value

Particulars	Automatic	Semi-Automatic
Salvage Value	70,000	20,000
PV Factor @ 12% for 3rd year	0.71	0.71
PV of Salvage Value	49,700	14,200

Advise

Based upon life cycle cost, Royal Bakers are advised to acquire semi-automatic oven, because it causes a **saving of ₹44,500**. The cost has *qualitative implications* too, apart from quantitative or monetary implications. Similarly, a management decision is also impacted by qualitative and non-monetary quantitative factors. Hence, decision taken in part a above may differ if Royal Bakers consider-

Finishing of bake products – the look and taste

It is obvious the presence, which one important feature for bakery product in order look delicious and tempting; will be way different if cooked in the automatic and semi-automatic machine. The taste may also be different, which is more critical from prospective of customer retention because a large number of the customers are regular to the royal baker, hence maintaining the principal customer is maybe a key consideration. This factor may go in favour of any of version oven. If look goes in favour of automatic oven, then taste may be in semi-automatic due to corrections by the worker during baking and relatively authentic preparation.

Manpower

Availability of skilled worker and retention of worker is the cause of worry presently. In order to operate an automatic oven obviously fewer workers are required; hence money can be saved by cutting down recruitment cost and excess salary paid to the worker in order to retain them. On another hand, skilled workers are already in scarcity, automatic machine obviously requires a more technically competent operator. But largely this factor moves in favour of automatic machine despite is costlier.

Space

Royal Bakers located in the centre of the city where space has a huge cost and royal baker is running out of space during peak hour causing loss of sale. Although the size of both the oven s are same, the number of worker and space required for them surely be less in case of the automatic oven. Hence this factor again moves in favour of automatic oven.

Power consumption & availability

Although the power consumption cost is presumed to already include in annual operating cost hence considered as a monetary factor but need and availability of power is a very important factor; in order to ensure uninterrupted baking. In absence of stand-by power back-up, power cut may lead to downtime. It will complete downtime for the automatic oven and to a certain extent in the case of semi-automatic (because the manual process will keep going on). Stand-by power back-up will also have an additional cost.

Customisation

In case of cookies, it may ok to produce the standard product; but the cake needs to base upon the order of the customer, who may seek customisation. Scope of customisation needs to evaluate. In the case of the semi-automatic oven, the scope of customisation and ethnicity will be relatively high.

Speed

Royal Baker is known for fast service, and Mr. Das wish to be true to tagline ‘Close your eyes to wish and open them to find it cooked for you’. The automatic oven is more advanced and equipped with latest technologies to speed up the production. Hence this factor moves in favour of automatic oven.

Detection of the defect

If speed thrills, then it kills too. In case of the bakery, rework and reprocessing is hardly possible, even if possible then at a huge cost; hence it is essential to keep vigil control over quality and detection of defect at the earliest stage. In the semi-automatic oven, there is the scope of reviewing the material after stage/s and improvisation can be done.

Overall, Royal Bakers should take the decision only after due and careful consideration of above factors.

Question 17

Sacred Heart Hospital (SHH)*, a renowned multispecialty hospital offering affordable healthcare service to one and all. Despite charging reasonable prices SHH is offering the best possible services to its clients, hence SHH is the undisputed choice among the resident for healthcare services. Since SHH is charging a reasonable fee, hence controlling and managing cost becomes critical for them, especially the cost involved in non-value activities or activities, not of principle nature. SHH has a core team of 32 specialist doctors and some among them are resident doctors. The staff comprises an administration team of 15 members, apart from around 120 nurses supported by 40-50 grade-four employees, some of these support staff are casual workers and some are the resident staff.*

SHH is running an in-house subsidies canteen for Doctors and Staffs exclusively, operates on all calendar days. This canteen was established during initial days of SHH because then the nearby areas are not fully developed; only a few eateries were there and either they are un-hygienic or excessively costly. Due to extending urban municipal limits scenario is changed now. Management at SHH is considering the two alternate first being ‘downsize the operation by cut-down the choices to eat and reduction in subsidy’ or ‘outsource canteen to some external caterer’. Patients’ food is prepared by the dietary department and there is a separate canteen for attendant and visitors of patients.

Current scenario

On daily basis around 160 coupons for meal @ of ₹ 40 and 120 coupons for snacks (accompanied with either tea or cold drink) @ of ₹ 20 is sold apart from the sale of ₹ 2,000 for juices & biscuits etc. These supplies costs 70% of sale prices. Canteen also incurs ₹ 25,000 for utilities and maintenance each month. Canteen works around the clock, with mutual rotation among the staff. The meal is served during specified hours, whereas snacks, juices and biscuit are available throughout.

Presently canteen has a staff of 7 members, including a chef, helpers, and cleaner. The monthly salary of these 7 staff members is ₹ 1,40,000. SHH also contributes ₹ 9,120 per month, as statutory labour benefits. Only those employees registered for such benefits, whose salary are below to threshold limit prescribed under respective labour legislation.

Downsize the operation by cut-down the choices to eat and reduction in subsidy

With the aim to reduce the subsidy by at-least 50%, the operation can be downsized by cut-down the snacks from menu. The price of Meal will also be increased by 5%. Cutdown will reduce the staff requirement, resultantly monthly salary expenditure expected to reduce by ₹ 63,500; whereas SHH contributes to statutory labour benefits also reduced to ₹ 5,420. The average cost of supplies is increased by 3% of the sale price. There is an increase in the sale of meal coupon by 30 coupons, largely due to the absence of alternate choice. The sale of juice and biscuit is also increased by 10%. Other aspects of operation remain the same.

Outsource canteen to some external caterer

Against the advertisement of expression of interest, 4 proposals are received, out of which only found suitable by the screening committee, which also meets all the established criteria. Such a proposal is from 'Annapurna Caterers'. They offered an annual lease value of ₹ 1,68,000 and share of 2% in revenue. Only 20% of monthly utility and maintenance expenditure pertaining to canteen will be recovered from Annapurna Caterers. It is expected by Annapurna Caterers that it will be able to sale 150 meals @ ₹ 50 each, 100 snacks @ ₹ 30 each apart from juice and biscuits of ₹ 2,500 on daily basis.

Required

(i) ADVISE the management of SHH supported with following points-

a) Whether downsizing operation by cut-down menu is acceptable or not?

b) Whether SHH able to reduce the subsidy by 50%?

*c) What **qualitative factors** SHH need to consider?*

(ii) ADVISE the management of SHH supported with following points-

a) Does proposal from Annapurna Caterers is beneficial than downsizing or not?

b) Highlight any two non-monetary factors which SHH need to consider prior to outsourcing (in brief).

Assuming it is a non-leap year, comprising 365 days.

Answer

(i) a) Considering the statement of comparative costs and benefits mentioned below as table 1, from monetary aspects it is **strongly advice to management at SHH to downsize the operation by cut-down the menu; because it will result in saving of ₹6,27,039** (by reducing loss from ₹9,06,840 to ₹2,79,801)

Table 1 - Statement of comparative costs and benefits
(on year basis, the amount in ₹)

Particulars	Current	After Cut-back
Annual Revenue (W.N. 1)	39,42,000	37,15,700
Less: Costs		
Material/Supplies (70/73% of revenue)	27,59,400	27,12,461
Labour/Salaries (W.N. 3)	17,89,440	9,83,040
Utility and maintenance	3,00,000	3,00,000
Loss (Subsidy by SHH)	(9,06,840)	(2,79,801)

b) Considering the table 1, it is observed that loss (which is in form of the subsidiary) is currently ₹9,06,840. If SHH downsizes the operation by cutting down the menu then such loss is also reduced to ₹2,79,801; hence saving in cost/subsidy is ₹6,27,039; which amounts to 69.15% of current subsidy.

Hence, SHH is able to reduce the subsidy by 69.15% against the target of 50%.

c) Management decisions has qualitative implications also apart from monetary implications. Hence management needs to consider these non-monetary factors too. In the present case SHH must consider the following factors→

Retrenchment of employees may have severe consequences – Cut-down will reduce the staff requirement, the question arises here whether such staff members are regular are casual, because based upon this fact they will be either absorbed in some other department or retrenched. If transferred to some other department then the cost impact on such department (responsibly centre) needs to be considered. If retrenched then, whether the byelaws of SHH allow for the same? Does any compensation need to be given? Even motivation of other employees may be jolted, because job-security is one of the major factors.

Even minor price increase has an impact on the pocket – Subsidies food and food coupons are usually part of employment benefits. The price of meal will also be increased by 5%. Such a change of 5% may not bother doctors and nurses, but Grade-four staff surely be impacted by such change. Staff may reach to the conclusion that management is not employee-oriented they are concerned with their profit only. This may lead to less participation and support from employees.

Resident doctors and resident Staff – Resident doctors and staff are key to any hospital. In the service industry, the employee has a direct impact on the value chain. The meal is available only during specified hours, currently beyond those specified hours snacks are available, but if snacks cut down from menu then it will be unjust for resident doctors and staff.

(ii) a) As per the statement of cost and benefit mentioned in table 2 below, the gain out of outsourcing canteen facility is ₹22,900; whereas downsizing operation by cut-down menu causing loss of ₹2,79,801, hence by outsourcing canteen facility SHH can earn monetary gain of ₹3,02,701.

Yes, outsourcing offer from Annapurna Caterers is more beneficial then downsizing operation, hence management at SHH is advised to accept outsourcing proposal. Management may also give weight to qualitative and non-monetary quantitative factors.

Table 2 - Statement of cost and benefit under outsourcing (canteen facility)

Particulars	Amount in ₹
Lease Rental	1,68,000
Share in Revenue (2% of 47,45,000)	94,900
Recovery on account of utility and maintenance (20% of 3 Lacs)	60,000
Less: Cost	
Utility and maintenance	3,00,000
Gain out of outsourcing canteen facility	22,900

b) Major non-monetary factor which SHH must consider prior to outsourcing the canteen facility are→

- Quality of food/eatable provided by Annapurna Caterers.
- Price-increased will be a burden for staff and doctors.
- Whether the staff, which is presently engaged in canteen facility will be retrenched or transferred to another department.
- Legal implication and aspects of out-source agreement.

Working Note 1 – Annual Revenue

Particulars	Current ₹	After Cut-back ₹
Meal	6,400 (160@ ₹40)	7,980 (190@ ₹42)
Snacks	2,400 (120@ ₹20)	-
Juices & Biscuits	2,000	2,200
Daily Total Revenue	10,800	10,180
Annual Revenue	39,42,000	37,15,700

Working Note 2 – Annual Labour Cost

Particulars	Current	After Cut-back
Monthly Salary	1,40,000	76,500
Statutory Contributions	9,120	5,420
Monthly Labour Cost	1,49,120	81,920
Annual Revenue	17,89,440	9,83,040

Working Note 3 –Annual Revenue of Annapurna Caterers

Particulars	Amount in ₹
Meals (150 meals @ ₹50 each)	7,500
Snacks (100 snacks @ ₹30 each)	3,000
Juice and biscuits (₹2,500 on daily basis)	2,500
Daily Revenue	13,000
Annual Revenue	47,45,000

Note- It is important to note that non-value-added functions can be easily outsourced based upon monetary aspects only, because they are not value generating, but it does not mean they are not strategic. Here, in present case canteen facility is non- value adding activity but seems strategic in nature.

Question 18

Ajanta Digital Solutions (ADS) *is a renowned name for manufacturing a wide variety of digital stationery products for office and academic use. The 'Abacus division' of ADS is engaged in the production of basic calculators, capable of academic and commercial use. Presently Abacus is manufacturing only three models, named C-100, C-125, and C-500. These calculators are sold to customers through wide-spread retailers and distributors' network across the country.*

During manufacturing process, each calculator needs to pass through various steps, before it gets ready. PC-IA is the essential step and performed manually, where processing chip is being installed, activated, and tested. The production capacity of Abacus is constraint by PC-IA. The basic information pertaining to top-line and the prime cost is as follows (Amount in ₹)-

Particulars	*C-100*	*C-125*	*C-500*
Sale price per unit	*140*	*200*	*450*
Material cost per unit	*72*	*104*	*200*
Labour cost per unit	*30*	*52.5*	*75*

All the process and division at ADS are operating for a single shift of 8 hours in a day. Conversion cost per hour (including labour cost) is ₹ 5600. The standard out-put for PC-IA during a day is the processing of either 800 units of C-100 or 560 units of C-125, or 320 units of C-500. ADS is capable of sale more than, what they are presently capable to produce in all range of models. The CEO of ADS recently attended a science fair, Robo-tech 4.0; where he saw a Robot developed by Synergy Robotics Limited, capable to assembly including installation of processing chip to any sort of device.

Required

Management hired you as cost consultant, advice on following aspects→

(i) On a random day if 480 units, 140 units and 120 units of C-100, C-125, and C-500 respectively are produced and sold, CALCULATE at what efficiency level current constraint (bottleneck) is operational. INTERPRET the same. COMPUTE profit earned during such day.

(ii) FIND production of which model is more beneficial, considering the ranking (based upon throughput performance ratio).

(iii) APPLY Goldratt's five steps to remove the bottleneck at Abacus.

Answer

(i) Efficiency level can be measured with help of Efficiency Ratio, which is one among the control ratios.

Efficiency ratio indicates the degree of efficiency attained in production. It is expressed in term of standard hours for actual production as a percentage of the actual hours spent in producing that work.

$$\frac{Standard\ hours\ for\ actual\ production * 100}{Actual\ hours\ worked}$$

= (9.8/8) × 100

= **122.5%**

Working Note – Standard hour required for actual production.

Product	Actual output (Units) (a)	Standard Daily Output (Units) (b)	Standard Hourly Output (Units) (c) (b)/8	Standard Hour Required (a)/(c)
C-100	480	800	100	4.8
C-125	140	560	70	2
C-500	120	320	40	3
			Standard Time Required (in hours)	**9.8**

Interpretation – 122.5% signifies that efficiency (usage) of exploiting bottle-neck activity is 22.5% better than the standard use. PC-IA is producing out-put which require 9.8 hours, in 8 hours.

Profit earned during the day

Particulars	**Amount in ₹**
Revenue [(480×140) + (140×200) + (120×450)]	1,49,200
Less: Material Cost [(480×72) + (140×104) + (120×200)]	73,120
Less: Conversion Cost (including labour cost) [5,600 × 8hrs.]	44,800
Profit	**31,280**

(ii) Statement of ranking, based upon throughput performance ratio (using throughput contribution)

Particulars		**C-100**	**C-125**	**C-500**
Sale price per units	…(a)	140	200	450
Material cost per unit	…(b)	72	104	200
Throughput contribution per unit	…(c) = (a) – (b)	68	96	250
Maximum possible production	…(d)	800	560	320
Maximum possible throughput contribution	…(e)= (c)×(d)	54,400	53,760	80,000
Conversion cost (including labour cost) (5,600×8hrs.)	…(f)	44,800	44,800	44,800
Throughput performance ratio	…(e)/(f)	1.21	1.20	1.78
Ranking		II	III	I

Considering the throughput performance ratio (or TA ratio) and ranking above most beneficial model to produce is C-500 followed by C-100 and C-125.

$$\textbf{TA Ratio} = \frac{\text{Throughput contribution}}{\text{Conversion cost}}$$

Throughput accounting developed by **Galloway and Waldron** which use the term factory cost and completely relay upon the **Goldratt's theory of constraints** which use the term operating expenses, but the meaning of factory cost and operating expenses used at both places are identical.

Theory of constraints consider short-run time horizons and assume other current operating cost to be fixed costs.

Higher the throughput performance ratio (or TA ratio) is better and beneficial.

All the products/models which have throughput performance ratio (or TA ratio) more than one may be produced/continued to produce, depending upon constraint function.

(iii) Application of Goldratt's five steps to remove the bottleneck at Abacus

Goldratt's theory of constraints describes the following mentioned five steps process of identifying and taking steps to remove the bottlenecks that restrict output.

1. **Identifying the System Bottlenecks –** At Abacus division of ADS, PC-IA is bottleneck
2. **Exploit the Bottlenecks –** Bottleneck activities' capacity must be fully utilised. Although the efficiency of bottleneck activity is already 122.5% but further attention on the possibility to enhance the flow of products from bottleneck activity is needful.
3. **Non-bottleneck activities are subordinate –** Bottleneck activity should setup the pace for non-bottleneck activities. Abacus shall plan its production keeping PC-IA at the centre point, because even if the efficiency of other activities which are non-bottleneck enhanced beyond current level; the output can be maximum possible by PC-IA.
4. **Elevate the bottleneck –** Eliminate the bottleneck by enhancing the capacity and efficiency. Major change (business reengineering) or continuous minor change (kaizen) may do. In the case of Abacus, the introduction of the robot may be a way to elevate the bottleneck.

   Note – There will always be one bottleneck in the system, if such bottleneck is eliminated then a new constraint emerges as a bottleneck. Hence this process continues. Ultimately improvement is a never-ending continues process.
5. **Repeat the process –** Apply step 1 to new bottleneck activity which emerges at Abacus and repeat the process.

Question 19

***'Pristine Makers'** is one of the largest laundry service provider for Suits. The firm has set a price of ₹ 510 for cleaning the "suit set". 'Pristine Makers' derived this price as follows: cleaning materials ₹ 35, labour (3 hrs. @ ₹ 50 per hr.) ₹ 150, variable overheads ₹ 70, fixed overheads (3 hrs. @ ₹ 15 per hr.) ₹ 45 plus mark-up 70% on total cost. 'Pristine Makers' is known for its quality work and timely delivery; hence, customers are willing to pay this premium price. Firm's employees receive a fixed salary. The "hourly rate" ₹ 50 is arrived by dividing the total salary by the total number of hours available. Variable overheads depend on the number of suits cleaned whereas fixed overheads rate is derived at by dividing the total cost of all related expenses by the number of labour hours available. Fixed overheads generally include office rent and administrative salary.*

A local hotel approached 'Pristine Makers' as the regular cleaners of these suits are on strike, about the possibility of cleaning 130 suits in coming week and they need the work done on a rush basis. 'Pristine Makers' has sufficient quantity of required cleaning material in stock for special order. It perceives that it could complete 60% of the special order during normal working hours. However, to complete the remaining 40%, some employees will have to work overtime. Overtime hours are paid at premium, which could be time and half the normal hourly rate.

Required

(i) ADVISE the price it shall quote for the special order?

(ii) Does special order decision deal with excess supply or excess demand? ANALYSE.

(iii) Whether such special order be accepted on rush basis? COMMENT.

Answer

(i) Firms can face situations where they are confronted with the opportunity of offering for a one- time special order. In this situation only the *incremental costs* of undertaking the order should be taken into consideration. *Quote should be made at prices that exceeds incremental costs*. Any excess of revenues over incremental costs will provide a contribution to committed fixed cost which would not otherwise have been gained.

'Pristine Makers' can use the incremental cost numbers for pricing the 'rush order'. The *minimum* price that firm would charge is ₹195 per suit (=₹25,350/130). This price is well below normal price of ₹510.

Particulars	Amount (₹)
Cleaning materials (130 × ₹35)	4,550
Labour (130 × 3 × 40% × ₹50 × 1.5)	11,700
Variable overheads (130 Suits × 70)	9,100
Incremental cost	25,350

However, in decision making other conditions are equally important. For instance, if this is a one-time deal with **no prospect of repeat business**, then 'Pristine Makers' might well charge a *premium over the normal price*. Long-term implications also matter. The prospect of "getting a foot in the door" to quote for future business would push the *price downward*. Therefore, 'Pristine Makers' can price based on both the short-run benefits from accepting the order and the long-run consequences.

(ii) Such special order definitely gives 'Pristine Makers' opportunity to earn more profits, however, other aspects also need to be analysed. There is excess of *cleaning material*, if the current special order does not use up available stock, the firm could store the cleaning material for later use. It is most likely that 'Pristine Makers' *fixed overhead costs* will not change due to the special order which mainly consists of rent and administrative salaries. If 60% of the special order could be completed during normal working hours, then the firm clearly has some excess capacity in terms of labour hours. However, for the remaining 40% of the special order, labour will have to work overtime and will be paid 1.5 times. This clearly indicates that different resources in the 'Pristine Makers' have differing capacity levels; a decision may impose constraints on particular resource. It is necessary to consider the opportunity cost of each resource when computing the total cost of a special order.

(iii) There are two sides in this scenario. On the one side, firm can earn more profits by taking the special order. On the other side, the order received needs to be delivered urgently. Therefore, accepting such rush orders may affect the *quality of service* and also *timely delivery* may not be complied with. Hence, the goodwill and brand name will be affected which in turn will affect the future profitability. Though immediate monetary benefits are seen, long time consequences also need to be analysed before accepting such rush orders. The firm manager would need to consider both the short-run benefits from accepting the order and the long-run consequences on profitability.

Question 20

During September 2020, ***Sandy*** *offers bundling and item packing facilities (for standard size 24”×12”×10”) to give best facility to satisfy its industrial customers’ need at the Great Ocean Warehouse. Sandy plans to pack 93,750 items at the rate of ₹ 4.50 per item. Sandy estimates that variable cost (all resources) will be equal to ₹ 1.50 per item packed and that fixed costs (rent, electricity, and maintenance charges) will be equal to ₹ 58,000 p.m. In September 2020, Sandy packed 1,12,500 items and received ₹ 5,06,250 as total revenue. However, Sandy paid ₹ 1,80,000 on resources (including urgent purchase of tape at retail price). In addition, Sandy paid ₹ 70,000 to the warehouse administration for rent, electricity, and maintenance charges. (This past September was unusually hot, and Sandy is charged a percentage of the warehouse’s actual electricity bill.)*

Required

PREPARE a budget reconciliation report along with suitable analysis.

Answer

Workings

The following table shows Sandy’s budget profit and actual profit for the month of September 2020:

Particulars	Budgeted Profit	Actual Profit
Items packed	93,750	1,12,500
Revenue (₹)	4,21,875	5,06,250
Less: Variable Costs	1,40,625	1,80,000
Contribution Margin (₹)	2,81,250	3,26,250
Less: Fixed Costs	58,000	70,000
Profit (₹)	**2,23,250**	**2,56,250**

Analysis

Sandy’s standard selling (packing) price is ₹4.50 per item and her standard variable cost is ₹1.50 per item. Therefore, Sandy’s budgeted revenue = 93,750 × ₹4.50 = ₹4,21,875 and her budgeted variable costs = 93,750 × ₹1.50 = ₹1,40,625. From the table, we can identify that

Sandy's actual profit for September 2020 was ₹33,000 higher than his budgeted profit (₹2,56,250 – ₹2,23,250) i.e., Sandy's total profit variance is ₹33,000 (F).

Sandy's **sales contribution volume variance** equals to the difference between his standard contribution and budgeted contribution. Each item is budgeted to contribute ₹3.00 toward profit; since Sandy packed 18,750 more items than budgeted, the increase in volume should have contributed ₹56,250 = 18,750 × ₹3.00 to actual profit. Therefore, Sandy's sales contribution volume variance is ₹56,250 (F).

Sandy's overall **variable cost variance** equals to the difference between her standard variable costs and her actual variable costs, or ₹1,68,750 – ₹1,80,000 = ₹11,250 (A). But there is not adequate data to segregate Sandy's variable cost variance into price and quantity elements. To compute these variances, we would require the amount of resources Sandy budgets to use per item packed and the actual & budgeted price of each resource (i.e., an adverse variable cost variance can arise as Sandy used more resources per item packed and/or She paid more than budgeted for the resources used). While the issue appears to suggest that Sandy's adverse variable cost variance arose due to spending more on tape than planned, it is not sure that the entire ₹11,250 variance is attributable to this. In fact, it is likely that the tape price variance was greater than ₹11,250 (A) and that Sandy had a favorable resource quantity variance to offset this.

Sandy's **fixed cost expenditure variance** equals the difference between budgeted and actual fixed costs, or ₹58,000 – ₹70,000 = ₹12,000 (A).

We can now prepare the following budget reconciliation report:

Item	Amount (₹)
Budgeted Profit	2,23,250
Sales Volume Variance	56,250 (F)
Variable Cost Variance	11,250 (A)
Fixed Cost Expenditure Variance	12,000 (A)
Actual Profit	2,56,250

Question 21

***Healthcare hospital** provides medical care to patients to all strata of the society at nominal cost. Hospital has been operating for the last 15 years. It gets grant from the government that helps it sustain its operations. Each year an annual report is submitted to the officials in the health ministry that is in charge of giving out grants to hospitals. Each year over the last 15 years, grants given to the hospital has been increasing. This increment was found necessary to meet the increase in operational costs due to inflation. While operations have been moderately successful in the recent years, the grants committee is of the opinion that the hospital can manage its funds better.*

To benchmark performance, performance of Healthcare hospital is being compared with the performance of another government funded hospital within the same city, Lifeline hospital. Both hospitals have similar scale of operations and get the same amount of grant. Given below are some of the parameters that are tracked at both hospitals:

Operational Parameters	***Healthcare Hospital***		***Lifeline Hospital***
	Budget	***Actual***	***Actual***
Total inpatients	*1,10,000*	*96,000*	*1,00,000*
Delay in admission due to unavailability of beds			
Number of inpatients waiting for more than 1 week	*1,100*	*2,880*	*500*
Number of inpatients waiting for more than 2 weeks	-	*960*	-
Total outpatients	*90,000*	*95,000*	*93,000*
Delay in appointment due to unavailability of medical staff			
Number of outpatients waiting for more than 1 week	*900*	*1,900*	*465*
Number of outpatients waiting for more than 2 weeks	-	*475*	-
Number of emergency admissions	*400*	*600*	*500*
Delay in providing medical care to emergency admissions	-	*5*	-
Number of medical staff shortages (positions not filled for more than one month)	*3*	*5*	*1*
Cancelled or delayed operations (due to non-clinical reasons)	*5*	*20*	*6*
Number of complaints received related to medical care	*500*	*1,350*	*600*
Number of complaints resolved within 15 days	*500*	*1,080*	*550*
Number of deaths post operation (all inpatients)	*4,400*	*2,880*	*2,000*
Number of medical negligence case that the hospital lost	*2*	*5*	-
Number of errors in prescription of drugs	*15*	*45*	*10*
Number of infection outbreaks within the hospital	-	*2*	-
Bed occupancy rate	*90%*	*85%*	*94%*
Average patients stay (days)	*4*	*6*	*5*
Operating theatre utilization rate	*95%*	*90%*	*95%*
Revenue including government grant (in crores)	*15*	*13*	*16*
Operating expenses (in crores)	*12*	*12*	*12*
ROI	*8%*	*5%*	*9%*
Staff Training sessions (hours)	*500*	*500*	*600*
Research publications	*5*	*3*	*6*

- *Both hospitals have 50 wards with 10 beds in each ward.*
- *Each hospital has 50 doctors from various specialties and 75 nurses.*
- *Both hospitals were open all days of the year.*

Required

(i) The grants committee wants to ANALYZE performance of both hospitals with respect to:

- *Access to services*
- *Clinical performance*
- *Efficiency of operations*
- *Financial management*
- *Innovations*

(ii) While preparing the balanced scorecard, how will you CATEGORIZE the above performance measures?

Answer

(i) Analysis of Performance with respect to:

Access to Services

Access to services is an indicator of whether patients are able to get medical care when they need it. Better access to medical service will improve chances of recovery for the patients. Given the information in the problem, this can be assessed using the following parameters:

(a) Delay in admission to inpatients due to unavailability of beds.

(b) Delay in appointments to outpatients due to unavailability of medical staff.

(c) Delay in providing medical care for emergency admission.

(d) Number of medical staff shortages.

(e) Cancelled or delayed operations.

The hospital should aim at reducing the delay and shortages in order to provide patients with better access to medical services.

(a) Delay in admission to inpatients due to unavailability of beds:

As per the hospitals' policy, patients who need admission have to be accommodated within 1 week to get access to services. Any delay beyond this period is tracked by their information system. For delays, due to unavailability of beds, the hospitals are tracking two-time lags, delay by more than a week and delay by more than 2 weeks. Unavailability of beds shows that there are constraints in the capacity of patients to whom the hospital can provide service.

Operational Parameters	Healthcare Hospital		Lifeline Hospital
	Budget	Actual	Actual
Total inpatients	1,10,000	96,000	1,00,000
Delay in admission due to unavailability of beds			
Number of inpatients waiting for more than 1 week	1,100	2,880	500
Number of inpatients waiting for more than 2 weeks	-	960	-
Percentage of inpatients denied access to service			
by more than 1 week	1.00%	3.00%	0.50%
by more than 2 weeks	0.00%	1.00%	0.00%

As can be seen, Healthcare hospital has a target to provide admission within a week to 99% of inpatients, delay beyond a week may happen only in 1% of cases. Delay beyond 2 weeks should not occur. However, actual performance indicates that Healthcare hospital could provide admission within a week only to 96% of inpatients. There has been a time lag of more than a week in providing admission to 3% of the inpatients. This is already 2% more than the target. Further, time lag beyond 2 weeks in providing admission has occurred in 1% of inpatients. Therefore, 4% of the inpatients had to wait for more than a week, in some cases more than 2 weeks, to get admission. In contrast at Lifeline hospital, only 0.5% of inpatient faced time lag of more than a week in getting admission to the hospital. There were no instances where patients requiring admission had to wait more than 2 weeks.

This shows that Lifeline hospital provides better access to services as compared to Healthcare hospital.

(b) Delay in getting appointment due to unavailability of medical staff:

Operational Parameters	Healthcare Hospital		Lifeline Hospital
	Budget	Actual	Actual
Total outpatients	90,000	95,000	93,000
Delay in appointment due to unavailability of medical staff			
Number of outpatients waiting for more than1 week	900	1,900	465
Number of outpatients waiting for more than 2 weeks	-	475	-
Percentage of inpatients denied access to service			
by more than 1 week	1.00%	2.00%	0.50%
by more than 2 weeks	0.00%	0.50%	0.00%

As per the hospitals' policy, outpatients should be able to get appointment within a week to meet the medical staff. Delay beyond a week is tracked by the hospital's information system as delay beyond a week and delay beyond two weeks. Healthcare hospital targets to provide appointments to meet medical staff within 1 week to 99% of the outpatients. Delays due to unavailability of medical staff can occur only in 1% of the cases. However, actual appointment schedule indicates that 2% of the outpatients had to wait for more than 1 week and 0.5% of the outpatients had to wait for more than 2 weeks to meet the doctor. This indicates that Healthcare hospital has not been able to meet its target. To improve performance, the reason for unavailability of medical staff has to be understood. It might indicate that more hiring is needed or high medical staff turnover.

In comparison, Lifeline hospital has provided better services to outpatients, only 0.5% of the patients had to wait beyond a week to get appointment with the doctor This shows that Lifeline hospital provides better access to services as compared to Healthcare hospital.

(c) Delay in providing medical care to emergency admission patients:

In the case of Healthcare hospital, there were 5 instances when medical care could not be provided to emergency admission patients immediately. The hospital aims never to have such instances however this target has not been met. In case of emergencies, medical care is required urgently, any delay may impact recovery of the patient. Reasons for the delay in providing medical care to such patients have to be investigated. Lifeline hospital has been able to provide medical care immediately to all its emergency admission patients.

This shows that Lifeline hospital provides better access to services as compared to Healthcare hospital.

(d) Medical staff shortages:

The hospital should have enough doctors and nursing staff at any point in time to be able to provide good quality of medical care to patients. If there are vacancies, the existing staff have to bear extra patient load. This could lead to delays, some of which have been outline above. This results in patients getting lesser access to medical services when they need it. Healthcare hospital has 5 medical staff vacancies that have been vacant for more than a month, as compared to the target of 3. There are lesser resources available to provide patient care. In comparison, Lifeline hospital has only 1 position that was vacant for more than a month.

This shows that Lifeline hospital provides better access to services as compared to Healthcare hospital.

(e) Cancelled or delayed operations due to non-clinical reasons:

When operations are cancelled or delayed are cancelled due to non-clinical reasons, it indicates that there are administrative issues that deny patients access to medical care. Possible reasons could be unavailability of operation theaters, unavailability of medical staff or unavailability of required instruments or medicines.

Compared to an expected 5 such instances, the actual cancellations or delays have been 20 in the case of Healthcare hospital. This is a huge variation that needs to be investigated. Given in the problem that operation theaters are used only to 90% of their availability. Possibly cancellations are not due to unavailability of operation theaters. It could be due to medical staff shortage or unavailability of instruments. Reasons have to be investigated to take appropriate action. Comparatively, such instances are fewer in the case of Lifeline hospital.

Clinical Performance

Clinical performance can be evaluated by looking at the quality of actual work performed. The parameters to look at are:

Operational Parameters	Healthcare Hospital		Lifeline Hospital
	Budget	Actual	Actual
Number of complaints received related to medical care	500	1,350	600
Number of complaints resolved within 15 days	500	1,080	550
Number of deaths post operation (all inpatients)	4,400	2,880	2,000
Number of medical negligence case that the hospital lost	2	5	-
Number of errors in prescription of drugs	15	45	10
Number of infection outbreaks within the hospital	-	2	-

(a) Number of complaints received related to medical care:

As can be seen from the table, the number of complaints received by Healthcare hospital is more than twice the expected volume. Only 80% of these have been resolved within the time frame of 15 days. Comparatively, Lifeline hospital gets fewer complaints also the complaint resolution rate within the given framework is much higher at 92%.

(b) Number of deaths post operation:

The actual deaths post operations are much lesser. While this is a good indication of quality, the objective of the hospital should be to keep this as low as possible. Lifeline hospital has a lower mortality than Healthcare. Good quality medical care can contribute towards preventing deaths post operation.

(c) Number of medical negligence case that the hospital has lost:

The fact that the hospital has lost a case of medical negligence shows that the quality of clinical care provided is questionable. In this case of Healthcare hospital, the number of such cases lost is 5. This is in excess of an expected loss of 2 cases. This indicates that quality of clinical care is found wanting at Healthcare hospital. Lifeline hospital has not lost any case of medical negligence implying that quality of medical care is better than Healthcare.

(d) Errors in prescription of drugs:

Prescription of drugs to cure an aliment should always be accurate. Any errors could be disastrous to the patient's health. Compared to the expectation, Healthcare has three times the number of prescription errors. This shows that medical staff have been negligent in providing their service. Again, Lifeline hospital has a better record comparatively.

(e) Infection outbreak in hospital premises:

Outbreak of infection within hospital premises indicates that proper standards of hygiene are not being maintained at Healthcare hospital.

Efficiency of Operations

Operating efficiency can be assessed using the following parameters:

Operational Parameters	Healthcare Hospital		Lifeline Hospital
	Budget	Actual	Actual
Bed occupancy rate	90%	85%	94%
Average patient stay (days)	4	6	5
Operating theatre utilization rate	95%	90%	95%

(a) Bed occupancy rate:

Bed occupancy is a factor that is dependent on the number of inpatient admissions. While this factor cannot be controlled by Healthcare, it is important to track this ratio to look at capacity utilization. The bed occupancy rate is lower than the expected rate. If this persists over a longer period, the hospital may want to explore the option of scaling down the number of wards and beds. The space freed up can be utilized for some other productive purpose.

However, as explained in point (a) above, 4% of the inpatients at Healthcare hospital are being denied admission due to unavailability of beds. This is a contradiction that needs to be investigated. Possible reasons could be administrative ones like inability to get the room and bed on time once the previous patient vacates. Else there may be miscommunication between the department discharging patients and the department admitting patients. Bed occupancy may not be tracked on real time basis due to which these delays in admission have occurred.

Lifeline hospital has an occupancy of 94% that shows that it has just the sufficient number of beds to meet demand.

(b) Average patient stay (days) in the hospital:

On an average a patient is staying in the hospital for 2 days more than the target of 4 days. While this factor is dependent on the type of ailment, lower the patient stay the higher can be the bed occupancy rate. That means more patients can utilize the same resources if patient stay is shorter. This may be needed when there is a constraint on the beds available, which is not the scenario in the current case. However, before taking action to improve bed occupancy rate, a hospital should ensure that quality of medical care given is not compromised.

In the given problem, bed occupancy is only 90% at Healthcare hospital. Therefore, the hospital can afford to have longer patient stay. Lifeline hospital has 1 lesser patient stay day, only marginally different from Healthcare's record. In both cases, since there is no constraint on bed occupancy, higher average patient stay can be managed without any constraint.

(c) Operating theater utilization rate:

Utilization of operating theater is subject to the nature of treatment, something that cannot be controlled by a hospital. However, it is necessary to track this parameter since it shows whether the facilities that are currently in place are sufficient and are utilized properly. Again, at 90% Healthcare hospital has a lower operating theater utilization rate compared to the expected usage. If this continues in the long run, the number of operating theaters can be reduced to make resources available for other uses.

Lifeline hospital has a higher utilization rate at 95%, indicating more efficient use of resource.

(d) Medical staff shortage:

Medical staff is the most important resource at a hospital. Higher vacancies could imply higher staff turnover. A possible reason could be dis-satisfaction with the employer. Healthcare should understand the reason for have 5 positions that it has not been able to fill in within 30 days. Since this reduces the number of staff available, efficiency of the hospital will suffer. Comparatively, Lifeline makes better use of its medical staff since only one position was vacant for more than a month.

Financial Management

Healthcare hospital has an actual surplus of ₹1 crore compared to a budget of ₹3 crores. (Surplus = Revenue – Operating expense). ROI of 5% is below the target of 8%. The grants committee feels that there is a wastage of funds at the hospital. Therefore, areas of wastage should be identified such that operating expenses can be controlled better. Lifeline hospital has a surplus of ₹4 crores. Since there are other hospitals like Lifeline that are vying for grant, Healthcare has to make itself competitive in this respect. Therefore, it has to be more efficient, effective and economical in its operations.

Innovations

Research publications indicate that newer discoveries have been made in fields that can further the horizons of knowledge. Therefore, research publications are an important indicator of innovation.

While staff training is not directly related to innovations, they do keep the experts up to date in their subject area of expertise.

(ii) Performance Measures Categorized into the Balance Scorecard

- Customer Perspective would include availability of service measures and clinical performance measures.
- Internal Processes Perspective would include measures used to determine efficiency of operations.
- Financial Perspective would include details of the surplus generated and ROI.
- Learning and Growth Perspective would include staff trainings and research publications.

Combined with other parameters that the grant committee finds important the balanced scorecard can benchmark the hospital's performance with its own targets and the performance of Lifeline hospital. Decision to extend grants and its quantum can be decided on this basis.

Students may note that this is ***comprehensive question*** covering various aspects of performance measurement. While analyzing performance in this particular question students may treat ***each part (like access to service, clinical performance, efficiency of operations) as a separate question***.

Question 22

Learning Horizons *is an educational institute that conducts courses for students in accounting, law and economics. The institute is partially funded by the government. The institute aims to provide quality education to students of all backgrounds. The institute admits students who can fund their education privately as well as those who get sponsorship from the government. Knowledgebase is another educational institute in the same city providing courses similar to Learning Horizons. It is entirely private funded college where students arrange to pay for their own fees. It can be taken as a peer institution for comparison purposes.*

Information about their operations for the year ended March 31, 2020 are as follows:

(1) Both Learning Horizons and Knowledgebase offer their courses that last the entire year. All of them are regular classroom lectures conducted through the week.

(2) Budget and actual fee rate structure for the year are the same. Information about the fees for each course are as follows:

Budget and Actual Fees in ₹

Course Type	Learning Horizons		Knowledgebase
	Privately Funded	Government Funded	Privately Funded
Accounting	1,20,000	75,000	1,00,000
Law	1,20,000	90,000	1,50,000
Economics	80,000	60,000	1,00,000

(3) *Salary details for lecturers and administrative staff are as follows:*

Salaries in ₹

Staff Type	***Learning Horizons***		***Knowledgebase***
	Budget	***Actuals***	***Actuals***
Lecturers	*5,00,000*	*5,50,000*	*6,00,000*
Administrative staff	*3,00,000*	*3,00,000*	*4,00,000*

(4) *Budgeted costs for the year based on 8,500 students per annum for Learning Horizons are as below:*

Costs	***Amount ₹***	***Variable Cost %***	***Fixed Cost %***
Tuition Material	*40,00,00,000*	*100%*	*---*
Catering	*10,00,00,000*	*75%*	*25%*
Cleaning	*1,00,00,000*	*25%*	*75%*
*Other operating costs**	*5,00,00,000*	*25%*	*75%*
Depreciation	*1,00,00,000*	*---*	*100%*

** includes cost of freelance staff*

(5) *Actual costs (other than salary costs) incurred during the year:*

Costs	***Learning Horizon***	***Knowledgebase***
Tuition Material	*42,00,00,000*	*40,00,00,000*
Catering	*10,00,00,000*	*13,00,00,000*
Cleaning	*1,00,00,000*	*1,50,00,000*
*Other Operating Costs**	*6,00,00,000*	*5,00,00,000*
Depreciation	*1,00,00,000*	*1,50,00,000*

** includes cost of freelance staff*

(6) *Keeping in line with latest technological developments, the management of Knowledgebase is introducing on-line tuition support by its lecturing staff. Learning Horizons on the other hand offers distance learning course. A general feedback from prospective students has revealed that some students would like weekend courses since during the week they focus on their regular jobs. Also, some students have requested for intermediate qualification, in the event that they discontinue the course halfway due to inability to complete the course or for other personal reasons.*

(7) *Both Learning Horizon and Knowledgebase have a policy to have a lecture staff of 50 throughout the year. When there is a shortfall in teaching staff available, instead of recruiting a fulltime lecturer, Knowledgebase substitutes the requirement with freelance staff for lectures. The cost of freelance staff is much lower than regular staff.*

(8) Appendix with further details:

Sundry Statistics

For the year ended 31st March 2020

Particulars	***Learning Horizons***		***Knowledge-base***
	Budget	***Actuals***	***Actuals***
Number of students:			
Accounting	*4,000*	*3,800*	*4,100*
Law	*2,500*	*2,550*	*2,500*
Economics	*2,000*	*1,500*	*1,200*
Total students	*8,500*	*7,850*	*7,800*
Student mix (%) for each course:			
Privately funded	*80%*	*70%*	*100%*
Government funded	*20%*	*30%*	*0%*
Number of enquiries received:			
Accounting	*4,500*	*4,500*	*4,600*
Law	*2,800*	*2,700*	*3,050*
Economics	*2,200*	*1,600*	*1,225*
Total enquiries	*9,500*	*8,800*	*8,875*
Number of lecturers employed during the year	*50*	*50*	*50*
Number of lecturers recruited during the year:			
Accounting	*2*	*4*	*1*
Law	*1*	*3*	*-*
Economics	*1*	*3*	*-*
Total recruitment	*4*	*10*	*1*
Number of administrative staff	*12*	*12*	*9*
Pass Rate:			
Accounting	*95%*	*99%*	*93%*
Law	*95%*	*98%*	*90%*
Economics	*95%*	*95%*	*95%*
Overall Pass rates for the courses	*95%*	*97%*	*93%*
Days in a year when freelance lecturers were used	*-*	*-*	*30*
Number of new courses under development	*-*	*-*	*6*

You are the management accountant of Learning Horizons. The results for the year are to be reviewed next week by the management. To assess performance, you want to prepare the report as per the Fitzgerald and Moon model.

Required

(i) *Using the "Results" dimension of performance as per the Fitzgerald Moon model prepare a variance ANALYSIS of Learning Horizons actual and budgeted financial performance. Also, based on the information given in the problem, collate the actual financial figures for Knowledgebase, use it as a basis to prepare ANALYSIS of competitiveness of Learning Horizons and Knowledgebase.*

(ii) *Using the "Determinants" dimension of performance as per the Fitzgerald Moon model EXPLAIN*

  (a) *Quality of service*

  (b) *Flexibility*

  (c) *Resource utilization*

  (d) *Innovation*

(iii) *Course fees set by the government for various subjects cannot be increased beyond an average of ₹75,000 per student. If the costs are maintained within this budget, the government can provide more sponsorship or grants in future. ADVISE a method that the management of Learning Horizons can use to resolve this.*

Answer

(i) **<u>Analysis of the "Results"</u>** dimension of performance as per the Fitzgerald and Moon model

Financial Performance of Learning Horizons and Knowledgebase

The original budget had been prepared for 8,500 students, while actual enrollments are 7,850 students. At the very onset, reasons for lower enrollments have to be found and analyzed. For comparison of actual and budget, the budget of Learning Horizons has to be flexed to scale. Hence the budget needs to be scaled down to 7,850 for preparing a variance analysis.

Particulars	Learning Horizons				Knowledgebase	
	Budget		Actual		Actual	
	Number	Amount ₹	Number	Amount ₹	Number	Amount ₹
Revenue						
(a) Private Funded						
Accounting	2,955	35,46,00,000	2,660	31,92,00,000	4,100	41,00,00,000
Law	1,847	22,16,40,000	1,785	21,42,00,000	2,500	37,50,00,000
Economics	1,478	11,82,40,000	1,050	8,40,00,000	1,200	12,00,00,000
subtotal (a)	6,280	69,44,80,000	5,495	61,74,00,000	7,800	90,50,00,000
(b) Government Funded						
Accounting	739	5,54,25,000	1,140	8,55,00,000	---	---

Law	462	4,15,80,000	765	6,88,50,000	---	---
Economics	369	2,21,40,000	450	2,70,00,000	---	---
Subtotal (b)	1,570	11,91,45,000	2,355	18,13,50,000	---	---
Total Revenue (a)+(b)	7,850	81,36,25,000	7,850	79,87,50,000	7,800	90,50,00,000
Expenditure						
Salaries						
Lecturers	50	2,50,00,000	50	2,75,00,000	50	3,00,00,000
Administrative staff	12	36,00,000	12	36,00,000	9	36,00,000
subtotal of salaries	62	2,86,00,000	62	3,11,00,000	59	3,36,00,000
Tuition Material		36,94,11,765		42,00,00,000		40,00,00,000
Catering		9,42,64,706		10,00,00,000		13,00,00,000
Cleaning		98,08,824		1,00,00,000		1,50,00,000
Other Operating Costs		4,90,44,118		6,00,00,000		5,00,00,000
Depreciation		1,00,00,000		1,00,00,000		1,50,00,000
Total Expenditure		56,11,29,413		63,11,00,000		64,36,00,000
Net Profit		25,24,95,587		16,76,50,000		26,14,00,000

Note

(1) Original revenue budget is for 8,500 students. Actual enrolments are 7,850 students. For comparison, the budgeted revenue has also been adjusted to 7,850 students. The mix between private and government funded students is 80:20 as per the budget. The adjusted student strength is allocated between the courses based on the original budget student strength.

For example, out of the total strength of 7,850 students, based on the budget ratio, 80% are taken to be privately funded. This works out to 6,280 students. The strength for flexible budget for accounting course will be = (6,280 × 4,000/8,500) = 2,955 students. Likewise, the strength for flexible budget for other courses is calculated in a similar manner.

(2) The budgeted expenses are for 8,500 students. Actual students are 7,850. For comparison, variable costs in the budget have been adjusted for 7,850 students. Fixed costs remain the same. For example, tuition material has a budget of ₹40 crore for 8,500 students. This is 100% variable, therefore adjusted budget for 7,850 students would be ₹40 crore /8,500 × 7,850 students. The total budgeted cost for 7,850 students is therefore 37 crore.

Semi-variable costs in the budget, are separated as fixed portion and variable portion for the purpose of recalculation. For example, catering cost is ₹ 10 crore for 8,500 students, of which ₹2.5 crore is fixed. The balance ₹7.5 crore is for 8,500 students are is variable. The budgeted cost per student is therefore ₹8,823. For 7,850 students, the variable cost works out to ₹6.93 crore. Adding the fixed cost, the total budget for catering for 7,850 students is ₹9.43 crore.

Likewise, the budgeted cost for cleaning and other operating expenses is calculated in a similar manner.

Analysis of Actual Financial Performance with respect to Budget

(a) Originally the student strength was expected to be 8,500 in comparison to an actual number of 7,850. The reason for this shortfall in enrollment should be analyzed by looking into non-financial performance measures.

(b) On the revenue side, actual revenue of ₹80 crore is marginally lower than the adjusted budget of ₹81.4 crore. Since the budget and actual course fee rates are the same, the reason for this difference is on account of the mix between the private and government funded students. Actual enrollments had a greater ratio of government funded students, for which the fees are lower. As per the flexed budget, government funded students were expected to be 1,570 versus an actual of 2,355, higher by 50%. Reasons for the change in student mix from a budget of 80:20 to actual mix of 70:30 has to be analyzed.

(c) On the expenditure side, actual costs of ₹63 crore is 12% more than the corresponding budget of ₹56 crore. The increase for salaries over budget is because a higher market rate that has to be paid for a lecturer. Given that Knowledgebase also pays a higher rate, the budget may need to be amended to reflect a more realistic salary rate. The other major variance is on account of the tuition materials procured for the students. While the budget for 7,850 students is only ₹37 crore, the actual expenditure is ₹42 crore. Reasons for this large variation has to be analyzed. Reasons could reflect the quality of education imparted. If in reality better quality study materials costs more, the management has to decide whether they would be willing to incur this additional cost. This might have a further impact on the fees charged to privately funded students and the management may also want to ask for increase in the government sponsored fee rate.

(d) Overspend is noticed in other operating costs as well, actual cost is ₹6 crore versus ₹4.9 crore budget. As mentioned in the problem, 75% of this cost is fixed in nature, amounting to ₹3.75 crore (75% of ₹5 crore original budget). This portion of the cost should remain the same irrespective of variation in student enrollments. The remaining portion of the budget ₹1.15 crore is variable. The actual spend is ₹6 crore, of which ideally ₹3.75 crore would be fixed. If there is any variation in fixed cost, it should be looked into. If justified, future budgets need to be adjusted to reflect the higher cost. The remaining variable portion should also be analyzed to understand the reason for the higher spend.

(e) Overall, the impact of lower revenue and higher cost, has resulted in a shortfall of ₹8.48 crore (34% shortfall) as compared to the adjusted budget for 7,850 students. Action should be taken by further studying other parameters like competitor's performance and other non-financial factors like quality of education, pass rate, innovation.

Competitive Performance of Learning Horizons and Knowledgebase

The average revenue and cost per student for Learning Horizons and Knowledgebase are as below:

Average Revenue and Cost *per student*

Particulars	Learning Horizons		Knowledgebase
	Budget	Actual	Actual
Total revenue (₹)	81,36,25,000	79,87,50,000	90,50,00,000
Number of students	7,850	7,850	7,800
Revenue per student (₹)	1,03,646	1,01,752	1,16,026
Total cost (₹)	56,11,29,413	63,11,00,000	64,36,00,000
Number of students	7,850	7,850	7,800
Cost per student (₹)	71,481	80,395	82,513

The cost per student at Learning Horizons is marginally lower than Knowledgebase. However, the revenue per student at Knowledgebase is much higher. Analyzing the components further:

(a) *Student Mix:* Knowledgebase has higher revenue by more than 10 crore, almost 13.3% higher compared to Learning Horizons. Reasons could be on account a higher fee rate structure at Knowledgebase as compared to Learning Horizons, where part of the fee structure is government funded at a lower rate.

(b) *Course Rate:* Learning Horizons charges ₹1,20,000 per year for its *accountancy course* which is higher compared to Knowledgebase's rate of ₹1,00,000 per year. This might be a reason for a higher enrollment at Knowledgebase of 4,100 students compared to Learning Horizons enrollment of 3,800 for the same course. The management has to verify if this higher rate is sustainable.

(c) *Course Rate:* Learning Horizons charges ₹1,20,000 for its *law course* compared to ₹1,50,000 at Knowledgebase. However, despite being lower, the enrollment for the course is almost the same. The management has to look at non-financial parameters related to quality, in order to improve enrollments for this course.

(d) *Course Rate:* Learning Horizons charges ₹80,000 for its *economics course* compared to ₹1,00,000 at Knowledgebase. Consequently, it is able to have higher enrollment for its economics course.

(e) Compared to Learning Horizons, Knowledgebase is incurring ₹2 crore lesser on *tuition materials*. As pointed out earlier, Learning Horizons must try to find out reasons for its higher cost and try to economize on this expense, if required.

(f) Knowledgebase has been using *freelance staff* for 30 days in a year to keep its expenses lower. Therefore, although it has a higher pay scale for its lecturers, it uses a lower cost resource to meet its teaching staff requirements. Compared to 1 new recruitment by Knowledgebase, Learning horizons has 10 new recruitments during the year. Knowledgebase has substituted any shortfall in teaching staff by hiring freelancers during the year. At the same time, non-financial aspects like quality of education need to be assessed while using the service of freelancers.

(g) The other indicator of competitive performance, the *take up rate*, the rate of conversion of enquiries from prospective students into enrollments for the course. Reference to the budget here is the original budget prepared for 8,500 students, which represents the capacity that Learning Horizons wants to achieve.

Particulars	**Learning Horizons**		**Knowledge.**
	Budget	**Actual**	**Actual**
Accounting - number of students	4,000	3,800	4,100
Number of enquiries	4,500	4,500	4,600
Take up rate	**89%**	**84%**	**89%**
Law - number of students	2,500	2,550	2,500
Number of enquiries	2,800	2,700	3,050
Take up rate	**89%**	**94%**	**82%**
Economics - number of students	2,000	1,500	1,200
Number of enquiries	2,200	1,600	1,225
Take up rate	**91%**	**94%**	**98%**
Overall - number of students	8,500	7,850	7,800
Number of enquiries	9,500	8,800	8,875
Take up rate	**89%**	**89%**	**88%**

The take up rate is lower for accounting course at Learning Horizons as compared to Knowledgebase. As explained in point (b), this may be attributed to the higher rate that Learning Horizons charges privately funded students. The higher rate should be justifiable.

The take up rate for law is higher compared to Knowledgebase. As explained in point (c) this could be due to the lower fee rate. Higher enrollment could indicate the popularity of the course. At the same time the comparative pass rate may have to be looked into to judge the quality of the course.

The take up rate for economics is marginally lower than Knowledgebase. However, overall enrollment for this course is much higher compared to Knowledgebase, possibly to the substantially lower rate offered for the course. The management could look at better publicity to improve the take up rate.

(ii) **Analysis of the "Determinants"** dimension of performance as per the Fitzgerald and Moon model

Quality of Service

The pass rate for each course indicates the quality of course offered. Summarizing from the problem:

Pass rate

	Learning Horizons		Knowledgebase
	Budget	**Actual**	**Actual**
Accounting	95%	99%	93%
Law	95%	98%	90%
Economics	95%	95%	95%
Overall Pass rates for the courses	95%	97%	93%

The targeted pass rate of 95% has been met in all courses, thereby it indicates that a satisfactory level of education is being imparted. In comparison with Knowledgebase the pass rate for all courses is higher, which is a good indicator. This could be a reason to justify the use of fulltime staff instead of substituting it with freelancer staff.

In the case of accountancy, the management can use the higher pass rate to justify the higher course rate, which may lead to better enrollments for the course. In the case of law, it has the potential of becoming a very popular course, lower course fee with higher pass rate. This can be used to improve enrollments. In the case of economics, the pass rates are at par. The management may use the lower course fee to attract students else may find other ways to make the course more attractive to have higher enrollments.

Feedback from current students and the institute's alumni also provide value information about the quality of the courses and opportunities to improve.

Flexibility

The management of Learning Horizons has to consider the feedback from current and prospective students in order to bring in flexibility to their services. While long distance learning offers some flexibility, the management has to look at alternate channels of delivery like online lecture support by faculty similar to the model that Knowledgebase has developed. Also, offering weekend courses could help improve enrollments. Providing the option to get an intermediate degree gives flexibility to students who are not able to cope up with the course. While this cannot be a main objective of the institute, it still can maintain its motto of imparting quality education for students of all backgrounds.

Resource Utilization

The main resource of an educational institute is its staff. Management of Learning Horizon has to look at the teacher student ratio and compare it to benchmarks of peer institutes. Learning Horizons is having a higher recruitment of 10 lecturers for the year as compared to a budget of 4 recruitments for the year. Reasons for the same need to be looked into. One reason could be a higher turnover ratio among lecturers due to lower salary paid in comparison to the market rate. In comparison, Knowledgebase has a more stable staff, having a recruitment of only 1 lecturer during the entire year. This might be due to the use of freelance teaching staff. Learning Horizon can explore options of using freelance teaching staff to meet its teaching needs, without compromising quality of education.

Innovation

From the information provided, Learning Horizons has a better quality of service in terms of pass rates. However, Knowledgebase planning to offer 6 new courses in the future. Learning Horizons has to explore options to improve on its current course offerings in order to maintain its market share.

(iii) There is a limit to fees sponsored by the government. Currently, government funded revenue is ₹18 crore, almost 23% of the total revenue of 80 crore. Average actual cost per student, referring to the table above, is ₹80,395. Since the government is unwilling to spend more than ₹75,000 per student, the management could look at target costing methods to resolve this issue. This reduction of ₹5,395 per student can be achieved by identifying opportunities to economize on costs. If feasible, the cost per student can be calculated for each of the courses, to identify where these economies can be achieved. This drive should encompass the administration and support services too. Thus, using target costing approach, the cost can be reduced below ₹75,000 to make government funded education profitable, within reasonable limits.

Students may note that this is ***comprehensive question*** covering various aspects of Fitzgerald Moon model. While analyzing performance in this particular question students may treat ***each part/ sub-part (like financial performance, competitive performance etc.) as a separate question***.

Question 23

NEC Ltd. *forms a Committee consisting of its Production, Marketing, and Finance Directors to prepare a budget for the next year. The Committee submits a draft budget as detailed below:*

Particulars	***₹***
Selling Price per unit	*50*
Less: Direct Material Cost per unit	*9*
Direct Labour Cost per unit	*9*

Variable Overhead per unit (3 hrs. @ ₹2)	*6*
Contribution per unit	*26*
Budgeted Sales Quantity	*25,000 units*
Budgeted Contribution (25,000 × ₹26)	*6,50,000*
Less: Budgeted Fixed Cost	*5,00,000*
Budgeted Profit	*1,50,000*

The Management is not happy with the budgeted profit as it is almost equal to the previous year's profit. Therefore, it asks the Committee to prepare a budget to earn at least a profit of ₹ 3,00,000. To achieve the target profit, the Committee reports back with the following suggestions:

The unit selling price should be raised to ₹ 55.

The sales volume should be increased by 5,000 units.

To attain the above said increase in sales, the company should spend ₹ 40,000 for advertising.

The production time per unit should be reduced.

To win the acceptance of the workers in this regard the hourly rate should be increased by ₹ 3 besides an annual group bonus of ₹ 30,000.

There is no change in the amount and rates of other expenses. The company has sufficient production capacity.

As the implementation of the above proposal needs the acceptance of the work force to increase the speed of work and to reduce the production time per unit, the Board wants to know the extent of reduction in per unit production time.

Required

(i) CALCULATE the target production time per unit and the time to be reduced per unit.

(ii) IDENTIFY the other problems that may arise in production due to decrease in unit production time and also suggest the remedial measures to be taken.

(iii) STATE the most suitable situation for the adoption of Target Costing.

Answer

(i) Target Production Time *per unit*

(₹3 + ₹3 + ₹2) × hrs. × 30,000 units = ₹5,10,000

Hrs. = 2.125

Time to be reduced *per unit* = 3 hrs. – 2.125 hrs.

= 0. 875 hrs.

Workings

Statement Showing Target Cost (Direct Labour and Variable Overhead)

Particulars	Amount (₹)
Target Sales (₹55 × 30,000 units)	16,50,000
Less: Target Profit	3,00,000
Less: Direct Material Cost (₹9 × 30,000 units)	2,70,000
Less: Budgeted Fixed Costs	5,00,000
Less: Proposed Advertising	40,000
Less: Proposed Annual Group Bonus	30,000
Target Cost (Variable Overhead and Direct Labour) for 30,000 units	5,10,000

(ii) Problem

The target-costing method is applicable particularly for repetitive manufacturing. It should however be recognised that some products often bear a high degree of repetition and that there often are considerable repetitions where reduction targets could come into play as a framework for improving design. Working under pressure to finish new design assignments in a short time may take development resources away from efforts to optimise or re-engineer production processes. If approaching product design as an activity to be optimised independently there is a risk that target costing may not succeed to satisfactorily addressing overall performance, so in short decrease in unit production time may lead to unwanted pressure on design and its implementation stage.

Remedial Measures

As a remedial action organisation should retain strong control over the design teams headed by a good team leader. This person must have an exceptional knowledge of the design process, good interpersonal skills, and a commitment to staying within both time and cost budgets for a design project. If the time is too short even an organisation may reject a project for the time being. Later, it can be tried out with new cost reduction methods or less expensive materials to achieve target cost and control overall production activities.

(iii) Target costing is most useful in situations where *the majority of product costs are locked in during the product design phase*. This is the case for most manufactured products, but few services. In the services area, such as consulting, the bulk of all activities can be reconfigured for cost reduction during the "production" phase, which is when services are being provided directly to the customer. In the services environment, the "design team" is still present but is more commonly concerned with streamlining the activities conducted by the employees providing the service, which can continue to be enhanced at any time, not just when the initial services process is being laid out.