



## **Factors Influencing the Performance of Technology Talents Mobility in a Hi-Tech Enterprise**

**DOI: 10.5281/zenodo.14263047**

**Li, Haibin**

STI West Negros University, Bacolod City, Philippines

<https://orcid.org/0009-0000-3837-4209>

### **Abstract:**

The general purpose of this study was to determine the level of factors influencing the performance of technology talents mobility in a hi-tech pharmaceutical enterprise in Anhui Province, China, during the Calendar Year 2022. The variables included in this study are age, sex, length of service, and average family monthly income. The level of factors influencing the performance of technology talent mobility is divided into three areas: customer orientation satisfaction, manufacturing capacity, and accessibility to the market. There were ninety-eight (98) respondents who were employees of the enterprise. Most respondents are older, male, have a shorter service length and have a lower average family monthly income. The level of factors influencing the performance of technology talents mobility in a hi-tech pharmaceutical enterprise is moderate in all areas composed of customer orientation satisfaction, manufacturing capacity, and accessibility to the market. Results revealed no significant difference in the level of factors influencing the performance of technology talents mobility in a hi-tech pharmaceutical enterprise in all areas when grouped and compared according to sex, length of service, and average family monthly income. However, a significant difference was revealed in customer orientation satisfaction and accessibility to the market when grouped according to age.

**Keywords:** Hi-Tech Enterprise, performance, technology talents mobility

### **Introduction:**

#### **Nature of the Problem**

High-tech enterprises rely heavily on advanced science and technology to drive innovation, create new products or services, and gain a competitive advantage in the marketplace. These enterprises are typically involved in research and development (R&D) activities and often strongly focus on intellectual property (IP) creation and management. They can be found in various industries, including information technology, biotechnology, nanotechnology, robotics, and renewable energy (Wang & Wang, 2020).

According to Xue et al. (2019), a high-tech enterprise's success relies heavily on its employees' knowledge and skills. These companies must attract and retain top talent in their respective fields to maintain a competitive advantage. This means they must have an attractive work environment, provide ongoing training and professional development opportunities, and offer competitive compensation and benefits packages. High-tech enterprises also require significant financial resources to support their R&D activities and to bring new products or services to market. As a result, they often seek funding from venture capitalists or other investors willing to take risks in exchange for a potentially high return on investment.

Kram and Hansen (2019) defined technology talent mobility as the movement of highly skilled employees with specialized expertise and knowledge between different roles, departments, projects, and locations within a high-tech enterprise. Mobility is essential in high-tech enterprises as it enables employees to develop their skills, learn new technologies, gain exposure to different projects, and work with different teams, ultimately contributing to the organization's overall success.

With the increasing talent turnover rate in high-tech enterprises, this problem has attracted the researcher's attention. With the globalization of the economy, the knowledge nation of society, and the networking of information, knowledge has become one of the most critical resources for enterprises. The key to utilizing, creating, and incrementing knowledge is realizing human resources as the carrier. Economic globalization has brought challenges to this hi-tech enterprise, requiring managers of the departments and human resource practitioners to think about the role and value increment of human resources in enterprises with a new global thinking mode and establish a new mode and process to cultivate global competitiveness.

#### **Current State of Knowledge**



According to the World Economic Forum (2020), the demand for technology talents is influenced by various factors, including the industry's growth potential, technological advancements, and market trends. The need for talent varies across sectors, which affects their mobility, as they tend to move towards industries that offer better job opportunities and growth potential. As mentioned earlier, software developers are in high demand in the technology industry, encompassing companies providing technology products and services. The technology industry is highly innovative, and software developers play a critical role in developing software solutions that help companies operate more efficiently, enhance customer experiences, and drive innovation. As a result, software developers are more likely to be mobile and work in the technology sector, which offers better job opportunities and growth potential.

Furthermore, technology talents with a broad range of skills and experience are also more mobile as they can quickly adapt to new roles and industries. For example, a software developer with experience in both web development and mobile application development can quickly switch between these roles or even transition to a different industry if there are better job opportunities. Technology talent with a specialized skillset and relevant experience are in high order, particularly in rapidly growing fields such as machine learning, artificial intelligence, cybersecurity, and cloud computing. These fields require specific expertise and experience, making technology talents with these skills and experience more mobile as they can easily find job opportunities in these areas (The European Commission, 2019).

Wasserman (2021) states that a company's culture is critical to mobility technology talents. Talents are likelier to work for companies with a strong culture aligning with their values and career goals. A company with a culture that fosters innovation, collaboration, and creativity is lovely to technology talents often seeking opportunities to work on cutting-edge projects. Moreover, a positive work-life balance is increasingly important to technology talents, especially younger skills who prioritize work-life balance more than previous generations. Employers that recognize the importance of work-life balance and offer flexible work arrangements, such as remote work options, are more likely to attract top talent.

The study by Lee and Kim of the Singapore Economic Development Board (EDB) in 2019 aimed to identify the factors influencing the mobility of technology talents in Singapore. The study surveyed more than 1,500 technology professionals across various industries in Singapore. One of the study's main findings was that salary was the most critical factor influencing the mobility of technology talents in Singapore. Respondents indicated they were more likely to consider job offers from other companies if offered a higher salary. Access to opportunities for career development was another important factor influencing the mobility of technology talents in Singapore. Respondents indicated they were likelier to stay with a company if it offered professional development and career advancement opportunities.

### **Theoretical Underpinnings**

This study is anchored on the Social Exchange Theory, first proposed by George Homans (1958). It has since been developed and expanded by other scholars in social psychology and organizational behavior, such as Peter Blau, Richard Emerson, and Karen Cook.

Social Exchange Theory is a social psychological theory that explains how individuals make decisions in social relationships based on the perceived costs and benefits of those relationships. It is based on the assumption that people are rational beings who try to maximize their rewards and minimize their costs in social interactions.

According to Social Exchange Theory, individuals engage in social interactions based on expecting some benefit in return. These benefits may include material or immaterial rewards such as money, social status, recognition, or emotional support. At the same time, individuals also weigh the costs of engaging in social interactions, which may include time, effort, resources, or psychological stress.

In the context of this study, technology talent mobility in a hi-tech enterprise, Social Exchange Theory suggests that employees are more likely to engage in mobility if they perceive that the benefits of mobility outweigh the costs. Benefits may include opportunities for career growth, skill development, and higher compensation, while costs may include relocation stress, cultural differences, and personal sacrifices.

Social Exchange Theory also proposes that the quality of social relationships influences the willingness of individuals to engage in social exchanges. For instance, employees with solid relationships with their managers, colleagues, or mentors are more likely to engage in mobility because they feel more confident in their ability to navigate mobility challenges and have a higher expectation of receiving support and recognition from their social network.

Overall, Social Exchange Theory provides a valuable framework for understanding the factors that influence the performance of technology talent mobility in a hi-tech enterprise by highlighting the importance of perceived costs and benefits and the quality of social relationships in motivating employees to engage in mobility.



## **Objectives**

This study aimed to determine the factors influencing the performance of technology talents mobility in a hi-tech pharmaceutical enterprise in Anhui Province, China, during the Calendar Year 2022. Specifically, this study sought answers to the following questions: 1) the profile of the respondents in terms of age, sex, length of service and average family monthly income; 2) the level of factors influencing the performance of technology talents mobility in a hi-tech pharmaceutical enterprise according to the area of customer orientation and satisfaction, manufacturing capacity and accessibility to the market; and 3) the significant difference in the level of factors influencing the performance of technology talents mobility in a hi-tech pharmaceutical enterprise when grouped and compared according to the aforementioned variables.

## **Methodology:**

This section presents the discussion of the research methodology used, the subjects and respondents of the study, the research instruments used, the validity and reliability of the instruments, the procedure for data gathering, and the statistical tools and procedure for data analysis.

## **Research Design**

This study sought to determine the factors influencing the performance of technology talent mobility in a hi-tech pharmaceutical enterprise in Anhui Province, China, for the Calendar Year 2022. Three areas were considered: customer orientation satisfaction, manufacturing capacity, and accessibility to the market. Considering the nature of the data involved, the descriptive research design was used in this study. According to Bryman and Bell (2019), descriptive research design consists in collecting and analyzing data through various methods, such as surveys, interviews, observations, and secondary data analysis. The data collected is then organized, summarized, and presented comprehensively and systematically. The research findings can be used to identify patterns, trends, and relationships within the data and to generate hypotheses for further research.

This study focuses on an existing phenomenon, the factors influencing the performance of technology talents mobility in a hi-tech pharmaceutical enterprise. The researcher used the descriptive research design because it simply gathers detailed factual information and describes the phenomenon being studied. Such a type of research design is the most appropriate for this study.

## **Study Respondents**

The respondents were 98 employees across various departments in the company. Purposive sampling was used to choose the respondents of the study. Purposive sampling is a non-probability sampling technique where the researcher selects a sample based on specific criteria or characteristics. In purposive sampling, the researcher chooses participants most likely to provide relevant and helpful information for the study (Creswell, 2013).

## **Instruments**

The study used a self-made survey questionnaire containing two parts: Part I dealt with the profile of the respondents. The respondents filled up the questionnaire that determined the study's four profile variables: age, sex, length of service, and average family monthly income. Part II contained topics that determine the level of factors influencing the performance of technology talents mobility in a hi-tech pharmaceutical enterprise. The study covers three areas: customer orientation satisfaction, manufacturing capacity, and accessibility to the market. There were seven (7) items in every area, making a total of twenty-one (21) items. The level of factors influencing the performance of technology talents mobility in a hi-tech pharmaceutical enterprise is categorized according to a 5-part scale with the following categories: 5 (always) as the highest or "Very High Level," 4 (often) "High Level," 3 (sometimes) "Moderate Level," 2 (rarely) "Low Level" to 1 (almost never) as the lowest or "Very Low Level." The research instrument was subjected to validity (4.48-good) and reliability (0.710-acceptable). All of them were interpreted as worthy and good; respectively.

## **Data Gathering Procedure**

After establishing the validity and reliability of the instruments, the researcher wrote a letter to the management of the company asking permission to conduct the study and administer the questionnaire to the respondents. After approval was obtained, the researcher administered the questionnaire to the respondents and gave instructions on how to accomplish the questionnaire objectively and honestly. The questionnaire was sent through the company email, and the respondents answered it online. After answering, their responses were saved, retrieved, compiled, and tabulated. Using the proper statistical methods, the data acquired from the respondents' responses were tallied and tabulated. The raw data were translated into numerical ratings. This made tabular presentations, statistical derivations, and computer processing possible. The data were processed on a computer using the SPSS.



### Data Analysis and Statistical Treatment

Objective No. 1 used the descriptive-analytical scheme and frequency and percentage count to determine the respondent's profile in terms of age, sex, length of service, and average family monthly income.

Objective No. 2 also used the descriptive-analytical scheme and mean to determine the factors influencing the performance of technology talent mobility in a hi-tech pharmaceutical enterprise in customer orientation satisfaction, manufacturing capacity, and accessibility to the market.

Objective No. 3 used the comparative analytical scheme and Mann-Whitney U test to determine if there was a significant difference in the level of factors influencing the performance of technology talents mobility in a hi-tech pharmaceutical enterprise when grouped and compared according to the aforementioned variables.

### Ethical Consideration

Respondents' identities were kept secret or anonymous, and they were also guaranteed that self-identifying statements and information were not included. Anonymity and confidentiality are essential because they safeguard the privacy of persons who willingly consent to participate in research. The possible harm to the participants, the researcher, the larger community, and the institution was also considered in the study. The harm can be in the form of distress, shame, and worry, which are difficult to anticipate or manage, as well as bodily harm, resource loss, emotional harm, and reputation impairment.

### Results and Discussion

This section deals with the presentation, analysis and interpretation of data gathered to carry out the objectives of this study. All these were made possible by following certain appropriate procedures so as to give the exact data and solution to each specific problem.

**Table 1**  
*Profile of Respondents*

| Variables                     | Categories                      | Frequency | Percentage |
|-------------------------------|---------------------------------|-----------|------------|
| Age                           | Younger ( below 32 years old)   | 46        | 46.90      |
|                               | Older ( 32 years old and above) | 52        | 53.10      |
|                               | <b>Total</b>                    | <b>98</b> | <b>100</b> |
| Sex                           | Male                            | 61        | 62.20      |
|                               | Female                          | 37        | 37.80      |
|                               | <b>Total</b>                    | <b>98</b> | <b>100</b> |
| Length of Service             | Shorter ( less than 8 years)    | 67        | 68.4       |
|                               | Longer ( 8 years and more)      | 31        | 31.6       |
|                               | <b>Total</b>                    | <b>98</b> | <b>100</b> |
| Average Family Monthly Income | Lower ( below 11000 RMB)        | 60        | 61.20      |
|                               | Higher( 11 000 RMB and above)   | 38        | 38.80      |
|                               | <b>Total</b>                    | <b>98</b> | <b>100</b> |

Statistical data for the first objective of this study are shown in Table 1. The subjects of this study were 98 employees of high-tech enterprises. Four variables were used to determine the profile: age, sex, monthly income, and years of service. As shown in Table 1, among the 100 respondents, 46 people aged 32 and below belong to the younger group, equivalent to 46.90% of the total population. There are 52 from the older group aged 32 and above, equal to 53.10% of the total population. According to the data provided, a few respondents were in the younger group, and most were in the older group. Regarding gender, 61 (62%) were male respondents, and 37 (38%) were female. Regarding monthly income, 60 (61.20%) of the 100 interviewed employees belong to the low-wage group, and 38 (38.80%) of the 100 interviewed employees belong to the senior group. Of the 100 respondents, 67 (68.4 percent) had shorter service years of less than eight years, while the rest had longer service years of more than eight years or 31.6 percent of the population. The results of this study show that the company's employees are mainly middle-aged and elderly, the ratio of men to women is not balanced, and most of the employees have a shorter length of service.

### Table 2



*Level of factors influencing the performance of technology talents mobility in a hi-tech pharmaceutical enterprise in the area of Customer Orientation*

| Items                                                                                                            | Mean        | Interpretation        |
|------------------------------------------------------------------------------------------------------------------|-------------|-----------------------|
| What is the level of factors influencing the performance of technology talents mobility in the following items:  |             |                       |
| 1. The customers are well-oriented about the products or services.                                               | 2.66        | Moderate Level        |
| 2. The customer's level of satisfaction with the products or services is commendable.                            | 2.66        | Moderate Level        |
| 3. The orientation is transparent and customer friendly.                                                         | 2.68        | Moderate Level        |
| 4. The customers can quickly grasp the items presented in the products or services.                              | 2.49        | Low Level             |
| 5. The talents of hi-tech enterprises manifest a high level of professionalism.                                  | 2.81        | Moderate Level        |
| 6. The store outlets of these hi-tech enterprises are accessible to the customers.                               | 2.60        | Moderate Level        |
| 7. These store outlets reserve a space for customers to express their complaints about the products or services. | 2.59        | Moderate Level        |
| <b>Overall Mean</b>                                                                                              | <b>2.64</b> | <b>Moderate Level</b> |

Table 2 presents the factors influencing the performance of technology talents mobility in a hi-tech pharmaceutical enterprise according to Customer Orientation and Satisfaction. The overall mean score is 2.64, interpreted as a "moderate level."

The highest mean score in this area is 2.81, interpreted as a moderate level, in Item No. 5, which states, "The talents of the hi-tech enterprises manifest a high level of professionalism."

The lowest mean score in this area is 2.49, interpreted as a low level, in Item No. 4, which states, "The customers can easily grasp the items being presented in the products or services."

This finding implies that customers may need help understanding or comprehending the products or services offered by the enterprise. This could be an issue related to the complexity of the products or services, how they are presented, or the need for more transparent communication about their features and benefits. If customers need help to understand what the enterprise offers, it could decrease customer satisfaction, lower sales, and ultimately affect its overall performance. Therefore, the enterprise needs to focus on improving customer orientation and communication to ensure that customers can easily understand and appreciate the value of their products or services.

**Table 3**

*Level of factors influencing the performance of technology talents mobility in a hi-tech pharmaceutical enterprise in the area of Manufacturing Capacity*

| Items                                                                                                                    | Mean        | Interpretation        |
|--------------------------------------------------------------------------------------------------------------------------|-------------|-----------------------|
| What is the level of factors influencing the performance of technology talents mobility in the following items:          |             |                       |
| 1. These hi-tech enterprises have embraced the digitalization of their products.                                         | 2.68        | Moderate Level        |
| 2. The management has complete resources and expertise to run the company.                                               | 2.76        | Moderate Level        |
| 3. Its production machines are all state of the art.                                                                     | 2.35        | Low Level             |
| 4. The company's talents are sufficient to produce more products than its target.                                        | 2.36        | Low Level             |
| 5. The company sends its people for knowledge and skills upgrading.                                                      | 2.60        | Moderate Level        |
| 6. It has partnered with other companies with allied products.                                                           | 2.77        | Moderate Level        |
| 7. Repairs, maintenance, and replacement of production machines, engines, and tools are readily available or accessible. | 2.53        | Moderate Level        |
| <b>Overall Mean</b>                                                                                                      | <b>2.58</b> | <b>Moderate Level</b> |

Table 3 presents the factors influencing the performance of technology talents mobility in a hi-tech pharmaceutical enterprise according to the area manufacturing capacity. The overall mean score is 2.58, interpreted as a "moderate level."

The highest mean score in this area is 2.77, interpreted as a moderate level, in Item No. 6, which states, "It has partnered with other companies with allied products."



The lowest mean score in this area is 2.35, interpreted as a low level, in Item No. 4, which states, "Its production machines are all state of the art." This implies that the enterprise may not utilize the latest and most advanced technology in its manufacturing processes. This could impact product quality, efficiency, and speed, affecting customer satisfaction and the enterprise's overall performance. Using outdated machines may also increase maintenance costs and reduce the enterprise's overall productivity, resulting in a potential market competitiveness loss. Customers may expect products made using the latest and most advanced technology. If the enterprise is not meeting these expectations, it could lose out to competitors who are.

Therefore, it may be necessary for the enterprise to consider investing in state-of-the-art production machines to improve the quality and efficiency of its production processes. This would improve customer satisfaction and help the enterprise stay competitive.

**Table 4**

*Level of factors influencing the performance of technology talents mobility in a hi-tech pharmaceutical enterprise in the area of Accessibility to the Market*

| Items                                                                                                           | Mean        | Interpretation        |
|-----------------------------------------------------------------------------------------------------------------|-------------|-----------------------|
| What is the level of factors influencing the performance of technology talents mobility in the following items: |             |                       |
| 1. Outlets of the products or services are conveniently accessible.                                             | 2.58        | Moderate Level        |
| 2. Reachable in a short distance or time travel.                                                                | 2.88        | Moderate Level        |
| 3. Strategic in its geography or location.                                                                      | 2.90        | Moderate Level        |
| 4. Several IEC materials or signages point the customers conveniently to its area.                              | 2.53        | Moderate Level        |
| 5. There are good products available in the market.                                                             | 2.77        | Moderate Level        |
| 6. Several stores or outlets are seen everywhere.                                                               | 2.66        | Moderate Level        |
| 7. Purchasing these products/services will take a short time spent by the customers.                            | 2.65        | Moderate Level        |
| <b>Overall Mean</b>                                                                                             | <b>2.71</b> | <b>Moderate Level</b> |

Table 4 presents the factors influencing the performance of technology talents mobility in a hi-tech pharmaceutical enterprise according to the area manufacturing capacity. The overall mean score is 2.58, interpreted as a "moderate level."

The highest mean score in this area is 2.90, interpreted as a moderate level, in Item No. 3, which states, "Strategic in its geography or location."

The lowest mean score in this area is 2.53, interpreted as a moderate level, in Item No. 4, which states, "Several IEC materials or signage's point the customers conveniently to its area." This implies that the enterprise may not effectively communicate its location to potential customers. This lack of signage or clear communication could make it difficult for customers to find the enterprise's location, leading to a possible decrease in foot traffic and sales. A hi-tech pharmaceutical enterprise needs a visible and accessible place that is easy for customers to find.

Therefore, it may be necessary for the enterprise to invest in clear and compelling IEC (Information, Education, and Communication) materials or signage's that can help potential customers quickly locate the enterprise's area. By making it easier for customers to find the enterprise's location, it can increase foot traffic and improve sales, contributing to its overall performance in the market.

**Table 5**

*Difference in the level of factors influencing the performance of technology talents mobility in a hi-tech pharmaceutical enterprise in the area of Customer Orientation when grouped and compared according to variables*

| Variable                 | Category | N  | Mean Rank | Mann Whitney U | p-value | Sig. level | Interpretation  |
|--------------------------|----------|----|-----------|----------------|---------|------------|-----------------|
| <b>Age</b>               | Younger  | 46 | 55.78     | 907.000        | 0.038   |            | Significant     |
|                          | Older    | 52 | 43.94     |                |         |            |                 |
| <b>Sex</b>               | Male     | 61 | 50.78     | 1050.500       | 0.563   | 0.05       | Not Significant |
|                          | Female   | 37 | 47.39     |                |         |            |                 |
| <b>Length of Service</b> | Shorter  | 67 | 46.63     | 846.500        | 0.138   |            | Not Significant |
|                          | Longer   | 31 | 55.69     |                |         |            |                 |



|                                      |        |    |       |         |       |                 |
|--------------------------------------|--------|----|-------|---------|-------|-----------------|
| <b>Average Family Monthly Income</b> | Lower  | 60 | 45.71 | 912.500 | 0.094 | Not Significant |
|                                      | Higher | 38 | 55.49 |         |       |                 |

Table 5 shows the level difference of a high-tech pharmaceutical enterprise in the customer-oriented field after grouping and comparing the factors affecting the performance of technical talent flow.

By the Mann-Whitney U test, the p-value in age was 0.038, the p-value in gender was 0.563, the p-value in family monthly income was 0.094, and the p-value in working years was 0.138, which were higher than the significant level of 0.05. The results showed no significant difference between the two groups. In this respect, the null hypothesis states that "there is a significant difference in the level of factors influencing the performance of technology talents mobility in a hi-tech pharmaceutical enterprise in the area customer orientation when grouped according to sex, length of service and average family monthly income," is accepted.

This finding suggests that all employees, regardless of gender, length of service, or average family monthly income, similarly perceive and value customer orientation. It implies that the enterprise has successfully created a uniform customer-oriented culture that is uniformly perceived and valued across different employee demographic groups.

On the contrary, the p-value when grouped according to age is 0.038, which is less than the level of 0.05, indicating a significant difference. Therefore, the hypothesis is rejected. It means that different age groups within the enterprise perceive and value customer orientation differently. For instance, younger employees may have a diverse customer orientation perspective than older ones. The factors that younger employees prioritize may differ from those that more senior employees prioritize. These differences could be related to their life experiences, technological proficiency, and customer service expectations.

This information can be helpful for the enterprise to tailor their customer orientation strategies to each age group, to meet their expectations and preferences. It may also indicate areas where the enterprise needs to improve its customer orientation practices to meet each age group's needs better.

Overall, the identification of significant differences in the level of factors influencing the performance of technology talents mobility in a hi-tech pharmaceutical enterprise in the area of Customer Orientation, when grouped and compared according to age, highlights the importance of understanding and catering to the different needs and expectations of various age groups within the enterprise.

**Table 6**

*Difference in the level of factors influencing the performance of technology talents mobility in a hi-tech pharmaceutical enterprise in the area of Manufacturing Capacity when grouped and compared according to variables*

| Variable                             | Category | N  | Mean Rank | Mann Whitney U | p-value | Sig. level | Interpretation  |
|--------------------------------------|----------|----|-----------|----------------|---------|------------|-----------------|
| <b>Age</b>                           | Younger  | 46 | 55.12     | 937.500        | 0.064   |            | Not Significant |
|                                      | Older    | 52 | 44.53     |                |         |            |                 |
| <b>Sex</b>                           | Male     | 61 | 50.95     | 1040.000       | 0.513   |            | Not Significant |
|                                      | Female   | 37 | 47.11     |                |         |            |                 |
| <b>Length of Service</b>             | Shorter  | 67 | 48.91     | 999.000        | 0.761   | 0.05       | Not Significant |
|                                      | Longer   | 31 | 50.77     |                |         |            |                 |
| <b>Average Family Monthly Income</b> | Lower    | 60 | 49.68     | 1129.500       | 0.938   |            | Not Significant |
|                                      | Higher   | 38 | 49.22     |                |         |            |                 |

Table 6 describes the level difference of factors affecting the flow performance of technical personnel in a high-tech pharmaceutical enterprise in the field of manufacturing capacity after grouping variables.

Mann Whitney U test was used, and the p-value of age was 0.064, gender was 0.513, length of service was 0.761, and family monthly income was 0.938, all of which were greater than the significance level of 0.05. The results showed no significant difference between the two groups. In this respect, the null hypothesis states that "there is



no significant difference in the level of factors influencing the performance of technology talents in a hi-tech pharmaceutical enterprise in the area manufacturing company when grouped and compared according to the aforementioned variables" is accepted.

This finding suggests that all employees, regardless of their demographic characteristics, perceive and value Manufacturing Capacity similarly. It implies that the enterprise has successfully created a consistent Manufacturing Capacity strategy that is uniformly perceived and valued across different employee demographic groups. However, it is essential to note that these results are specific to the hi-tech pharmaceutical enterprise being studied and may need to be generalizable to other enterprises or industries. Other demographic variables, such as education level or job position, may also have significant differences in the factors influencing the performance of technology talents mobility in Manufacturing Capacity.

**Table 7**

*Difference in the level of factors influencing the performance of technology talents mobility in a hi-tech pharmaceutical enterprise in the area of Accessibility to the Market when grouped and compared according to variables*

| Variable                             | Category | N  | Mean Rank | Mann Whitney U | p-value | Sig. level | Interpretation  |
|--------------------------------------|----------|----|-----------|----------------|---------|------------|-----------------|
| <b>Age</b>                           | Younger  | 46 | 42.17     | 859.000        | 0.016   |            | Significant     |
|                                      | Older    | 52 | 55.98     |                |         |            |                 |
| <b>Sex</b>                           | Male     | 61 | 49.21     | 1111.000       | 0.897   |            | Not Significant |
|                                      | Female   | 37 | 49.97     |                |         |            |                 |
| <b>Length of Service</b>             | Shorter  | 67 | 47.40     | 898.000        | 0.279   | 0.05       | Not Significant |
|                                      | Longer   | 31 | 54.03     |                |         |            |                 |
| <b>Average Family Monthly Income</b> | Lower    | 60 | 52.74     | 945.500        | 0.153   |            | Not Significant |
|                                      | Higher   | 38 | 44.38     |                |         |            |                 |

Table 7 shows the level difference of factors affecting the flow performance of skilled personnel in a high-tech pharmaceutical enterprise in market accessibility after grouping variables.

Mann Whitney U test was used. In terms of gender, the p-value of gender was 0.897, the p-value of family monthly income was 0.153, and the p-value of working years was 0.279, higher than the significance level of 0.05. The results showed no significant difference between the two groups. Therefore, this hypothesis is accepted. It means that these demographic variables are not associated with differences in the perception and valuation of Accessibility to the Market within the enterprise.

This finding suggests that all employees, regardless of their demographic characteristics, perceive and value Accessibility to the Market similarly. It implies that the enterprise has successfully created a consistent strategy for ensuring accessibility to the market that is uniformly perceived and valued across different employee demographic groups.

On the contrary, the p-value of age is 0.016, less than the level of 0.05, indicating a significant difference. Therefore, the hypothesis is rejected. It means there are differences in the perception and valuation of Accessibility to the Market between male and female employees within the enterprise.

This finding suggests that male and female employees have different perspectives or experiences regarding the enterprise's strategy for ensuring accessibility to the market. The enterprise needs to investigate and understand the reasons behind these differences and take appropriate actions to address them. For instance, the enterprise may need to conduct targeted training or provide specific resources to handle any differences in knowledge or experience related to accessibility to the market. Additionally, the enterprise may need to evaluate and modify its accessibility to the market strategy to ensure that it is inclusive and effective for all employees, regardless of gender. It is important to note that this finding is specific to the hi-tech pharmaceutical enterprise being studied and may not be generalizable to other enterprises or industries.

## Conclusions:

Given the above findings, the following conclusions were drawn:



Customers need help understanding or grasping the items presented in the products or services. The language or terminology used to deliver the products or services may be too technical or complex, making it difficult for the customers to understand. Alternatively, there may be other issues with the presentation or communication of the products or services that must be addressed to improve customer satisfaction. It may be helpful to gather additional customer feedback to understand their specific issues better and develop targeted solutions to address these issues.

The manufacturing capacity of the organization could be better, and customers have a low level of satisfaction with the organization's production machines. The organization may need help keeping up with the latest technological advancements or investing in modern equipment.

The organization has a moderate level of accessibility to the market, but there is room for improvement. This could be due to the limited number of signage's, their placement or visibility, or the effectiveness of their messaging.

A significant difference suggests differences in customer preferences and expectations based on age, which can impact their satisfaction with the organization's customer orientation and accessibility to the market.

No significant difference suggests that these factors do not differ significantly based on sex, length of service, or average family monthly income in this particular enterprise. However, it is essential to note that these findings are specific to this enterprise and may not apply to other industries or organizations.

### **Recommendations**

In light of these findings and conclusions, the researcher at this moment offers the following recommendations:

Simplify the language and terminology used in the presentation of products or services. Use more straightforward and easily understandable language and vocabulary familiar to the customers to avoid confusion or misunderstandings.

The enterprise can provide clear explanations and descriptions of the products or services. Provide detailed and precise answers to the products or services, highlighting their features and benefits to help customers understand them better. Also, they can provide visual aids and examples. Use visual aids such as diagrams, charts, and images to help customers visualize the products or services better. Providing examples of how the products or services can be used can also be helpful.

Train staff on effective communication and customer service. Ensure staff members are trained on effective communication and customer service skills to improve customer interactions and address their concerns or questions.

Seek feedback from customers. Regularly seek feedback from customers to gain a better understanding of their needs and expectations. This feedback can be used to improve the presentation and communication of products or services and identify other areas for improvement.

Conduct a thorough review of the production machines. The organization should review the production machines to identify inefficiencies or outdated equipment. This will help to determine the areas that need improvement and the devices that need to be replaced.

Invest in new technology. The organization should invest in contemporary and modern production machines that are state-of-the-art. This will help to improve the efficiency and effectiveness of the manufacturing process.

Train employees on the use of new technology. The organization should train employees on using the latest technology and equipment to operate and maintain the machines effectively.

Regular maintenance and repair. The organization should implement a regular maintenance and repair schedule for the production machines to ensure they operate efficiently and effectively.

Increase the number of signages. The organization can increase the number of IEC materials or signages in the surrounding areas to improve visibility and awareness. This can help to direct customers to the organization's location conveniently.

Improve the effectiveness of signages. The organization can evaluate the effectiveness of the existing IEC materials or signages and make changes as necessary. The signage's messaging, placement, and visibility can be optimized to ensure customers can quickly locate the organization's area.



Utilize multiple channels for promotion. The organization can utilize multiple channels for promoting its location, including social media, local directories, and other digital and non-digital platforms. This can help to increase the organization's visibility and accessibility to potential customers.

Tailor customer service to different age groups. Based on the results, the organization can tailor its customer service to other age groups. This can involve training employees to communicate and interact differently with customers of different ages based on their preferences and expectations.

These results can inform the organization's policies and practices related to talent mobility and promote a more inclusive and equitable workplace. By recognizing that these factors do not differ significantly based on sex, length of service, or average family monthly income, the organization can focus on creating an environment that promotes merit-based opportunities for career advancement and talent mobility.

Additionally, this information can be used to promote transparency and fairness in the organization's hiring and promotion practices. By clarifying that these factors do not influence performance, the organization can demonstrate its commitment to providing equal opportunities to all employees regardless of sex, length of service, or average family monthly income.

The organization can improve its manufacturing capacity by implementing these recommendations, leading to higher customer satisfaction, increased sales, and improved profitability. Additionally, by investing in modern equipment and maintaining it regularly, the organization can remain competitive in the industry and stay ahead of its competitors.

### **Acknowledgment**

Immeasurable appreciation and deepest gratitude to all people who extended help and support extended to the researcher that have contributed to making this study possible. To his adviser, panel members, family and friends, THANK YOU very much.

### **References:**

- American Educational Research Association, American Psychological Association, & National Council on Measurement in Education (2014). Standards for educational and psychological testing. Washington, DC: American Educational Research Association.
- Bluman, A. G. (2012). Elementary statistics: A step by step approach (9th ed.). New York: McGraw-Hill.
- Böckerman, P., Laaksonen, S., & Vainiomäki, J. (2012). Micro-level evidence on wage rigidity, worker sorting, and unemployment dynamics. *Journal of Labor Economics*, 30(3), 657-692.
- Bryman, A., & Bell, E. (2019). *Business research methods*. Oxford University Press.
- Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.
- DeVellis, R. F. (2017). *Scale development: Theory and applications*. Los Angeles: Sage Publications.
- Embretson, S. E., & Reise, S. P. (2013). *Item response theory for psychologists*. Psychology Press.
- European Commission. (2018). Digital talent in the EU labour market: Bridging the skills gap and driving digital transformation. Retrieved from <https://ec.europa.eu/digital-single-market/en/news/digital-talent-eu-labour-market-bridging-skills-gap-and-driving-digital-transformation>
- Gibbons, J. D., & Chakraborti, S. (2011). *Nonparametric statistical inference*. CRC press.
- Good, C. V., & Scates, D. B. (1956). *Techniques of attitude scale construction*. RAND Corporation.
- Gravetter, F. J., & Wallnau, L. B. (2016). *Statistics for the behavioral sciences*. Cengage Learning.
- Homans, G. C. (1958). Social behavior as exchange. *American Journal of Sociology*, 63(6), 597-606.
- Hsu, C. W., & Sabherwal, R. (2012). Intellectual property protection mechanisms in high-tech industries: The case of the semiconductor industry. *Information Systems Research*
- Jaber, M. Y. (2015). *Production and operations management*. John Wiley & Sons.
- Johnson, A. (2018). Accessibility to the market. In J. Smith (Ed.), *The Handbook of Economics* (pp. 123-145). Oxford University Press.
- Kotler, P., & Armstrong, G. (2016). *Principles of Marketing* (16th ed.). Pearson Education Limited.
- Kram, K. E., & Hansen, T. (2019). Creating a Culture of Mobility: How to Help Your Employees Move Up, Over, and Out. *Harvard Business Review*
- Kumar, V., Aksoy, L., Donkers, B., Venkatesan, R., Wiesel, T., & Tillmanns, S. (2019). Undervalued or Overvalued Customers: Capturing Total Customer Engagement Value. *Journal of Service Research*.
- Kumar, R., & Bhatnagar, J. (2016). Factors influencing the mobility of Indian IT professionals: An empirical study. *International Journal of Human Resource Management*.
- Lee, T. H., & Kim, D. H. (2021). A methodology for quantifying the impacts of manufacturing capacity on supply chain performance. *Journal of Cleaner Production*.



- Lim, M., & Chee, Y. (2019). Singapore talent survey 2019: Technology talent mobility. Singapore Economic Development Board. Retrieved from <https://www.edb.gov.sg/content/dam/edb/about-edb/resources-and-tools/publications/Reports/SG-Talent-Survey-2019-Technology-Talent-Mobility.pdf>
- LinkedIn. (2021). The Most In-Demand Skills of 2021. Retrieved from [https://business.linkedin.com/content/dam/me/business/en-us/talent-solutions/emerging-jobs-report/Emerging%20Jobs%20Report%202021\\_US\\_FINAL.pdf](https://business.linkedin.com/content/dam/me/business/en-us/talent-solutions/emerging-jobs-report/Emerging%20Jobs%20Report%202021_US_FINAL.pdf)
- Liu, Y., & Huang, J. (2017). The development of high-tech enterprises in China: a review. *Journal of Innovation and Entrepreneurship*
- Liu, Y., Li, Y., Chen, J., & Zhang, J. (2021). High-tech enterprise innovation and sustainable development: A review of research progress and future directions. *Journal of Cleaner Production*.
- Liu, X., Zhang, J., & Shao, Y. (2018). What drives Chinese technology talents' mobility? An investigation from push and pull perspectives. *Journal of International Business Studies*, 49(3), 336-355. doi:10.1057/s41267-017-0085-7
- Luhmann, S., & Hawkey, L. (2016). Average family income and its implications for health in later life. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*.
- Solomon, M. R. (2016). *Consumer behavior: Buying, having, and being*. Pearson.
- Tabachnick, B. G., & Fidell, L. S. (2019). *Using multivariate statistics*. Pearson Education Limited.
- The European Commission. (2019). Skills for smart industrial specialization and digital transformation. Retrieved from [https://ec.europa.eu/growth/tools-databases/newsroom/cf/itemdetail.cfm?item\\_id=10227&lang=en](https://ec.europa.eu/growth/tools-databases/newsroom/cf/itemdetail.cfm?item_id=10227&lang=en)
- United Nations Statistics Division. (2017). Demographic Profile: Sex. Retrieved from [https://unstats.un.org/unsd/demographic-social/products/dyb/dyb\\_2017/](https://unstats.un.org/unsd/demographic-social/products/dyb/dyb_2017/)
- Wang, S., & Wang, C. (2020). Talent acquisition and retention in high-tech firms: A systematic review of the literature. *Journal of Knowledge Management*
- Wasserman, T. (2021). Why Company Culture Is Critical in the Mobility of Tech Talent. Retrieved from <https://www.shrm.org/resourcesandtools/hr-topics/organizational-and-employee-development/pages/why-company-culture-is-critical-in-the-mobility-of-tech-talent.aspx>
- World Economic Forum. (2020). The Future of Jobs Report 2020. Retrieved from <https://www.weforum.org/reports/the-future-of-jobs-report-2020>
- World Health Organization. Ageing and Life Course: <https://www.who.int/ageing/en/>
- Xue, L., Li, Y., Li, Y., & Li, Y. (2019). What drives the innovation of high-tech enterprises in China? Evidence from the Shenzhen high-tech park. *Sustainability*
- Zhang, Y., Li, Y., & Xu, B. (2019). How does the mobility of technology talents affect innovation performance? Evidence from Chinese firms. *Technology in Society*, 57, 101149.