Factors Influencing Talent Retention in Malaysia's Semiconductor Industry

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Abstract

The main objective of this study is to examine the underlying factors that influence talent retention in Malaysia's semiconductor industry. Utilizing Maslow's Hierarchy of Needs and Herzberg's Two-Factor Theory, the research assesses the impact of employee engagement, career development, reward management, and work-life balance on retaining talent within this sector. A quantitative approach was employed, gathering data through online questionnaires distributed to senior executives in the semiconductor industry. Using purposive sampling, a total of 431 questionnaires were collected via an online platform for convenience. The study's findings reveal that talent retention in Malaysia's semiconductor industry is significantly influenced by factors such as employee career development, reward management, and work-life balance. These insights offer valuable implications for the industry, highlighting the crucial role these factors play in retaining talent. Given the pivotal role of Malaysia's semiconductor industry in both the national economy and the global market, the study's findings are of considerable importance. The research discusses both practical and theoretical implications, providing recommendations for industry practices and suggesting areas for future research to further understand and improve talent retention strategies.

Keywords: *Employee Engagement, Employee Career Development, Reward Management, Work-Life Balance, Talent Retention, Malaysia Semiconductor Industry, Sustainable Growth; Economic Growth.*

Introduction

In 2021, the global semiconductor and semiconductor product sector saw significant expansion, with a 20 percent increase in revenue, culminating in a total of $590 billion worldwide (Laurence, 2023). This upward trajectory is estimated to continue, with forecasts predicting a compound annual growth rate (CAGR) of 6 to 8 percent through to 2030 (Michael et al., 2022). This sustained growth is due to several key trends, including the ongoing popularity of remote work, greater use of artificial intelligence, the growth of 5G networks, and rising demand for electric vehicles (EVs).

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Figure 1.1. The Overall Growth in the Global Semiconductor Market

Source: McKinsey & Company, 2024

A previous McKinsey (2024), analysis presented figure 1.1, at least 70% of the semiconductor industry will be driven by the automotive, data storage, and wireless industries (Randstad, 2023). With this tremendous growth, there is a need to cultivate a pool of talented individuals who can contribute to development and innovation in the semiconductor industry. However, there has been a global talent shortage observed.

**Figure 1.2. Global Talent Shortages (2010-2023)**
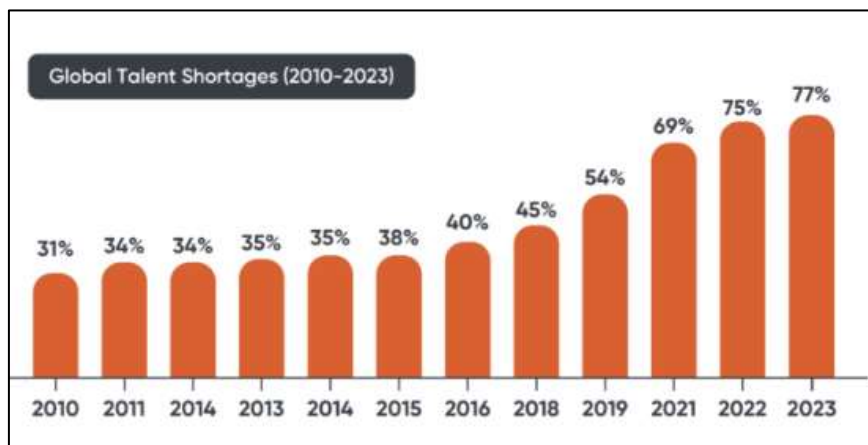
Source: Manpower Group, 2023

According to ManpowerGroup (2023), figure 1.2 presents a survey conducted on global employers, revealing a critical talent shortage. As of 2023, 77% of them reported facing talent shortages, indicating a yearly increase in this percentage. The U.S. government has expressed concerns that by 2030, numerous industries, particularly the semiconductor sector, are projected to face a shortage of approximately 300,000 engineers and 90,000 skilled technicians (Burkacky et al., 2022). Thus, while hiring the right candidate for the appropriate role is important, however the main challenge for HRM seems to be retaining them in same company for a lengthy period (Kamalaveni et al., 2020). Over the past year, Malaysia has successfully held onto a 13% market share in the global chip testing and assembly sector, plus securing semiconductor investments for a total up to RM52 billion (Dermawan, 2023). The semiconductor industry, along with numerous other sectors, has faced significant challenges due to global economic and political instability, on

the other hand, the situation which were further intensified by the COVID-19 pandemic (Yunfeng et al., 2021).

Figure 1.3. Number of Job Opportunities in the Semiconductor Industry in Malaysia from 2015 to 2022
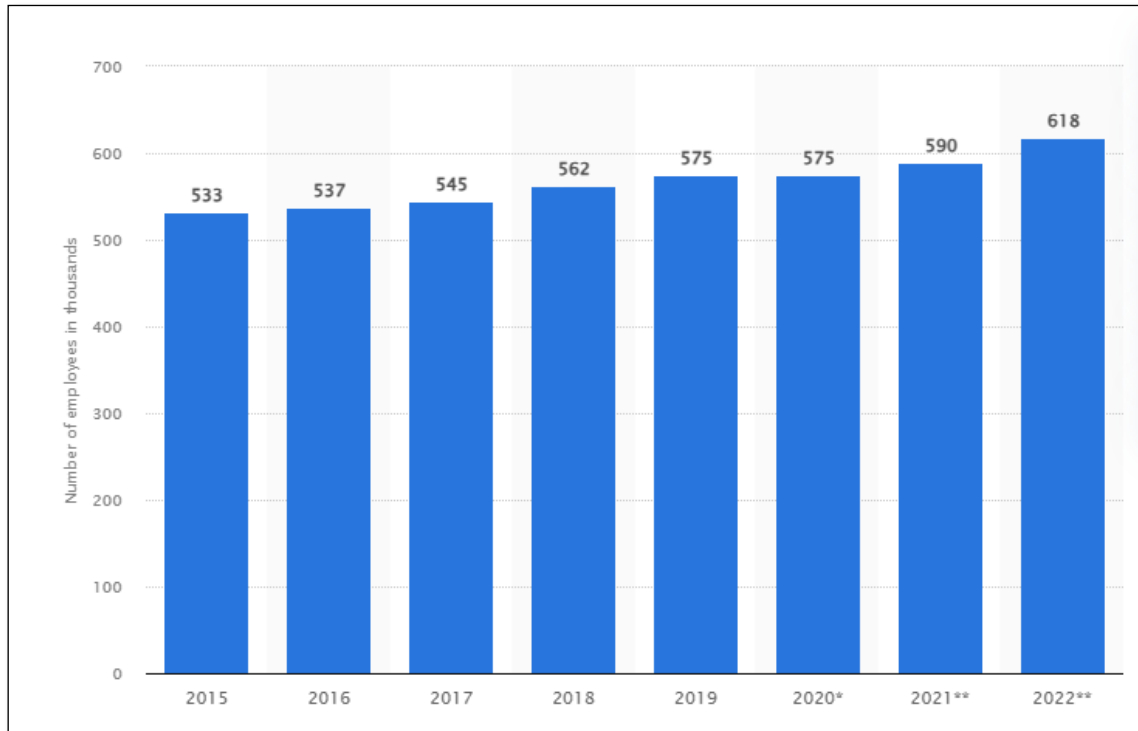
Source: Statista, 2023

However, retention factors vary across different industries (Pei Ling & Omar, 2020). Regarding employment in Malaysia, the semiconductor industry provided approximately 618,000 job opportunities in 2022, as illustrated in figure 1.3 (Statista, 2023). Notably, the semiconductor sector, which is one of Malaysia's key industries, contributes 25% to the nation's total gross domestic product (GDP) (Burkacky et al., 2022). As a result, these challenges have resulted in considerable disruptions in employment rates in Malaysia, this is highlighting the urge needs for talent retention in the semiconductor sector to enhance company productivity.

According to Storey et al. (2019), talent is defined as those employees who possess the necessary abilities, knowledge, and skills to effectively fulfill their roles and responsibilities. Marinakou and Giousmpasoglou (2019) further noted that talented individuals often lead by adapting to challenging circumstances and thinking innovatively. Retention is commonly viewed as a strategy to attract and motivate employees to stay with an organization until their responsibilities are fully realized or for an extended duration (Gallardo-Gallardo et al., 2020). Talent retention is a strategic plan by organization to prevent their talented employee's departure (Babatundel & Onoja, 2023). This meaning that HRM need adopting policies and practices designed to deepen talented employees' commitment to their companies, encouraging them to remain employed for longer periods (Bin et al., 2022). In conclusion, companies must often dedicate considerable time and resources to train employees who are expected to develop and provide ongoing value to the organization (Al Badarneh et al., 2019).

As the market grows and experiences a shortage of skilled and qualified workers, businesses are likely to face substantial challenges in the next 10-20 years. If a company cannot retain a talented employee, it risks losing essential knowledge and skills, incurring wasted time, and need to bear increased costs and resource expenditures (Haque et al., 2020). This can lead to a destabilized environment for the remaining workforce,

which may further impact company performance (Paulsen, 2021). Research indicates that a company's performance is largely dependent on its employees' performance, particularly in maintaining a competitive edge, especially within the semiconductor industry (Wang et al., 2019). However, these literature reveals a gap in comprehensive studies focusing on the factors influencing talent retention specifically within Malaysia's semiconductor sector.

Gaining technological advantages is equally important as retaining talent (Deeba, 2020). For instance, the Malaysian government is actively pursuing advanced technologies to shift towards Industry 4.0, with the goal of enhancing its position in the global market (Randstad, 2023). This shift underscores the need for individuals with specialized skills, abilities, and experiences to navigate and adapt to these technological changes (Sima et al., 2020). According to the Malaysian Department of Statistics, the semiconductor sector recorded the highest employee turnover rate in 2022, with engineers making up 65% of the talent shortages (MIDA, 2023). While the semiconductor industry stands to gain from technological investments in new production facilities, this strategy alone is insufficient to overcome the skilled labor deficit and may potentially exacerbate it (Burkacky et al., 2022). The World Economic Forum predicts that by 2025, about half of all workers will need to learn new skills due to the introduction of new technologies (Li, 2022). Consequently, these developments are forcing HRM to tackle the challenges of attracting and keeping skilled workers (NIST, 2022).

In Malaysia's semiconductor industry, factors such as employee loyalty, engagement, career development, rewards management, and a sense of belonging are among the most significant influences on employee retention (Ibrahim I., 2021). Thus, there is an urgent need for HRM to invest in developing skilled and talented staff, which will not only enhance company performance but also contribute to economic recovery (Diah et al., 2020). These challenges cover various aspects of HRM functions including hiring and selection processes, job satisfaction levels, the quality of management-employee engagement, and working conditions (Elrehail et al., 2019).

In a conclusion, a business organization must make a sincere effort to motivate employees to find fulfillment and happiness within the contemporary workplace (Floeck, 2023). This research aims to bridge this gap by examining the dynamics of employee loyalty, engagement, career development, and rewards management as they pertain to talent retention in this critical industry (Barman et al., 2023). It seeks to understand the unique challenges faced by the semiconductor industry in Malaysia, including high turnover rates and the demand for skilled labor, and how these factors can be mitigated through effective human resource management strategies, providing organizations in this industry with valuable insights to formulate effective talent management strategies in Malaysia. beauty industry, renowned as one of the largest globally, offers a diverse array of products, including cleansers, toners, serums, moisturizers, and more. Characterized by its dynamic nature, this industry consistently introduces a plethora of innovative beauty products that undergo continuous refinement. The skincare segment is experiencing rapid growth, emerging as a dominant force in the market and garnering significant popularity (Ruslim et al., 2022).

Problem Statement

In today's landscape, basically every organization operates with the aid of technology, yet it is the human workforce that navigates and utilizes this technology effectively. For HR professionals, the greatest challenge in this competitive era is the recruitment and retention of talent suited for the 21st century. Jnaneswar (2020) highlighted the necessity for organizations to have talented employees who effectively utilize their skills, experience, and knowledge at work, thus ensuring strong performance and helping to achieve organizational objectives. Employees are considered the cornerstone of any organization, essential for seamless operations, fostering innovation, and maintaining a competitive stance in the market, as Rasool et al. (2019) observed. This indicates that employees hold substantial leverage, especially in sectors with high turnover rates (Umesh et al., 2023). Therefore, the retention of existing staff is crucial for the ongoing sustainability and resilience of businesses, according to Kossek and Kelliher (2023). As industries increasingly adopt new technologies (MIDA, 2023), addressing talent retention challenges and implementing effective talent management strategies are becoming fundamental to the human resource management framework.

Survey done by Robert Walters (2020) cited by Huong (2023) has revealed that 60% of local semiconductor companies are having a high voluntary turnover rate in Malaysia. Luther (2021) identified, in general thumb of rule, any voluntary turnover rate greater than 10% is regarded high; similarly, employee retention rates of 90% or higher are considered good. Thus, high voluntary turnover rate can affect company expenses (Guerra et al., 2023). This is evidenced by Guerra, et al (2023), predicting that replacing a salaried employee can cost between 6 to 9 months of their salary. For an employee earning RM60,000 a year, this equates to RM30,000 to RM45,000 in recruitment and training expenses. In their studies further emphasize that company financial burden fluctuates depending on employee level of seniority. Similary, another survey has been conducted 61% of Malaysians plan to seek new employment within the next year—the highest rate among countries surveyed, including Singapore, Australia (48%), New Zealand (50%), and the UK (55%) (Kadiresan et al., 2019). In the study found that the primary reason cited for leaving jobs in Malaysia is a lack of career advancement (36%), followed by insufficient recognition or appreciation (27%) and inadequate training opportunities (26%). Yeo (2020) has further delved into study and revealed that additional factors contributing to employee turnover include insufficient compensation increases, poor management, feelings of being overworked, and a lack of flexibility.

Figure 1.4. The Latest Recruitment and Retention Trend in Malaysia
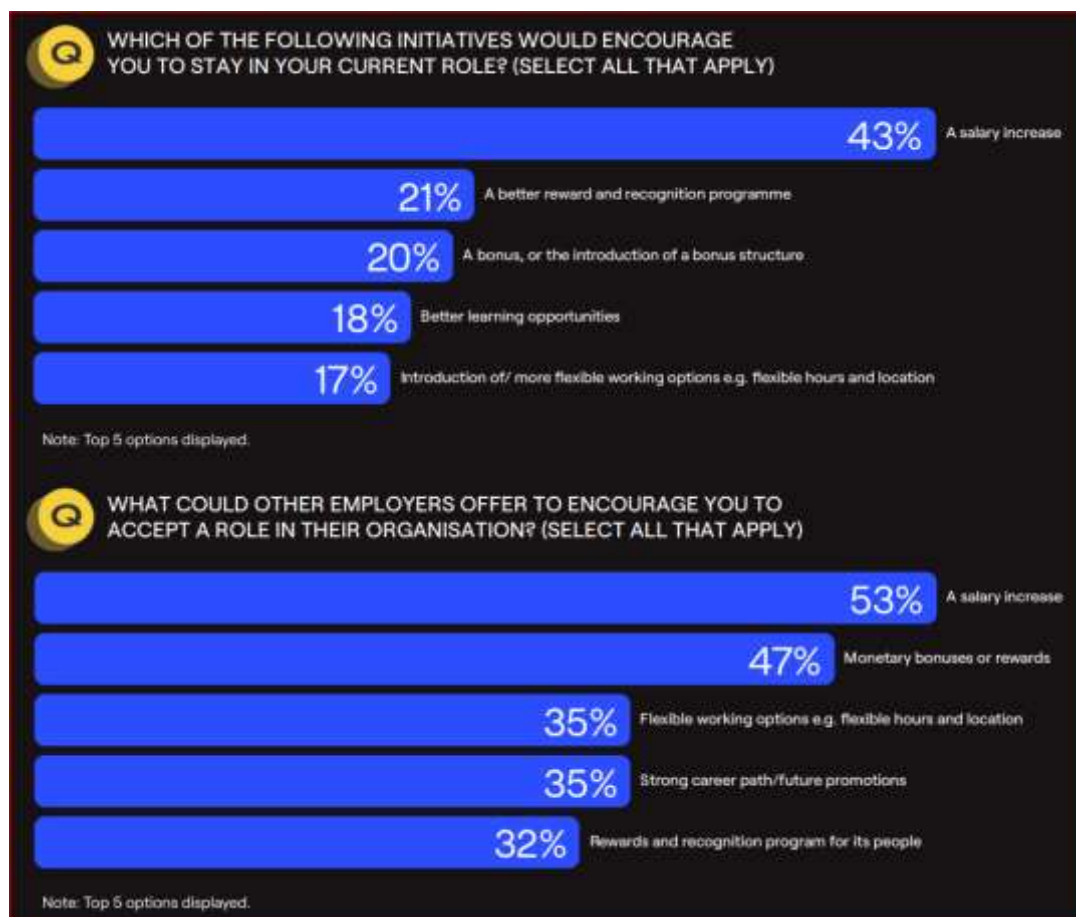
Source: Employment Hero, 2023

The latest figures from Employment Hero, detailed in figure 1.4, show that 43% of employees expect a salary increase to stay in their current positions. Furthermore, 21% of employees are looking forward to improved rewards and recognition programs, while 20% seek bonuses. Clearly, competitive salaries play a crucial role in employee satisfaction and are a significant factor in their decisions to remain with an organization (Jing et al., 2023). This data underscores the importance of talent retention as a primary concern for most organizations. However, based on all of the studies conducted, the generalized reasons

for turnover provided might not fully capture in different sectors, including the semiconductor industry (Ramalingam et al., 2024).

IW (2023) has conducted a quantitative approach in Malaysia semiconductor industry, which collecting the intention of 600 employees to stay in current company, however the result showed a concerning trend emerged. The survey found that 56% of these employees expressed their intentions to leave their current companies due to dissatisfaction with pay, followed by limited career advancement opportunities (40%) and lack of training and employee development (32%). This insight has revealed a few significant worries, as failing to retain employees leads to higher turnover rates, according to Walid et al. (2021). Due to the strong demand and the emergence of Industry 4.0, the semiconductor industries are also grappling with a shortage of skilled workers, adding another layer of challenge in attracting qualified employees. Therefore, retaining high-performing and skilled employees for the long term has become a priority for many organizations and a critical differentiator in human resource management strategies to address these issues (Marc, 2021).

The topic concerning talent retention had been accomplished via many researchers, however few studies conducted in Malaysia semiconductor industries. Thus, this study aims to fill the gap in the existing literature by identifying and analyzing the key factors that influence talent retention in Malaysia's semiconductor industry, thereby providing industry stakeholders with actionable insights and strategies to mitigate the talent crisis. By addressing this critical issue, the study seeks to contribute to the long-term sustainability and success growth of Malaysia's semiconductor industry, ensuring its position as a leader in the global technology landscape.

Research Objectives

The primary goal of this study is to explore the key factors that affect talent retention within the semiconductor industry in Malaysia.

RO1: To investigate the influence of employee career development on talent retention within the Malaysian semiconductor industry.

RO2: To investigate the influence of employee engagement on talent retention within the Malaysian semiconductor industry.

RO3: To investigate the influence of reward management on talent retention within the Malaysian semiconductor industry.

RO4: To investigate the influence of work-life balance on talent retention within the Malaysian semiconductor industry.

Literature Review

Global Context of Talent Retention

In the current global corporate environment, it is important for companies to attract highly skilled employees. (Salgado et al., 2020). Although technology is widespread in many companies, human resources are still essential for deploy this technology in efficient way (Kamalaveni et al., 2020). Singh (2019), conducted correlational and mediation analyses, highlighting that human resources are crucial for gaining a competitive edge, playing a central role in a company's sustainability and growth, as evidenced in the correlational analysis. Talent retention is now recognized as a global concern (Mahadi et al., 2020). And Korn Ferry reported that by 2030, more than 85 million jobs could be unfilled because employer have difficulties to search skilled talent to fill for it. In the post-COVID-19 context in global, however employee retention is a critical issue worldwide. As highlighted by Roy (2021), before the pandemic, an estimated 1.9 million US employees left their jobs monthly. However, after COVID, this number increased to 3.5 million employees leaving their jobs monthly (Khalil et al., 2023). According to Roy's research, some US companies'

failure to retain employees is mainly due to a lack of focus on work/life balance and employee recognition. Many organizations are actively exploring various retention strategies to address challenges associated with employee turnover. Thus, due to no standard HR practices for retaining talent, therefore establishing regulations and practices is essential for managing and keeping top talent (Kamalaveni et al., 2020).

As economic trends example like globalization, inflation, and privatization evolves, these have significantly impact talent retention as well (Alsakarneh et al., 2023). Organizations need to meet employee needs and ensure their satisfaction in order to retain talent (Salgado et al., 2020), and create the right conditions to prevent employee turnover (Alsakarneh et al., 2023). Thomas et al. (2023), has been highlighted that employers must respect and nurture the knowledge, competencies, skills, and abilities of their employees to retain talent. Bayan Innovation Group (2023), discovered that organizations with a retention rate of 60% and higher tend to have higher retention levels, enabling them to maintain a talented and dedicated workforce. This, in turn, can significantly reduce recruitment and training costs (Muriithi & Charles, 2023). Ali Gohar et al. (2023), also noted that employers can decrease recruitment expenses and retain a skilled workforce by keeping talented employees. This is because effective retention strategies reduce the need for additional recruitment and training efforts, making such strategies crucial for achieving organizational objectives. They directly influence profitability and, therefore, the overall goals and objectives of an organization. Nonetheless, there is limited research on Malaysia semiconductor industry. Thus, this study serves the purpose to focus on Malaysia semiconductor industry to see whether the findings will fit with previous studies.

Malaysia Context of Talent Retention

The Malaysian labor market has transformed from transaction nature to one that accommodates the unique motivations and aspirations of individuals (John, 2024). As of now, Malaysian employers now adopt a "talent-first" strategy, which is prioritize the understanding and fulfillment of personalized employee goals such as flexible working conditions, career progression, and training opportunities. In the post-COVID-19 context in Malaysia, talent retention has become challenging due to the demand for on-site employment conflicting with employees' desires for flexible working arrangements. Particularly, many young employees prefer flexibility and tend to change employers frequently until they find a suitable work environment (HR Asia, 2023). This has led to issues in sectors like retail, hospitality, ICT, private education, manufacturing, and professional services. Shamsuddin Bardan from the Malaysian Employers Federation has emphasized the importance of retaining youth to avoid a void in talent development, urging companies to balance demands to maintain productivity and competitiveness. The pandemic accelerated the adoption of remote work and flexible arrangements, which have proven to increase employee satisfaction and productivity, reduce road fatalities, and lower operational costs. According to Adobe's 2021 Future of Time report, 44% of employees worldwide enjoy some flexibility in their work, 23% have full flexibility, and 33% have none. Companies that have successfully adapted to these changes report higher employee satisfaction and efficiency, underscoring the need for effective retention strategies to address job-hopping and nurture future talents. Therefore, an effective communication and effort are developed to meet these personal needs, these are crucial for companies that want to stand out and thrive in a competitive employment market.

Several of factors within the Malaysian context contribute to the challenges of retaining talent specially Malaysia is a developing country. Recently, numerous Malaysian researchers have explored talent retention and the various factors influencing it. Key studies include those by (Ibrahim, et al., 2019; Chong and Ong, 2019; Dalayga, et al., 2021; Merican et al., 2022). These studies investigate the various challenges associated with retaining talent across different industries in Malaysia. Despite the Malaysian government's effort to set the minimum wage at RM 1,500, the cost of living remains high in Malaysia (Nina, 2023). For example, a study by Dalayga et al. (2021) in Malaysia's private healthcare sector highlighted the shortage of skilled healthcare professionals and examined the factors influencing talent retention among healthcare workers during the Covid-19 pandemic. Based on their findings talent retention rate: one in five employees quit their jobs during the pandemic, due to poor pay, and burnout. Likewise, Ferreira and Potgieter (2021), examined talent retention issues such as low pay and work overloaded within the Malaysian hospitality industry. However, only a few researchers have examined employee retention within the semiconductor

industry in Malaysia. Jo and Kim, (2019), noted that is a significant concern in both the global and Malaysian manufacturing sectors. Cheah, et al. (2023) conducted research on several semiconductor companies located in Southern Malaysia and concluded that employee attrition acts as a significant detriment to businesses, slowing down productivity due to the absence of experienced and talented staff. Additionally, the continual need for recruitment was identified as financially burdensome due to high associated costs. Her analysis highlighted that the expense of replacing an employee could amount to 1.5 to 2.0 times the annual salary of that position. Therefore, there is an urgent need for a detailed study on the factors that influencing talent retention specifically within the Malaysian context. This research will particularly focus on the semiconductor industry, thereby addressing a significant research gap identified in previous studies concentrated on different industry segments (Hammadi et al., 2020; Allen & Vardaman, 2021). The goal is to continue enhance the body of knowledge in this specific area.

Factors Influencing Factors That Affect Talent Retention.

Employee Career Development

In the term of employee career development whereby those companies establish formal strategies to secure a workforce that is skilled and experienced when needed (Wolfswinkel & Enslin, 2020). Rachmawati, et al. (2021) conducted research recently has described employee career development as a strategic program that serve the purpose of enhancing and planning individuals' careers to improve their quality of life in the future. Cheng et al. (2023), strongly believed that competitive market nowadays, companies must foster a work environment that promotes employee career development and growth. In the study further they discuss that Malaysian employees perform between their ambitions for higher salaries and prestigious job titles against their expectations for a positive work experience. Employees actively seek diverse opportunities for job development to advance their careers, often leading to job changes when appealing prospects arise (Yousuf and Ahmed, 2019). However, this is differed with Randstad Malaysia, which surveyed 517 locally based employees and job seekers, reveals that a majority of 55% of respondents prefer to remain in fulfilling roles despite limited opportunities for career advancement. This sentiment is notably strong among younger employees, with 44% of Generation Z and 43% of Millennials expressing contentment with their current roles without a desire for upward career mobility (Sharen, 2024).

Work-Life Balance

According to Budhiraja et al. (2022), has highlighted that work-life balance as the capability of individual to dedicate adequate time and energy to personal activities, including sports, hobbies, social interactions, and other personal extracurricular interests. The study further explains that front office employees highly emphasize work-life balance; however, long hours and uncertain shifts have prompted them to resign due to the heavy workload. In today's competitive global environment, employees across various industries face significant work-life balance challenges. Herrera and Proff (2023) have noted that teachers suffer physical and mental stress from difficulties in maintaining work-life balance due to workload hectic. Kethan et al. (2023) has also observed that employees in the Indian IT sector face demanding work conditions, high workloads, long hours, and strict deadlines that continually challenge them. Matzner-Heruti (2015) highlighted that excessive workloads not only negatively affect personal lives but also lead to high turnover rates, as many employees hesitate to stay in such demanding environments. However, some companies have realized that effectively addressing work-life balance issues can enhance talent retention. These organizations are adopting innovative human resources strategies, including flexible work schedules, comprehensive leave policies, adjustable working hours, and employee assistance programs to improve employee satisfaction and retention (Fasuyi & Adeyemo, 2023).

Rewards Management

The most common rewards found in organizations are monetary and often extrinsic rewards. Extrinsic rewards are financial incentives provided by organizations to their employees. These rewards are called "extrinsic" because they are external to the inherent nature of the job itself, and their size and value are determined by management (Hassan & Govindhasamy, 2020). In their studies have further explained that,

traditionally, extrinsic rewards have been very important and include components such as base salary, bonuses, commissions, and other financial benefits. They have highlighted that most employees commonly seek better compensation, typically hoping for improved pay and benefits, influenced by factors like the cost of living. The importance of a strong compensation plan in keeping employees should not be overlooked. Effective retention strategies rely on an employer's ability to improve their compensation practices and ensure they are competitive with, if not should have better than those of their pharmaceutical industry peers (Gist-Mackey et al., 2023). Every employee aims to ensure that their compensation is fair and align with their knowledge, experience, and skills (Noko & Nwuzor, 2021). Equitable and fair compensation is crucial for companies to effectively retain and motivate their workforce (Venketsamy & Lew, 2022; Bhavika et al., 2023). In their findings indicating extrinsic rewards act as a driving force for employee engagement within a company. They lead to increased productivity and the production of high-quality goods and services. Additionally, such rewards help in minimizing work errors, reducing accident rates, and building employee loyalty towards the organization (Kim & Jo, 2023).

Intrinsic rewards are harder to describe as they are not directly from the job itself and are heavily influenced by the employee's personal views and feelings (Manzoor et al., 2021). These rewards are intangible and vary greatly between different employees. They fall outside management control and are intimately linked to employee job satisfaction (Narayanan et al., 2023). Intrinsic rewards can be divided into two main types: physical and non-physical, with each type enhancing the other, however based on the study from Mohammed & Farah (2020), argued that intrinsic rewards are not as significant as extrinsic reward. Physical intrinsic rewards include tangible elements of the work environment like the noise level, workspace layout, and ergonomic features, study conducted by Alotaibi (2024), proven that physical intrinsic reward have positive impact on employee retention. Therefore, management can boost productivity in the workplace by implementing new equipment and technologies that assist employees in performing their duties more effectively (Adiwinata et al., 2022). On the other hand, non-physical intrinsic rewards focus on intangible elements such as the general work environment, the sense of purpose felt within the organization, and the social interactions that take place among colleagues at work (Skopak & Hadzaihmetovic, 2022). A positive work environment, however, is characterized by supportive colleagues and cooperative coworkers, is a key factor in retaining employees. Employers who encourage and assist their employees in working effectively and efficiently are crucial in creating and maintaining this positive atmosphere (Mlilo et al., 2022).

Employee Engagement

Rajashekar and Jain (2023) have been suggested that organizations that foster employee engagement, such as creating a positive work environment, can promote positive emotions like involvement and personal pride. This, in turn, leads to better organizational performance, lower employee turnover, and enhanced well-being of employees. A study conducted by Shen and Ren (2023) investigates the psychological elements of personal engagement and disengagement at work. By interviewing employees at an architecture firm, the study found positive influence of employee engagement and managerial on employee retention in the workplace (Siang et al., 2018). Cheng et al. (2023) define disengagement as employees distancing themselves from their job roles, which involves individuals withdrawing and defensively shielding themselves from their role responsibilities, often resulting in subpar performance. There are three critical psychological conditions linked to employee engagement and disengagement during work: safety, meaningfulness, and availability (Shen & Ren, 2023). In their roles, both professionally and personally, individuals generally consider three key questions:

How meaningful is it for me to dedicate time to this task?

Is it safe for me to engage in this activity?

Am I available to commit to this task?

The research concluded that employees were more engaged at work when their roles provided substantial psychological meaningfulness and safety, and when they felt psychologically prepared to engage. In a study validating Shen and Ren's (2023) model, conducted by Swazan and Youn (2023), it was found that

meaningfulness, safety, and availability significantly influenced employee engagement. The study highlighted positive influences on meaningfulness such as job enrichment and role suitability, and on safety through positive relationships with colleagues and supportive managerial staff. On the other hand, while resources were positively correlated with psychological availability, engagement in external activities was seen as a detractor (Almonawer et al., 2023). As a result, meaningfulness was identified as the most significant factor in influencing various employee engagement outcomes.

Research Framework

Figure 2.1. Conceptual Framework
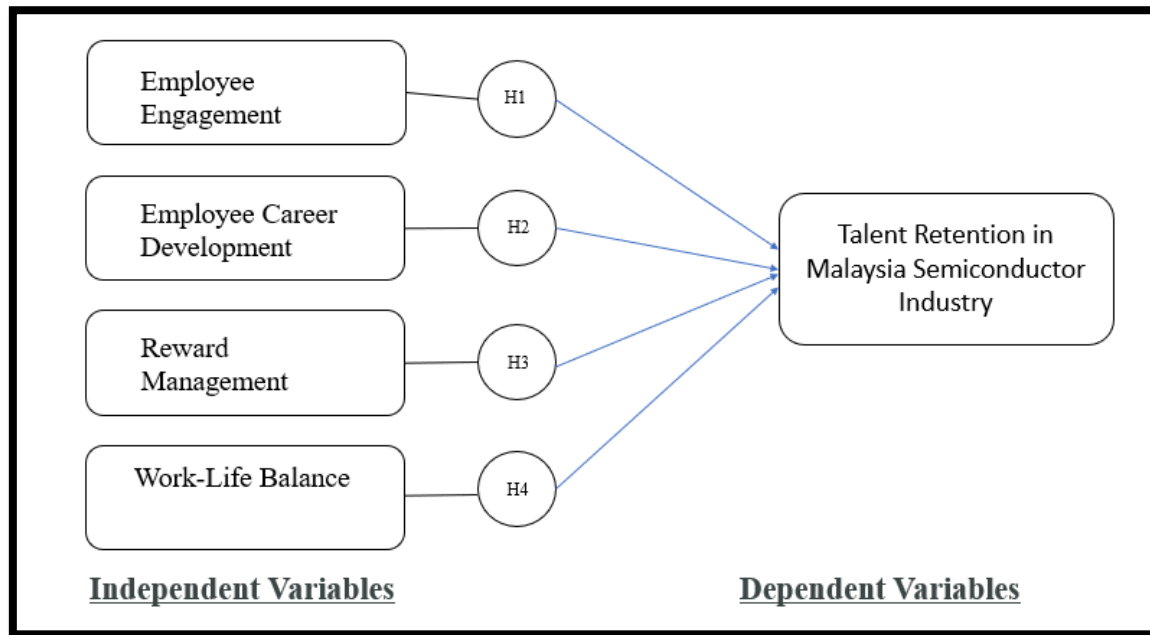
Review of Relevant Conceptual Framework

Schlosser et al. (2022), has been highlighted that employees often leave for reasons that gone beyond their specific job roles. Thus, organizations need to thoroughly investigate the underlying causes of employee turnover in order to formulate successful retention strategies. There are various approaches to studying employee retention, each focusing on different aspects of intentional employee retention. The theories below serve as the basis for this research.

Maslow's Hierarchy of Needs

Figure 2.2. Maslow's Hierarchy of Needs
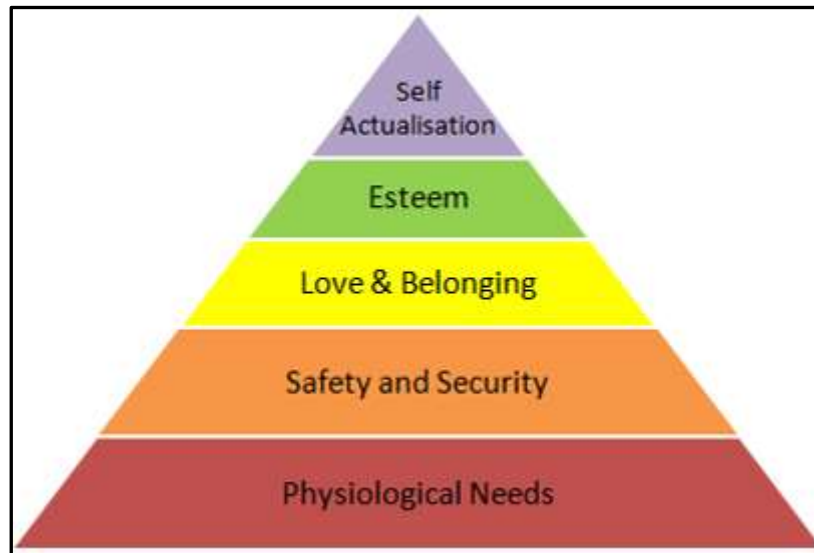
Source: Maslow, 1943

In a 1943 paper, Abraham Maslow presented his hierarchy of needs, which is illustrated in figure 2.2. He described five essential human needs, beginning with the most basic: physiological needs, followed by safety, love, esteem, and eventually reaching self-actualization (Maslow, 1943). However, he later clarified that meeting these needs is not an all-or-nothing process. He acknowledged that his initial statements might have given the wrong impression that one need must be fully satisfied before the next one becomes pertinent (Ihensekien & Joel, 2023). However, Syed (2020), suggests that Maslow's theory can be effectively adopted in the workplace by identifying strategies to motivate employees through fulfilling their needs. As Syed highlighted, the revision of Maslow level of needs separating level into table 2.1:

Table 2.1. Maslow Level of Needs

Physiological needs	The fundamental needs of employees must be met, including salary, food, water, holidays, quality time spent with family and a pleasant work environment (Bagas, 2020).
Safety and Security needs	Employees require a sense of security, encompassing protection from job loss, work accidents, threats, and injuries. Therefore, companies should provide essential benefits such as health insurance. Once these needs are fulfilled, employees can progress to higher levels of needs (Syam & Achmad, 2022).
Social needs (Love and Belonging)	Healthy social interactions with co-workers and management are essential, as humans are inherently social creatures. Employees must work in teams and engage with each other to complete their duties and responsibilities (Ihensekien & Joel, 2023).
Esteem needs	Employees need self-respect and recognition from others. These needs include having their job performance valued, acknowledged, and rewarded (Umi & Enjang, 2022).
Self-actualization needs	Employee want to unrevealed their potential, by this, employers should be providing training and development plan, this is to ensure their career development and achievement (Achmad & Yulianah, 2022).

Fulfilling these needs is crucial for retaining employees. The application of this theory has proven to be incredibly valuable for managers or leaders in creating practices that meet employees' needs as a form of motivation. Maslow's hierarchy of needs has received both praise and criticism. Orobosa & Arimie (2023), outlines Maslow's assumptions, including that only unmet needs influence behavior, needs are ordered from basic physiological needs to complex self-actualization needs, and higher-level needs emerge only when lower-level needs are satisfied. However, Orobosa & Arimie critics argue that Maslow's model is overly rigid and simplistic. Different people may prioritize their needs differently, and it is unrealistic to assume that needs progress in a strict hierarchy. Maslow himself expressed doubts about the validity of a strictly ordered hierarchy. Additionally, they suggest that it is impossible for humans to follow a regimented process to completely satisfy any level of needs. He acknowledges that satisfaction at each level may decline at varying rates, differing from person to person. One implication of this theory is that it enables organizations to provide support for employees coping with stress during difficult times. Thus, Maslow's theory offers insights for management to take responsibility and develop proper retention plans that cater to employee needs. Failure by management to develop a strategic plan could lead to employee frustration, thereby reducing job satisfaction and leading to disengagement from the organization. By (Ihensekien & Joel, 2023) ensuring that employees' needs at all levels are met, organizations can enhance retention, productivity, and overall performance.

Herzberg Two-Factor Theory

According to Herzberg's theory, the success or failure of an organization which is influenced by two mains of factors: motivators factors and hygiene factors. Motivation can be understood as the act or process of providing someone with reasons or incentives to do something. It arises from the interplay between conscious and unconscious factors, such as the intensity of personal needs and desires, the value of rewards and incentive and supervision for achieving specific goals, and individual and peer expectations (Lu, 2023). The effects of motivation on a person's behaviour are significant, affecting the intensity, direction, and persistence of their actions, potentially leading to excellent outcomes when effectively harnessed (Thant, 2022). Therefore, motivation serves as a significant force, driving and guiding employees towards initiating or continuing tasks to meet personal needs and reinforce desirable behaviour (Miah & Hasan, 2022). From a psychological viewpoint, motivation is a process that, by addressing psychological or physiological needs, enhances an individual's performance, behaviour, and productivity towards achieving set objectives (Ling et al., 2023). Employees are the backbone of an organization, and without rewards and commitment to the organization, they lack the motivation to excel in their roles (Mustafa et al., 2022). Motivated employees who face job dissatisfaction tend to put less effort, produce lower quality work, and seek to escape their workplace, potentially leaving the organization if possible (Ifedi et al., 2024). Nonetheless, motivated employees are more creative, productive, and capable of producing higher quality work, outperforming their unmotivated counterparts (Uka & Prendi, 2021). Without motivated employees, an organization cannot function effectively. Therefore, it is crucial for employers to monitor and address high turnover rates and low motivation levels. Herzberg's theory highlights the importance of adopting strategies to help in employee retention. Offering competitive salaries, flexible working environments, and fostering a mature organizational culture are vital components of an effective employer branding strategy, ensuring long-term benefits for employers (Teoh, et al., 2023).

Herzberg elaborated that hygiene factors, while not the primary drivers of worker satisfaction, play a crucial role in meeting employee expectations and preventing job dissatisfaction (Van Pham & Nguyen, 2020). These factors encompass organizational policies, the quality of supervision, the work environment and conditions, relationships between employees and management, salary levels, and peer relationships (Iqbal et al., 2017). Yousaf (2019), conducted a study on Herzberg's Two-Factor Theory of Motivation, focusing on job satisfaction across various retail stores in Malaysia. This research explored the impact of motivational factors, such as monetary rewards and high salaries, on job performance and satisfaction. Findings indicated that sales personnel and those in sales-related roles placed more importance on hygiene factors than on motivational factors. Despite the influence of high salaries on job satisfaction, employees prioritized working conditions, organizational policies, and sales targets set by the company (Khalil et al., 2022). However, according to Alex et al. (2021), hygiene factors alone cannot motivate and retain employees.

When Herzberg's theory is used solely for talent retention, it can actually produce negative effects over the long run. This is because motivators are more complex, subjective, and often too elusive to measure accurately. The study suggests that organizations should develop reward schemes that address the four motivational factors highlighted by employees: monetary compensation, working conditions and environment, recognition, and company policies.

2.4 Hypothesis Development

H1: Reward management has a positive and significant influence on talent retention within the semiconductor industry in Malaysia.

H2: Employee career development has a positive and significant influence on talent retention within the semiconductor industry in Malaysia.

H3: Work-life balance has a positive and significant influence on talent retention within the semiconductor industry in Malaysia.

H4: Employee engagement has a positive and significant influence on talent retention within the semiconductor industry in Malaysia.

Research Methodology

Research Design

The research design of this study aims to evaluate the influence of reward management, employee career development, work-life balance, and employee engagement on talent retention within semiconductor companies in Malaysia. To meet the research objectives and align with the questions outlined in Chapter 1, this study employs a quantitative, data-driven approach to examine the relationships between the independent and dependent variables (Wickneswary et al., 2024). The details of the research design will be elaborated and connected to the conceptual framework (Lee et al., 2023). Effective data processing and analysis are crucial for conducting thorough research. This chapter will address data collection, sampling design, population analysis, and sample size determination. It will also delve deeper into the nature and investigative methods of the study (Fei et al., 2024). The research will utilize and evaluate various methodologies including data collection techniques, sampling methods, questionnaire design, and analysis techniques like pilot testing, which includes factor analysis and reliability testing, to ensure their suitability for this research (Hamed, 2021). This section will also provide a brief overview of the measurement process in conclusion. The sampling unit for this research is the employee within the semiconductor industry (Ahmed et al., 2022). A stratified random sampling method was used to select study participants, guaranteeing that all elements of the population are accounted for and each has an equal chance of being selected as a research subject (Azhari et al., 2023).

Research design with sound good methodological practices from previous studies were used (Almonawer et al., 2023; Annathurai et al., 2023; Khalil et al., 2022; Gazi et al., 2024; Liew et al., 2024).

Data Collection Method

Data collection is an imperative phase in research, it is playing a crucial role in enhancing the quality of the findings by reducing possible errors throughout the project. It is crucial to allocate some quality time to data collection, as Berrami et al. (2021), points out that incorrect or poor-quality data can contaminate the reliability of research outcomes. In general, data collection techniques are often divided into two main categories which are Primary Data Collection Methods and Secondary Data Collection Methods. Hannah (2019), mention to achieve accurate research results, it typically involves collecting and analyzing data from various locations and populations. According to Mohajan (2020), data gathered using surveys will be analyzed to either support or challenge hypotheses through methods such as correlation analysis and reliability tests. This study will primarily utilize data from online questionnaire surveys for its analysis, following the methodology recommended by Nayak and Narayan, (2019).

Sample Size

Selected group of individuals or population targeted for research, as defined by Martínez-Mesa, et al. (2016) is sampling size. According to information as above, from the Statista Research department in 2023, the total number of employees in the Malaysian semiconductor industry was reported to be 640,000 as of 2023. Krejcie and Morgan (1970) presented a guideline as shown at table 3.1, the minimum required sample size for this study would be 384 samples.

Table Error! No text of specified style in document.**.1**

N	S	N	S	N	S
10	10	220	140	1300	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note.—N is population size.   S is sample size.

Source: Krejcie and Morgan, 1970

Research Instruments

Questionnaire Design

In a recent study, an online questionnaire was primarily used as a tool, consisting mainly of closed questions in which respondents were asked to select the most suitable answer for each question, with numbers assigned to each question (Stian & Desai, 2019). The questionnaire in this study will be organized based on the dependent variable (talent retention) identified in Malaysia's semiconductor industry and designed in simple English to avoid any confusion. It will include three sections. Section A will collect respondents' demographic data such as age, gender, race, education level and length of service. Section B will focus on the dependent variable as such talent retention, and Section C will address the independent variable consists of employee career development, work-life balance, reward management and employee engagement. Both sections will contain five questions designed to identify the real factors that impact talent retention. Memmedova & Ertuna (2024), indicate that a 5-point Likert scale is particularly effective at accurately reflecting the respondents' true thoughts. Thus, this study will employ a 5-point Likert scale to evaluate the variables, understanding that the scale ranges from "5" for "Strongly Agree" to "1" for "Strongly Disagree," with "3" representing a neutral stance

Data Analysis

Demographic Profile

Table Error! No text of specified style in document..**2.** Respondent Demographic Profile (n=431)

Variables		**Frequency**	**Percentage (%)**
Gender	Female	326	75.6
	Male	105	24.4
Age	20-29	99	23.0
	30-39	230	53.4
	40-49	80	18.6
	50 years and above	22	5.1
Race	Malay	50	11.6
	Chinese	332	77.0
	Indian	49	11.4
Education Level	Certificate/SPM	11	2.6
	STPM/Diploma	60	13.9
	Bachelor Degree	307	71.2
	Master	53	12.3
Length of Service in current organization	<5 years	209	48.5
	6 yrs to 10 yrs	114	26.5
	11 yrs to 15 yrs	86	20.0
	> 15 yrs	22	5.1

The online survey on table 4.1 included responses from 431 senior management individuals in the Malaysian semiconductor industry. Most respondents are female (75.6%, 326 individuals), while males make up 24.4% (105 individuals). The age distribution is as follows: 30-39 years (53.4%, 230 individuals), 20-29 years (23.0%, 99 individuals), 40-49 years (18.6%, 80 individuals), and 50+ years (5.1%, 22 individuals). In terms of race, the majority are Chinese (77.0%, 332 individuals), followed by Malays (11.6%, 50 individuals) and Indians (11.4%, 49 individuals). Regarding education, 71.2% (307 individuals) hold a Bachelor's degree,

12.3% (53 individuals) have a Master's degree, 13.9% (60 individuals) hold STPM/Diploma, and 2.6% (11 individuals) have a Certificate/SPM. As for length of service in their current organization, 48.5% (209 individuals) have been there for less than 5 years, 26.5% (114 individuals) for 6-10 years, 20.0% (86 individuals) for 11-15 years, and 5.1% (22 individuals) for more than 15 years.

Reliability Analysis

The table 4.2, presents the reliability analysis of various variables using Cronbach's Alpha, which measures internal consistency. The talent retention, with a Cronbach's Alpha of 0.905 across 5 items, shows excellent internal consistency. Similarly, employee career development (0.902), work-life balance (0.951), reward management (0.939), and employee engagement (0.908). In this study, the Cronbach's Alpha for all variables is over value 0.60 (Olaniyi, 2019), as showed in table 4.2, indicating that each variable is consistently reliable in measuring their respective constructs.

Table Error! No text of specified style in document.**.2. Reliability Analysis Results**

Variable	Cronbach's Alpha	Number of Items
Talent Retention (DV)	0.905	5
Employee Career Development (IV1)	0.902	5
Work-Life Balance (IV2)	0.951	5
Reward Management (IV3)	0.939	5
Employee Engagement (IV4)	0.908	5

Principal Component Analysis

Generally, a KMO value above 0.6 is considered suitable for this purpose. According to prevailing interpretations, a KMO score of 0.6 is regarded as "mediocre." In accordance with Kaiser's (1970) findings, a KMO value of 0.6 is generally satisfactory, whereas a value exceeding 0.7 is seen as indicative of high quality. Each value in table 4.3 showed that the data exhibit a reasonable level of variance in the variables that may be attributed to underlying factors. For instance, the KMO values for different constructs are as follows: Talent Retention (0.817), Employee Career Development (0.878), Work-Life Balance (0.899), Reward Management (0.866), and Employee Engagement (0.801). These values indicate good sampling adequacy for these constructs. The Bartlett's Test of Sphericity yielded significant results, with p-values for all variables constructs found to be 0.000. Given that the p-value is below the commonly employed significance level of 0.05, it is appropriate to reject the null hypothesis, which posits that the correlation matrix is an identity matrix, as suggested by Kaiser (1970). In simple terms, this test provides evidence that the variables are indeed interrelated and thus suitable for the purpose of detecting underlying structures. The findings from both the KMO measure and Bartlett's Test indicate that the dataset exhibits feasible characteristics for conducting subsequent analyses.

KMO and Bartlett's Test		Talent Retention (DV)	Employee Career Development (IV1)	Work-Life Balance (IV2)	Reward Management (IV3)	Employee Engagement (IV4)
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.817	0.878	0.899	0.866	0.801
Bartlett's Test of Sphericity	Approx. Chi-Square	1479.612	1379.940	2188.365	1886.443	1596.567
	df	10.000	10.000	10.000	10.000	10.000

	Sig.	0.000	0.000	0.000	0.000	0.000

Pearson's Correlation Analysis

Table 4.4. Pearson's Correlation Analysis

Correlations

		Talent Retention	Work-life balance	Rewards Management	Employee Career Development	Employee Engagement
Pearson Correlation	Talent Retention	1	0.385	0.727	0.737	0.554
	Work-life balance	0.385	1	0.314	0.387	0.425
	Rewards Management	0.727	0.314	1	0.789	0.645
	Employee Career Development	0.737	0.387	0.789	1	0.764
	Employee Engagement	0.554	0.425	0.645	0.764	1
Sig. (1-tailed)	Talent Retention	.	0	0	0	0
	Work-life balance	0	.	0	0	0
	Rewards Management	0	0	.	0	0
	Employee Career Development	0	0	0	.	0
	Employee Engagement	0	0	0	0	.
N	Talent Retention	431	431	431	431	431
	Work-life balance	431	431	431	431	431
	Rewards Management	431	431	431	431	431
	Employee Career Development	431	431	431	431	431
	Employee Engagement	431	431	431	431	431

Table 4.4 showed that the rewards management has a positive correlation with talent retention (r = 0.727, p < 0.001), suggesting that with rewards has showed a positive correlation with talent retention. Employee career development also shows a strong positive correlation with talent retention, but it is moderately strong (r = 0.737, p < 0.001), indicating that employee career development is one of the crucial considerations for employees in achieving job satisfaction. Talent retention shows a moderate positive correlation with work-life balance (r = 0.385, p < 0.001) and employee engagement (r = 0.554, p < 0.001) indicating that improvements in these areas are related to better work-life balance. These findings suggest that better work-life balance, rewards management, career development opportunities, and employee engagement are associated with higher talent retention (Anderson & Martinez, 2023). Rewards management has a strong positive correlation with both career development (r = 0.789, p < 0.001) and employee engagement (r = 0.645, p < 0.001), implying that better rewards management enhances career development opportunities and employee engagement. Additionally, career development is strongly correlated with employee engagement (r = 0.764, p < 0.001), suggesting that better career development opportunities are associated with higher employee engagement. The results of the Pearson's Correlation Analysis reveal significant relationships between various aspects of the workplace and talent retention. All correlations are statistically significant (p < 0.05), with a sample size of 431 for each pair of variables.

Multicollinearity Statistics

Collinearity statistics in table 4.5, reveal moderate levels of multicollinearity, particularly for employee career development (VIF = 3.795) and employee engagement (VIF = 2.546), followed by rewards management (VIF = 2.684) and work-life balance (VIF = 1.234). According to Shrestha (2020) stated if the VIF values are ranging from 1 to 5, it means that the independent variables have moderately influenced each other and there is no issue on multicollinearity.

In summary, all these VIF values fall within the range of 1 to 5 (Mukaka, 2012), indicating moderate multicollinearity, which is not considered problematic.

Table 4.5. Multicollinearity Statistics

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Work-Life Balance	0.81	1.234
	Rewards Management	0.373	2.684
	Employee Career Development	0.264	3.795
	Employee Engagement	0.393	2.546
a. Dependent Variable: Talent Retention			

Multiple Regression

Model summary table 4.6, showed that correlation coefficient (R) is 0.783, indicating a strong positive relationship between the observed and predicted values of talent retention. This suggests that the model's predictions are closely aligned with the actual data. The R Square (R^2) value is 0.614, meaning that 61.4% of the variability in talent retention can be explained by the independent variables included in the model, such as work-Life balance, rewards management, employee career development, and employee engagement. R2 value between 0.33 and 0.67 indicates a moderated impact (Chin, 1998; Hair et al., 2013) Furthermore, the Adjusted R Square, which accounts for the number of predictors in the model, is 0.610. This adjustment provides a more accurate reflection of the model's explanatory power, confirming that about 61% of the variance in talent retention is indeed accounted for by the predictors. Lastly, the Standard Error of the Estimate is 0.6391, which indicates the typical distance between the observed values and the predicted values. A lower standard error suggests a better fit, and in this case, it implies that the model's predictions are, on average, within approximately 0.6391 units of the actual talent retention values. Overall, these

metrics collectively indicate that the regression model has a good fit and explains a significant portion of the variance in Talent Retention.

Table Error! No text of specified style in document.**.6 Model Summary of Regression**

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.783[a]	.614	.61	. 6391

Predictors: (Constant), Employee Career Development, Work-life Balance, Rewards Management, Employee Engagement

Dependent Variable: Talent Retention

The ANOVA table 4.7, provides important information about the overall significance of the regression model. The Regression Sum of Squares is 276.198, indicating the variation in Talent Retention that is explained by the model, while the Residual Sum of Squares is 173.997, representing the variation that is not explained by the model. The Total Sum of Squares is 450.195, which is the total variation in the data. The degrees of freedom for the regression model are 4, corresponding to the number of predictors, while the residual degrees of freedom are 426, calculated as the total number of observations (430) minus the number of predictors and one. The F-statistic, which is 126.912, indicates that the model significantly explains the variability in the dependent variable. Furthermore, the significance value (p-value) is less than 0.000, demonstrating that the overall regression model is statistically significant. In summary, the predictors (Work-Life Balance, Rewards Management, Employee Career Development, and Employee Engagement) collectively have a significant impact on Talent Retention, as confirmed by the high F-statistic and the very low p-value.

Table Error! No text of specified style in document.**.7 ANOVA Results**

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	276.198	4	69.050	126.912	<.000[b]
	Residual	173.997	426	0.408		
	Total	450.195	430	.334		

Dependent Variable: Talent Retention

Predictors: (Constant), Employee Career Development, Work-life Balance, Rewards Management, Employee Engagement.

Based on table 4.8, for Work-Life Balance, the unstandardized coefficient is 0.146, with a t-value of 3.865 and a p-value of less than 0.001. This indicates a positive and statistically significant influence on talent retention, supporting the hypothesis that better work-life balance enhances retention. Similarly, Rewards Management shows a strong positive effect on talent retention, with an unstandardized coefficient of 0.437, a t-value of 7.97, and a p-value of less than 0.001, confirming its significant positive impact. Employee Career Development also has a significant positive influence on talent retention, with an unstandardized coefficient of 0.581, a t-value of 7.707, and a p-value of less than 0.001, indicating that opportunities for career growth significantly enhance retention. On the other hand, Employee Engagement presents a different scenario. The unstandardized coefficient is -0.107, with a t-value of -2.074 and a p-value of 0.051. This result is marginally significant and suggests a negative relationship between employee engagement and talent retention, which is contrary to typical expectations. This implies that higher engagement might slightly

decrease retention when other factors are controlled for, possibly due to unmet expectations or burnout among highly engaged employees.

Table Error! No text of specified style in document.**.8 Coefficients of Multiple Regression**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-0.511	0.158		-3.231	0.001
	Work-Life Balance	0.146	0.038	0.129	3.865	0
	Rewards Management	0.437	0.055	0.393	7.97	0
	Employee Career Development	0.581	0.075	0.452	7.707	0
	Employee Engagement	-0.107	0.052	-0.1	-2.074	0.051
a. Dependent Variable: Talent Retention						

Table 4.9 illustrates the summary of the hypothesis results and reveals that most of the hypotheses in this research are reliable and statistically significant, with one exception. Specifically, the findings indicate that Rewards Management, Employee Career Development, and Work-Life Balance have a significant positive influence on talent retention in Malaysia's semiconductor industry. This conclusion is supported by the low p-values ($P < 0.001$) and high T-values associated with these variables, demonstrating their statistical significance.

Table 4.9. Summary of Hypothesis Testing Results

Hypothesis	Beta Coefficient	T-value	Significance Value ($p < 0.05$)	Results
H1: Rewards Management have positive and significant influence on talent retention in Malaysia's semiconductor industry.	0.393	7.97	P = <0.001	Accepted
H2: Employee Career Development have positive and significant influence on talent retention in Malaysia's semiconductor industry.	0.452	7.707	P = <0.001	Accepted
H3: Work-Life Balance have positive and significant influence on talent retention in Malaysia's semiconductor industry.	0.129	3.865	P = <0.001	Accepted
H4: Employee Engagement have negative and not significant influence on talent retention in Malaysia's semiconductor industry.	-0.100	-2.074	P = 0.51	Rejected

Discussion and Conclusion

Summary of the Research's Findings

H1: Rewards Management have positive and significant influence on talent retention in Malaysia's semiconductor industry.

The first hypothesis explored the impact of employee career development on talent retention in Malaysia's semiconductor industry. The findings affirmed that both intrinsic and extrinsic rewards significantly influence talent retention, consistent with recent studies by (Manzoor et al., 2021; Noko & Nwuzor, 2021; Gist-Mackey et al., 2023; Kim & Jo, 2023). The research identified a substantial correlation (ß=0.393, t >7.97, p<0.001), reinforcing the hypothesis that enhancing talent retention requires offering both types of rewards. Extrinsic rewards, which include base salary, bonuses, commissions, and other financial incentives, have traditionally been crucial. These rewards are particularly sought after by employees aiming for better compensation, often driven by factors such as the cost of living (Chawdhury et al., 2022). A varies of compensation plan is therefore essential for retaining employees. On the other hand, physical intrinsic rewards, such as new equipment and technologies that aid in job performance, positively impact employee retention. Non-physical intrinsic rewards, on the other hand, encompass intangible aspects like the overall work environment, a sense of purpose within the organization, and social interactions among colleagues. Management can enhance workplace productivity by incorporating these elements.

H2: Employee career development have positive and significant influence on talent retention in Malaysia's semiconductor industry.

The second hypothesis explored the impact of employee career development on talent retention in Malaysia's semiconductor industry. The findings (ß=0.452, t >7.07, p<0.001) affirmed that employee career development significantly influence talent retention, consistent with recent studies by (Yousuf and Ahmed, 2019; Wolfswinkel & Enslin, 2020; Rachmawati, et al., 2021, Cheng et al., 2023; Sharen, 2024). Recent research has characterized employee career development as a strategic initiative aimed at enhancing and planning individuals' careers to improve their future quality of life (Almuhatresh et al., 2022). It is widely believed that in today's competitive market, companies must cultivate a work environment that encourages employee career development and growth. The study further discusses that Malaysian employees balance their aspirations for higher salaries and prestigious job titles with their expectations for a positive work experience. Employees actively seek various opportunities for job development to advance their careers, often leading to job changes when attractive prospects arise. Although, this contrasts with findings from Randstad Malaysia, which surveyed 517 locally based employees and job seekers. The survey revealed that a majority of 55% of respondents prefer to remain in fulfilling roles despite limited opportunities for career advancement. This sentiment is particularly strong among younger employees, with 44% of Generation Z and 43% of Millennials expressing satisfaction with their current roles and no desire for upward career mobility.

H3: Work-Life Balance have positive and significant influence on talent retention in Malaysia's semiconductor industry.

The third research topic examined how the work-life balance influence talent retention in Malaysia's semiconductor industry. The findings (ß=0.129, t >3.865, p<0.001) affirmed that work-life balance significantly influence talent retention, consistent with recent studies by (Mendis, 2017; Gervais, 2021; Panda and Sahoo, 2021; Ali Gohar et al., 2023; Farrukh & Baqai, 2024). There is a significant and direct relationship between work-life balance and talent retention. Employers who neglect the importance of work-life balance for their employees' risk facing negative consequences for both the staff and the organization. This was evidenced in a study involving 85 middle-level managers at World Vest Base Sdn. Bhd. in Malaysia. Consequently, this research investigates how work-life balance influences talent retention within the Malaysian food industry, underscoring its importance in attracting and retaining a more skilled workforce (Isa et al., 2024). Flexible work schedules can significantly impact employees' decisions to stay in their positions, enhance their job satisfaction, and boost their loyalty, particularly for those who struggle to balance family responsibilities with long work hours. Furthermore, a study using a descriptive methodology was conducted to explore the relationship between work-life balance and talent retention in India's IT sector. The findings revealed that work-life balance could enhance loyalty, integrity, allegiance, and trustworthiness among professionals, which are crucial factors in employee retention.

H4: Employee Engagement have negative and not significant influence on talent retention in Malaysia's semiconductor industry.

The last research topic examined how the employee engagement influence talent retention in Malaysia's semiconductor industry. The findings (ß=-0.100, t <-2.074, p>0.51) affirmed that employee engagement is not significantly influence talent retention, which is not consistent with recent studies by (Rajashekar and Jain, 2023; Shen and Ren, 2023; Cheng et al., 2023). The recent studies propose that organizations promoting employee engagement through a positive work environment can foster emotions such as involvement and personal pride. This, in turn, leads to enhanced organizational performance, lower employee turnover, and improved employee well-being (Haque & Joshi, 2011). On the other hand, a study that examined the psychological elements of personal engagement and disengagement at work. Through interviews with employees at an architecture firm, they discovered that employee engagement and managerial support positively affect employee retention. Furthermore, in the study describe that disengagement as employees distancing themselves from their job roles, involving withdrawal and defensive behaviors, often leading to subpar performance. Their research concluded that employees are more engaged when their roles provide significant psychological meaningfulness and safety, and when they feel psychologically ready to engage (Josephine et al., 2018). The study emphasized that job enrichment and role suitability positively affect meaningfulness, while positive relationships with colleagues and supportive management enhance safety. Conversely, while resources were positively linked to psychological availability, participation in external activities was seen as a detractor. Meaningfulness was identified as the most crucial factor influencing various employee engagement outcomes.

Implications of the Study

This study makes a significant academic contribution by addressing the current knowledge gap using regression analysis to predict the relationship between factors such as reward management, work-life balance, employee career development, and employee engagement with talent retention in Malaysia's semiconductor industry (Chawdhury & Haque, 2022). This research paper will enhance the existing body of knowledge, serving as a valuable reference and a foundation for future studies. The findings from this study can be used to develop a more conceptual framework that includes mediating variables influencing employee motivation, commitment, and turnover intention. Retention has been a key focus in the field of human resource management (Jnaneswar, 2020), but research specific to Malaysia's semiconductor industry remains limited. This research offers several notable contributions on the theoretical front (Wai at al., 2024). By examining these factors in the semiconductor context, the research provides a detailed understanding of their influence and interconnectedness, thereby broadening the academic discourse and paving the way for further research.

Limitations of the Study

Researchers should be aware of several limitations when investigating the impact of reward management, work-life balance, employee engagement, and career development on talent retention in the Malaysian semiconductor industry. These limitations could influence the scope of the study and the interpretation of its conclusions. Firstly, the findings may be unique to the Malaysian semiconductor industry and may not be entirely applicable to other sectors or regions (Haque et al., 2022). The semiconductor industry might employ different approaches compared to other industries due to the high intensity of the work involved. Secondly, relying solely on quantitative data may not fully capture the diversity and complexity of the four factors and their impact on talent retention. This approach might miss contextual details that qualitative methods could provide. For example, a purely quantitative study might not account for all the relevant variables affecting the relationship between employee engagement and talent retention, potentially leading to omitted variable bias. Therefore, it is recommended that this study employs a mixed-method approach to thoroughly understand these connections within the Malaysian semiconductor industry. Thirdly, constraints related to time and resources may limit the study's depth and breadth, potentially overlooking critical insights. The study's duration of approximately four months could result in a smaller sample size or a more narrowly focused data collection effort. This limitation might affect the representativeness of the sample and complicate the ability to draw definitive conclusions.

Conclusion

This study has provided significant insights into the factors influencing talent shift in Malaysia's semiconductor industry, especially on reward management, employee career career advancement, work-life balance, and employee engagement (Liaw et al., 2024). The research findings revealed that while reward management, employee career development, and work-life balance significantly enhance talent retention, employee engagement does not have a statistically significant impact in this semiconductor industrial (Narayanan et al., 2024). The research highlighted the critical importance of understanding the unique dynamics of each factor in influencing employee retention. Reward management and employee career development emerge as particularly potent mechanisms, emphasizing the need for organizations to invest in well-structured reward systems and continuous career development opportunities to maintain a motivated and committed workforce (Malarvizhi et al., 2024). Additionally, the significant role of work-life balance indicates that adopting flexible and employee-centric policies could further reinforce employee loyalty and satisfaction. The study also highlights that employee engagement, contrary to popular belief and existing literature, does not hold a significant sway over retention within this sector. This unexpected finding suggests that the influence of employee engagement on retention may vary considerably across different industries and cultural contexts, warranting further investigation to better understand its role and effectiveness.

Recommendations for Future Study

Based on the findings of this research on talent retention in Malaysia's semiconductor industry, several areas for future studies are recommended. A deeper investigation into employee engagement is necessary, considering it did not show a statistically significant impact on retention in this context, unlike other factors studied. This disparity suggests that engagement might play a complex role that varies by industry or cultural context, warranting a more detailed exploration of its facets and effects. Future research could benefit from longitudinal studies to track the long-term impact of reward management, employee career development, and work-life balance on talent retention, providing insights into the sustainability and long-term effectiveness of these practices. Additionally, conducting comparative analyses across different sectors could illuminate industry-specific retention strategies, allowing for the development of tailored human resource policies that address unique sectoral challenges. Given the rapid technological advancements characteristic of the semiconductor industry, examining how emerging technologies such as artificial intelligence and robotics influence retention strategies could also provide valuable insights. This includes studying the modifications in job roles and the necessary adaptations in career development and training programs. Lastly, incorporating qualitative methods such as interviews or focus groups could offer deeper

insights into the personal experiences and perceptions of employees regarding their work and what influences their decisions to stay with or leave a company. These qualitative insights could reveal underlying issues that quantitative methods might not capture, providing a more comprehensive understanding of the dynamics at play in employee retention within the semiconductor industry. These recommendations aim to enhance the understanding and effectiveness of talent management practices in this vital sector.

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