

# The Effect of the Characteristics of Capillary Sales Personnel Regarding Sales Functionality and Rating of the Salespeople Using AHP and TOPSIS Techniques

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**Abstract --** *Choosing inefficient and incompetent people imposes heavy expenses on production businesses and companies. Therefore great care must be taken when choosing sales representatives. If the assessment criteria of sales staff meet the organization's objectives, it will result in customers' satisfaction. In this study a model - which contains positive characteristics of sales staff - is developed. Also a logistic regression test is used to examine the ability and efficiency of the model in distinguishing professional staff from weak staff. Finally AHP and TOPSIS techniques were used to rate the staff.*

**Keywords :** *sales staff, logistic regression, AHP, TOPSIS*

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## INTRODUCTION

Sales is a means of promotion to fulfill organizations' marketing objectives. Thus sales management could have a crucial role in achieving organizational objectives. Sales management includes planning, organizing, controlling, directing the people and team effort of the sales staff. Sales manager has to organize his or her personnel in a way that they will be able to function like a team and fulfill the determined objectives which are in line with the promotion of the company. So sales management process consists of determining sales objectives and strategies, determining the structure, quantitative and qualitative promotion of sales staff, and directing and assessing the staff.

In order to have a good system for optimal use of sales resources, rating the staff could have the following advantages:

- *proper categorization with regard to abilities*
- *adjusting the sales force with the target region and market*
- *running competitions between sales forces and encouraging them to get better ratings*
- *identifying what needs to be taught to the staff, regarding their ratings. (Dargi, Parviz 2011) [1]*
- *Ratings can help efficiently make use of resources in projects. (Jahandideh, Reza 2010) [2]*
- *In order to increase motivation among the personnel, designing a rating method could provide an opportunity to develop talents. (Overton, Rodney, 2007) [8]*

"Control" is one of the effective words embedded in the word "management". By control we mean comparing programs and performance, finding the reasons behind deviations, correcting and redirecting to the right path. Therefore ignoring the element of "control", results in the continuation of the wrong path, inability to reach the goals, and ultimately falling behind in competition. So the most important thing a sales manager has to do is to control the related staff. The reports and observations related to the sales staff, provides the raw material for assessing them. Here are the things we can do to control and assess the sales staff: sales staff reports (including work plans reports, contacts details report, financial report, new customer acquisition report, former customers report, reports related to the changes in environment and rivals, reports dedicated to customers' satisfaction), direct observation of the sales staff, assessment of the sales staff through receiving letters and complaints from customers, contacting the customers and asking for their opinions about the sales staff performance. (Dargi, Parviz 2011) [1]

Sales is one way to help others improve the quality of their work and life. During the recent years we have seen great changes in the sales; competitions have grown more fierce and the number of sales people has increased. Those who want to acquire more customers need to have intelligence and a better personality and even the way they walk, talk and dress will be a determining factor. Sales competition is exactly like competition in sports and if you do not receive constant education and training, you will lose to your rivals. If you do not constantly improve yourself, you will definitely deteriorate and are likely to be among the 80 percent at the bottom. (Brian, Tracy 2006) [3] Independent variables are the characteristics of the sales staff. These characteristics have been categorized as follows:



**They act like a professional doctor**

The worst thing a sales agent or a marketer can do is prescription without examination.

**They are accustomed to hearing "no" as a part of their profession**

Hearing "no" as an answer is an inseparable part of a professional sales agent and therefore s/he will not be disappointed

**They will make use of every opportunity to find new customers**

A professional sales agent seizes every opportunity and considers everyone as a potential customer

**They like the profession of sales and marketing**

Everyone who enters this profession has to love it, otherwise there will not be any progress.

**They have positive attitudes**

It is necessary for a professional sales agent to have a positive attitude which forms the basis of his or her personality. Positive attitudes result in positive vibrations and these vibrations play a crucial role in achieving the goals.

**They are very tenacious**

Being tenacious is one of the most important characteristics of a professional sales agent. Based on a number of studies many sales processes will result in signing a contract only after they are pursued for five times. Many sales people give up pursuing before this stage and nearly ten percent of them finish the process.

**They have high communicative skills**

If a sales agent cannot build a good relation with customers, s/he will have to spend a lot of energy to convince a customer and finalize the selling and definitely will not be able to reach a good level of sales.

**They have high efficiency**

A professional sales agent spends his or her energy on things that bring about the best results, contacts best customers and equips himself or herself with psychological techniques.

**They like education and accept training**

A professional sales agent needs to increase his or her knowledge in different fields and the mere knowledge about the products and services will not suffice.

**They like people and have a customer-oriented perspective**

One of the characteristics of a professional sales agent is that on the whole s/he has a good feeling about people. Someone who likes the customers, has the opportunity to have longer relations with them and will consequently achieve greater profits.

**Review of literature**

In a study entitled "Management Based on Relation: a Sales Role or a Mental State? A Study on Attitudes and Functions throughout the Sales Force toward Business" Davies, Jain et al (2010) categorized the characteristics of a business-to-business number of clusters and analyzed each cluster.[9 salesperson in a

Shahriyar Azizi and Ahmad Roosta conducted a study entitled "Factors Affecting Sales force Performance with a Two-level Approach" with a sample of 284 people from sales force of 3 companies operating in food industry, using a 93-item questionnaire. In this study an attempt was made to investigate the main effects of 3 essential needs of merit, communication, and independence as essential physiological needs, and also to investigate effects of the moderating variables of competition atmosphere and collective sales self-efficacy with a two-level approach, using HLM 6.05 software. The results showed that the need of communication has no effect on performance. The analyses showed that the needs of merit, independence and collective sales self-efficacy have a positive effect on the sales force performance, while competition atmosphere has a negative effect. The study indicated that competition atmosphere has a positive moderating effect on the relationship between merit performance, and collective sales self-efficacy has a negative moderating effect on the relationship between independence and performance.[5]

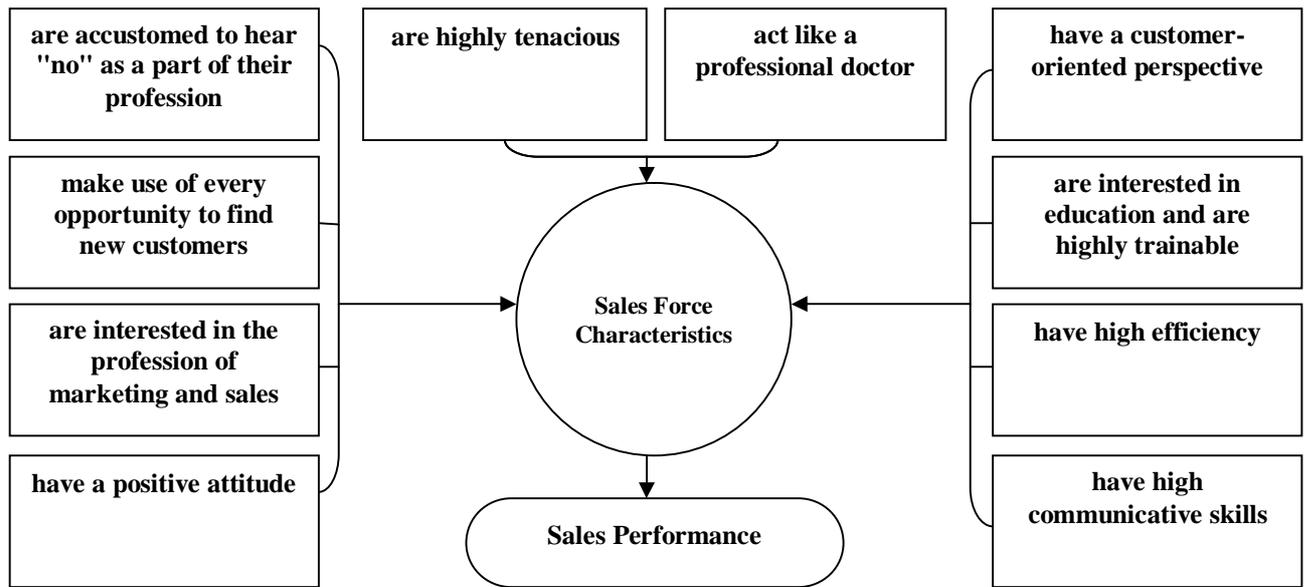


Figure 1.1 Conceptual Model of Sales Force Characteristics.[1] Methodology

Generally we can divide the methodologies in behavioral sciences based on two criteria: 1)purpose of study 2)data collection method (Sarmad et al 2007) .[6] The purpose of applied researches is to develop applied knowledge in a particular field. In other words applied researches are directed toward knowledge, due to their practical application. Considering the relationships between the variables, the present study is a correlation research as it seeks to investigate the relations between dependent and independent variables. This type of study includes all researches in which an attempt is made to determine or discover the relationships between different variable, using the correlation coefficient. The purpose of this type of study is to gain an understanding of complex behavioral patterns, through analyzing the correlation between these patterns and the variables which presumably have a relationship with each other (Delavar 2001).[7] Correlation studies are divided into three types based on their purpose: two variable correlation, regression analysis, and analysis of correlation matrix or covariance. In two variable correlation studies, the purpose is to investigate the relationship between the two variables of the study. In regression analysis, the purpose is to predict the variations of one or two independent variables, with regard to the variations of dependent variables. Similarly in the present study, the purpose is to come up with an equation through which we can predict and categorize customers' behavior in accordance with their obligations, with regard to the identified indexes.

The present study is a cross-sectional one regarding the data collection and studies the sales forces operating in capillary sales and distribution companies, hence it is a field study. All the information about the characteristics of the personnel and the amount of sales, is obtained from the related organization. Regarding the assessment criteria, in this study, all the visitors were graded by their respective managers (technical interview) and their real performance in sales amount was checked through the grades they got, and grading the criteria was done, using D-MATEL model on the whole population. Questionnaire was not used in the present study and the data were extracted in the form of range and D-MATEL table.

### Sampling Method and Sample Size

The population is Alborz city. All distribution companies with more than 5 visitors (sales force) were investigated, and in this study 52 people were investigated through census. SPSS software was used for data analysis, and EXPERT CHOICE and EXCEL were used for rating.

### Data Analysis

Logistic Regression is a regression statistical model for binary dependent variables such as sickness and health, life and death. This model could be considered as a generalized linear model which makes use of Logit function as a link function, and its error follows polynomial distribution.

This model is such

that

$$\text{logit}(p) =$$

$$i = 1, \dots, m$$

$$p = \Pr(Y_i$$

$$p = \Pr(Y_i$$

### Results

Based on the analysis of omnibus index, the error is less than 0.05 (Table 4.4). Therefore the embedding of the whole model is acceptable. Cox-Snell Generalized Coefficient of Determination and Nigél-kirk Coefficient of Determination are respectively 0.741 and 1 (Table 3.1) which indicates the explanation power of professional and weak sales people. In logistic regression analysis professional sales people have been distinguished from weak sales people with a subtle error (Table 1.1) which could be concluded that all independent variables in this study are significant.

CLASSIFICATION TABLE<sup>A,B</sup>

| Observed |        |                     | Predicted   |                     |                    |
|----------|--------|---------------------|-------------|---------------------|--------------------|
|          |        |                     | Status      |                     | Percentage Correct |
|          |        |                     | Weak seller | Professional seller |                    |
| Step 0   | Status | Weak seller         | 31          | 0                   | 100.0              |
|          |        | Professional seller | 1           | 20                  | 95.0               |
|          |        | Overall Percentage  |             |                     | 97.5               |

a. Constant is included in the model.  
b. The cut value is .500

TABLE 1-1: REGRESSION LOGISTIC  
VARIABLES IN THE EQUATION

|                 | B     | S.E. | Wald  | df | Sig. | Exp(B) |
|-----------------|-------|------|-------|----|------|--------|
| Step 0 Constant | -.389 | .283 | 1.899 | 1  | .168 | .677   |

Table 1-2: Parent results

### MODEL SUMMARY

| Step | -2 Log likelihood | Cox & Snell R Square | Nagelkerke R Square |
|------|-------------------|----------------------|---------------------|
| 1    | .000 <sup>a</sup> | .741                 | 1.000               |

a. Estimation terminated at iteration number 20 because a perfect fit is detected. This solution is not unique.

TABLE 1-3: COX & SNELL R RESULTS

### OMNIBUS TESTS OF MODEL COEFFICIENTS

|             | Chi-square | Df | Sig. |
|-------------|------------|----|------|
| Step 1 Step | 855.428    | 10 | .000 |
| Block       | 855.428    | 10 | .000 |
| Model       | 855.428    | 10 | .000 |

Table 1-4: Omnibus results

### Research Hypotheses

In order to investigate the relationship between dependent and independent variables, non-parametric Pearson's chi-squared test was used.

- There is a significant relationship between the characteristic of having similarity to a professional doctor and sales force performance.

The value of R is 0.618 (Table 1.5) and is significant in the level of above one percent which shows the high relationship between the characteristic of having similarity to a professional doctor and sales force performance

**Correlations**

|  |                     | Status | having similarity to a professional doctor |
|--|---------------------|--------|--|
| Status                                     | Pearson Correlation | 1      | .618**                                     |
|  | Sig. (2-tailed)     |        | .000                                       |
|  | N                   | 52     | 52   |
| having similarity to a professional doctor | Pearson Correlation | .618** | 1  |
|  | Sig. (2-tailed)     | .000   |  |
|  | N                   | 52     | 52   |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table 1-5: The relationship between having similarity to a professional doctor and sales force performance

- There is a significant relationship between the characteristic of being accustomed to hearing "no" as a part of their profession and sales force performance.

The value of R is 0.827 (Table 1.6) and is significant in the level of above one percent which shows the high relationship between the characteristic of being accustomed to hearing "no" as a part of their profession and sales force performance.

**CORRELATIONS**

|  |                     | Status | being accustomed to hearing "no" as a part of their profession |
|--|---------------------|--------|--|
| Status   | Pearson Correlation | 1      | .827**   |
|  | Sig. (2-tailed)     |        | .000   |
|  | N                   | 52     | 52   |
| being accustomed to hearing "no" as a part of their profession | Pearson Correlation | .827** | 1  |
|  | Sig. (2-tailed)     | .000   |  |
|  | N                   | 52     | 52   |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table 1-6: Not hearing as part of the professional relationship between being accustomed to hearing "no" as a part of their profession and sales force performance

- There is a significant relationship between the characteristic of seeking opportunity to find customers and sales force performance.

The value of R is 0.882 (Table 1.7) and is significant in the level of above one percent which shows the high relationship between the characteristic of seeking opportunity to find customers and sales force performance.

**CORRELATIONS**

|                                       |                     | Status | seeking opportunity to find customers |
|---------------------------------------|---------------------|--------|---------------------------------------|
| Status                                | Pearson Correlation | 1      | .882**                                |
|                                       | Sig. (2-tailed)     |        | .000                                  |
|                                       | N                   | 52     | 52                                    |
| seeking opportunity to find customers | Pearson Correlation | .882** | 1                                     |
|                                       | Sig. (2-tailed)     | .000   |                                       |
|                                       | N                   | 52     | 52                                    |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table 1-7: The relationship between seeking opportunity to find customers and sales force performance

- There is a significant relationship between the characteristic of being interested in the profession of sales and marketing and sales force performance.

The value of R is 0.743 (Table 1.8) and is significant in the level of above one percent which shows the high relationship between the characteristic of being interested in the profession of sales and marketing and sales force performance.

**Correlations**

|   |                     | Status | being interested in the profession of sales and marketing |
|---|---------------------|--------|---|
| Status  | Pearson Correlation | 1      | .743**  |
|   | Sig. (2-tailed)     |        | .000  |
|   | N                   | 52     | 52  |
| being interested in the profession of sales and marketing | Pearson Correlation | .743** | 1   |
|   | Sig. (2-tailed)     | .000   |   |
|   | N                   | 52     | 52  |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table 1-8: Loving relationship between being interested in the profession of sales and marketing and sales force performance

- There is a significant relationship between the characteristic of positive attitude and sales force performance.

The value of R is -.794 (Table 1.9) and is significant in the level of above one percent which shows the high relationship between the characteristic of positive attitude and sales force performance.

|                   |                     | Status  | Positive Attitude |
|-------------------|---------------------|---------|-------------------|
| Status            | Pearson Correlation | 1       | -.794**           |
|                   | Sig. (2-tailed)     |         | .000              |
|                   | N                   | 52      | 52                |
| Positive Attitude | Pearson Correlation | -.794** | 1                 |
|                   | Sig. (2-tailed)     | .000    |                   |
|                   | N                   | 52      | 52                |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table 1-9: The relationship between positive attitudes and sales force performance

- There is a significant relationship between the characteristic of being tenacious and sales force performance.

The value of R is 0.918 (Table 1.10) and is significant in the level of above one percent which shows the high relationship between the characteristic of being tenacious and sales force performance.

**Correlations**

|                 |                     | Status | being tenacious |
|-----------------|---------------------|--------|-----------------|
| Status          | Pearson Correlation | 1      | .918**          |
|                 | Sig. (2-tailed)     |        | .000            |
|                 | N                   | 52     | 52              |
| being tenacious | Pearson Correlation | .918** | 1               |
|                 | Sig. (2-tailed)     | .000   |                 |
|                 | N                   | 52     | 52              |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table 1-10: The relationship between being tenacious and sales force performance

- There is a significant relationship between the characteristic of having high communicative skills and sales force performance.

The value of R is 0.824 (Table 1.11) and is significant in the level of above one percent which shows the high relationship between the characteristic of having high communicative skills and sales force performance.

**CORRELATIONS**

|  |                     | Status | having high communicative skills and sales |
|--|---------------------|--------|--|
| Status                                     | Pearson Correlation | 1      | .824**                                     |
|  | Sig. (2-tailed)     |        | .000                                       |
|  | N                   | 52     | 52   |
| having high Communicative skills and sales | Pearson Correlation | .824** | 1  |
|  | Sig. (2-tailed)     | .000   |  |
|  | N                   | 52     | 52   |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table 1-11: The relationship between having high communicative skills and sales and sales force performance

- There is a significant relationship between the characteristic of having high efficiency and sales force performance.

The value of R is 0.829 (Table 1.12) and is significant in the level of above one percent which shows the high relationship between the characteristic of having high efficiency and sales force performance.

**Correlations**

|                                  |                     | Status | having high efficiency and sales |
|----------------------------------|---------------------|--------|----------------------------------|
| Status                           | Pearson Correlation | 1      | .829**                           |
|                                  | Sig. (2-tailed)     |        | .000                             |
|                                  | N                   | 52     | 52                               |
| having high efficiency and sales | Pearson Correlation | .829** | 1                                |
|                                  | Sig. (2-tailed)     | .000   |                                  |
|                                  | N                   | 52     | 52                               |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table 1-12: The relationship between having high efficiency and sales and sales force performance

- There is a significant relationship between the characteristic of being interested in education and accepting training and sales force performance.

The value of R is -.797 (Table 1.13) and is significant in the level of above one percent which shows the high relationship between the characteristic of being interested in education and accepting training and sales force performance.

**Correlations**

|  |                     | Status  | being interested in education and accepting training |
|--|---------------------|---------|--|
| Status   | Pearson Correlation | 1       | -.797**  |
|  | Sig. (2-tailed)     |         | .000   |
|  | N                   | 52      | 52   |
| being interested in education and accepting training | Pearson Correlation | -.797** | 1  |
|  | Sig. (2-tailed)     | .000    |  |
|  | N                   | 52      | 52   |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table 1-13: The relationship between being interested in education and accepting training and sales force performance

- There is a significant relationship between the characteristic of having a customer-oriented perspective and sales force performance.

The value of R is 0.740 (Table 1.14) and is significant in the level of above one percent which shows the high relationship between the characteristic of having a customer-oriented perspective and sales force performance.

**Correlations**

|  |                     | Status | having a customer-oriented perspective |
|--|---------------------|--------|--|
| Status                                 | Pearson Correlation | 1      | .740**                                 |
|  | Sig. (2-tailed)     |        | .000                                   |
|  | N                   | 52     | 52                                     |
| having a customer-oriented perspective | Pearson Correlation | .740** | 1                                      |
|  | Sig. (2-tailed)     | .000   |  |
|  | N                   | 52     | 52                                     |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table 1-14: The relationship between having a customer-oriented perspective and sales force performance

**AHP Results**

After surveying the experts, we started to weight the criteria, using the software "Expert Choice". Graph 1.1 - which is the outcome of the software- shows the weighting of the rating criteria of the customers.

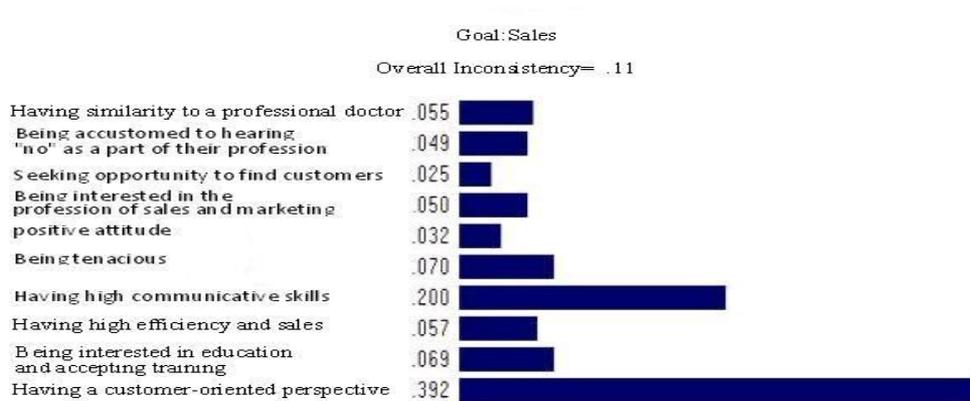


Chart1-1: Results ranked by AHP

**TOPSIS Results**

After obtaining the weights of the criteria we started coding the TOPSIS technique in the environment of Excel, and all the stages of this technique were coded for 52 sales people. With regard to the status of sales people (professional and weak) and the weights which were obtained from surveying experts, using AHP technique (Graph 2.1) we can conclude that the study is 100 percent successful in identifying both professional sales people and weak sales people, which shows the high accuracy of the rating.



Chart 1-2: Ranking vendors capillary quality analysis

### CONCLUSION

In this study the characteristics of having a customer-oriented perspective, high communicative skills, being tenacious, and being interested in education were identified as the most important characteristics, according to AHP and TOPSIS techniques. In the study conducted by Lain Davise et al (2010) communicative skills are considered as a key factor in sales.

The most important strategies in employing and developing human resources are listed below:

- Authentication strategy of jobs standards with the nature of customer-orientation in employment
- Development strategy through training experienced forces to increase communicative skills and customer-orientation.

In this study, "trainability of the personnel" can be highlighted. In the case of development of the available resources who are highly experienced, it is inferred that if they are not trainable, then organizations will have problem promoting them. Having a customer-oriented perspective and having high communicative skills are also among the most important characteristics. According to Liland et al (2000) high communicative skills are the outcome of training. In order to lay off or transfer forces, sales enterprises have to consider acquisitive or innate nature of these characteristics. Rewarding the staff for sales in not a purposeful promotion and their performance has to be assessed by considering their every single responsibility. In order to channelize rewards for sales personnel, sales enterprises have to make use of an ideal scaling with regard to responsibilities in a way that most of the weight goes to the following characteristics: having a customer-oriented perspective, having high communicative skills when confronting customers, being tenacious and being trainable.

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