

# Optimization Design of Incentive Plans for Technical Personnel in Intelligent Sports Goods Enterprises

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## Abstract

In the case of the continuous updating of artificial intelligence technology and changes in the pattern of residents' lives, intelligent sporting goods enterprises continue to develop and grow. Intelligent sporting goods enterprises to adapt to changes in the economic environment and development, must constantly through technological innovation, system innovation and management innovation and other means of transformation and upgrading, effectively enhance the core competitiveness. Scientific and technological innovation and research and development is the lifeline of high-tech enterprises, and plays an important role in the development of intelligent sporting goods technology enterprises. Research shows that intelligent sporting goods enterprises generally appear technical personnel mobility increased, technical personnel team stability decline and other phenomena, fully mobilize the technical personnel's work enthusiasm, initiative and innovation to ensure that the enterprise more efficient operation is the management decision makers face outstanding problems. In this paper, we put forward the incentive program for technical personnel of intelligent sporting goods enterprises from five aspects: salary incentive, performance appraisal system, training incentive, culture and environment incentive, and career development incentive.

**Keywords:** Intelligent sporting goods enterprise; Technical; Personnel Incentives

## 1. Introduction

Intelligent sports products continue to enhance social attributes and create a more open intelligent sports ecology. Under the continuous empowerment of a new generation of information technology, intelligent sports products are constantly enriched and the level of intelligence is constantly improved, showing the new style of electronic information technology to activate the new driving force of sports consumption, enhance the comprehensive strength of competitive sports and promote the intelligent upgrading of the cause of national fitness to serve the high-quality development of the economy and society. Technological innovation and scientific innovation is an effective means for intelligent sporting goods enterprises to improve the competitiveness of the industry, but also an important force to promote the national social and economic development, how to further improve the level of scientific and technological innovation of enterprises is an important problem facing the development of intelligent sporting goods enterprises.

Incentive management is an important part of modern enterprise management, through the construction of scientific and efficient incentive programs, can effectively stimulate the enthusiasm of the enterprise staff, improve the enthusiasm of the staff, and then promote the sustainable development of the enterprise. For employees, a fair and reasonable incentive program can improve the salary and benefits of employees, and effectively protect the basic interests of employees; for the enterprise itself, a scientific and reasonable employee incentive program can promote the

efficient operation of the company's management and operation activities, at the same time, the intelligent sporting goods enterprises can also attract and retain the core technical personnel through incentive management to improve the enterprise's technological innovation capability.

## 2. Literature review

In a study on the impact of motivation on employees, DeSoto, using two-factor theory to study the relationship between risk evaluation and satisfaction of research employees, found that risk evaluation may affect employees' pay, supervision, and other external health care factors (DeSoto, 2018). Maslow's Hierarchy of Needs theory suggests that respecting employees as human beings is essential and that respecting them will motivate them to perform better (Saleem et al., 2022). In addition, Studer B et al. argue that to motivate a person to take action, an application-friendly motivational framework for a given activity or exercise can be used. The key assumption of this framework is that the motivation to perform a given activity is determined by the expected benefits and expected costs of the activity (execution), which increases a person's motivation and initiative (Studer et al., 2016). At the same time, Wang Feng's research shows that in order to improve the enthusiasm of the employees of non-public enterprises, their incentives should be from the performance incentives, ability incentives, environmental incentives and other aspects of employee incentives, and the formation of incentives from these aspects to be able to achieve the best results (Wang, 2018). Hao D analyzed and summarized the influencing factors of college teachers' motivation from both internal and external motivation, and found that external motivation can be divided into compensation and benefits, organizational environment, career development and internal motivation is divided into work achievement, personal value and innovation incentives (Hao D, 2023). In addition to this, there are also scholars who believe that enterprises should pay attention to the work-related stress of employees and make relevant incentives in this way, because it is the most important predictor of employee motivation and employee development practices (Al Ajaj, 2022). In conclusion, in order to optimize the enterprise's motivation of employees, it can be studied in depth from the five aspects of compensation, performance, training, culture and environment and career development.

In terms of research on compensation incentives, it has been argued that increasing the proportion of equity incentives in total compensation so that it can have a positive impact on corporate innovation (Xu et al., 2022). Similarly for smart sporting goods enterprises, this is more likely to stimulate the innovation ability of technicians. There are also scholars who support their views and improve the above research, they pointed out that incentive intensity has a positive moderating effect between restricted stock incentive mode and enterprise performance, and a negative moderating effect between stock option incentive mode and enterprise performance (Ma & Wang, 2022). Some other scholars have shown that Individual Variable Pay For Performance (IVPFP) is something that undermines intrinsic motivation in the workplace (Kuvaas et al., 2020). Therefore, more in-depth research is needed to develop an appropriate pay-for-performance system based on industry contextual conditions. From the perspective of the enterprise as a whole, some scholars believe that enterprises can greatly improve the efficiency and quality of their work through performance management systems, realize the win-win situation of human resources and time resources, and make the appraisal fair and objective (Zhang, 2022). However, some scholars have argued against this view, pointing out that performance management systems fail to design reliable and effective ways to obtain performance judgments (Murphy, 2020). For performance management systems to be more effective and reliable, the allocation of relevant weights in the system needs to be adjusted. It has also been concluded that the impact of corporate performance management on organizational performance is largely mediated by corporate performance management and business process management orchestration and process performance (Jaklič et al.,

2021). Based on the above performance studies, Human Performance Improvement (HPI) has been investigated as a strategic approach to reduce and control human error (Suprpto et al., 2022). Enterprises can make human corrections in order to sound the feedback mechanism of performance. Technological innovation is also important for companies to motivate employees, Zhou Feng and Gu Xiaomin believe that the impact of technological innovation on organizational performance is greater than the impact of management innovation on organizational performance (Zhou & Gu, 2019). Other scholars have suggested that in order to improve firm performance from an organizational culture perspective, psychological security, collectivism and power distance affect the effectiveness of performance (Zhang et al., 2023). Some scholars studying volunteer community health workers have suggested that adequate expectation management in terms of financial and material incentives as well as work enablers is essential to prevent frustration with expectation gaps or "broken promises" negatively affecting motivation (Ormel et al., 2019), a notion that also applies to intelligent sporting goods enterprises. Some scholars have concluded that Vertical Pay Dispersion (VPD) is a hierarchical pay structure used to motivate employees (Messersmith et al., 2018). This viewpoint lays the foundation for this paper's intelligent sporting goods enterprises to distribute pay according to the job work level when distributing pay to technical employees. A study by Dongchuan Lin et al. showed that employee benefits can significantly improve the quality of internal control and thus the performance of firms, in addition, this effect is more significant in non-employee-intensive industries and highly marketable areas (Lin D et al., 2023).

From the perspective of career development, some scholars have shown that the targeted establishment of dual career development channels, improve the performance appraisal system, enrich the content and form of training to motivate employees (Ai & Zhang, 2023), the above forms will also improve the enterprise incentive mechanism. In addition, it has been pointed out that employers must be aware of the needs, values and goals of their employees, and that the performance of the work that employees are willing to follow must be synchronized with the goals of the employees themselves and of the company, so that the employees feel involved and developed in the branches of business related to the company (Hitka et al., 2019).

Therefore, this paper will systematically discuss the optimization of incentive programs for technicians in intelligent sporting goods enterprises from the aspects of internal and external incentives, make up for the shortcomings in the above literature, and improve the incentive programs for technicians in high-tech enterprises, so as to provide reference and guidance for the incentive mechanism of high-tech enterprises in the future.

### 3. Methods and data

#### 3.1 Research methodology

##### 1. Questionnaire method

By designing the questionnaire with salary system, working environment, promotion system, corporate culture and other main contents, collecting and analyzing the questionnaire data of the technical staff of the intelligent sporting goods enterprises, understanding the current situation of employee motivation of the intelligent sporting goods enterprises and the existing problems, it can be targeted to optimize its deficiencies.

##### 2. interview method

Interviews with relevant personnel involved in employee incentives in the human resources department of intelligent sporting goods enterprises to understand the company's incentive program

and the limitations of the actual operation, survey visits to professional and technical personnel to understand the practical needs of technical personnel and to listen to their suggestions and opinions on the incentive program.

#### 4. Data

##### 4.1 Questionnaire design and data collection

In the design of the questionnaire survey on the incentive status of intelligent sporting goods enterprises, the author summarizes the relevant literature of domestic scholars, selects the relatively mature questionnaire design method, combines with the company's actuality, and focuses on the design from four perspectives. They are compensation and welfare incentives, career development incentives, training incentives and culture and environment incentives, and each angle is divided into different incentive elements. Through the statistics of the questionnaire information of the employees, to analyze the operation effect of the corresponding incentive program of the company.

In order to facilitate the investigation, the questions used in the questionnaire design are all multiple choice questions. In addition to the basic information in the first part, the questionnaire questions in the satisfaction questionnaire were designed using a five-level Likert scale, which was divided into five levels, namely "very satisfied", "satisfied", "general", "dissatisfied" and "very dissatisfied", and the five choices were assigned a value of "5" to "1" in turn. A higher score indicates higher satisfaction, and a lower score indicates lower satisfaction. The satisfaction questionnaire is specifically divided into 4 parts, corresponding to 20 incentive elements related to salary and welfare incentive, career development incentive, training incentive and culture and environment incentive.

Due to the number of intelligent sporting goods enterprise technicians, in order to be able to objectively reflect the needs of technicians on incentives, in the company's 343 technicians, randomly selected employees 240 people for the questionnaire survey, the number of questionnaires issued 240, a total of 230 recovered questionnaires, to remove the 11 invalid questionnaires (5 consecutive questions are invalid), a total of 219 valid questionnaires were collected. After the information collection and organization of the final statistics are shown in Table 1 below.

**Table 1**

*Statistical table of the questionnaire survey*

	Elements of motivation	Very satisfied	Satisfied	General	Dissatisfied	Very dissatisfied	Average score (Points)
Remuneration incentives	Comprehensive satisfaction with remuneration						3.01
	Comparison of remuneration with the industry	8	59	91	56	5	3.04
	Salary structure	10	41	108	52	8	2.97

	Payment of year-end bonuses	5	62	103	37	12	3.05
	Welfare treatment	4	56	89	46	24	2.86
	Technical Innovation Award	6	57	99	51	6	3.03
	Give-and-take ratio	10	51	109	41	8	3.06
	Reasonableness of performance	3	62	110	32	12	3.05
	Comprehensive career satisfaction						2.86
	Personal promotion	9	51	108	33	18	3.00
Career development incentives	Career Planning	5	37	115	42	20	2.84
	Recognition by superiors	11	39	79	57	33	2.72
	A job position that realizes self-worth	7	44	97	56	15	2.87
	Overall satisfaction with training						2.99
Training incentives	Training content	8	45	104	52	10	2.95
	Training Methods	7	54	107	43	8	3.04
	Training Feedback	10	53	92	48	16	2.97
	Overall satisfaction with culture and environment						3.00
Corporate Culture and Environmental Motivation	Being treated fairly in the company	8	42	110	51	8	2.96
	Work Stability	5	47	123	40	4	3.04
	Respect and trust among employees	3	58	110	42	6	3.05
	Cooperation among	4	55	108	48	4	3.03

colleagues Comfortable working environment	5	59	113	35	7	3.09
Recognition of corporate culture	3	39	107	63	7	2.85

## 4.2 Questionnaire reliability and validity analysis

### 1. Reliability analysis

Reliability analysis is used to measure whether the sample response results are reliable, i.e., whether the sample has truthfully answered the scale-type questions. In this paper, the collected questionnaire data on A, B, C, D, through the SPSS 22 software reliability analysis of the Cronbach reliability coefficient (Cronbach  $\alpha$ ) for reliability test, the specific results are shown in Table 2.

**Table 2**  
*Reliability test*

Variables	number of questions	Cronbach's $\alpha$ coefficient
A	7	0.913
B	4	0.821
C	3	0.833
D	6	0.868
Total number of questions	20	0.948

The results showed that the average Cronbach's reliability coefficient for each variable was higher than 0.8, and the overall Cronbach's reliability coefficient was higher than 0.9, which indicates that the reliability of the study data is good.

### 2. Validity analysis

Validity refers to whether the design of the research items (usually questionnaire scale questions) is scientifically rational, in short, the validity of the data, in general, the test of correlation between the KMO value test and the Bartlett sphericity test, the KMO value is greater than 0.6 indicates that it is suitable for factor analysis, the Bartlett sphericity test corresponding to the p-value less than 0.05 indicates that it is suitable for factor analysis. for factor analysis, and the specific results are shown in Table 3.

**Table 3**  
*Validity tests*

KMO value	0.838
approximate chi-square (math.)	2138.108
Bartlett's test of sphericity	Degree of freedom (Df)
	190

Significance (sig)

0.000

From the above table, the KMO value is  $0.838 > 0.7$  and it reaches the level of significance, thus it can also be proved that the questionnaire has a high level of trustworthiness.

### 3. Statistical results

The 219 questionnaires were summarized for each piece of information, and the average score of each motivational element was calculated in turn, and the percentage of employee evaluations of the 18 motivational elements was calculated based on the percentage of employees for each option, and ultimately the comprehensive satisfaction status of compensation incentives, career incentives, training incentives, and culture and environment incentives was calculated, as shown in Table 4 below.

**Table 4**

*Satisfaction Survey Statistics of Motivational Elements in Intelligent Sporting Goods Enterprise*

	Elements of motivation	Very satisfied	Satisfied	General	Dissatisfied	Very dissatisfied	Generally the following	Average score (Points)
Remuneration incentives	Comprehensive satisfaction with remuneration	3.00%	25.31%	46.25%	20.55%	4.89%	25.44%	3.01
	Comparison of remuneration with the industry	3.65%	26.94%	41.55%	25.57%	2.28%	27.85%	3.04
	Salary structure	4.57%	18.72%	49.32%	23.74%	3.65%	27.40%	2.97
	Payment of year-end bonuses	2.28%	28.31%	47.03%	16.89%	5.48%	22.37%	3.05
	Welfare treatment	1.83%	25.57%	40.64%	21.00%	10.96%	31.96%	2.86
	Technical Innovation Award	2.74%	26.03%	45.21%	23.29%	2.74%	26.03%	3.03
	Give-and-take ratio	4.57%	23.29%	49.77%	18.72%	3.65%	22.37%	3.06
Career development	Reasonableness of performance	1.37%	28.31%	50.23%	14.61%	5.48%	20.09%	3.05
	Comprehensive career satisfaction	3.65%	19.52%	45.55%	21.46%	9.82%	31.28%	2.86

incentives	Personal promotion	4.11%	23.29%	49.32%	15.07%	8.22%	23.29%	3.00
	Career Planning	2.28%	16.89%	52.51%	19.18%	9.13%	28.31%	2.84
	Recognition by superiors	5.02%	17.81%	36.07%	26.03%	15.07%	41.10%	2.72
	A job position that realizes self-worth	3.20%	20.09%	44.29%	25.57%	6.85%	32.42%	2.87
	Overall satisfaction with training	3.81%	23.14%	46.12%	21.77%	5.18%	26.94%	2.99
Training incentives	Training content	3.65%	20.55%	47.49%	23.74%	4.57%	28.31%	2.95
	Training Methods	3.20%	24.66%	48.86%	19.63%	3.65%	23.29%	3.04
	Training Feedback	4.57%	24.20%	42.01%	21.92%	7.31%	29.22%	2.97
	Overall satisfaction with culture and environment	2.13%	22.83%	51.07%	21.23%	2.74%	23.97%	3.00
Corporate Culture and Environmental Motivation	Being treated fairly in the company	3.65%	19.18%	50.23%	23.29%	3.65%	26.94%	2.96
	Work Stability	2.28%	21.46%	56.16%	18.26%	1.83%	20.09%	3.04
	Respect and trust among employees	1.37%	33.33%	51.14%	11.42%	2.74%	65.30%	3.05
	Cooperation among colleagues	1.83%	38.81%	49.32%	8.22%	1.83%	59.36%	3.03
	Comfortable working environment	2.28%	26.94%	51.60%	15.98%	3.20%	70.78%	3.09
	Recognition of corporate culture	1.37%	27.85%	48.86%	17.81%	4.11%	70.78%	2.85

## 5. Discussion

From the results of the questionnaire survey, it can be seen that the company still has a lot of room for improvement in the four aspects of salary incentives, career development incentives, training incentives, and corporate culture and environmental incentives, specifically the following problems exist.

### 5.1 Problems with pay incentives

Salary incentive is a kind of target incentive, which is used by the organization to motivate employees by providing setting material reward targets to guide individual behavior and stimulate individual motivation. As shown in Table 4, the company has still achieved good results in the current compensation incentive program, however, the seven motivational elements under compensation incentive still have 31.96% to 20.09% dissatisfaction. After interviewing with employees, we learned that the company still has the following problems in pay incentives.

1. Single means of welfare incentives and small differences. Through the interviews and surveys of intelligent sporting goods enterprises, it is found that the material welfare incentives of such companies are single and with small differences. In addition, the company has not carried out corresponding research and demand analysis on the demand status of technical personnel for the special characteristics of technical personnel.

2. The company's salary and benefit distribution program is unreasonable. Through the investigation, it is found that there are some unreasonable places in the current salary and benefit distribution program of the intelligent sporting goods enterprises, which is mainly manifested in the unreasonable design of the proportion of employees' base salary and performance salary, due to the small base, under the condition of obvious difference in the grade of the performance appraisal, the difference of the actual performance salary is not obvious, making the incentive role that the performance salary should play is not obvious.

3. Inadequate performance appraisal system. Through the investigation, it is found that there are the following problems in the performance appraisal system of intelligent sporting goods enterprises. Firstly, the performance appraisal objectives formulated by each department of the company lack objectivity and rationality; secondly, the performance appraisal indexes are too old; finally, the performance appraisal results are not effectively utilized.

## 5.2 Problems with career development incentives

Employees' career planning will directly affect employees' work attitude and business level. As shown in Table 4, at present, the satisfaction of the company's employees with the career incentive program is not high, and the four incentive elements under the career incentive are still 41.1% to 23.29% dissatisfaction. After interviewing with employees, we know that the company still has the following problems in career incentives.

1. Lack of reasonable career planning guidance. At present, the senior managers of enterprises do not pay attention to the career planning of employees, and there is a lack of career planning guidance system and relevant institutional support within the enterprise.

2. Narrow promotion channel, difficult to reflect the self-worth. the promotion system adopted by the current intelligent sporting goods enterprises is the traditional single-channel promotion mode, and as a high-tech enterprise, the single-channel promotion mode can not meet the promotion needs of technical personnel.

## 5.3 Problems with training incentives

High-tech industry is characterized by fast product renewal and rapid technological development, compared with traditional enterprises, the employees of intelligent sporting goods enterprises need to continuously learn new technologies and master new skills while working. As can be seen from Table 4, the current company's employees are not satisfied with the training incentive program, and

the three incentive elements under the training incentive are still 29.22% to 23.29% dissatisfaction. After interviewing with employees, we learned that the company still has the following problems in training incentives.

1. Monotonous training content. The company does not train its employees in specialized fields such as the industry outlook, the current state of enterprise development, and the technical skills required by the employees themselves, which results in a lack of knowledge about the current state of the industry and the specialized skills of the employees.
2. A single training method. Through the survey, it is found that the training method of intelligent sporting goods enterprises for technicians only adopts a single method of centralized training by offline lecturers, which makes many technicians feel dissatisfied with it.
3. Training feedback information has not been effectively utilized. Through the investigation and research on the training work of intelligent sporting goods enterprises, it is found that the human resources department is too formalized in dealing with the training results, and only takes the training results as one of the bases for performance appraisal, and does not carry out in-depth research and analysis of the training effect and feedback.

#### 5.4 Problems with cultural and environmental incentives

Enterprise culture and environment mainly refers to the enterprise technical personnel's work hardware environment and soft environment, the hardware environment includes the company for technical personnel to provide office space, facilities and other hardware conditions. The soft environment mainly refers to the technician's work and rest time, the relationship between colleagues and leaders, corporate values and other humanistic environment. Table 4 shows that the current company's culture and environment incentive program employee satisfaction is not high, culture and environment incentives under the six incentives still exists 31.96% to 19.18% of dissatisfaction.

Through interviews with employees to understand that the enterprise's internal corporate culture construction efforts are insufficient, the staff's sense of collective honor, sense of belonging is not strong enough, teamwork among employees to be strengthened, the work environment needs to be further improved.

## 6. Optimized Design of Smart Sporting Goods Technician Incentive Program

### 6.1 Improvement of remuneration incentives

Through the research and analysis of the technical personnel incentive system of the intelligent sporting goods enterprises, it can be found that there are certain deficiencies in the salary incentive system constructed by the intelligent sporting goods enterprises for the technical personnel. In order to change the current problems, intelligent sporting goods enterprises should optimize the pay incentive program, standardize the performance appraisal system within the enterprise, and protect and safeguard the legitimate rights and interests of technical personnel.

1. Improvement of remuneration levels to enhance external competitiveness

Scientific and reasonable compensation incentive is an effective means for high-tech enterprises to retain technicians. The remuneration of technicians in intelligent sporting goods enterprises mainly consists of fixed income, variable income, welfare, innovation incentives and other components, which can be optimized in the following aspects.

#### (1) Fixed income

Fixed income = base salary + job allowance + confidentiality fee

The base salary is determined according to the length of service and title, and is a basic item in the fixed income. The title salary of technicians is low, and the title salary is appropriately increased to reflect the relationship between the skills of technicians and their remuneration.

Job allowance is a kind of salary subsidy granted to the staff on duty in view of the special nature of the work of certain posts. The amount of post allowance is jointly determined by the importance of the post and the level of the employee's work in the post. Through investigation and research, it is found that with the continuous development of intelligent sporting goods enterprises in recent years, many technical positions have been added within the company, but the relevant system of post allowance has not been updated with the development of the company's positions, therefore, the company should carry out a comprehensive upgrading and optimization of the post allowance system. First of all, the importance of the additional positions within the company to assess the record, update the company's previous job data; Secondly, the Ministry of Human Resources to special positions of technical personnel to re-examine the rating work, clear technical personnel job level; Finally, the company should set up a special post allowance research group, the company's current post allowance system comprehensive reorganization and upgrading, re-construction of a set of scientifically reasonable, Practical and scientific post allowance system.

In addition, in the case of normal operation of the enterprise and positive growth of profits in each accounting period, the enterprise should ensure that the salary increase of technical personnel in each accounting period is more than 5%, in order to stimulate the enthusiasm of technical personnel and improve their work initiative.

#### (2) Benefit Wages

Technicians' performance pay and year-end bonus constitute their variable income. The performance wage is determined by the three factors of technicians' base salary, performance coefficient and personal ability, i.e. performance wage = base salary \* personal appraisal coefficient \* 0.5. Based on the problems existing in the performance wage of intelligent sporting goods enterprises, the optimization scheme given in this paper is that, for the ordinary on-the-job technicians who have been transferred to a new position, on the basis of the unchanged base salary and personal appraisal coefficient, the performance coefficient will be adjusted upward from 0.5 up to 1.0, so as to improve the performance wage flexibility, which will effectively solve the problem of the lack of competitiveness of the salary level of technical personnel.

Core technical personnel is the key to the development of high-tech enterprises, but because these technical personnel are engaged in the work of research and development, innovative work, research and development work cycle is long, risky, slow results of the characteristics of the core work of technical personnel can not be carried out in the general sense of the performance appraisal. Therefore, the core technical staff of the pay system should be different from the ordinary staff of

the pay system, for this kind of phenomenon, this paper gives the solution is the core technical staff can be used in the annual salary system, that is, the core technical staff of the annual salary = basic annual salary + performance annual salary + year-end awards.

## 2. Welfare

Intelligent sporting goods enterprises should first of all protect the statutory benefits of employees, and within a reasonable range as far as possible to improve the benefits enjoyed by employees, such as increasing the proportion of provident fund in the "Insurance and Housing Fund", the following is mainly from the statutory benefits and the enterprise's own benefits in two aspects of the intelligent sporting goods enterprises to optimize the welfare system.

(1) Enterprises are required to pay the "Insurance and Housing Fund" for their employees in accordance with the statutory standards, namely, pension insurance, medical insurance, unemployment insurance, work-related injury insurance and maternity insurance, as well as housing provident funds. For newly recruited technicians, enterprises can appropriately increase the proportion of housing fund to alleviate their housing pressure.

(2) Company leaders usually have to go into the actual life of the staff, and effectively provide welfare allowances for the staff. Technical allowances can be provided for the core technical staff with excellent performance in the enterprise. The human resources department should carefully record the birthday of each employee and issue birthday welfare allowance on the day of the employee's birthday to enhance the employee's sense of well-being. For employees who need to run business outside for a long time, the enterprise can increase the commuting allowance as well as vehicle allowance to them. The communication expense allowance is mainly issued to those employees who have the need to talk for a long time. As the above subsidies belong to the welfare subsidies issued by the enterprise independently, the relevant departments of the enterprise should carefully study the issuance program to ensure that the program is scientific, reasonable and practicable.

(3) The year-end bonus is an important part of employees' remuneration and an important means for enterprises to incentivize their employees. When granting year-end bonuses, enterprises should, on the one hand, ensure a reasonable difference between the year-end bonuses of technicians and ordinary employees, and, on the other hand, should make the year-end bonuses of core technicians have at least a 50% difference ratio compared with ordinary technicians. In addition, the work characteristics of technical personnel make them need to stay in the studio for a long time, which makes them lack certain opportunities for exercise and travel, so enterprises can provide technical personnel with travel cards or fitness cards as a benefit at the end of the year.

As different age, gender and education will lead to different needs of employees for welfare, so enterprises in the development of employee welfare system should fully research to understand the needs of employees, for example, new employees can be appropriate to increase the proportion of housing fund, to alleviate the pressure on their housing; for the lower educational level of the staff, you can provide a degree of further education opportunities to improve their professional knowledge and business level; for female employees can seize their love of beauty, they can be issued with skincare products or provide them with a beauty card.

## 3. Technical Innovation Award

Scientific and technological innovation is an important driving force for the development of high-tech enterprises, and as an intelligent sporting goods enterprise, this kind of enterprise must improve its innovation and creativity if it wants to keep moving forward. The establishment of technological innovation awards can effectively stimulate the innovation enthusiasm of technical personnel and improve the innovation ability of enterprises. Enterprises have the following methods to solve the problem of technological innovation.

(1) Multi-channel and multi-mode innovation route. For enterprises, technological innovation should not be limited only to the development and application of new technologies, but should broaden innovation channels and increase innovation modes for employees.

(2) Improve the innovation reward system. Enterprises should improve the assessment program and reward system for technological innovation, and clarify the specific details of the rewards, for example, for research and development products eventually listed and create sustainable income for the enterprise's researchers, the enterprise should be given a one-time to the team or an individual of 5-20 million yuan in cash rewards; in the research of new products each year, the net operating profit of more than 1 million yuan, the enterprise should be allocated annually to the research and development personnel a certain percentage of the cash dividends until the product is taken off the shelves; in addition, for the technicians who have obtained national patents, the enterprise shall, depending on how much revenue the patent generates for the enterprise, issue a certain amount of cash incentives to the patent holder.

## *6.2 Improve the performance appraisal system*

According to the results of the study, the imperfect and unscientific performance appraisal system is an important reason for the lack of competitiveness of the compensation system of intelligent sporting goods enterprises compared with the same industry. We will optimize and improve the problems of the company's performance appraisal system as follows.

### 1. Design of performance appraisal indicators

Performance appraisal is not only related to the personal interests of the technical staff, the company's financial management and development strategy also has an important impact, so in the development of performance appraisal program, we should combine the assessment indicators with the staff's career development and the company's strategic objectives organically, in order to ensure that the technical staff's personal interests at the same time, but also to make the effect of the assessment of the company's development to play a driving role. According to the industry characteristics of the intelligent sporting goods company, the company's performance appraisal indicators can be refined from the company's macro development strategy to the departmental objectives, and finally reflected in the specific job assessment standards.

When designing specific assessment indicators, enterprises should consider the rationality and feasibility of the indicators. Rationality refers to the design of indicators, in the traditional performance appraisal indicators on the basis of the company's own development situation and job characteristics, to ensure that the assessment indicators of the scientific and rationality, to reduce the unnecessary cost of such indicators; feasibility refers to the design of the assessment indicators, combined with the company's actual situation of the technical staff, the design of the assessment indicators in the reasonable range, to avoid the level of assessment indicators is too high or too high or too low.

## 2. Design of assessment weights

After completing the design of performance appraisal indicators, the next step is to assign certain weights to the appraisal indicators. Whether or not the weights of performance appraisal indicators are determined in a scientific manner will have a direct impact on the fairness of the performance appraisal system; therefore, scientific caution must be exercised in determining the weights of performance appraisal indicators.

After the questionnaire survey on the technical staff of the intelligent sporting goods enterprises, it is found that the technical staff generally believe that the key index for assessing the performance is the professional technology rather than the work attitude, but through the analysis of the current weight of the performance index of the intelligent sporting goods enterprises, it is shown that the weight of the assessment index of the work attitude of this kind of companies is obviously too large, and for the performance appraisal of the technical staff of the high and new-tech enterprises, the weight of the index of the work attitude should be in the last position in order to conform to the actual situation.

In view of the problems existing in the assessment index weights of intelligent sporting goods enterprises, this paper mainly adopts the expert interview method and the average level method as the method of determining the weight indexes, and on this basis, combined with the specific situation of the technical personnel of such enterprises, re-optimize the design of the assessment indexes of the weights. The details are as follows:

(1) By the technical department leaders and performance appraisal experts on the assessment of technical staff indicators to play a total of 7 raters, scoring object for the 11 secondary indicators, each scoring a total of 100 points. The scoring of the raters is shown in Table 5.

**Table 5**

*Scale of performance indicators for technicians in intelligent sporting goods companies*

Assessment Program	Total score	Average score
Technological innovation capacity	99	9
Technical difficulty	70	6.36
Level of expertise	36	3.27
Practical technical-operational capacity	41	3.73
Learning ability	35	3.18
Volume of work	147	13.36
Quality of work	142	12.91
Work efficiency	31	2.82
Sense of responsibility	35	3.18
Disciplinary	31	2.82
Collaboration and professionalism	33	3

(2) Calculate and adjust the weights. The formula for calculating the weights = total score of individual items / sum of total scores of each item \* 100%. In order to make it easier for the appraisers to operate during the appraisal, the following appraisal weights are slightly fine-tuned, as shown in Table 6.

**Table 6**

*Adjustment table of performance appraisal weights for technicians in intelligent sporting goods enterprises*

Level 1 indicators	Appraisal items (secondary indicators)	Total score	Weights	Adjusted weights
Technical capability	Technological innovation capacity	99	14.14%	15.00%
	Technical difficulty	70	10.00%	10.00%
	Level of expertise	36	5.14%	5.00%
	Practical technical-operational capacity	41	5.86%	6.00%
	Learning ability	35	5.00%	5.00%
Work performance	Volume of work	147	21.00%	20.00%
	Quality of work	142	20.29%	20.00%
	Work efficiency	31	4.43%	5.00%
Working attitude	Sense of responsibility	35	5.00%	5.00%
	Disciplinary	31	4.43%	4.00%
	Collaboration and professionalism	33	4.71%	5.00%
Total score		700	1	1

Through the adjustment of the weight of the core technical ability index, on the one hand, it can make the assessment system more in line with the development current situation of the intelligent sporting goods enterprises and the work situation of the technicians, and improve the scientific and fairness of the assessment system; on the other hand, it can inspire the enthusiasm of the technicians, improve the enthusiasm and initiative of the technicians in their work, so that the assessment system can play a better role of incentives for the technicians.

### 3. Assessment process

Through the study of the appraisal system of the intelligent sporting goods enterprise, it is found that the current appraisal process of the company lacks pertinence and pays too much attention to the average of the appraisal results and ignores its fairness. Based on the problems of the company's appraisal system, the following will be optimized in terms of the objectivity of the appraisal and the distribution ratio of the appraisal results.

#### (1) Increase the objectivity of the assessment

In order to ensure the objectivity and fairness of the assessment, the enterprise should set up a special performance appraisal committee, the committee members from the company's various departments drawn from the composition of the personnel, in carrying out the assessment work should strictly follow the principle of cross-appraisal, to ensure that the assessment process of fairness, to avoid the assessment of personnel special care of their own department staff. In addition to the use of cross-appraisal, in the appraisal process, the appraisal team should broaden their own assessment channels, multi-level, multi-dimensional assessment of the assessment object. In addition, in addition to the assessment of technical personnel from external channels, the technical personnel to be assessed should also submit a self-evaluation report to the assessment team, so that the assessment team can compare and analyze the assessment materials in an all-round way, and finally give scientific and reasonable, fair and impartial assessment results.

#### (2) Control the distribution ratio of appraisal results

The results of the annual appraisal of the employees of intelligent sporting goods enterprises should reflect the excellence of the employees' performance in the current year. This paper is based on the assessment results of the "principle of difference", the number of people in each grade for proportional control. Excellent, good, qualified, to be improved, unqualified five grades correspond to a different number of limitations on the proportion of excellent not more than 10%, good not more than 30%, qualified not more than 50%, unqualified not more than 10%, not more than 5% of the poor. Individual performance appraisal coefficients are determined on the basis of appraisal results.

#### 4. Robust performance feedback system

Enterprises should improve the performance appraisal feedback system to avoid the performance appraisal system of intelligent sporting goods enterprises in form. After completing the performance appraisal of employees, the relevant person in charge of the human resources department should organize and archive the results of the appraisal, and after carefully analyzing the results of the appraisal, targeted communication with the technicians who participated in the appraisal. First of all, the departmental leadership to hold a performance appraisal feedback summary conference, the assessment of the existence of doubtful technical personnel to answer questions and solve puzzles; Secondly, for the performance of outstanding employees, companies can give a certain amount of additional incentives, and publicity within the company, in addition, you can also invite these outstanding technical personnel to all employees to share their own work insights and technical expertise. In addition, for the performance appraisal performance is not as good as the staff, the company's human resources department to communicate with them in a timely manner, on the one hand, to understand the reasons that lead to the poor performance appraisal of these employees, on the other hand, the company's leadership to encourage and help these employees to overcome the factors affecting the performance appraisal, to improve their performance appraisal performance, and enhance their self-confidence.

#### 5. Application of appraisal results and appeals

##### (1) Diversified use of assessment results

For the results of the employee's performance appraisal, it is necessary to diversify the use of the appraisal results, through the performance appraisal of the employee's performance to fully improve the employee's business level. First of all, in the performance results announced, the enterprise human resources department should be based on the employee's performance appraisal results of their awards, in addition to the basic material incentives, enterprises should also pay attention to meet the spiritual needs of employees, the enterprise can also be issued to them as an outstanding employee certificate, and in the company's internal publicity for recognition. Secondly, the performance appraisal results in addition to being used as a basis for employee rewards, but also should be closely linked with the development of the company, the enterprise can provide for the performance appraisal results of the better employees to enhance their academic qualifications or the opportunity to go abroad for further study, for the performance appraisal of the poorer employees, the enterprise should be aimed at its shortcomings in training to improve their business level and comprehensive quality. Finally, the results of the employee's performance appraisal should be linked to the enterprise internal grade, position scheduling, the enterprise should be appropriate to enhance the work ability of the outstanding employees of the post grade, to provide them with promotion channels, in addition, the enterprise to implement the elimination system, for the performance appraisal of the poor and the work attitude of the employees, the enterprise has the

right to dismiss or dismissal. In short, in the future development, intelligent sporting goods enterprises performance appraisal results in addition to the application of simple ranking rewards, should also make the performance appraisal results and the employee's own career development and the company's strategic objectives organically combined.

## (2) Improvement of the complaint mechanism

For intelligent sporting goods enterprises, an efficient grievance mechanism can make technicians feel that the company's system is fair and increase their satisfaction with the company.

First, employee complaint channels. If an employee who receives an appraisal questions the fairness of the appraisal process or appraisal results, he or she can reflect this to the direct leader; if the questioning is not reasonably explained, he or she can make representations directly to the performance appraisal team, and the relevant person in charge of the appraisal team is required to make a reply within 3 to 5 working days.

Secondly, the way of employees' representation. In addition to making representations through the e-mail address announced by the performance appraisal team, the employee being appraised may also submit a written report to the person in charge in the form of a representation report.

Third, the handling of employee grievances. Upon receiving information on a grievance, the relevant unit or person in charge shall respond to the complainant within a specified period of time; if the complainant is not satisfied with the response, he or she may once again apply to the relevant section for a review, and the reasons for the review shall be set forth in the materials of the grievance.

## 6.3 Improvement of training incentives

Technicians as the living force of the development of intelligent sporting goods enterprises, improve the personal quality and skill level of technicians is an effective way to enhance the competitiveness of enterprises. In order to make the training effectively help new employees to integrate into the company and help old employees to improve their professional skills, this paper formulates the following training program for the problems of training incentives in intelligent sporting goods enterprises.

### 1. Training needs analysis

Developing corresponding training programs for the work needs of different employees can effectively improve their personal qualities and professional skills. The survey found that new employees hope to learn more professional knowledge within a reasonable salary range; employees with lower education hope to get the opportunity to upgrade their education while working; a part of the more outstanding employees hope to receive management training while learning work skills, so as to prepare for the knowledge and ability of the future management positions.

### 2. Ensuring the rationality and effectiveness of training programs

Scientific and reasonable training incentive program on the one hand, can effectively improve the new employees to the company's sense of identity and sense of belonging, on the other hand, can enhance the old staff's business level and promote the development of the company. After

understanding the staff's demand for training, the company's Human Resources Department needs to carry out training from internal training and external training, in the internal training, for new and old employees to develop different training programs; external training is mainly carried out in the way of communication and learning. At the same time, staff training can be taken online and offline combination of ways to carry out online can be taken live lectures, network questions and answers, etc., offline can be regularly organized training activities, invite relevant experts and scholars as well as industry elites to guide the work of the enterprise.

### 3. Evaluation of training effectiveness and feedback

Enterprises monitor and evaluate employee training to understand the progress of training, and at the same time optimize and improve training programs in real time based on feedback from both training and trainee personnel. The evaluation of training results is analyzed at the following four levels:

- (1) Response dimension: used to understand the satisfaction of technicians with the external environment of training.
- (2) Learning level: mainly reflecting the acceptance of the training knowledge and skills of the participating employees and the evaluation of the professionalism of the lecturers.
- (3) Behavioral level: It mainly examines whether the trainees can flexibly apply the relevant knowledge and skills from the training in their later work.
- (4) Outcome level: Whether there is a significant improvement in the employees' business skills, personal qualities, and work attitudes after the training.

### 4. Incentives for training results

For employees who study seriously during the training period and are able to flexibly utilize the training-related knowledge and skills in their work, the enterprise should provide certain rewards.

### 5. Application of training results

The short-term nature of the training effect has always been the pain point of enterprise training work, in order to consolidate the results of training, so that the training results have a long-term and sustainability, intelligent sporting goods enterprises can carry out regular spot checks and assessment of the training results of the staff, and the results of the assessment as one of the evaluation module of the employee's promotion and salary increase, for the training results of the assessment of the unqualified employees, resolutely not to be promoted.

#### *6.4 Improvement of cultural and environmental incentives*

Intelligent sporting goods enterprises can optimize the enterprise's spiritual culture incentive and institutional culture incentive system to enhance the staff's recognition of the enterprise culture. Specifically, the following measures can be taken:

##### 1. Strengthening the promotion of corporate culture

First of all, in the staff induction training system, you can add the enterprise culture propaganda board, so that new employees understand the enterprise philosophy. Secondly, the company can regularly carry out forums related to corporate culture, and award certain rewards and honors to participants and winners. At the same time, it is necessary to make full use of the convenience of the Internet era, take the combination of online and offline, integrate the corporate culture into the daily life of employees, so that employees can harvest the sense of participation and sense of achievement in the construction of corporate culture.

## 2. Setting an example for learning

The publicity department of the company should collect the advanced deeds of the employees within the enterprise, and regularly publish the commendation in the enterprise culture newspaper. On the one hand, the honored person plays an inspiring role; on the other hand, for other employees of the company, it can drive them to learn from those advanced groups and individuals.

## 3. Enhancement of employee care

The enterprise labor union should give full play to its function, create a good humanistic care atmosphere for the company staff, so that the company technicians can get better rest and relaxation after work. In addition, enterprises can improve the company's infrastructure, so that technicians in their leisure time into the company's big family, feel the enterprise for their care and warmth.

## 4. Carrying out specialized activities

By carrying out activities such as party building fellowship, corporate culture exchange, and other activities, and local government departments and other enterprises to establish communication links, while enhancing the sense of social responsibility of the enterprise technicians, but also through the exchange of learning with industry seniors to improve their own business skills, and to understand the industry's latest development trends. In addition, it can also mobilize the enthusiasm of the company's technical staff and fully tap the potential of the staff by holding professional skills competition, selecting outstanding representatives of technical staff and other activities.

## 6.5 Improvement of career development incentives

For intelligent sporting goods enterprises, employees have a reasonable career development plan, can effectively enhance employee satisfaction with the enterprise. To retain the company's technical staff for a long time, intelligent sporting goods enterprises can help them develop a reasonable career planning, improve the relevance and consistency of the staff career planning and the company's development goals, so that employees in the enterprise's work to harvest a sense of achievement, enhance the staff's recognition of the corporate culture. In addition, for employees in the promotion process problems, companies can set up a dual-channel promotion system to solve the problem of employee promotion.

### 1. Dual-channel promotion route

Employee's promotion needs are the senior needs in the hierarchical needs theory. However, the technician positions in intelligent sporting goods enterprises have certain specificity, and if the technicians implement the traditional management promotion system, it will lead to the lack of technicians in the enterprise. The dual-channel promotion system combining management channel and professional channel can effectively solve the problem of technician promotion in this kind of

company. For intelligent sporting goods enterprise professional and technical personnel, you can use the professional promotion channel, that is, grass-roots employees → key personnel → core personnel → experts → senior experts of the promotion route.

The adoption of dual-channel promotion system can not only ensure the low turnover rate of the core technical staff of the enterprise, but also enhance the sense of achievement of the technical staff. In addition, in the establishment of dual-channel staff promotion at the same time, but also to improve the promotion qualification review system, refine the promotion system of assessment guidelines, for the promoted employees to carry out regular assessment, for the assessment of unqualified employees should be dealt with in accordance with the relevant demotion system.

## 2. Planning technicians' careers

On the basis of fully understanding the advantages and specialties of the technicians of the intelligent sporting goods enterprises, rationally arranging the jobs so that the technicians can maximize their own advantages, helping the technicians who lack experience in career planning to formulate a career plan that meets their own conditions, and avoiding conflicts and frictions between the employees' own plans and the development goals of the enterprise caused by the lack of career planning. Specific measures are as follows:

- (1) The company's Human Resources Department shall provide training on career planning and development for entry-level employees, so that technicians can understand the importance of career planning and the precautions to be taken.
- (2) After the company's technical staff joins the company, the department head should analyze their strengths and technical expertise, and combined with the technical staff's self-evaluation, give objective and reasonable career development advice.
- (3) After the technician has been inducted and advised by his/her mentor, he/she receives a career planning form, completes it carefully and returns it.
- (4) Upon receipt of a technician's career planning form, the Human Resources Department shall set up a task force with the immediate head of the employee's department to study and discuss the contents of the form and ultimately make a recommendation.

## 7. Conclusions and policy implications

Incentive is an important part of modern enterprise management, for intelligent sporting goods enterprises, to ensure the sustainable development of the enterprise, the first thing to be solved is the optimization of enterprise technical personnel incentive program. As the core talent of the enterprise and the important driving force of enterprise development, attracting and retaining technical personnel is the key to sustainable development of the enterprise. This paper takes the optimization of technical personnel incentive program of intelligent sporting goods enterprises as the research content, and gives the optimization program for its existing problems while researching the current situation of incentive of intelligent sporting goods enterprises. Specific research conclusions are as follows:

First, when constructing the employee incentive system of intelligent sporting goods enterprises, the special characteristics of the technical personnel group should be fully considered. Most of the

technicians have a high educational background and professionalism, which allows them to have greater autonomy and more space for choice when choosing employment, so when optimizing the incentive program, we should give full consideration to the problem of technicians' satisfaction with the company, so that they can spontaneously and voluntarily devote themselves to their own work positions.

Second, to ensure the scientific, reasonable and fair performance appraisal. Enterprise staff incentive program to be practicable, first of all, to ensure that the performance appraisal system of science and fairness, the human resources department should be based on the assessment of technical personnel feedback and the needs of the company's development to continuously update and optimize the performance appraisal system, to promote the effective operation of the enterprise technical personnel incentive program.

Third, when building the incentive system of intelligent sporting goods technicians, we should adopt the incentive method combining spiritual incentive and material incentive. In recent years, the rapid development of high-tech industry has led to the market demand for technical personnel, and the current scarcity of technical personnel so that they have been greatly satisfied in terms of material needs, therefore, the enterprise in the protection of the material needs of technical personnel to be satisfied at the same time, it is more important to pay attention to their needs in the spiritual level, only then can we better explore the technical talents of the technical personnel and the innovation ability. Only in this way can we better explore the technical talents and innovation ability of technicians and promote the rapid development of enterprises.

In addition, the salary incentive system for technical personnel should have internal and external comparability. Intelligent sporting goods enterprises should respect the fruits of the technicians' labor, firstly, the professionalism and work results of the technicians should be linked to the performance pay, to ensure that those who can do more work, those who can get more, so that the technicians' salary has internal comparability; secondly, the enterprise wants to retain the technical talents, but also to ensure that the salary is externally comparable, that is, we should ensure that their salary compared with other enterprises in the same industry, has a certain degree of competitiveness.

Finally, the human resources department should pay attention to the dynamics of technical personnel at any time, understand the problems and difficulties they encounter in their work and life and give timely help to solve the worries of technical personnel, so that they can devote themselves to their work.

### Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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