Chapter 3

Forecasting Market Demand, Sales budgets , and Sales Quotas

3.1 Forecasting Market Demand

Production, personnel, finance and all other departments plan their work and determine their requirements for the coming period based on the sales forecast. The sales forecast also plays a critical role in sales force planning. The sales forecast helps sales executives determine the budget for the department, and it also influence sales quotas and compensation of sales people.

If the forecast is in error, the plans based on it will be too. For example, if it is overly optimistic, the organization can suffer great loss because of over expenditure of funds in anticipation of revenues that are not forthcoming. If the sales forecast is too low, the firm may not be prepare to provide what the market demands. This means that the company will be forgoing profits and giving its competitors a bigger market share. Clearly, valid sales forecasts can play a major role in the success of the company.

Characteristic Features to All Forecasting Market Demand

- Assumes that the same underlying casual systems that exist in the past will exist in the future.
- Forecasts are rarely perfect and we should leave a room for doubts so that we keep allowances for inaccuracies
- Forecast accuracy decreases with the increase in the time horizon of forecasting.

3.2 The Forecasting Process

The necessary steps in forecasting are listed below:

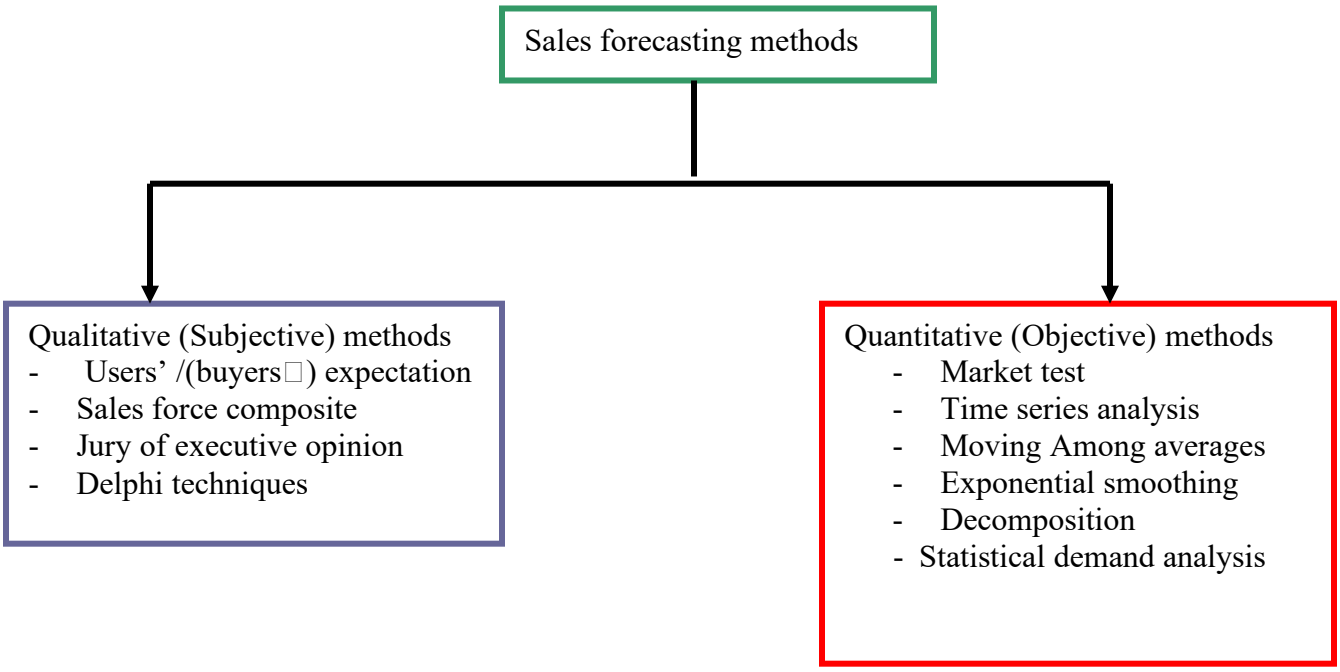
i. Determine the purpose of the forecast and when it will be needed (details, resources, level of accuracy).
ii. Establish the time horizon keeping in mind the inverse relation b/n time horizon and accuracy.
iii. Select a forecasting technique.
iv. Gather and analyze the appropriate data, and prepare the forecast

v. Monitor the forecast to see if it is performing satisfactorily. If not, **re-examine** your method of forecasting, your assumptions, and, Validity of used data, and modify as needed and reforecast

3.3 Sales Forecasting Methods

There are various quantitative as well as qualitative methods used to forecast the sales. Some of the forecasting methods used by organizations are as follows: -

Figure 5.3 Sales forecasting methods



5.4.1 Subjective methods

1. Users expectations

The users expectations methods of forecasting sales are also known as the buyers intentions methods because it relies on answers from customers regarding their expected consumption or purchases of the product. The customers may be surveyed in person, over the telephone, by mail, or perhaps by computer. The respondent is users expectation surveys do not necessarily have to be the ultimate consumers. Rather, the firm may find it advantageous to secure the reactions of wholesalers and retailers that serve the channel.

Although the surveys do not have to be conducted with the ultimate customers, they most typically are. Being company, for example, contacts major airlines with respect to their purchase plans for new aircraft when planning its production requirements.

The users expectations method of forecasting sales provides demand estimates that are probably closer to market or sales potential estimates than they are to sales forecast since user groups would have difficulty anticipating the industry's or a particular firms marketing efforts. Rather the estimates users provide reflect their anticipated needs. From the seller stand point, they provide a measure of the opportunities available among a particular segment of users.

Advantages: -

The users expectations method offers several advantages to a firm, as discussed below: -

1. The forecast is based on estimates obtained directly from firms whose buying actions will actually determine the sales of the product.
2. The manner by which the information is collected projected product use by customer allows the preparation of forecast in great detail.
3. The method often provides some insight into the buyers thinking an plans. This is helpful is planning the marketing strategy.
4. This technique can be used when other techniques may be impossible, such as when forecasting sales of a brand new product.

However, these methods are also having certain shortcomings, which are as follows: -

1. The user□s expectations method is limited to situations in which the potential customers for the product are few and well defined.
2. The techniques become difficult to implement and can result in serious error when there are many customers and they cannot be readily identified.
3. It is sometimes difficult to determine the firmness of intentions to purchase particularly when the person being queried is informed or incorporative.
4. The users expectations method requires a considerable expenditure of money, time and manpower. The survey instruments and sampling plan have to be designed. A field staff has to be recruited and trained. And the data must be collected, edited, coded, and tabulated before the forecast can be prepared.

2. Sales force composite

The sales force composite method of forecasting sales gets its name from the fact that the initial inputs is the opinion of each member of the field sales staff. Each person states how much he or she expects to sell during the forecast period.

These estimates are typically adjusted at various levels of sales management. They are likely to be checked, discussed and possibly changed by the branch manager and so on up the sales organization chart until the figures are finally accepted at corporate headquarters. Each sales person and distributor is required to forecast the proposals that are outstanding that they expect will be converted into orders during each of the upcoming five quarters. The process is repeated every three months. The regional manager receives the forecasts with the individual salesperson or distributor and secures agreement on any necessary adjustments. When the manager is satisfied that all of the individual forecasts is the region are as realistic as can be, the manager forwards them to the marketing staff as group headquarters, where they are once again received and sometimes adjusted through phone conversation between marketing management and the regional manager submitting the forecast.

Advantages: -

The following advantages of sales force composite are as illustrated below: -

1. It uses the specialized knowledge of the people closer to market
2. The method puts the responsibility for those forecasts in the hands of these who will eventually have to produce the results.
3. Their commitment to the sales forecast and quota can have beneficial effects on their performance.
4. The method lends itself to the easy development of customer, product, territory, or sales force breakdowns, which are a distinct plus in controlling the sales effort.

Disadvantages: -

1. A main complaint of those who are opposed to the sales force composite method is that the sales representatives are notoriously poor estimators.
2. They tend to be unaware of broad economic conditions tat shape the demand for the product, and they may even be unaware of the firm□s planned marketing program when preparing their estimates.
3. If the sales forecast they prepare is going to be an input is setting their quotas, they have a vested interest is estimating low. This makes the quota easier to achieve, which makes them look good.
4. The cost of the sales force composite method is typically higher than that of other methods.

3. Jury of executive opinions

The jury of executive or expert opinion method either informally or formally polls the top executives of the company for their assessment of sales possibilities. The separate assessment is combined into a sales forecast for the company. Sometimes this is done by simply averaging the individual judgment; but other times disparate views are resolved through group discussion. The initial view may reflect no more than the executives much about what is going to happen, but is other instances, the opinion may be based on considerable factual material, sometimes even an initial forecast prepared by other means.

Advantages: -

1. Some advantages of this method of forecasting are the ease and quickness with which it may be made.
2. Although the preparation of vast and elaborate statistics may improve the accuracy of the forecast, this method does not absolutely require them.
3. The method brings together a variety of specialties viewpoints.
4. The collective wisdom that results reflect the thinking of the top people in the company those most aware of company plans, as well as the external forces affecting those plans and the consequence impact on the plans.
5. When there is an absence of adequate data or experience, such as with innovative products, this may be the only means of sales forecasting available to the company.

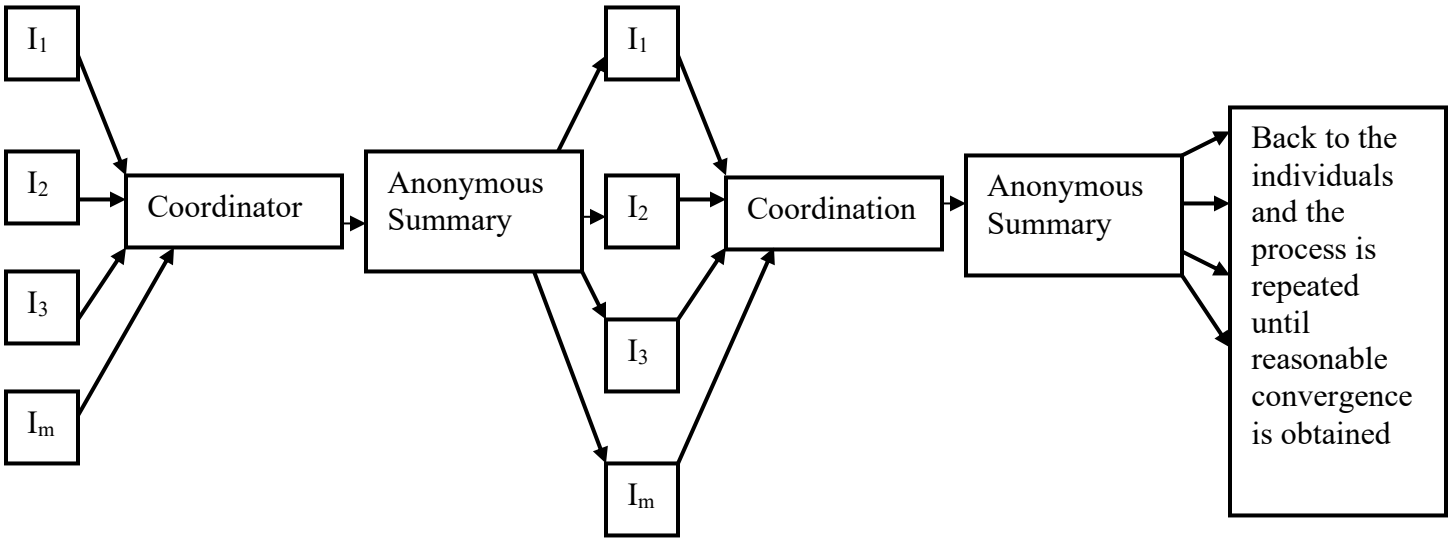
Disadvantages

1. Jury of executive opinion is that if produces an aggregate forecast that must be broken down by product and by time to plan production and financing. It also must be broken down by territory and by salesperson to schedule and control the personal selling effort. Generating these breakdowns is extremely difficult, sometimes impossible, and usually expensive.
2. This method is also expensive because of the large amount of highly paid executives time it consumes
3. The pooling of opinion dispenses the responsibility for the forecast. If it proves to be grossly inaccurate, it is hard to pinpoint exactly what went wrong and who is at fault.
4. Those who have most intensively studied the available statistics and facts may not have their judgment weighted more than another executives whose best guess has been much more casually derived but who is more eloquent is the discussion or higher is the management hierarchy.

4. Delphi technique

One method that is becoming increasingly popular for modifying the operation of group dynamics to produce a more accurate forecast is the Delphi technique. Delphi uses repeated measurement and controlled feedback instead of direct confrontation and debate among the experts preparing the forecast.

Fig 5.4 Operation of Delphi process



On this method each individual prepares a forecast using whatever facts, figures and general knowledge of the environment he or she has at his or her disposal. Second these forecasts are collected, and the person supervising the process prepares an anonyms summary. Third the summary is distributed to each person who participated in the initial phase. Typically the summary lists each forecast figure, the average (median) and save summary measures is distributed of the estimates. Quite often these whose initial estimates fall outside the midrange of the response are asked to express their reason for these extreme positions. These explanations are then incorporated in the summary. Those participating are the incorporated in the summary. Those participating in the exercise are asked to study the summary and subject a revised forecast. The process is then repeated. There will be a number of iterations.

The method is based on the following two premises: -

1. The range of responses will decrease, and the estimated will converge with repeated measurements.
2. The total group response or median will move successfully toward the □correct□ or □true□ answer.

The Delphi technique does seem to have advantage over the jury of executives opinion, in which group discussions and interactions are used to produce the forecast.

The strategy of foreign those whose forecasts lie at the ends of the distribution to justify their estimates seem to have benefits is the sense that informed experts have greater opportunity to influence the final forecast. Those who might have deviant opinion, but with good reason, can defined that position rather than giving in group pressure, etc.

One of the problems with the Delphi technique is that the process of iteration and feedback can take a long time.

5.4.2 Objective method

1. Market test

Market testing is a relatively recent phenomenon is demand estimation. Market tests to assess the demand for new products were late before 1960. They have grown significantly is popularity since that time, so that now the expenditures for test marketing total more than $ 1 billion per year.

The essential features of a market test is that it is controlled experiment, done is a limited but carefully selected part of the market place, whose aim is to predict the sales or profit consequences, either is absolute term or relative, of one or more proposed marketing actions. Note that the market test applies to assessing consequences of any change in the marketing strategy and not just estimating the potential sales of a new product.

For example, a company conducted a 12 month test in 150 stores is an attempt to determine the proper weight for its candy bars. For the test it altered the size of its product across the stores but

kept the prices constant. It found that is those stores where the dimension were increased, sales went up almost 20 to 30 percent.

Advantages: -

Placing the product in several representative cities to see how well it performs and then protecting that experience to the country as a whole typically estimate the potential for a new product.

Disadvantages: -

Test marketing to assess market potential is used much more by manufacturers of consumer products than by makers of industrial products. Because the marketers are more intimately familiar with their customer needs likes and dislikes due to more direct contact involved in industrial transaction. The more disadvantages of test marketing is cost, them and control.

2. Time series analysis

Time series analysis approaches to sales forecasting rely on the analysis of historical data to develop a prediction for the future. The sophistication of this analysis can vary widely. At one extreme, the forecasted might simply forecast next years sales to be equal to this year□s sales. Such a forecast might be reasonably accurate for a mature industry that is experiencing little growth. If there is growth, however, the forecaster might allow for it by predicting the same percentage increase for next year that the company experienced this year. Still further along the spectrum, the forecaster might attempt to break historical sales into basic components by isolating that portion due to trend, cyclical, seasonal, and irregular influences. The trend, cyclical, and seasonal component could all be forecast separately and then combined to produce the aggregate forecast. There are a number of time series analyses to sales forecasting, some of them are as follows: -

a.) Moving averages

The method of moving averages is conceptually quite simple. Consider the forecast that next year□s sales will be equal to this year□s sales. Such a forecast might be subject to large error if there is a great deal of fluctuation is sales from one year to the next. To allow for such

randomness, we might consider using some kind of average of recent values, for example, we might average the last two years sales, the last three years sales, the last five years sales, or any number of other periods. The forecast would simply be the average that resulted. The number of observations included in this average is typically determined empirically on the basis of what number of periods produces the most accurate forecasts on the data used to develop the forecast model.

Once determined, it remains constant. The term moving average is used because a new average can be computed and used as a forecast as each new observation becomes available.

Annual and forecasted sales for a product □X□ Forecasted sales

Year	Actual Sales	2 years moving average	4 years moving average
1974	4200		
1975	4410		
1976	4322	4305	
1977	4,106	4366	
1978	4311	4214	4260
1979	4742	4209	4287
1980	4837	4527	4370
1981	5030	4790	4499
1982	4779	4934	4730
1983	4970	4905	4847
1984	5716	4875	4904
1985	6116	5334	5128
1986	5932	5916	5395
1987	5576	6024	5684
1988	5465	5754	5835
1989		5520	5772

The above exhibits shows a historical data of a company□s product □X□ sales and the resulting forecasts for a number of years using a two year and a four year moving averages.

The entry 4,305 for 1976 under the two-year moving average method, for example, is the average of the sales of 4,200 units in 1974 and 4,140 units in 1975. Similarly the forecasts of 5520 units in 1989 represent the average of the number of units add is 1987 and 1988. The forecast of 5712 units in 1989 under the four year moving average method, on the other hand represents the average number of units add during the four year period 1985 □ 88.

Note that it takes more data to begin forecasting with four year than with two year moving averages. This is an important consideration when starting to forecast sales for a new product. Observe also the impact of the number of periods on the fluctuations in the forecasted series. The larger the number of observations included, the greater is the smoothing of the forecasts. Thus, whereas the range of forecasted value is 1815 (6024 □ 4209) with the two year moving average it is only 1575 (5835 □ 4260) with the four year moving average □ a difference of 420 units. When we desire a smoother value because we think there is little changes in the underlying pattern and we are observing mainly random fluctuations. We should use a large number of periods to determine the moving average. Conversely, when we think the series is changing rapidly or when there is little randomizes in sales, we would use a smaller number of periods to compute the moving average so that the forecast can react more quickly to the changes that are occurring.

b.)Exponential smoothing

The method of moving averages gives equal weight to each of the last □n□ values in forecasting the next value. Thus when n = 4 (the four-year moving average is being used), equal weight is given to each of the last four years□ sales is predicting the sales for next year. No weight is given to any sales five or more years previous. The forecasting equation, is other words, is

$$\hat{X}_{t+1} = \frac{X_t + X_{t-1} + X_{t-2} + X_{t-3}}{n}$$
$$= \frac{X_t + X_{t-1} + X_{t-2} + X_{t-n+1}}{n}$$

$\hat{X}_{t+1}$ = Forecasted value for near or next period

X_t = Actual sales that resulted in year or period it.

Exponential smoothing is a type of moving average. However, instead of weighting all observations equally in generating the forecast, exponential smoothing weights the most recent observation heaviest. There is a good reason for this. The most recent observations contain the most information about what is likely to happen is the future, and they should logically be given more weight. The general form of the exponential smoothing model is

$$\hat{X}_{t+1} = \alpha X_t + (1 - \alpha)\ \hat{X}_t$$

Where the caret indicate the forecasted value

X without a caret indicates an actual value

The exponential smoothing model thus suggests that next years sales will be equal to this year□s sales, X_t times the constant, α, plus the forecasted value of this years sales, $\hat{X}_t$ times the constant (1 - α). It can be shown by successive substitution that the second term in this equation implicitly recognizes order values, thereby overcoming a second limitation of the moving average method, which ignores all those values more than n periods old.

The key decision affecting the use of exponential smoothing is the choice of α, which is known as the smoothing constant, and which is constrained to be between 0 and 1. When high value of α is assigned great weight is given to recent observations and little weight to distant sales. Low value of α, on the other hand, give more weight to older observations. If sales change slowly, low value of α work fine. When sales experience rapid changes and fluctuation; however, high value of α should be used so that so that the forecast series responds to these changes quickly.

The value of α is normally determined empirically. Various values of α are tried, and the one that produces the smallest forecast error when applied to the historical series is adopted.

Annual sales and forecasted sales using exponential smoothing and various values for the smoothing constant α

	Actual	*Forecasted sales*		
Year	***sales***	***α = 0.2***	***α = 0.5***	***α = 0.8***
1974	***4200***	***4200***	***4200***	***4200***
1975	***4410***	***4242***	***4305***	***4368***
1976	***4322***	***4258***	***4314***	***4332***
1977	***4106***	***4228***	***4210***	***4151***
1978	***4311***	***4244***	***4260***	***4279***
1979	***4742***	***4343***	***4501***	***4649***
1980	***4837***	***4441***	***4669***	***4800***
1981	***5030***	***4559***	***4849***	***4984***
1982	***4779***	***4603***	***4814***	***4820***
1983	***4970***	***4676***	***4892***	***4940***
1984	***5716***	***4883***	***5304***	***5561***
1985	***6116***	***5129***	***5710***	***6005***
1986	***5932***	***5289***	***5821***	***5947***
1987	***5576***	***5346***	***5699***	***5650***
1988	***5456***	***5370***	***5583***	***5502***

The above figure shows what happens to forecast values when α is set 0.2, 0.5, and 0.8. Note two things. First, when the forecast is initialized, the first α forecast value is simply set equal to the prior year□s actual sales.

Second, note that impact of α on the speed with which forecasted sales responds to changes in actual sales.

c) *Decomposition: -*

The decomposition method of sales forecasting is typically applied to monthly or quarterly data where there is some seasonal pattern evident and the manager wishes to forecast sales not only for the year but also for each period is the year.

The decomposition method attempts to isolate four separate portions of a time series: the trend factor. The trend reflects the long-run changes experienced are the series when the cyclical, seasonal and irregular components are removed. It is typically assumed to be a straight line. The cyclical factor is not always present because it reflects the waves are a series when the seasonal and regular components are removed. These ups and downs typically occur over a long period □ perhaps two to five years. The seasonal factor reflects the annual fluctuation is the series due to the natural seasons. The seasonal factor normally repeats itself each year, although the exact pattern of sales may be different from year to year.

Calculation of a seasonal index

Quarter

Year	1	2	3	4	Total
1985	82.8	105.8	119.6	151.8	460.0
1986	93.1	117.6	122.5	156.9	490.1
1987	92.0	122.4	132.6	163.2	510.2
1988	95.3	129.0	151.3	185.0	560.6
1989	120.1	138.1	162.2	180.2	600.6
5 year quarterly Average	96.7	122.6	137.6	167.4	131.1
Index (seasonal)	73.8	93.5	105.0	127.7	

3.4 The Sales Manager's Budget

Purpose of Sales Budget

1. Planning:- Profit Planning based expected sales less cost of achieving the sales. It includes sales goals, strategy, action plan and cost of expected plan is based in sales quota; production; territory; customer & selling price.

2. Co-ordination:- Sales budget is finalized by coordination with marketing, Finance, Product and HR. Coordination at all angles by all departments to achieve similar goals.

3. Control:- Tool for evaluation of pert. Sales budget is defined term of sales volume & selling expenses standard of pert against actual performance.

Methods used for deciding sales expense budget.

1. % of sales method
2. Executive judgment

3. 3. Objective and task method

SALES BUDGET PROCESS

1 Review Situation: sales management reviews past, present, and future (budget period) past helps to actual reference, present future helps to under changing marketing environment and expected reference.

2 Communication: sales management communication in writing to all field office regarding formats, guidelines, assists and time about all three budgets.

3 Subordinates budgets: first time field sales managers prepares sales budget for their respective sales territory and submits it to reporting manages and upwards to national sales manager who prepares the companies proposed sales budget by combining the received budget.

4 Approval of the sales budget: In consultation with marketing head; National sales manager prepares 2/3 alternative proposals of sales budget and make presentation to top management.

5 Other department: Final sales budget is given to other department to prepare are their budget and Approval sales budget is broken down into each sales territory quarterly and monthly. A/c's department prepares cash budget and profit budget based on sales revenue information given by sales department and expenses budget given by other departments.

3.5 Sales Quota and Territory Management

Sales Quota (SQ)

Sales quota can be defined as the estimated volume of sales that a company expects to achieve within a given period of time. Quota may be in terms of units or value, which is fixed to the sales person. It is fixed for a definite period of time, for e.g. a year or a month or a quarter. The quota is fixed on the basis of sales forecasting. The main aim of the sales persons is to achieve the sales quota or the target assigned to them.

Sales quotas are goals set by a comp. for its marketing unit for a certain period of time. Marketing unit may be regions, territory, branch, salesperson, a distribution or a dealer.

Sales quotas can be set on sales unit, expenses, profit margin, activity, customer satisfaction combination. Annual sales quota for each marketing unit can be -broken down to quarterly/monthly.

A sales quota should satisfy the following:

1. The sales quota should be scientifically calculated
2. Incentives must be provided to the sales person for the achievement of sales quotas
3. Sales quotas must be attainable and fair
4. The sales quotas must be fixed with consultation with the salesperson.

Objectives of Quota are like:
1.Making available performance standard:It act as a tool to measure performance of sales person, act as a goal/target setter.
Performance Std. set against which actual performance is compared to evaluate salespersons performance.

2. Controlling performance by selling quotas for special activities, sales volume &selling expenses. The sales manager controls the performance. For example:-10 calls per day/5 calls of business customer's indirectly monitors/controls the activities of sales person by setting quotas.

Can keep an eye on wasteful expenditure on customer (travelling, lodging, entertainment & meals) company reimburses sales expenses only up to 0.5% of sales limit expenses? Control over reporting &can influence sales performance.

3. Motivating people: Sales quotas are set by motivating sales people by money. Performance is recognized by awards/rewards like trips abroad. This financial compensation/ rewards are called incentives. The incentives are linked with quotas which are made achievable for sales person. So that he puts in extra effort to achieve his quota.

4. Identifying strength &weakness: Actual performance compound respective quotas of

difference territories & salespersons, The SM can identify successful &unsuccessful performance. Analysis of causes of poor performance may reveal training program needs improvement, better product quality required to meet customer needs & positioning strategy.

Types of Quota:

I) Sales Volume:- Based on value or units, typically a breakdown of the sales forecast, good for fast growing markets without too much price competition.

1) Dollar sales volume:- many product easier to manage

2) Unit Sales volume: - Sets sales volume in units. E.g. machinery/ milk/ petrol.

3) Point sales volume: - When company wants to make profit will target.

Sales Volume quota sales person, distributor, retailer based on geographic area/ product for a specific period.

Point sales volume:- product which are more profit for the company will receive more profitable for the company will receive more points.

II) Financial/Expense quotas: Either in value or percentage of sales obtained, mature products and services, can lead salesperson to cut expenses to the point of losing business Gross- margin/profit ---Gross margin quota is decided by 'cost of goods sold' from sales volume.

Cost of goods sold – selling expenses-cost of goods manufacturing= gross margin. (No control on manufacturing cost) by sales person.

Expense quota: - companies control over in cost of selling (travelling) control over expenses along with sales volume quota, so that selling expenses are kept in line.

III) Activity Quota: - Direct sales person to carry out job related activities like demonstrations, road shows, calls, new accounts etc.

Some of the important elements in assigning Quotas:.

- Defining important activity
- Finding out time required for carrying out activity
- Deciding priority given to carry out activity.

- Deciding quota/ frequency for important activity.

IV) Combination quota: - Selling activity &non-selling activities, uses point as common measure to overcome the problem of difference measures used by various quotas discussed earlier.

Methods for setting Quotas

1) Territory potential
2) Part sales expenses
3) Total marketing estimates
4) Executives judgment
5) Salespeople's estimates
6) Compensation plan

SALES TERRITORIES

A good sales planning is based on sales territory. The market of the firm's product is divided into sales territories or areas, and then each territory is allotted to each salesperson.

Sales territory is a particular group of customer and aspects assigned to a sales person. A sales territory is a geographical area consists of present and potential customers. An efficient salesperson can do his duties and achieve his targets if the territory allotted to him is of suitable size. The territory size depends on the order size, customer type, travel time and expenses and the number of hours per sales person has for selling. The salespersons are appointed according to their capabilities and abilities.

Reasons for Establishing Sales Territories

a. Achievement of company's sales and marketing objectives

b. Ensure better coverage - territory assignments constrain salespeople to work with less profitable customers or prospects as well as the most desirable accounts

c. Reduced selling costs - assigning responsibility to a single salesperson ensures that there is no overlap in coverage; customers and prospects are called upon by only one salesperson

d. Improved customer service - assigning responsibility to a single salesperson helps to ensure that all customers and prospects receive adequate servicing

e. More accurate evaluation of performance - if territories are relatively equal with regard to workload and potential, then salesperson performance can be compared on an equal basis; if

territories are unequal in a known way, then adjustments can be made in evaluation of unequal performance

Advantages of Sales territories: The following are some of the advantages of dividing the market into sales territories:

1. Higher sales volume can be achieved with low sales expenses.
2. Evaluation of the salesperson's performance can be easier.
3. The activities of the salespersons can be controlled by the sales manager.
4. The salesperson spends more time in customer call instead of making tours.