Research on the motivation of knowledge workers from the perspective of self-determination theory

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Abstract. With the rise of knowledge economy, knowledge workers have become an important source of enterprise competitiveness. How to motivate these employees effectively, especially by improving their intrinsic motivation has become one of the key issues in modern enterprise management. This study explores the motivation mechanism and strategies of knowledge workers from the perspective of self-determination theory. It is found that most of the current researches focus on the discussion of a single dimension of self-determination theory and most of the researches are limited to the western cultural background, ignoring the special needs of knowledge workers in Chinese culture. On this basis, it is proposed that future research should further explore the interaction effect between the needs of ego theory and develop a more perfect incentive model combined with other incentive theories. In addition, we should pay attention to cross-cultural comparative research, especially in the context of Chinese collectivist culture, knowledge workers' demand for incentives. The enterprise should design the incentive scheme according to the local characteristics according to the cultural differences. So as to improve the work performance and innovation ability of the employees. This study provides a new theoretical perspective and practical guidance for the motivation of knowledge workers.

Keywords: self-determination theory, knowledge worker, incentive mechanism.

1. Introduction

In the era of knowledge economy, knowledge workers become the core driving force of organizational innovation. They rely on knowledge capital to create value, and their labor process is highly autonomous, creative and complex. Traditional material incentive model is difficult to effectively stimulate its potential, and may even weaken the intrinsic motivation. As a macro motivation theory, self-determination theory provides a unique perspective for analyzing the incentive mechanism of knowledge workers[1]. Self-determination theory emphasizes that by satisfying individual needs of autonomy, competence and relevance, it can promote the internalization of motivation, thus improving work performance and creativity. This study systematically discusses the application value of self-determination theory in the motivation of knowledge workers. And puts forward the optimization path to the challenges in practice[2].

2. Concept and theory

2.1. Knowledge workers

The concept of knowledge worker proposed by Peter Drucker, an American management scientist, refers to those who master and use professional knowledge, symbols and concepts to transform knowledge and information into value through creative labor. This group initially refers to enterprise managers, but with the development of the knowledge economy, its scope has expanded to most white-collar workers with brain work as the core, such as research and development personnel, professional and technical personnel, creative talents and so on[3].They usually have a high degree of education and professional skills, engaged in research and development, design, management, consulting and other highly specialized work, its core feature is the ability to promote the organization's knowledge capital appreciation through innovative thinking and knowledge application. The salient characteristics of knowledge workers include a strong need for autonomy,

innovation and self-realization. They tend to work independently in relaxed, flexible environments that emphasize self-management and creative thinking rather than passively following fixed processes. The outcomes of their labor are highly uncertain, processes are difficult to monitor and outcomes are not easy to quantify, such as technological breakthroughs or strategic decisions[4]. At the same time, they are more focused on intrinsic incentives rather than purely extrinsic rewards, and show high levels of career mobility - loyalty to their field of expertise rather than to a specific firm, and the likelihood of seeking new opportunities when growth is limited[5].

2.2. Stimulate

The essence of motivation is the process of stimulating behavioral motivation through internal and external means. For knowledge workers, incentives can be divided into material incentives, which are effective in the short term but have diminishing marginal utility. Economic returns such as salary and equity can improve employee satisfaction in the short term, but the long-term effect is limited. Spiritual motivation, including work autonomy and sense of accomplishment, is directly related to internal motivation. Giving employees project autonomy can significantly improve their job satisfaction and creativity. Organizational environmental incentives, such as flat management and innovation culture, indirectly stimulate motivation by creating a supportive environment. For example, Google's "20% free time" policy encourages employees to explore personal interest projects and create an innovative atmosphere. Research has shown that over-reliance on material incentives can weaken the creativity of knowledge workers[6].

2.3. The core framework of self-determination theory

Self-determination theory was proposed by Deci and Ryan, and its core is the theory of basic psychological needs. According to the basic psychological needs theory, autonomy, competence and relevance are the three needs that drive the internalization of motivation. Autonomy emphasizes the ability of individuals to make choices and act in accordance with their own interests, values, and intrinsic motivations, and it is the foundation of self-actualization and personal growth, enabling individuals to freely explore the world, pursue goals, and bear consequences[7]. Competence refers to the need for individuals to feel that they are capable of completing tasks, achieving goals, and effectively exerting skills in interacting with the environment. When individuals feel competent, they are intrinsically motivated to actively engage in activities, rather than relying on external rewards or pressure[8]. Relevance reflects the close connection between the individual and the surrounding environment, others and self-experience, which promotes the harmonious unity between the individual and society, nature and the inner self, deepens mutual understanding and resonance, and provides rich resources and support for the growth and development of the individual.

3. Current situation

3.1. Autonomous need

3.1.1. 0rganizational control and autonomy conflict

From the perspective of self-determination theory, the autonomy demand of knowledge workers is the cornerstone of their work motivation. These workers, such as developers, designers, and consultants, are motivated primarily by the challenge, creativity, and learning value of the task rather than by external rewards[9]. They desire to achieve self-worth through innovation and professional growth, and have a strong demand for control over their work, such as the desire to set the pace of work, choose task strategies, and participate in goal setting. In the practice of organization management, the autonomy demand of knowledge workers is often challenged[10]. The conflict between organizational control and autonomy is particularly significant. Traditional management methods, such as KPI, working hour statistics and other hard assessment indicators, are difficult to accurately measure the results of knowledge work.

3.1.2. The one-sidedness of quantitative assessment

The assessment methods that over-rely on quantifiable indicators largely ignore the characteristics and value of knowledge workers' work itself[11].For developers, there can be an awkward situation: on the one hand, they are encouraged to pursue tasks that lead to short-term, quantifiable "outputs" because they are easier to assess and recognize; On the other hand, high-risk, long-cycle innovation projects that may have a significant impact on a company's long-term development are often overlooked or abandoned because their results are difficult to quantify in the short term.

3.1.3. The influence of leadership style and cultural environment

Leadership style and cultural environment also have a profound impact on the autonomy of knowledge workers. Authoritative management can cause managers to ignore the professional judgment of employees and inhibit their need for autonomy [12]. However, the organizational atmosphere that overemphasizes individual competition may destroy the psychological security of employees and make them worry a lot when pursuing autonomous behavior.

3.1.4. Insufficient task design and feedback mechanism

The autonomy demand of knowledge workers is restricted by the control oriented culture and rigid task design in practical management [13]. This kind of contradiction not only weakens the intrinsic motivation of employees, but also may lead to problems such as negative coping and decreased willingness to innovate, which become the key obstacle for organizations to improve incentive effectiveness.

3.2. Need for competence

3.2.1. The capability does not match the task

The current situation of knowledge workers' sense of competence reflects a series of complex and profound problems, which affect employees' inner motivation and job satisfaction. They should be doing their best in the workplace, but often fall into the trap of being overqualified and underchallenged [14]. Their ability is like being imprisoned in low-complexity tasks, and it is difficult to get the proper play and recognition. This mismatch between ability and task not only limits the potential of employees, but also virtually deprives them of the opportunity to gain a sense of competence through challenging work.

3.2.2. The effectiveness of training is insufficient

The lack of training effectiveness is also the key factor that restricts the improvement of knowledge employees' sense of competence. Although enterprises are generally aware of the importance of training, it is often due to the disconnection between the training content and the actual needs, the lack of personalized design and other reasons, resulting in the training is a formality, and it is difficult to truly improve the professional ability and sense of competence of employees [15]. And the lack of organizational support in providing the necessary resources also limits the opportunities for employees to validate and enhance their capabilities through practice, thereby undermining their perception and experience of competence.

3.2.3. The dynamic adaptability of the position is insufficient

The lack of job dynamic adaptability is also a problem that cannot be ignored in the current situation of knowledge workers' sense of competence. With the rapid iteration of technology and the change of market demand, the ability of employees continues to improve and change, but the solidified design of job responsibilities often leads to the dislocation between ability and demand [16]. This dislocation not only prevents employees from applying their new abilities to actual work, but also aggravates the contradiction between "capacity redundancy" and "position rigidity" virtually.

3.3. Relevance need

3.3.1. Alienation of individual organizational environment

Under the framework of self-determination theory, the need for motivation relevance of knowledge workers describes in detail the intricate relationship between individuals and work environment, interpersonal interaction and self-worth realization. As a key component of the three basic psychological needs of autonomy, competence, and belonging, connectedness emphasizes the close and indispensable connection between individuals and their surroundings, others, and their historical experiences. However, the current situation of knowledge workers in meeting this basic need is full of significant contradictions and challenges. From the perspective of the relationship between individual and organizational environment, knowledge workers' desire for a sense of belonging is particularly prominent. They are not only looking for a sense of belonging within the team, but also for a deep sense of value and a supportive organizational culture. But the real business environment often falls far short of this expectation. Many organizations are still addicted to a competition-oriented management model with an excessive focus on performance reviews and individual achievement, which exacerbates the crisis of trust among employees and reduces the incentive to share knowledge. The fragmentation of organizational culture has seriously hindered employees from forming a true sense of belonging to the organization. Some technology companies blindly promote "Wolf culture", but the result is to destroy the atmosphere of teamwork, resulting in estrangement and tension between employees [17]. With the popularity of remote working, although work flexibility has increased significantly, the issue of emotional alienation has also emerged. Digital office has made virtual communication mainstream, but it is often difficult to replace the deep emotional connection brought by face-to-face communication. In the context of remote collaboration, the frequency of interaction with colleagues and superiors is significantly reduced, and the opportunity for informal socializing is also greatly reduced, which further exacerbates the lack of belonging. Some remote teams even become "atomized" due to the lack of a common sense of purpose, and employees' sense of identity with the organization dissipates in the process.

3.3.2. Disconnection between individuals and others

Knowledge workers also face serious challenges in relation to individuals and others. They need emotional support and professional growth through high-quality human interaction, but real teamwork often remains superficial. In cross-departmental projects, resource competition or goal conflict often makes it difficult to establish a deep cooperative relationship between members [18]. This not only leaves knowledge workers isolated, but also seriously affects the overall effectiveness and creativity of the team. In addition, some enterprises directly link performance evaluation with salary, which makes the relationship between employees become more and more utilitarian, and the spirit of mutual assistance is gradually weakened in this process.

3.3.3. The contradiction between the individual and the experienced self

The current state of the relationship between individuals and their own experiences is that the psychological contract between knowledge workers and organizations is based more on personal development than on long-term loyalty. When companies fail to provide employees with sustained growth opportunities, their sense of belonging takes a serious hit[19]. The high turnover rate in the technology industry means that a distinct employee's commitment to the organization is gradually weakened, and their professional loyalty is more oriented toward the advancement of personal capabilities than the achievement of corporate goals.

3.3.4. Internal and external demand misalignment

The misalignment between internal goals and external incentives is also an urgent problem to be solved. Knowledge workers generally pursue internal goals such as innovation and learning, but the incentive system of most enterprises still focuses on external goals (salary, promotion). This mismatch makes it difficult to align employee motivation with organizational goals, forming the so-called "motivation paradox".

3.3.5. The implications of unmet relevance requirements

The adverse consequences of unfulfilled relevance demands are predominantly manifested in elevated turnover rates and occupational burnout. The absence of a sense of belonging and goal misalignment significantly increase the propensity of knowledge workers to consider resignation. Empirical studies demonstrate that within teams lacking value congruence, employees are more susceptible to occupational burnout and are inclined to actively pursue external career opportunities. When relevance needs remain unmet, knowledge workers tend to adopt risk-averse strategies, refraining from taking initiatives or sharing innovative concepts. This behavioral pattern consequently constrains organizational innovation capacity and overall competitiveness. Currently, a pronounced dichotomy exists regarding the relevance needs of knowledge workers. While theorists emphasize the critical importance of belongingness, social support, and value alignment, practical implementations are plagued by issues such as cultural fragmentation, superficial interactions, and weak psychological contracts. This disjunction not only substantially diminishes employees' intrinsic motivation and creativity but also intensifies the discord between organizational and individual objectives. Consequently, addressing the relevance needs of knowledge workers has emerged as a pivotal challenge for contemporary enterprises and organizations. This issue bears significant implications not only for employees' personal well-being and career progression but also for the organization's competitive advantage and sustainable development.

4. measure

4.1. Traditional management practices in conflict resolution

Technology enables autonomous practice, realizes task transparency and autonomous management, and reduces the sense of bondage brought by traditional control. During the implementation, it is suggested to prioritize the adjustment of the assessment mechanism and leadership style, gradually optimize the task design and cultural transformation, and form an incentive ecology with autonomy as the core, taking into account the sense of competence and belonging. Through these measures, the autonomy conflict of knowledge workers can be effectively alleviated, their innovation potential and internal motivation can be stimulated, and the win-win situation of organizational effectiveness and individual growth can be achieved.

4.2. Reconstructing incentive mechanism

The first task is to restructure the assessment mechanism to strengthen autonomy support, adopt a comprehensive assessment model of "results + process", and encourage employees to participate in goal setting and enhance their sense of ownership. At the same time, task design and feedback mechanisms are optimized, semi-structured tasks are designed to retain flexibility in the execution path, and developmental feedback is provided to focus on employee growth[20]. Leadership style and organizational culture also need to change. Managers should be transformed from supervisors to enablers, listen to employees' suggestions through open communication, reduce micro-intervention, advocate cross-departmental collaboration and knowledge sharing, and build a collaborative culture to enhance employees' sense of belonging. Balance internal and external incentives, strengthen internal incentives to avoid excessive reliance on external rewards and punishments to distort motivation, and establish a fault tolerance mechanism to strengthen employees' psychological security.

4.3. Enhance the collaborative path of competence

In order to solve the challenge of the lack of competence of knowledge workers, enterprises should assign challenging tasks matching their skill level to knowledge workers through ability assessment tools, such as the selection of highly complex projects in the work mode of project system, and scientifically break down long-term goals into phased challenges, so that employees can continuously

gain a sense of competence in the process of completing goals. On the basis of the original performance indicators, the "ability growth value" is introduced to quantitatively evaluate the employees' skills improvement, innovation contribution and learning outcomes in the project. At the same time, enterprises should also pay attention to the personalization of knowledge workers. Through research to identify the shortcomings of employees' abilities and career development needs, customize modular courses, such as cutting-edge technology training, cross-field collaboration courses, etc., and adopt the "training + practice" model to ensure that employees can put what they learn into practice.

4.4. Digital resources fit dynamic positions

The establishment of a digital resource library also supports employees to quickly access the information and technical tools they need. There is also a need to build a closed loop of resource support and feedback, using digital tools to manage task progress transparently and provide immediate positive feedback. Improve the dynamic adaptability of posts, implement agile post design and skill redundancy transformation mechanism, and encourage employees to apply for responsibility adjustment or cross-department collaboration according to the expansion of capabilities, so as to avoid waste of capabilities. It is expected to achieve a win-win situation between organizational effectiveness and personal development while satisfying the needs of employees' sense of competence.

4.5. Corporate culture reconstruction

For the current situation that the relevant needs of knowledge workers have not been fully met, enterprises should focus on the development of organizational culture, abandon the "Wolf culture" of excessive competition, and turn to the atmosphere advocating collaboration and win-win. By cultivating a supportive culture and establishing a deep connection mechanism, such as regularly organizing cross-departmental informal social activities and adding emotional communication links in virtual collaboration, employees can strengthen their sense of belonging and value recognition. At the same time, improve the quality of interpersonal interaction, optimize the team cooperation mode, promote the goal coordination, set up the common goal of cross-departmental projects, and promote deep cooperation through the interest binding mechanism. Add a cooperative evaluation system, reduce the weight of individual performance, weaken utilitarian competition, and strengthen the assessment and mutual assistance spirit of team contribution and knowledge sharing. It should also continue to alleviate the "atomization" problem caused by remote working, and balance remote and offline working models. Adopt a hybrid office model to ensure the opportunity of face-to-face communication, while using virtual reality technology to enhance the sense of presence of remote interaction. Build digital social platforms to encourage informal knowledge exchange and emotional support. Further enhance the role of psychological contracts to tie individuals to organizational goals. Through the development of personalized career development plans and the implementation of the incentive system with intrinsic motivation as the core, the long-term commitment and innovation motivation of employees are enhanced, and the over-dependence on external rewards is reduced. Companies can systematically support employee mental health. Establish a sense of belonging monitoring mechanism and job burnout intervention program, conduct regular anonymous surveys to assess employees' sense of belonging, provide psychological counseling services, flexible working system and phased target management, and help employees balance stress and sense of accomplishment.

5. Conclusion

Based on the self-determination theory, this paper discusses the motivation mechanism of knowledge workers and emphasizes the importance of satisfying the three basic psychological needs of employees, namely autonomy, competence and relevance, to stimulate their intrinsic motivation and improve their work performance. Research has shown that the motivation of knowledge workers

not only relies on external rewards and material incentives, but more importantly, improves their intrinsic motivation by providing freedom, challenge and room for growth. Although some progress has been made in the application of self-determination theory, the existing literature has the following shortcomings: First, it mainly focuses on a single psychological need and fails to fully explore the interaction between the three needs; Second, most studies are based on the western cultural background, and lack of consideration of the different needs of knowledge workers in other cultural backgrounds such as China; Third, although the theoretical research has achieved rich results, the specific strategies and methods in practice are still insufficient. Therefore, future research should focus on the interaction of the three psychological needs of self-determination theory, cross-cultural differences and specific strategies for combining theory and practice.

6. Future development and prospects

For knowledge workers in the context of Chinese culture, future research should further explore how to balance employees' needs of belonging and autonomy in collectivist culture, and design incentive programs that are in line with local characteristics. In addition, combining self-determination theory with other motivation theories (such as expectation theory and goal setting theory) can provide enterprises with a more comprehensive employee motivation model and improve the work performance and innovation ability of knowledge workers.

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