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Equity Incentives and the Enterprise Life Cycle in Sci-Tech Enterprises: A Multi-Case Study

XIANG Rong

Doctor of Management

Supervisors:
Nelson Santos António, Professor Emeritus
ISCTE University Institute of Lisbon
XIAO Wen, Professor
University of Electronic Science and Technology of China

December, 2025

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Abstract

This study investigates equity incentive mechanisms in technology innovation enterprises across different life cycle stages through empirical case analysis of four representative firms. It examines design, implementation, and effects, revealing stage-specific characteristics and challenges while proposing targeted optimizations.

Findings indicate equity incentives serve distinct functions at each stage. Start-ups utilize them to attract and stabilize core teams amid capital and market constraints. Growth-stage firms extend incentives to middle management and technical talent to drive expansion. Pre-IPO enterprises focus on retaining key executives and core technical teams to ensure successful listing and valuation enhancement. Post-IPO mature firms shift toward performance optimization and aligning shareholder-management interests to strengthen governance.

The research identifies prevalent design issues including perceived distributional unfairness, shareholder dilution conflicts, and inflexible incentive structures. Effectiveness is particularly sensitive to strategic adjustments and market volatility under innovation and talent retention pressures. Consequently, effective plans require both dynamic adaptability and precise alignment with the enterprise's developmental stage and strategic objectives.

Theoretical contributions include a life cycle perspective enhancing equity incentive contextualization, a framework for dynamic incentive evolution, emphasis on institutional and cultural embeddedness, and "stage matching" with "dynamic sustainability" design principles. This provides a new analytical paradigm for research and practice.

In conclusion, while crucial for competitiveness and innovation, equity incentive efficacy depends on multi-factor integration. Enterprises should develop tailored, strategically embedded plans that evolve with their development to maximize employee potential and support sustainable growth.

Keywords: Enterprise Life Cycle; Equity Incentives; Technology Enterprises; Dynamic Evolution

JEL: M12; L26

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Resumo

Este estudo investiga quatro empresas representativas do sector inovação tecnológica, para compreender os mecanismos de incentivo de capital em diferentes estágios do seu ciclo de vida. Estudamos o design, a implementação e os efeitos, revelando as características e desafios específicos de cada estágio, ao mesmo tempo que propomos otimizações direcionadas.

Os resultados indicam que os incentivos de capital desempenham funções distintas nas diferentes fases. As startups utilizam estes incentivos para atrair e estabilizar equipas principais face às de capital e mercado. As empresas em fase de crescimento estendem os incentivos para a gestão média e talentos técnicos, a fim de impulsionar a sua expansão. As empresas em pré-IPO focam-se na retenção de executivos-chave e equipas técnicas centrais para garantir uma listagem bem-sucedida e a valorização do negócio. As empresas maduras pós-IPO deslocam o foco para a otimização de desempenho e o alinhamento de interesses entre acionistas e gestão, fortalecendo a governança.

A pesquisa identifica problemas recorrentes de design, incluindo percepção de injustiça distributiva, conflitos de diluição acionária e estruturas de incentivo inflexíveis. A eficácia é particularmente sensível a ajustes estratégicos e à volatilidade do mercado sob pressões de inovação e retenção de talentos. Consequentemente, os planos eficazes exigem adaptabilidade dinâmica e alinhamento preciso com a fase de desenvolvimento da empresa e seus objetivos estratégicos.

As contribuições teóricas, desta tese, incluem uma perspectiva de ciclo de vida que aprimora a contextualização dos incentivos de capital, um quadro para a evolução dinâmica dos incentivos, ênfase na incorporação institucional e cultural, e princípios de design de "correspondência de estágio" e "sustentabilidade dinâmica", o que oferece um novo paradigma analítico para pesquisa e prática.

Em conclusão, embora sejam cruciais para competitividade e inovação, a eficácia dos incentivos de capital depende da integração de múltiplos fatores. As empresas devem desenvolver planos personalizados e estrategicamente incorporados, que evoluam com seu desenvolvimento, para maximizar o potencial dos funcionários e apoiar o crescimento sustentável.

Palavras-chave: Ciclo de Vida da Empresa; Incentivos de Capital; Empresas de Base Tecnológica; Evolução Dinâmica
JEL: M12; L26

摘　要

本研究围绕不同生命周期阶段的科创企业股权激励机制展开，结合四家代表性企业的实证案例分析，深入探讨了股权激励的设计、实施及其效果。通过分析初创期、成长期、扩张期及成熟期阶段科创企业的股权激励策略，本研究揭示了股权激励在不同生命周期阶段的应用特点、挑战，并针对性地提出了优化策略。

首先，研究表明，股权激励在科创企业的生命周期各阶段均扮演着至关重要的角色。在初创期，股权激励主要用于吸引并稳定核心团队，帮助企业度过资金与市场认知的困境；在成长期，股权激励逐步扩展至中层管理和技术骨干，注重激发员工的长期发展动力，推动企业快速扩张；在扩张期如 pre-IPO 阶段，股权激励则着重于稳定关键高管与核心技术团队，确保企业顺利上市并提升市场估值；在成熟期如已上市阶段，股权激励的重点转向优化绩效考核，强化股东与管理层的利益一致性，以推动企业的持续增长与治理结构的完善。

其次，研究揭示了股权激励设计中的几个共性问题，例如股权分配的不公平感、股东稀释的冲突、激励工具的灵活性等，尤其是在面临技术创新与人才留存的双重压力时，股权激励的效果往往受到企业战略与市场变化的影响。因此，股权激励方案不仅要具备灵活性与动态调整机制，还要根据企业所处的生命周期阶段与战略目标进行精准对接，以最大化激励效果与企业长期价值的创造。

最后，基于研究结果，本研究通过引入生命周期视角，深化了股权激励的情境解释力，提出股权激励机制应随企业发展阶段动态演进的理论框架；强调了制度配置与文化因素在激励机制中的调节与嵌入作用；并提出了“阶段匹配性”与“动态可持续性”的股权激励设计原则，为理论研究和实践提供了新的分析范式。

总的来说，股权激励是提升科创企业竞争力与创新动力的关键因素，但其有效性受到多方面因素的制约。因此，企业应结合自身发展特点，灵活设计股权激励方案，并加强与公司战略的深度对接，以确保股权激励能够真正激发员工的潜力，推动科创企业持续健康发展。

关键词：企业生命周期；股权激励；科创企业；动态演化

JEL: M12; L26

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As the final characters of this thesis settled with the sound of the keyboard, the scroll of over two decades of my academic career gently unfolded, transforming my deep bond with the University of Electronic Science and Technology of China (UESTC) into a surging well of gratitude. Since stepping onto the campus in 1998 with a fervent aspiration for electronic science and technology, from the undergraduate foundation in Electromagnetic Field and Microwave Technology to the deep dive of my Master's studies in Signal and Information Processing, my alma mater not only built my professional bedrock but also ignited the spark of scientific research exploration. Returning to teach in 2005, through the mutual growth in the field of Circuits and Systems, I profoundly understood the dialectical relationship between knowledge innovation and practical application. Plunging into the entrepreneurial tide in 2009, I personally experienced the hardships and breakthroughs of corporate growth, further realizing the critical significance of scientific management for the development of Sci-Tech enterprises.

In 2021, carrying the confusion and reflections from my enterprise management practice, I returned to my alma mater to pursue a Doctor of Management under the UESTC-ISCTE DoM program. In this academic journey, I offer my most sincere gratitude to my two supervisors, Professor Nelson Antonio and Professor XIAO Wen. With your profound academic accomplishments and keen insight into frontier knowledge, you guided me across the disciplinary boundaries of technology and management, helping me construct a systematic framework of management knowledge. From the selection and validation of the topic focusing on the practical challenges of equity incentives in Sci-Tech enterprises, to the innovative application of the mixed-methods research approach, and the repeated refinement of the thesis structure, your wisdom and dedication were poured into every critical juncture. Your rigorous scholarly attitude and pioneering mindset not only brought this thesis to fruition but also illuminated the path of academic exploration for me.

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当论文终章的字符在键盘敲击声中定格，二十余载学术生涯的画卷徐徐展开，我与电子科技大学的深厚羁绊化作内心奔涌的感激。自1998年怀着对电子科技的炽热向往踏入校园，从电磁场与微波技术专业的本科积淀，到信号与信息处理领域的硕士深耕，母校不仅为我筑牢专业根基，更点燃了科研探索的星火。2005年留校任教，在电路与系统方向的教学相长中，我深刻领悟知识创新与实践转化的辩证关系；2009年投身创业浪潮，亲历企业成长的艰辛与突破，也愈发意识到科学管理对科创企业发展的关键意义。

2021年，带着企业管理实践中的困惑与思考，我重返母校攻读 UESTC-ISCTE DoM 项目管理学博士学位。这段学术旅程中，我最诚挚地感谢 Professor Nelson Antonio 与 Professor XIAO Wen 两位导师。你们以渊博的学术造诣、敏锐的前沿洞察，引领我跨越技术与管理的学科边界，构建起系统的管理学知识框架。从聚焦科创企业股权激励现实困境的选题论证，到混合研究方法的创新运用，再到论文结构的反复打磨，每个关键节点都倾注着你们的智慧与心血。你们严谨的治学态度与开拓性思维，不仅成就了这篇论文，更为我点亮了学术探索的明灯。

衷心感谢并肩奋斗的同事与挚友。在平衡企业运营、学术研究与博士学业的艰难征程中，是你们的理解包容与鼎力支持，让我得以心无旁骛地探索学术前沿；困境时的建言献策、收获时的真诚分享，皆化作前行路上最温暖的力量。

最后，我要将最深沉的谢意献给家人。求学与创业的漫漫长路，始终有你们坚实的身影相伴，你们以无微不至的关怀构筑温暖港湾，用坚定的支持抚平前行的疲惫。这份博士论文不仅是学术成果的结晶，更是承载着所有支持与期许的人生丰碑。未来，我将怀揣感恩之心，在学术与实践的交融中继续探索，以所学回馈社会，不负时代赋予的使命。

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List of Abbreviations

CSRC = China Securities Regulatory Commission

DRFM = digital radio frequency memory

ESOP = Employee Stock Ownership Plans

ESPP = Employee Stock Purchase Plans

ISO = Incentive Stock Options

KPI = Key Performance Indicators

LTI = Long-Term Incentives

MTS = Magnetic Tracking Systems

NSO = Non-statutory Stock Options

PSU = Performance Share Units

RBV = Resource-Based View

ROI = Return on Investment

ROIC =Return on Invested Capital

RSU = Restricted Stock Units

R&D = research and development

Sci-Tech = Scientific and technological

SBTC = Skill-Biased Technological Change

SMART = Specific, Measurable, Achievable, Relevant, Time-bound

STAR Market = Science and Technology Innovation Board

TSR = Total Shareholder Return

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Chapter 1: Introduction

1.1 Research background

1.1.1 Definition of Sci-Tech enterprises

In recent years, "scientific and technological (Sci-Tech) innovation" has become a high-frequency term in China's socio-economic life, reflecting the nation's high priority and strategic deployment regarding scientific and technological innovation. Local governments across the country have successively formulated *"14th Five-Year Plans"* for Sci-Tech innovation, striving to become Sci-Tech innovation hubs, while enterprises actively respond, vowing to be pioneers in technological innovation. With the acceleration of a new round of global technological revolution and industrial transformation, scientific and technological innovation has become one of the core focuses of international competition. As the main drivers of technological innovation, the development of enterprises, relies on core competence in this area.

Broadly speaking, Sci-Tech enterprises refer to technology innovation companies that align with national strategy, achieve breakthroughs in key core technologies, and have high market recognition. They are also generally required to have research and development (R&D) investment accounting for over 60 of operating revenue in the last three years. The main sectors include next-generation information technology, high-end equipment, new materials, biomedicine, new energy, and energy conservation and environmental protection.

According to data from China's National Bureau of Statistics, as of 2021, China had approximately 330,000 Sci-Tech enterprises, accounting for 0.7% of the total number of enterprises nationwide. Despite the small number, these enterprises contributed over 70% of the national corporate R&D investment and absorbed 11.2% of that year's college graduates. Furthermore, the taxes paid by Sci-Tech enterprises increased from 0.8 trillion RMB (approximately 115 billion Euros) in 2012 to 2.3 trillion RMB (approximately 330.7 billion Euros) in 2021. Currently, Sci-Tech enterprises account for over 90% of the companies listed on The STAR Market (Science and Technology Innovation Board) and the Beijing Stock Exchange, demonstrating their important status and influence in the capital market.

The rapid development of Sci-Tech enterprises has not only enhanced China's competitiveness in the global technology sector but also promoted the optimization and

upgrading of industrial structure, providing strong impetus for the nation's high-quality economic development. This development trend also indicates that Sci-Tech enterprises will continue to play a crucial role in the future socio-economy.

1.1.2 Contribution of Sci-Tech enterprises to economic development

Sci-Tech enterprises have become an important force driving global economic growth. Under the current innovation-driven economic development model, Sci-Tech enterprises have become an indispensable part of national economic development due to their outstanding technological innovation capabilities, flexible market response mechanisms, and attractiveness to high-end talent. With the transformation and upgrading of China's economy, Sci-Tech enterprises have played a crucial role in promoting GDP growth, increasing employment opportunities, enhancing industrial competitiveness, and fostering technological progress.

Since 2015, the contribution rate of Sci-Tech enterprises to China's GDP has increased significantly. According to data from the National Bureau of Statistics, the contribution rate of Sci-Tech enterprises to GDP was 5.2% in 2015, and this proportion grew to 9.0% by 2023 (see Figure 1.1). This signifies a substantial increase in the economic influence of Sci-Tech enterprises within just a few years. Specifically, the role of Sci-Tech enterprises in driving GDP growth is primarily reflected in the following aspects: Firstly, Sci-Tech enterprises drive productivity improvements through continuous technological innovation. Traditional economic growth models, such as the Solow growth model, treat technological progress as an exogenous factor, while endogenous growth theory further emphasizes the endogenous nature of technological innovation. According to Romer's endogenous growth theory, Sci-Tech enterprises continuously enhance production efficiency and promote long-term sustainable economic growth through sustained R&D activities and knowledge accumulation (Romer, 1990). Secondly, the product and service innovations of Sci-Tech enterprises directly stimulate market demand growth, for example, in high-tech industries like information technology, biomedicine, and new energy, Sci-Tech enterprises launch disruptive new products and services that generate new market demand, driving the rapid expansion of related industrial chains. This not only accelerates the overall pace of economic growth but also optimizes the economic structure and enhances the comprehensive competitiveness of the national economy.

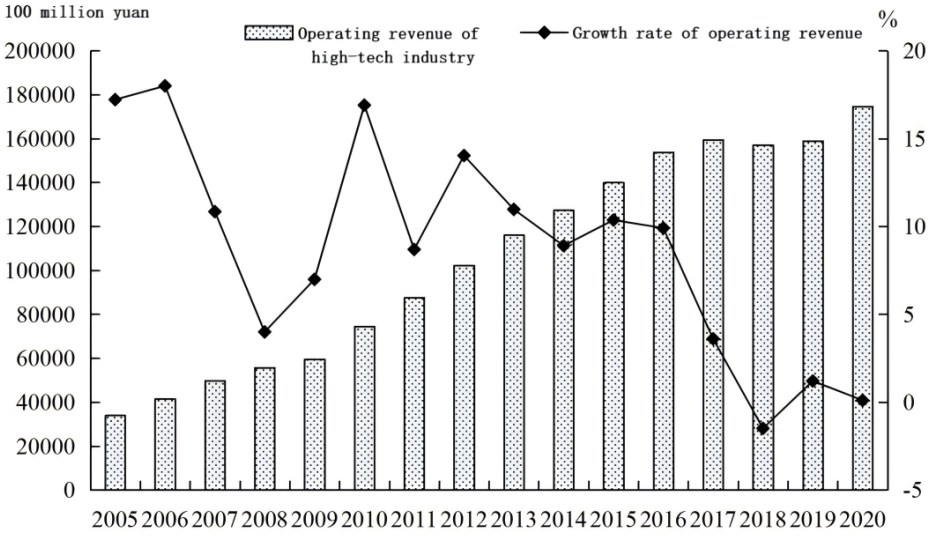


Figure 1.1 Revenue and growth rate of high-tech industries

Sci-Tech enterprises not only show outstanding performance in GDP contribution, but their impact on the job market is equally significant. According to relevant statistics, the contribution rate of Sci-Tech enterprises to national employment was 3.4% in 2015, and this proportion increased to 6.2% by 2023. This growth reflects the significant role of Sci-Tech enterprises in creating high-skilled, high-value-added jobs. Sci-Tech enterprises absorb a large number of highly educated professionals, especially in the fields of technology, engineering, and management. Data shows that from 2015 to 2023, the proportion of high-skilled jobs among the new positions created by Sci-Tech enterprises increased from 35% to over 50%. This change has not only improved the overall quality of the labor market but has also provided broader career development opportunities for high-skilled talent. Theoretically, the Skill-Biased Technological Change (SBTC) theory posits that technological progress typically increases the demand for high-skilled labor (Acemoglu, 1998). Sci-Tech enterprises, as the main force of technological innovation, further accelerate this trend through continuous innovation and technological upgrading. As Sci-Tech enterprises develop, they not only directly provide a large number of high-value-added employment opportunities but also indirectly create more jobs by driving the development of upstream and downstream industries.

R&D investment is the key for Sci-Tech enterprises to drive technological innovation and is also a significant embodiment of their economic contribution. From 2015 to 2023, the average annual growth rate of R&D investment in Sci-Tech enterprises exceeded 6.1%, reaching 10.0% in 2023. This sustained R&D investment injects a continuous stream of innovative momentum into economic development. Romer’s endogenous growth theory emphasizes that knowledge

accumulation and R&D activities are the main drivers of long-term economic growth. By continuously increasing R&D investment, Sci-Tech enterprises accelerate the development of new technologies, new processes, and new products. This not only enhances the enterprises' market competitiveness but also promotes technological progress across the entire economic system. For instance, data shows that from 2015 to 2023, the number of patent applications by Sci-Tech enterprises in high-tech fields grew at an average annual rate of over 8%, reflecting the crucial position of Sci-Tech enterprises in technological innovation. Furthermore, the R&D activities of Sci-Tech enterprises bring significant "spillover effects". The innovative achievements of these enterprises are often not limited to their own application but also drive technological progress across the entire industry, and even the whole economy, through knowledge diffusion and technology transfer. Research indicates that in industrial clusters concentrated with Sci-Tech enterprises, the productivity of other firms often improves, which further validates the core role of Sci-Tech enterprises in economic development.

Sci-Tech enterprises play a crucial role in promoting the optimization of the industrial structure. With the development of Sci-Tech enterprises, the technological level and production efficiency of traditional industries have been significantly enhanced, while the proportion of high-tech industries has gradually increased. For example, data shows that from 2015 to 2023, the share of high-tech industries in the national total industrial output value rose from 10.3% to 15.8%, a growth primarily attributed to the rapid development of Sci-Tech enterprises. Porter's theory of competitive advantage suggests that a nation's competitive advantage stems from innovation and industrial clusters (Porter, 1990). Sci-Tech enterprises, through their technological innovation capabilities, continuously drive the agglomeration and development of related industries, forming a series of emerging industrial clusters, such as information technology, biomedicine, and new energy. These industrial clusters not only promote regional economic development but also enhance the nation's overall economic competitiveness. For instance, in regions concentrated with Sci-Tech enterprises, such as Guangdong and Zhejiang, the output value proportion of high-tech industries is significantly higher than the national average, demonstrating the importance of Sci-Tech enterprises in regional economic development.

1.1.3 Incentive mechanisms of Sci-Tech enterprises

In recent years, equity incentives have received increasing attention in corporate management, with profound real-world context behind this focus. From a management perspective, equity incentives have become a common management tool adopted by enterprises, and their positive

role in motivating employees, stabilizing teams, and attracting talent has been widely recognized (Core & Guay, 2001; Murphy, 2013). For Sci-Tech enterprises, equity incentives are particularly crucial. On one hand, these companies typically face the dilemma of strong talent demand but limited capital; on the other hand, these enterprises possess immense potential capital value. Therefore, Sci-Tech enterprises are the group most suitable for using equity incentive tools (Oyer & Schaefer, 2005). By using the potential value of equity to attract and retain talent, Sci-Tech enterprises can alleviate cash expenditure pressure while enhancing their core competitiveness (Lazear, 2000).

In high-tech industries such as semiconductor and innovative drug R&D, the application of equity incentives is quite common. Research shows that enterprises in these industries are highly dependent on knowledge-intensive talent, and equity incentives provide an effective tool for attracting and retaining this key talent (Hall & Murphy, 2003). For technology companies to stabilize existing talent and attract new talent, equity incentives are no longer optional, but mandatory. This tool is particularly important for technology companies that need to attract high-end international talent, as these individuals are often influenced by Silicon Valley culture and have an inherent expectation for equity incentives (Edmans et al., 2009).

Driven by multiple factors, the positive effect of equity incentives on corporate operations is further evident. As a powerful tool for binding talent, equity incentives not only help establish a community of interest between the enterprise and its employees but also significantly alleviate the company's cash flow pressure, realizing a "two-way commitment" between the enterprise and its employees (Jensen & Meckling, 2019). In the era of the knowledge economy, talent is considered a critical resource for corporate development, and closely linking core talent with corporate interests through equity incentives is one of the effective strategies for enhancing corporate competitiveness (Bebchuk & Fried, 2006).

Equity incentives, as a "strategic" tool for attracting and retaining talent, have become a necessity in corporate talent management. According to the 2022 *Research Report on Equity Incentives in Sci-Tech Startup Enterprises*, over half of the surveyed enterprises launched an equity incentive plan within three years of establishment. Moreover, 21.43% of the companies were still in the product R&D stage, without generating any actual operating revenue, when they first implemented equity incentives (J. Zhou & Yuan, 2022). This reflects that equity incentives have become the primary means for startup enterprises to attract and retain high-potential talent, especially in the early stages when the company does not yet have sufficient cash flow to offer high salaries, providing an alternative incentive mechanism (Baker et al., 1988; Bebchuk & Fried, 2006).

The demand for equity incentives can be seen more clearly from A-share data. As of December 31, 2022, there were 5,067 A-share listed companies, of which 2,624 had implemented equity incentives, and 1,086 companies had announced employee stock ownership plans (China Securities Regulatory Commission [CSRC], 2023). Equity incentives, as an incentive system targeting core employees, are more focused on attracting and retaining scarce talent (Frydman & Jenter, 2010). Therefore, the demand for equity incentives is particularly strong among technology and startup enterprises.

In 2022, Sci-Tech and startup enterprises excelled in implementing equity incentives. The A-share ChiNext board announced 240 equity incentive plans, accounting for 31.5% of the total A-share equity incentive announcements, ranking first among all boards. The STAR Market announced 155 equity incentive plans, making up 20.34% of the A-share total (CSRC, 2023). By the end of 2022, over half of the companies listed on the STAR Market had implemented equity incentive plans. Furthermore, in 2022, 274 new companies listed on the A-share STAR Market and ChiNext board, with more than half conducting strategic placements for employees during their IPO. This data further illustrates the importance and prevalence of equity incentives in the development of technology-based enterprises.

Securities regulatory authorities have also attached unprecedented importance to equity incentives. On April 19, 2024, *CSRC* issued the *Sixteen Measures on Capital Market Service for the High-Quality Development of Sci-Tech Enterprises*, which designated "improving equity incentives for Sci-Tech enterprises" as one of the key measures. These measures not only support Sci-Tech enterprises in continuing to implement equity incentives after listing but also clearly express support for companies to set up equity incentive plans before listing (CSRC, 2024). This policy orientation further strengthens the strategic position of equity incentives in the development of Sci-Tech enterprises.

Therefore, it is foreseeable that equity incentives will play an even greater role in the development of Sci-Tech enterprises. However, as a management tool, like any other, equity incentives have both positive impacts and potential negative effects (Bebchuk & Fried, 2006). The challenge for all Sci-Tech enterprises is how to appropriately utilize equity incentives to maximize their positive effects while minimizing adverse impacts. This requires enterprises to fully consider factors such as their life cycle stage, organizational culture, and external market environment when designing equity incentive plans to ensure the effectiveness and sustainability of the incentive mechanism (Frydman & Jenter, 2010; Murphy, 2013).

1.2 Research problem

In modern corporate management practice, equity incentives have become a crucial tool for enterprises to achieve long-term motivation and interest alignment, showing significant advantages, especially in attracting and retaining high-quality talent. For Sci-Tech enterprises, their characteristics such as long R&D cycles, high capital investment, and rapid product iteration make the practical significance of equity incentives even more pronounced. According to relevant research, about 80% of early-stage technology startups have R&D expenditures significantly higher than operating revenue in the initial phase; while in the mid-to-late stages, enterprises face the dual pressure of rising human capital costs and the loss of core talent. Therefore, how to achieve a balance between R&D cost control and human resource motivation at different development stages has become a key and universal challenge for Sci-Tech enterprises.

Against this backdrop, an increasing number of Sci-Tech enterprises are introducing equity incentive mechanisms to achieve the dual goals of "controllable cost and effective motivation". However, enterprises at different life cycle stages exhibit significant differences in growth objectives, resource endowments, and risk preferences, leading to variations in the design logic and implementation effect of equity incentives. This study is based on four case studies of typical Sci-Tech enterprises at different life cycle stages, systematically analyzing the characteristics, effectiveness, and adaptability of their equity incentive plans, with the aim of providing operable incentive design references for enterprises at different growth stages, assisting them in achieving sustainable development in a complex market environment.

To deeply explore the characteristics and effects of equity incentives in Sci-Tech enterprises at different life cycle stages, this study intends to answer the following three core questions:

Research question 1: What is the current status of equity incentive plans in Sci-Tech enterprises at different life cycle stages? This study will systematically analyze the equity incentive plans of four Sci-Tech enterprises at different life cycle stages, exploring their main characteristics and innovations in terms of recipient selection, incentive tool configuration, performance assessment mechanisms, and exercise conditions. It will also reveal the challenges and constraints they face in practice.

Research question 2: How effective are equity incentives across different corporate life cycles? This study will evaluate the effectiveness of equity incentives for enterprises at different periods, focusing on the actual performance of these incentive measures in terms of employee motivation, talent retention, and corporate performance improvement. Through comparison and

summation, this part of the research will reveal the achievements and shortcomings of equity incentives at each stage, providing empirical evidence for further optimizing incentive strategies.

Research question 3: How should equity incentive plans be designed for Sci-Tech enterprises across different growth cycles? Based on the preceding case analysis, this study will provide targeted recommendations for the design of equity incentive plans for Sci-Tech enterprises at different periods. Specifically, it will explore how to reasonably formulate the coverage, incentive methods, execution timing, and incentive quota of the equity incentive, according to the enterprise's specific needs and development stage, to maximize the incentive effect and the overall corporate interest.

This research will not only contribute to a deeper understanding of the practical application of equity incentives in Sci-Tech enterprises but will also provide corporate managers with feasible design recommendations, helping them achieve sustainable corporate development in a highly competitive market environment.

1.3 Research objectives

This study aims to deeply explore the practical application of equity incentives in Sci-Tech enterprises, particularly how these incentives play a critical role in attracting and retaining key talent, mitigating corporate salary pressure, and optimizing human resource management when these enterprises face challenges such as long R&D cycles, high R&D costs, and rapid product iteration. With the widespread application of equity incentives in corporate management, Sci-Tech enterprises increasingly rely on this tool to address their unique development challenges. By conducting in-depth analyses of the equity incentive programs of four typical Sci-Tech enterprises, this study reveals the design, implementation, and actual effectiveness of equity incentives for different companies at different stages of growth.

The specific objectives of this study include the following aspects:

Firstly, the research aims to provide a detailed analysis of the current equity incentive plans of four Sci-Tech enterprises at different corporate life cycle stages. It seeks to identify the key characteristics, innovative features, and challenges faced by these companies during the design and implementation of these plans. Through this analysis, the study will illustrate how different enterprises adjust and optimize their equity incentive design based on their unique characteristics and stage of development.

Secondly, the research aims to evaluate the actual effect of equity incentives on enterprises

at different development stages. Specifically, it will assess the effectiveness of equity incentives for the four Sci-Tech enterprises at different life cycles from the perspectives of employee motivation, talent retention, and corporate performance improvement. This will allow for a discussion of the demonstrated success, potential limitations, and differences in the effectiveness of equity incentives across various periods of the enterprise.

Finally, by thoroughly analyzing these cases, this study hopes to provide targeted recommendations for Sci-Tech enterprises at different growth stages regarding the design of their equity incentive plans. The research will explore how to reasonably design the scope, method, timing, and quota of equity incentives based on the enterprise's specific needs, resource constraints, and development goals, thereby maximizing the incentive effect while safeguarding the enterprise's long-term interests and sustainable development.

In summary, this research not only seeks to provide practical guidance for managers of Sci-Tech enterprises in the design and implementation of equity incentive plans but also aims to offer the academic and practical communities a new perspective and empirical support on the application of equity incentives in enterprises at different development stages. By revealing the operational mechanism and actual effect of equity incentives in Sci-Tech enterprises across different growth cycles, this study is expected to provide a theoretical basis and practical reference for Sci-Tech enterprises to effectively utilize equity incentives and enhance their core competitiveness in a rapidly changing market environment.

1.4 Research contributions

This research, through in-depth analysis of the equity incentive practices of four Sci-Tech enterprises at different life cycle stages, not only provides practical guidance for the equity incentive practices of Sci-Tech enterprises, helping companies optimize management decisions, reduce capital pressure, and effectively attract and retain talent. Equity incentives are significantly effective in enhancing internal corporate cohesion and market competitiveness, and they also provide valuable theoretical basis for the government and policymakers, helping to advance the perfection of relevant policies, elevate the international competitiveness of Sci-Tech enterprises, thereby supporting the implementation of the national science and technology innovation strategy and promoting high-quality economic development. Furthermore, by revealing the practical application of equity incentives in enterprises across different growth cycles, this study provides a new research perspective for academia and empirical support for practitioners, holding significant importance.

(1) Guiding Equity Incentive Practices for Enterprises: In practical operation, many Sci-Tech enterprises lack scientific basis and experiential support when implementing equity incentives. Since Sci-Tech enterprises face different challenges at various development stages—for instance, in the early stages, they often grapple with capital shortages and high risk, while in the mature stage, they focus more on maintaining the stability and innovation capability of the core team. Equity incentives, as a long-term motivation mechanism, can play a significant role in attracting top talent, maintaining team stability, and driving corporate innovation. However, due to a possible lack of profound understanding of the needs at different development stages, enterprises might design and implement incentive plans that are less than ideal. This study analyzes equity incentive cases of four typical Sci-Tech enterprises at different life cycle stages, revealing how to effectively design and implement equity incentives across various industry backgrounds. This helps corporate managers tailor incentive plans according to the specific circumstances of their companies, thereby improving the incentive effect and avoiding resource waste. These practical guidelines not only help enhance corporate attractiveness and competitiveness but also offer valuable reference and learning opportunities for other enterprises in similar development phases.

(2) Optimizing Enterprise Management Decisions: Sci-Tech enterprises universally face the challenges of limited capital and scarce human resources, which is particularly pronounced in companies at different life cycle stages. Early-stage enterprises often face high financing uncertainty and high R&D investment, demanding significant cash flow; while growth and mature-stage enterprises need to effectively motivate core employees, prevent talent loss, and ensure sustained innovation capability. Equity incentives, as a non-cash incentive tool, can achieve effective employee motivation without increasing the company's cash expenditure. This study systematically evaluates the practical effect of equity incentives on enterprises at different development stages, revealing the mechanism's performance in employee motivation, talent retention, and corporate performance improvement. Through in-depth analysis of these cases, the research finds that equity incentives can not only boost employees' confidence in the company's long-term development but also optimize corporate management decisions and resource allocation under resource constraints, thereby improving overall operational efficiency and market competitiveness. This study provides Sci-Tech corporate managers with decision support on how to scientifically implement equity incentives under different periods and specific conditions, helping companies flexibly adjust incentive strategies, optimize management resources, and enhance sustainable development capability when facing fierce market competition.

(3) Supporting Policy Formulation and Improvement: The development of Sci-Tech enterprises is closely related to national science and technology policy, and the policy environment plays a vital role in corporate development, especially in high-risk, high-return innovative industries. In promoting technological innovation, the government often encourages enterprises to adopt innovative management methods like equity incentives by formulating relevant laws and regulations, offering tax preferential policies, and providing financial support, all to enhance corporate innovation capability and international competitiveness. By systematically analyzing the equity incentive practices of four Sci-Tech enterprises at different life cycle stages, this study provides detailed case data and theoretical analysis, offering strong evidence for policymakers to improve related incentive policies. Specifically, the research results can provide data support for the government when formulating and adjusting equity incentive policies, helping them better understand the mechanism of equity incentives at different stages of corporate development and how to effectively support enterprises in implementing equity incentives within the legal and institutional framework. Guided and supported by policy, not only can Sci-Tech enterprises gain a favorable position in global competition, but the nation’s overall technological innovation capability can also be advanced, laying a solid foundation for high-quality economic development.

(4) Driving Technological Innovation and Economic Development: Sci-Tech enterprises, as the core force of technological innovation, have a direct and profound impact on the nation's technological progress and economic growth. Through effective equity incentive mechanisms, enterprises can not only attract and retain high-quality talent but also stimulate employees’ innovation potential, driving breakthrough progress in technology R&D and product innovation. This study, through in-depth analysis of typical Sci-Tech enterprises across various industry backgrounds, reveals the role and effect of equity incentives across different corporate life cycles. These findings not only help improve corporate management efficiency and competitiveness but also offer practical incentive strategies for other Sci-Tech enterprises, helping them maintain a leading position in increasingly fierce market competition. In the context of globalization, Chinese Sci-Tech enterprises face intense competitive pressure from international counterparts. This study not only provides enterprises with practical operational advice on equity incentives but also offers important theoretical support and practical reference for enhancing the international competitiveness and influence of Chinese Sci-Tech enterprises. By optimizing corporate management and enhancing corporate competitiveness in the global market, this study contributes to the implementation of the national science and technology

innovation strategy, promoting China's high-quality economic development, and contributing to the realization of national technological self-reliance and sustainable economic development.

Chapter 2: Literature Review

2.1 Enterprise life cycle

The Corporate Life Cycle Theory, since its first introduction by Levitt (1965), has become a key conceptual framework in the field of management and organizational theory. The theory aims to describe the characteristics, challenges, and coping strategies that enterprises exhibit at different stages of their development, providing valuable insights for corporate strategic planning and management practice. The basic premise of this theory is that corporate development can be divided into several stages, with each stage having its unique strategic needs and management characteristics. Traditional corporate life cycle models typically include the Startup Stage, Growth Stage, Mature Stage, and Decline Stage, and this staging provides an important theoretical framework for studying corporate growth, stabilization, and decline (Levitt, 1965). Adizes (1979) further developed the life cycle theory by introducing the "Organizational Life Cycle Model", dividing corporate development into ten stages, each with specific management issues and solutions, thereby expanding the scope of application of the corporate life cycle.

In recent years, with globalization and technological advancements, researchers have conducted more in-depth explorations of the life cycle theory. Diaz-Fernandez et al. (2015) proposed a model that includes more stages, such as the "Regeneration Stage" or "Transformation Stage", to explain strategic restructuring and innovation that may occur after the decline stage. This extension suggests that the corporate life cycle is not a fixed linear process but may involve cyclical repetitions, cycles, and leaps. Furthermore, the "Organizational Life Cycle Model" proposed by Hanks et al. (1994) further refined the stages of the life cycle, emphasizing the multi-dimensional management challenges faced by enterprises at different stages (see Figure 2.1).

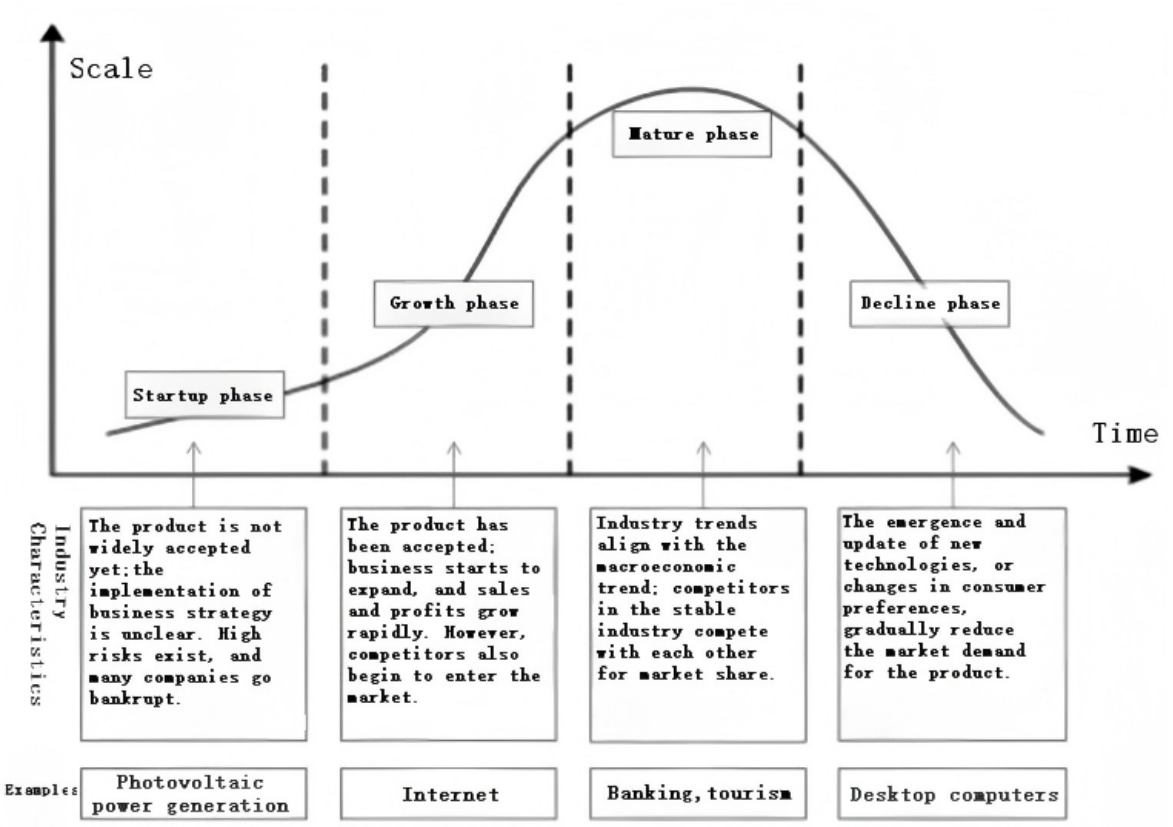


Figure 2.1 Enterprise life cycle diagram

Greiner explained the management challenges faced by enterprises at different life cycle stages by introducing the “Organization Growth and Crisis Model” and pointed out that enterprises undergo multiple crisis points during their growth process (Greiner, 1989). The ability to cope with these crises determines whether the enterprise can enter the next stage. The proposal of these models has greatly enriched the connotation of the Corporate Life Cycle Theory, enabling its application in a broader organizational context.

The Corporate Life Cycle Theory is widely applied in strategic management research, particularly in exploring the strategic choices of enterprises. Enterprises in the Startup Stage typically face challenges such as resource scarcity and high market uncertainty; thus, their strategic focus is often on survival and market entry. Enterprises at this stage are more inclined to adopt offensive strategies, such as product innovation, market expansion, and resource integration (Porter, 1980), to rapidly acquire market share (R. E. Miles & Snow, 1978). Miller and Friesen noted in their research that enterprises in the startup stage usually possess high strategic flexibility and innovation capability (D. Miller & Friesen, 1984), which enables them to rapidly adjust in a dynamic market environment. As the enterprise enters the Growth Stage, growth becomes the main objective, and the company begins to expand its market and product lines. Research indicates that the strategic choices of growth-stage enterprises often focus on

enhancing internal capabilities and expanding external markets, which usually accompanies substantial investment and expansion plans. Technology-driven enterprises particularly rely on innovation strategies to maintain a competitive advantage and achieve rapid growth (Schilling, 2010). Studies have also found that growth-stage enterprises tend to focus more on resource integration and strategic cooperation (Penrose, 2009) to sustain growth amid fierce market competition. In the Mature Stage, market saturation and growth deceleration become the main challenges faced by the enterprise. At this time, the strategic focus of the enterprise shifts to improving operational efficiency, reducing costs, and maintaining market position. Stable operational management and market defense strategies become key at this stage, with enterprises maintaining their competitiveness by optimizing internal processes and consolidating customer relationships (Hambrick & Mason, 1984). Some studies indicate that mature-stage enterprises may gradually shift towards a "conservative" strategy, responding to market challenges by strengthening their existing market position and improving their product lines (Ansoff, 1965). In the Decline Stage, enterprises need to seek new growth points or extend their life cycle through strategic transformation and business restructuring. Barker III and Duhaime (1997)'s research pointed out that successful decline-stage strategies often rely on the enterprise's rapid response to environmental changes and the reconfiguration of internal resources. Furthermore, enterprises at this stage usually focus more on cost control and efficiency improvement to maintain their competitiveness in the market (Porter, 1980).

The organizational structure of an enterprise evolves with its life cycle. In the Startup Stage, the organizational structure is typically simple and flat, facilitating quick decision-making and flexible responses to market changes. This structure accommodates the startup's need for speed and innovation, helping to enhance the company's market responsiveness (Mintzberg, 1989). Upon entering the Growth Stage, as the company scales up and business diversifies, the organizational structure becomes more complex. Functional differentiation, an increase in hierarchy, and the formalization of management systems are typical characteristics of this stage. However, overly complex organizational structures can lead to bureaucracy and decreased decision-making efficiency; thus, enterprises need to strike a balance between flexibility and stability (Burns & Stalker, 1961; Lawrence & Lorsch, 1967). In the Mature Stage, the organizational structure tends to stabilize, but to cope with market changes, the enterprise may introduce matrix structures or team-based management to enhance organizational innovation capacity and market response speed. Galbraith (1973) proposed that mature-stage enterprises often face the challenge of balancing efficiency and innovation, thus requiring flexible organizational design to cope with external environmental uncertainty. In the Decline Stage, the

corporate organizational structure often faces pressure for downsizing and restructuring. By reducing staff, merging departments, or streamlining business processes, the enterprise can lower operating costs and improve operational efficiency (Chandler, 1969).

The Corporate Life Cycle Theory not only profoundly influences a company's strategic choices, financial decisions, and organizational structure but also plays a crucial role in the design and implementation of corporate incentive mechanisms. Enterprises at different life cycle stages face varying motivational needs and challenges, thus exhibiting distinct phased characteristics in the design of incentive mechanisms.

In the Startup Stage and Growth Stage, resource scarcity and market uncertainty often subject enterprises to immense survival pressure. At this point, attracting and retaining key talent becomes the enterprise's top priority. Equity incentives and option plans are commonly used motivational tools for startup enterprises, which not only help alleviate cash flow pressure but also effectively bind employees' personal interests with the company's long-term development goals (Jensen & Meckling, 1976). Through equity incentives, startups can attract high-potential talent, a strategy that is especially crucial in high-risk, high-return technology-driven companies (Zenger, 1992). Research shows that this incentive method can not only boost employee motivation but also enhance their sense of belonging and loyalty to the company, thereby driving the company's rapid growth in the early stages (Gompers et al., 2005). As the enterprise enters the Mature Stage, its business model stabilizes, and market share tends to saturate. At this stage, the design of the incentive mechanism often needs to balance the relationship between short-term performance and long-term value. Mature-stage enterprises typically place greater emphasis on the combination of performance appraisal and long-term incentives, maintaining the stability of core employees through reward mechanisms based on profit or shareholder value (Bebchuk & Fried, 2006; Murphy, 1999). This strategy aims to ensure continuous employee contribution and reinforce their commitment to the enterprise's long-term development (Core & Guay, 1999). Furthermore, incentive measures in mature-stage enterprises are often more conservative, focusing on maintaining the enterprise's stability and sustainable development (Holmstrom, 1979). When the enterprise enters the Decline Stage, the design of the incentive mechanism needs to be more flexible and targeted to cope with the challenges brought by business contraction and market environment deterioration. The enterprise may need to adjust the existing incentive structure, such as reducing cash bonuses, increasing non-cash incentives, or introducing stricter performance-oriented incentive measures (Guthrie & Datta, 2008). The incentive focus at this stage may shift towards strategic transformation and business restructuring, delaying the enterprise's decline process by

incentivizing innovation and driving new business growth. Additionally, the company may try to stimulate employee enthusiasm during difficult times and maintain organizational cohesion and combat effectiveness through short-term incentive measures (Lorange & Nelson, 1987).

Despite the valuable framework the Corporate Life Cycle Theory provides for explaining corporate growth and decline, it also faces some criticism. A major criticism is that the theory assumes a linear process of corporate development, whereas real-world corporate development paths are often more complex and non-linear (Mintzberg, 1989; Quinn & Cameron, 1983). Enterprises may experience phased leaps, reverse development, or multiple cycles, complexities that are not fully considered in traditional life cycle models (Levinthal & March, 1993). Furthermore, different types of enterprises (such as high-tech enterprises, service-oriented enterprises) may exhibit different characteristics and patterns during their life cycles, and these differences are also not fully reflected in existing theories (Kazanjian & Drazin, 1989).

Future research can further explore the interactive relationship between the corporate life cycle and the dynamic environment, especially how enterprises can sustain their life cycle through continuous innovation and flexible transformation against the backdrop of rapid technological change and intensifying market competition (Tushman & O'Reilly III, 1996). In addition, research should also focus on the applicability of the Corporate Life Cycle Theory in different national and cultural contexts. For example, studies by Hofstede (1980) and Child (1996) indicate that cultural and institutional factors have a significant impact on corporate behavior at different stages of the life cycle, which means that the manifestation of the corporate life cycle may differ significantly across various national and cultural backgrounds.

Through a comprehensive analysis of relevant international and Chinese literature, the Corporate Life Cycle Theory not only holds significant value in explaining corporate growth but also provides theoretical support for strategic decision-making, financial management, organizational design, and incentive mechanisms at different corporate development stages. Future research should continue to explore the applicability of this theory in complex and ever-changing business environments and propose a more dynamic and diversified analytical framework in conjunction with the practices of different countries.

2.2 Equity incentive theory

2.2.1 Theoretical cornerstone of equity incentives

2.2.1.1 Human capital theory

In the mid-20th century, within the framework of neoclassical economics, scholars such as Schultz (1962) and Becker (1962) formally established the foundational status of the modern Human Capital Theory. This theory views human resources as a form of capital that can be invested in, accumulated, and generate future returns. Since then, academic circles have engaged in continuous and profound theoretical discussions and empirical research on core issues surrounding human capital's contribution to socio-economic growth, the utility and income distribution mechanism of human capital investment, and the definition and realization of human capital property rights. This series of studies has not only greatly enriched and perfected the theoretical system of human capital, making it a crucial analytical paradigm for explaining macro-economic development drivers, labor market operation rules, and micro-firm behavior, but has also found extensive application in corporate incentive theory and corporate governance.

In the sustained development of Human Capital Theory, scholars gradually recognized the core status of entrepreneurial human capital in corporate theory research. In the early studies of corporate theory, Frank H. Knight, in his classic work "*Risk, Uncertainty, and Profit (1921)*", systematically elucidated the essential function of the firm as an organizational form (Knight, 1921). The core of Knight's theory is that the firm, as an institutional arrangement for dealing with economic uncertainty, exists fundamentally to distinguish between uninsurable uncertainty and insurable risk. By granting the entrepreneur, who bears the uncertainty, the residual claim, the firm achieves the institutional absorption and management of uncertainty. This theory not only reveals profit as the reward for the uncertainty bearer but also lays the foundation for subsequent research on corporate governance and incentive mechanisms. Schumpeter (1934), from an innovation perspective, emphasized that entrepreneurs are the key force driving economic development, constantly leading industrial transformation and economic growth through technological and production method innovation. Kirzner (1973) further highlighted the unique role of entrepreneurs in market opportunity identification and exploitation, arguing that entrepreneurs, through keen insight and accumulated knowledge, discover and realize potential market opportunities. This ability is the essential characteristic that distinguishes entrepreneurs from other market subjects. The studies by Knight, Schumpeter, and Kirzner,

from the three dimensions of risk-bearing, innovation drive, and opportunity identification, reveal the core functions of entrepreneurial human capital. This theoretical lineage not only deepens the understanding of the operational mechanisms of internal human capital but also lays a solid theoretical foundation for subsequent research on corporate governance structure, incentive mechanism design, and organizational efficiency improvement.

Schultz (1959)'s systematic and groundbreaking definition of the human capital concept mainly includes the following aspects. Firstly, human capital is ability-based capital attached to the individual, specifically manifested as personal knowledge, skills, health status, and comprehensive quality, which is the crucial basis for individual participation in economic activities. Secondly, human capital is accumulable, its formation relying on continuous investment in activities such as education, training, and medical care; these investments constitute the main channels for human capital growth. Thirdly, provided that individual quality is relatively stable, the quantity of human capital can be measured by indicators such as the size of the working population and working hours, thereby providing a quantitative basis for macro-economic analysis. Finally, as a special form of capital, human capital investment can bring economic returns, which are reflected in both personal income growth and societal productivity improvement, demonstrating the economic value of human capital. Building on this, Schultz further proposed a comprehensive capital concept that encompasses both physical and human capital. He argued that although both possess capital attributes, the non-material features of human capital investment, such as knowledge accumulation and ability enhancement, mean that its rate of return, risk structure, and payback period differ from physical capital investment. This perspective not only deepened the understanding of capital structure but also laid the theoretical groundwork for subsequent research on issues like the return on educational investment and the efficiency of human capital allocation.

Schumpeter further viewed the entrepreneur as the driving force of innovation and economic development, emphasizing their role in technological revolution and industrial change. Kirzner, from a market process perspective, highlighted the entrepreneur's keen insight and knowledge advantage in opportunity identification and resource allocation. These studies collectively deepened the understanding of the operational mechanisms of internal human capital within firms and laid the foundation for subsequent integrated research on entrepreneurial theory and human capital. Casson (1982), building on previous research, systematically expanded the role of the entrepreneur, defining them as economic agents skilled at coordinating scarce resources and making rational decisions. He stressed that entrepreneurs are not just allocators of resources but creators of markets, and their economic return should be

embodied as the residual claim commensurate with their innovation and organizational contribution, rather than being limited to labor income defined by fixed contracts. This perspective indicates that with the advent of the knowledge economy, the role of human capital in corporate development has become increasingly prominent, simultaneously challenging the traditional model of financial capital ownership exclusivity, and driving further research into corporate theory, especially theories of corporate ownership allocation.

In the theoretical evolution of modern corporate governance, Stigler and Friedland (1983) revisited the separation of ownership and control argument put forth by Berle and Means (1932) , pointing out that joint-stock companies essentially involve a complex contractual relationship between financial capital and managerial knowledge and their ownership. This reveals the inherent contradiction and interaction mechanism between capital and knowledge resource allocation in corporate governance, marking the formal introduction of human capital and its property rights concept into the modern corporate economics analytical framework. Rosen (1985) explicitly attributed the ownership of human capital to the individual, establishing a foundation for subsequent incentive research. Yang (1994)'s indirect pricing theory further deepened the understanding of the core role of entrepreneurial human capital. He pointed out that an entrepreneur's management talent is a form of special human capital, and its pricing should adopt an indirect contractual method, namely by granting the entrepreneur the residual claim, to reflect their crucial contribution to resource allocation, risk-bearing, and value creation. The essence of this indirect pricing mechanism is to incentivize the priced individual to maximize their human capital potential, thereby enhancing overall corporate efficiency.

Domestic scholars have also conducted in-depth analyses of the property attributes and influence of human capital. W. Zhang (1996) and Q. Zhou (1996) pointed out that the inseparability of human capital from its owner is the logical foundation of modern corporate theory. Xiao (2005a, 2005b) and Xiao and Li (2005), based on a multi-dimensional comparison, emphasized the significant contribution of the capitalization and pricing of human capital to enterprises in the knowledge economy era. With the rise of the knowledge economy, the relationship between human capital and knowledge capital has become increasingly tight, making its property rights definition a research focus. Qi and Wu (2018), through case analysis of successful domestic enterprises, further emphasized the critical role of constructing a virtuous cycle mechanism of value creation, evaluation, and distribution in human capital management.

From the perspective of organizational theory, a firm can be defined as a specific combination of human capital and non-human capital elements (Alchian & Demsetz, 1972).

However, compared to non-human capital elements, which are tradable and mortgageable, human capital exhibits its inherent uniqueness and property rights characteristics: it is naturally integrated with the individual worker and inseparable, possessing an absolute private property rights nature (Alchian & Woodward, 1988). This personal dependence dictates that a firm cannot fully own its human capital in the same way it owns machinery and equipment. Therefore, effective motivation and constraint of high-value human capital, especially core employees and management, become a core corporate governance challenge for sustained innovation and value creation. The inherent inalienability of human capital and its absolute privacy further led to an important consequence: during use, human capital generates a large amount of private information. This information is closely related to the individual and is difficult to accurately measure or effectively control in both quantitative and qualitative terms, posing unique challenges to corporate management and incentive mechanism design. Due to the inseparability of human capital and the inability to fully measure the private information it generates, any human capital contract based on complete information is difficult to formulate.

Equity incentives, as a core incentive mechanism, are essentially designed to grant agents (owners of high-value human capital) a partial residual claim, allowing them to share returns based on better-than-expected performance, thereby building a community of interest between the principal and the agent. This mechanism effectively links the effort level and risk-bearing of human capital owners with the company's long-term value, maximizing the value output of human capital. Furthermore, unlike non-human capital, which possesses the attributes of a physical object, is mortgageable, and has relatively stable utility, the value realization of human capital highly depends on individual choice behavior (e.g., effort level, job choice). Once the allocation of residual claim and control rights for human capital becomes imbalanced, it is highly likely to trigger the classic Agency Problem, leading to moral hazard and adverse selection, which subsequently harms the company's overall interests and innovation capability. Therefore, equity incentives are regarded as an effective institutional arrangement for resolving the incentive and agency conflicts associated with high-value human capital in Sci-Tech enterprises.

Human Capital Theory has a profound impact on the development of corporate theory, especially regarding corporate income distribution and incentive mechanism design. Traditional corporate theory failed to fully answer the question of "how key talent participates in corporate residual distribution". Human Capital Theory, by introducing the concept of "human capital property rights", points out that firms should ensure reasonable returns for both physical capital and human capital owners. This provides the theoretical basis for Sci-Tech enterprises to design

equity incentive mechanisms during rapid development: through the allocation of residual claims and the design of incentive contracts, a community of interest can be formed between the principal (the enterprise) and the agents (core research and development [R&D] personnel, management team), driving the long-term value creation of core talent.

Furthermore, the unavoidable issues of information asymmetry, adverse selection, and moral hazard in human capital transactions underscore the importance of incentive design. Because human capital is embedded within the individual and is difficult to fully observe or supervise, its utilization efficiency is highly dependent on the incentive structure. Therefore, Sci-Tech enterprises need mechanisms such as scientific performance evaluation, incentive contracts, and residual claim allocation to ensure core talent remains actively engaged and delivers maximum value. Especially during periods of rapid growth and long product R&D cycles, reasonable equity incentives can effectively mitigate the risk of turnover and enhance the enterprise's overall innovation capability and market competitiveness.

In conclusion, Human Capital Theory not only deepens our understanding of the firm and entrepreneurship but also provides theoretical support for talent incentives and equity design in Sci-Tech enterprises at different life cycle stages. Against the backdrop of the knowledge economy and innovation-driven development, how to utilize equity incentives to optimize human capital allocation, enhance organizational efficiency, and ensure sustainable competitiveness has become a core management issue for Sci-Tech enterprises.

In the sustained development of Human Capital Theory, academic circles gradually recognized the core status of entrepreneurial human capital in corporate theory research. In the early studies of corporate theory, Frank H. Knight, in his classic work *Risk, Uncertainty, and Profit (1921)*, systematically elucidated the essential function of the firm as an organizational form. The core of Knight's theory is that the firm, as an institutional arrangement for dealing with economic uncertainty, exists fundamentally to distinguish between Uncertainty (uninsurable risk) and Risk (insurable risk) (Knight, 1921). By granting the entrepreneur, who bears the uncertainty, the Residual Claim, the firm achieves the institutional absorption and management of uncertainty. This theory not only reveals profit as the reward for the uncertainty bearer but also lays the foundation for subsequent research on corporate governance and incentive mechanisms. Schumpeter (1934), from an innovation perspective, emphasized that entrepreneurs are the key force driving economic development, constantly leading industrial transformation and economic growth through technological innovation and production method reform. Kirzner (1973) further highlighted the unique role of entrepreneurs in market opportunity identification and exploitation from the perspective of market process theory,

arguing that entrepreneurs, through keen insight and accumulated knowledge, discover and realize potential market opportunities. This ability is the essential characteristic that distinguishes entrepreneurs from other market subjects. The studies by Knight, Schumpeter, and Kirzner, from the three dimensions of risk-bearing, innovation drive, and opportunity identification, reveal the core functions of entrepreneurial human capital. This theoretical lineage not only deepens the understanding of the operational mechanisms of internal human capital but also lays a solid theoretical foundation for subsequent research on corporate governance structure, incentive mechanism design, and organizational efficiency improvement.

Schultz (1959)'s definition of the human capital concept is systematic and pioneering, and its theoretical connotations primarily include the following aspects. Firstly, human capital is ability-based capital attached to the individual, specifically manifested as personal knowledge, skills, health status, and comprehensive quality, which is the crucial basis for individual participation in economic activities. Secondly, human capital is accumulable, its formation relying on continuous investment in activities such as education, training, and medical care; these investments constitute the main channels for human capital growth. Thirdly, provided that individual quality is relatively stable, the quantity of human capital can be measured by indicators such as the size of the working population and working hours, thereby providing a quantitative basis for macro-economic analysis. Finally, as a special form of capital, human capital investment can bring economic returns, which are reflected in both personal income growth and societal productivity improvement, demonstrating the economic value of human capital. Building on this, Schultz further proposed a comprehensive capital concept that encompasses both physical and human capital. He argued that although both possess capital attributes, the non-material features of human capital investment, such as knowledge accumulation and ability enhancement, mean that its rate of return, risk structure, and payback period differ from physical capital investment. This perspective not only deepened the understanding of capital structure but also laid the theoretical groundwork for subsequent research on issues like the return on educational investment and the efficiency of human capital allocation.

Casson (1982), building on previous research, systematically expanded the role of the entrepreneur, defining them as economic agents skilled at coordinating scarce resources and making rational decisions. He stressed that entrepreneurs are not just allocators of resources but creators of markets, and their economic return should be embodied as the residual claim commensurate with their innovation and organizational contribution, rather than being limited to labor income defined by fixed contracts (Rosen, 1985). This perspective indicates that with

the advent of the knowledge economy, the role of human capital in corporate development has become increasingly prominent, simultaneously challenging the traditional model of financial capital ownership exclusivity and driving further research into corporate theory, especially theories of corporate ownership allocation.

In the theoretical evolution of modern corporate governance, Stigler and Friedland (1983) revisited the separation of ownership and control argument proposed by Berle and Means, pointing out that joint-stock companies essentially involve a complex contractual relationship between financial capital and managerial knowledge and their ownership. This reveals the inherent contradiction and interactive mechanism of capital and knowledge resource allocation in corporate governance. This marked the formal introduction of the concept of human capital and its property rights into the modern corporate economics analytical framework. Rosen (1985) explicitly attributed the ownership of human capital to the individual, establishing a foundation for subsequent incentive research. Yang (1994)'s indirect pricing theory further deepened the understanding of the core role of entrepreneurial human capital. He argued that an entrepreneur's management talent is a form of special human capital, and its pricing should adopt an indirect contractual pricing method, namely by granting the entrepreneur the Residual Claim, to reflect their critical contribution to resource allocation, risk-bearing, and value creation. The essence of this indirect pricing mechanism is to incentivize the priced individual to maximize their human capital potential, thereby enhancing overall corporate efficiency.

Domestic scholars have also conducted in-depth analyses of the property attributes and influence of human capital. W. Zhang (1996) and Q. Zhou (1996) pointed out that the inseparability of human capital from its owner is the logical foundation of modern corporate theory. Xiao (2005a, 2005b) and Xiao and Li (2005), based on a multi-dimensional comparison, emphasized the significant contribution of the capitalization and pricing of human capital to enterprises in the knowledge economy era. With the rise of the knowledge economy, the relationship between human capital and knowledge capital has become increasingly tight, making its property rights definition a research focus (Jin & Miao, 2006). Qi and Wu (2018), through case analysis of successful domestic enterprises, further emphasized the critical role of constructing a virtuous cycle mechanism of value creation, evaluation, and distribution in human capital management.

Human Capital Theory has a profound impact on the development of corporate theory, especially regarding corporate income distribution and incentive mechanism design. Traditional corporate theory failed to fully answer the question of "how key talent participates in corporate residual distribution". Human Capital Theory, by introducing the concept of "human capital

property rights", points out that firms should ensure reasonable returns for both physical capital and human capital owners. This provides the theoretical basis for Sci-Tech enterprises to design equity incentive mechanisms during rapid development: through the allocation of residual claims and the design of incentive contracts, a community of interest can be formed between the principal (the enterprise) and the agents (core R&D personnel, management team), driving the long-term value creation of core talent.

Therefore, Sci-Tech enterprises need mechanisms such as scientific performance evaluation, incentive contracts, and residual claim allocation to ensure core talent remains actively engaged and delivers maximum value. Especially during periods of rapid corporate growth and long product R&D cycles, reasonable equity incentives can effectively mitigate the risk of turnover and enhance the enterprise's overall innovation capability and market competitiveness.

In conclusion, Human Capital Theory not only deepens our understanding of the firm and entrepreneurship but also provides theoretical support for talent incentives and equity design in Sci-Tech enterprises at different life cycle stages. Against the backdrop of the knowledge economy and innovation-driven development, how to utilize equity incentives to optimize human capital allocation, enhance organizational efficiency, and ensure sustainable competitiveness has become a core management issue for Sci-Tech enterprises.

2.2.1.2 Property rights theory

Property Rights Theory provides a critical foundation for understanding corporate ownership structure and incentive mechanisms. Property rights theory deepens the understanding of corporate ownership structure, particularly the allocation of residual claims and control rights among corporate members. Property rights involve not only tangible assets but also intangible assets such as human capital. In designing equity incentives, clarifying the attribution of human capital and corporate residual interests is an important prerequisite for forming long-term motivation and securing the contribution of core talent. The broad concept of property rights includes complex forms of value like intellectual property and brand value. Its institutional arrangement must not only clarify the right holders but also provide legal and social guarantees to ensure that right holders can safely enjoy the benefits. This provides the institutional basis for Sci-Tech enterprises to design equity incentives at different life cycle stages, enabling the incentive mechanism to both protect corporate interests and fully mobilize the innovative enthusiasm of core talent.

Since Coase (1937, 2013) pioneered property rights analysis, and scholars like Alchian and Demsetz (1972) and Demsetz (1964) have pointed out that the clear definition of property rights

is a prerequisite for cooperation and key to transactional efficiency. This theoretical framework deepens the understanding of the firm as an institutional arrangement and emphasizes the issue of allocating Residual Claim and Residual Control among corporate members (Demsetz, 1974). North (1990) introduced Coase's theory into economic history analysis, powerfully explaining institutional change and the resulting economic development through changes in property rights structure and the reduction of transaction costs.

Barzel and Allen (2023)'s property rights theory further emphasizes that property rights are not absolute and fixed but are divisible and negotiable. The optimal allocation principle is that the party with a greater impact on the asset's average income should receive a larger residual share. This view is particularly crucial for human capital-intensive Sci-Tech enterprises, providing the theoretical rationale for the institutional legitimacy of high-value human capital (such as entrepreneurs and core technical talent) demanding a share of corporate residual earnings. Miller, directly pointed out that if a firm can ensure that employees have reliable "property rights" in the incentive plan, it will motivate them to invest more time and effort, thereby driving economic growth (G. J. Miller, 1992).

In the Chinese context, Yang and Ng (1995), from a transaction cost perspective, clearly proposed that the special human capital of managerial talent should adopt an indirect contractual pricing method. The essence of this indirect pricing is precisely to connect managerial activities, where the cost of measuring effort level and output is extremely high, with the company's long-term value by granting the manager (or core talent) the opportunity to acquire the residual claim. Domestic scholars, such as F. Cao (1989) and S. Li (2003), have conducted in-depth discussions on the theory and practice of labor property rights, management, and employee stock ownership, emphasizing that the optimization of corporate property rights structure, as an integrated platform for resource allocation, interest distribution, and incentive mechanisms, is key to activating core resources and maximizing corporate value.

In summary, the development of Property Rights Theory, particularly the research on the private nature of human capital property rights, the allocation of residual claims, and the indirect pricing mechanism, collectively provides a solid institutional economics foundation for the introduction of equity incentive mechanisms. It indicates that in the age of the knowledge economy, enterprises must adjust property rights allocation to achieve effective motivation and constraint of core human capital. This is the theoretical starting point for this study's exploration of the design logic of equity incentives for Sci-Tech enterprises across different life cycles.

2.2.1.3 Principal-agent theory

In the structure of modern corporate governance, with the separation of ownership and control, particularly the specialization of the entrepreneurial role, a typical Principal-Agent Relationship is formed between shareholders and senior management. The core challenge of this relationship stems from the pervasive Information Asymmetry, which runs through the process, even before the contract is signed. In the pre-contractual stage, managers possess a more accurate understanding of their own abilities, experience, and potential contribution than shareholders, who find it difficult to fully grasp this information. This information asymmetry can lead to the problem of Adverse Selection: the most promising candidates may not be fully identified or hired, thus affecting the company's long-term value creation. In the post-contractual stage, managers have more internal information regarding daily decisions, strategy execution, and specific management behaviors, while shareholders, as external observers, struggle to fully understand their actions and level of effort. This information advantage can lead to Moral Hazard: managers may pursue short-term gains, deviate from long-term strategy, or engage in risky behavior to achieve personal goals, thereby harming the interests of shareholders and the company as a whole (S. Chen & Zheng, 2010; Wu et al., 2018). In response to the problem of information asymmetry, equity incentives become a crucial means to mitigate the principal-agent conflict. By partially granting the corporate residual claim to managers or core R&D personnel, equity incentives achieve interest sharing and risk sharing, effectively mobilizing the enthusiasm of key talent and encouraging sustained effort in an environment of high uncertainty and long R&D cycles. At the same time, equity incentives are well-suited to the characteristics of Sci-Tech enterprises, providing institutional assurance for aligning management's goals with those of shareholders and enhancing organizational performance in an innovation-driven competitive environment. Therefore, from both a theoretical and practical perspective, equity incentives are not only an effective tool for resolving principal-agent problems but also a key mechanism for modern Sci-Tech enterprises to optimize governance structure, unleash the innovative potential of core talent, and secure long-term value creation.

The development of the Principal-Agent Theory stems from the pioneering contributions of multiple scholars. In 1969, Robert Wilson conducted an initial analysis of the principal-agent relationship, focusing on the agent's behavioral choices in the decision-making process (R. Wilson, 1969). Spence and Zeckhauser (1972) further studied how agents can mitigate the problem of information asymmetry through signal transmission. Ross (1973) systematically elucidated the relationship between the corporate ownership structure and agency costs, laying

the foundation for the Principal-Agent Theory. Subsequently, Jeffrey Morris, in a series of studies between 1974 and 1976, proposed the signal game model to explain how market participants transmit true type information in an environment of information asymmetry (Mirrlees, 1974, 1976). Holmstrom (1979) deepened the understanding of the principal-agent relationship in an incomplete contract environment from the perspective of contract theory, especially concerning the influence of property rights arrangements and control allocation on incentive mechanisms. Holmstrom (1982) further applied the theory to corporate governance practice, proposing that agency costs can be reduced through optimal contract design, aligning the behavior of managers (agents) closely with the goals of shareholders (principals).

In the principal-agent relationship, information asymmetry makes it difficult for the principal to directly observe or verify the agent's true level of effort, while the agent has complete information about their own behavior. This information structure provides the agent with scope to pursue personal interests using their advantage, which can lead to deviation from the principal's goals and trigger typical agency problems. Berle and Means (1932), in their study of the modern corporate system, pointed out that due to the high dispersion of equity, shareholders struggle to effectively supervise management, and the actual control is concentrated in the hands of professional managers. This exacerbates the problem of incentive misalignment and highlights the governance challenges posed by unclear accountability. From a macro perspective, Y. Lin and Li (1997), further expanded the theoretical framework. They argued that with industrialization and the expansion of corporate scale, the financial strength and risk-bearing capacity of individual capitalists were insufficient to support the development of modern enterprises, which led to the emergence of modern corporate organizational forms such as limited liability companies and joint-stock companies. In this institutional arrangement, the separation of corporate management rights and ownership became the norm, and the principal-agent relationship became widespread. This theory not only provides a solid foundation for understanding the practical problems faced by modern enterprises in management and motivation but also serves as an important analytical tool for equity incentives and governance structure optimization (Y. Lin & Li, 1997). In the contemporary corporate governance landscape, corporate forms with separated ownership and control can usually develop relatively effective mechanisms to solve this problem, becoming a critical means of corporate governance (W. Li et al., 2019). Domestic research on the principal-agent problem is widely distributed across various fields such as corporate governance structure (G. Feng, 2004; Y. Lin & Li, 1997; Lv & Li, 2015; Tang & Zhen, 2009), government administration (Jiang, 2009; Jing, 2011; J. Wang, 2002), and financial accounting (Q. Feng, 2000; Xie, 2000). The

core issue arising from the relationship between the principal and the agent is that their objective functions are not completely aligned, leading to goal conflict.

In modern joint-stock companies, the relationship between shareholders and management constitutes a typical principal-agent relationship, within which the problem of moral hazard is particularly prominent. Starting in the 1930s, Adolf A. Berle and Gardiner C. Means, in their pioneering work *The Modern Corporation and Private Property*, first systematically revealed the phenomenon of the increasing separation of ownership and control in modern joint-stock companies, thereby triggering widespread attention in the economic community to internal corporate power structure and its governance mechanisms (Berle & Means, 1932).

They pointed out that against the backdrop of highly dispersed equity, the actual control of the company gradually fell into the hands of professional managers, while the owners, the vast body of shareholders, progressively withdrew from the daily operational decision-making process. While this institutional arrangement has raised the level of specialization in corporate management, it has also brought about severe problems of incentive misalignment. Specifically, the management team may tend to maximize their own interests, for example, through over-investment, expanding the size of the company to enhance personal influence, or enjoying high hidden perks. These actions often deviate from or even harm the economic interests of the shareholders, constituting the core of the Principal-Agent Problem.

Information Asymmetry is one of the fundamental institutional causes triggering such Moral Hazard. Because shareholders are generally in an information disadvantage, making it difficult to fully and timely grasp the actual operational status of the enterprise, and the management team, as insiders, holds a significant information advantage, they may utilize this information barrier for opportunistic behavior. Furthermore, the manager's level of effort is highly subjective and unobservable, further exacerbating the difficulty for the principal to supervise their behavior and evaluate performance. In response to these challenges, academia has proposed various governance mechanisms to mitigate the Principal-Agent Problem, including but not limited to improving the corporate governance structure, strengthening the information disclosure system, designing reasonable incentive mechanisms (such as equity incentives), and strengthening external supervision (such as market mechanisms and legal frameworks). These measures can, to a certain extent, narrow the information gap and encourage managers' behavior to align more closely with shareholder interests, thereby enhancing overall corporate value (C. Zhang, 1995). In modern corporate organizations, one of the core causes of the Principal-Agent Problem is the combined effect of uncertainty and information asymmetry, which together further compound the complexity of the moral hazard

type of agency problem.

On the one hand, a company's operating performance is often influenced by various external uncertain factors, which are typically beyond the direct control of the agent (such as the management team). For example, macroeconomic fluctuations, industry policy adjustments, technological changes, and market competitive dynamics can all significantly impact a company's profitability. This means that corporate profit, as one of the key performance indicators (KPIs), cannot accurately and fully reflect the agent's level of effort and management effectiveness. Therefore, relying solely on financial performance to evaluate the agent's behavior has obvious limitations, which can easily lead to incentive mechanism failure or evaluation bias.

On the other hand, against the backdrop of information asymmetry, the principal (such as the shareholders) finds it difficult to fully observe and verify the agent's actual behavior and level of effort, while the agent possesses a sufficient information advantage. According to the assumption of a rational economic agent, the agent, driven by the maximization of their own interests, may adopt behavioral strategies that deviate from the principal's goals. For example, excessive risk-taking to pursue short-term performance, obtaining hidden perks, or reducing work input. Because these behaviors are hidden and unobservable, the principal lacks effective supervisory means, thereby further amplifying agency costs.

Given the characteristics of Sci-Tech enterprises, facing high uncertainty, long R&D cycles, and high reliance on talent, traditional compensation contracts struggle to effectively address the aforementioned agency problems. Therefore, equity incentives are viewed as an effective institutional arrangement. They achieve interest sharing and risk sharing by partially granting the corporate residual claim to high-value human capital (management team, core R&D personnel). This mechanism tightly links the long-term dedication and risk-bearing of key talent with the company's long-term value, effectively mitigating incentive failures caused by moral hazard and information asymmetry in agency conflicts and securing the continuous value creation of Sci-Tech enterprises in an innovation-driven environment.

2.2.1.4 Contract theory

Within the framework of Contract Theory, Sci-Tech enterprises face unique incentive challenges, especially in high-risk, high-uncertainty R&D environments. In Sci-Tech enterprises, where development faces high uncertainty and rapid technological iteration, Contract Theory is particularly important in incentive design. Since future returns are difficult to predict accurately, traditional fixed compensation or standardized contracts cannot fully

mobilize the enthusiasm of core team members.

Contract Theory, as a significant component of modern corporate theory, has formed a complex theoretical system, including Transaction Cost Theory and Agency Theory, since its inception by Coase (1937) and through continuous development and expansion by scholars such as Alchian and Demsetz (1972), Grossman and Hart (1992), Klein et al. (1978), Williamson (1979), C. Wilson (1980), and Yang and Ng (1995). These theories view the enterprise essentially as a nexus of contracts, aimed at resolving various economic problems arising from the costs and incompleteness of the market mechanism.

Ronald Coase, in his classic 1937 book "*The Nature of the Firm*", pointed out that resource allocation in the market typically relies on the price mechanism, but in reality, resource allocation within firms does not fully rely on market prices but is coordinated through managerial hierarchy and authoritative commands (Coase, 1937). This internal organization can reduce transaction costs, including information search costs, bargaining costs, and contract enforcement costs (K. Wang & Zong, 1999). W. Zhang (1999) further developed Coase's theory, proposing that the firm integrates factors of production through complex contractual relationships, thereby optimizing resource allocation. This contractual arrangement not only reduces overall transaction costs but also enhances labor productivity under specific conditions. Z. Cao (2002)'s research indicates that the reason for the firm's existence is not just to save on transaction costs, but more so its ability to internalize transaction coordination activities and risk decisions that are difficult to handle professionally in the market, allowing for specialized management and efficiency improvement through organizational form (K. Wang & Zong, 1999). Yang and Ng (1995) further pointed out that the firm's ownership structure directly affects transactional efficiency, and internal agency problems are closely related to the allocation of residual claims and residual control. Incomplete Contract Theory reveals that due to future uncertainty and bounded human rationality, designing a complete contract covering all possible scenarios is nearly impossible. This incompleteness provides the theoretical basis for the Agency Problem, as the conflict of interests between the agent and the principal can escalate when the contract cannot foresee all future circumstances. W. Zhang and Yu (1994) proposed that in the face of uncertainty, someone must possess residual control, that is, the ultimate decision-making power over sudden events or investment decisions in corporate operations that are not explicitly stipulated in the contract. Xiao (2007) pointed out that combining the entrepreneur's knowledge with decision-making power helps resolve the high cost of knowledge transfer.

Z. Lin and Zheng (2007) introduced Contract Theory into internal control research,

suggesting that internal control has contractual attributes and is a tool for coordinating internal interests and regulating rights and obligations. Internal control not only reduces information asymmetry and agency costs but also promotes effective resource allocation (Z. Lin & Zheng, 2007). Y. Wang et al. (2016) studied earnings management over the corporate life cycle based on Debt Contract Theory, revealing the contractual motivations for the financial strategies adopted by firms at different development stages. Hu (2022) discussed financial regulation from the perspective of Incomplete Contracts, emphasizing the importance of residual rights allocation for regulatory efficiency and financial stability.

The development of Contract Theory not only deepens our understanding of corporate internal structure and incentive problems but also provides a theoretical basis and methodological guidance for designing effective incentive contracts, reducing agency costs, and rationally allocating residual claims and residual control. Concurrently, the theory's application in fields such as internal control, accounting, and financial regulation further expands its practical value, providing solid theoretical support for modern corporate governance and institutional design.

Overall, Contract Theory offers a systematic incentive design framework for Sci-Tech enterprises. In environments of high uncertainty and high technology dependence, by rationally allocating residual claims, granting residual control, and designing dynamic incentive mechanisms, enterprises can not only maximize the value of core human capital but also enhance organizational adaptability to rapidly changing markets, ensuring sustainable innovation-driven development.

2.2.2 Equity incentives

Equity incentives, as a long-term motivation mechanism, play a critical role in modern corporate management and have become an important means for many companies to attract, motivate, and retain senior management personnel and key employees. The basic theory can be traced back to the Principal-Agent Theory, which explains the agency problem that arises between shareholders (the principal) and management (the agent) due to conflicting interests. Agency theory posits that management, due to information asymmetry and self-serving motives, may make decisions detrimental to shareholder interests, thereby harming the overall value of the company. Therefore, shareholders need an effective mechanism to align management's personal interests with the long-term interests of the shareholders, reduce agency costs, and enhance corporate value. Equity incentives, as a mechanism that directly links management compensation to company performance, become an effective means to solve this problem. By

granting equity or options to management, shareholders can incentivize management to focus more on the company's long-term development goals, thereby achieving the alignment of interests between management and shareholders, and ultimately enhancing the company's overall value (Fama & Jensen, 1983).

Extensive empirical research further supports the positive role of equity incentives, particularly in enhancing corporate performance, attracting and retaining high-quality talent, and optimizing corporate governance structures. Studies by Murphy (1999) and Bebchuk and Fried (2006) indicate that equity incentives are not only theoretically appealing but also demonstrate significant practical effects. For example, research by Core and Guay (2001) found that equity incentives can not only motivate management to work hard for the company's long-term interests but also, to some extent, mitigate internal agency problems and improve corporate governance efficiency. By linking management's personal wealth to the company's long-term success, they are incentivized to formulate and execute strategies that promote sustained corporate growth. Furthermore, equity incentives are particularly suitable for high-tech and emerging market companies in rapid growth stages, which typically face greater capital pressure and higher market risk. Through equity incentives, companies can attract and retain high-potential talent without increasing cash expenditure, thereby maintaining a competitive advantage in a fiercely competitive market environment (Oyer & Schaefer, 2005). This incentive mechanism can not only alleviate the company's short-term financial burden but also foster long-term commitment and dedication from management and employees, ensuring the company's sustained development in high-risk, high-return industries.

Equity incentives are not only effective among senior management personnel; their application to all employees has also been proven to enhance organizational cohesion and employee motivation (Gompers et al., 2005). In modern enterprises, employee enthusiasm and innovation capabilities are important drivers of corporate growth, and equity incentives, by closely linking employees' personal interests with the company's long-term development goals, enhance employees' sense of belonging and responsibility to the company. Through this incentive method, employees can not only share the benefits brought by corporate growth but also more proactively participate in the realization of company strategic goals. Ittner et al. (2003) point out that the structural design of equity incentives should fully consider the company's development stage, market environment, and employee needs to ensure that the incentive measures can effectively stimulate employee motivation and encourage them to contribute to the company's long-term development. Moreover, equity incentives can also promote collaboration and innovation among employees; by jointly sharing the benefits brought by

corporate success, employees are more willing to work hard for the company's development. This incentive mechanism is particularly important in high-tech enterprises because these companies typically rely on innovation and the ability to quickly respond to market changes, and equity incentives can provide continuous motivation to employees, urging them to innovate constantly and driving the enterprise to excel in a fiercely competitive market.

In the design and implementation of equity incentives, researchers have explored various influencing factors, including the corporate life cycle stage, industry characteristics, company size, degree of market competition, and external economic environment (Hall & Murphy, 2003). In the Startup Stage and Growth Stage, due to limited resources and high uncertainty, the design of equity incentives usually focuses on attracting and motivating high-potential talent, with common forms including option plans or restricted stock (Zenger, 1992). These incentive tools not only help enterprises attract key talent in the early stages but also help companies mitigate cash flow pressure during growth, allowing them to dedicate more resources to R&D and market expansion. Meanwhile, as the enterprise gradually enters the Mature Stage, the design of equity incentives focuses more on linking with the company's long-term performance and shareholder value to ensure the company's sustained growth and the stability of core employees (Core & Guay, 1999). At this stage, companies often adjust the structure of equity incentives to be more long-term oriented, for example, through performance shares or long-term incentive plans, to motivate management and employees to strive for the company's long-term success. This design strategy not only maximizes shareholder interests during the company's stable development phase but also ensures the consistency of the management incentive mechanism with the company's long-term strategic goals, securing the company's sustained competitiveness in the market.

However, the implementation of equity incentives also faces many challenges and potential risks. Bebchuk and Fried (2006) pointed out that although equity incentives have proven effective in theory and practice, if designed and implemented improperly, they may trigger new problems. For example, excessively generous option plans might incentivize management to engage in short-termist behavior, such as artificially manipulating financial reports or stock prices to obtain high returns, thereby harming the company's long-term value. Furthermore, the implementation of equity incentives also faces complex legal and regulatory requirements and high administrative costs, all of which may limit their widespread application in different types of enterprises (Murphy, 2013). In addition, research also indicates that equity incentives may cause management and employees to focus excessively on short-term performance, neglecting the company's long-term strategic goals. This short-sighted behavior may not only weaken the

company's long-term competitiveness but also trigger conflicts between management and shareholders, thereby affecting the company's overall governance structure. Therefore, the challenge shared by corporate managers and researchers is how to balance the relationship between short-term incentives and long-term goals when designing equity incentives and avoid possible negative effects (Frydman & Jenter, 2010).

Despite the numerous advantages demonstrated by equity incentives in corporate management, their limitations and potential negative impacts should not be ignored. The effectiveness of equity incentives largely depends on the scientific rigor of their design and the standardization of their implementation. For example, the excessive granting of options may lead to "option floating", where option holders might receive excess returns not commensurate with their actual contribution due to market fluctuations or short-term management behavior. This can not only cause a sense of unfairness within the company but also trigger new conflicts between shareholders and management (Hall & Murphy, 2003). Moreover, equity incentives may cause management and employees to focus excessively on short-term performance, neglecting the company's long-term strategic goals (Jensen et al., 2004). Therefore, the challenge shared by corporate managers and researchers is how to balance the relationship between short-term incentives and long-term goals when designing equity incentives and avoid possible negative effects (Frydman & Jenter, 2010). These challenges require enterprises to fully consider the balance between corporate strategy, market environment, and employee needs when designing equity incentive plans to ensure that equity incentives can not only motivate management and employees to achieve the company's short-term goals but also promote the company's long-term healthy development.

Future research directions can further explore the applicability of equity incentives in different cultural and institutional environments. Studies by Hofstede (1980) and Child (1996) show that cultural and institutional factors largely influence the design and effectiveness of corporate incentive mechanisms. Therefore, in the context of globalization, enterprises in different countries and regions need to adjust their equity incentive plans based on their own cultural backgrounds and market environments. Furthermore, with the continuous changes in the corporate governance environment, the design of equity incentives also needs innovation to cope with changing market demands. Future research should focus on how to enhance corporate competitiveness and adaptability through the innovation of equity incentive plans in a dynamic market environment, ensuring that the company can maintain long-term sustainable development in fierce market competition (Tushman & O'Reilly III, 1996). In this context, researchers should also consider the impact of cross-cultural factors on the implementation

effectiveness of equity incentives, especially how to design and implement highly adaptable equity incentive plans under different legal and regulatory frameworks. Moreover, with the advancement of technology and changes in the market environment, the forms and implementation methods of equity incentives are constantly evolving. Future research should also explore the application of emerging technologies (such as blockchain and smart contracts) in equity incentives, and how to utilize these new technologies to enhance the transparency and efficiency of equity incentives, thereby better serving the company's long-term development strategy.

2.3 Sci-Tech enterprise incentives

Science and Technology Innovation-oriented enterprises, which are referred to as Sci-Tech enterprises, are generally defined as emerging companies that seek scalable business models in a rapidly changing environment (Blank & Dorf, 2020). These enterprises are characterized by innovation and high risk, playing a particularly important role in driving technological progress and economic growth. Ries (2011)'s Lean Startup theory emphasizes that Sci-Tech enterprises should rapidly iterate products and business models with limited resources to increase their survival rate. In recent years, Sci-Tech enterprises have become an important engine for technological innovation. For example, Sci-Tech enterprises in the software and biotechnology sectors in the United States have made particularly significant contributions to technological change. In China, the rise of Sci-Tech enterprises is closely related to government policy support. Since 2000, the Chinese government has promoted the development of the high-tech industry through measures such as tax incentives, financial support, and startup incubators (W. Zhang & White, 2016). Unlike Western Sci-Tech enterprises, Chinese Sci-Tech enterprises often face a unique institutional environment and market dynamics, posing different challenges to their business model innovation and management practices (Huang et al., 2017).

Incentive mechanisms are crucial for the success of Sci-Tech enterprises. Due to limited resources, Sci-Tech enterprises usually find it difficult to attract and retain talent through high salaries, making equity incentives an important long-term motivation tool widely used in Sci-Tech enterprises (Eisenhardt, 1989a). The theoretical foundations of equity incentives include Contract Theory, Human Capital Property Rights Theory, and Principal-Agent Theory. Contract theory focuses on the design of incentive mechanisms in environments of information asymmetry and uncertainty (Hart, 1995); Human Capital Property Rights Theory holds that the contribution of an employee's human capital to the enterprise should be commensurate with the

economic returns they receive to incentivize employees to invest better effort; and Principal-Agent Theory coordinates the conflict of interests between shareholders and managers through equity incentives, reducing agency costs. Furthermore, Social Exchange Theory also provides an important perspective, suggesting that equity incentives can enhance employee trust and commitment to the organization, thereby improving work efficiency.

The application of equity incentives in Sci-Tech enterprises has been proven to be an important means of enhancing employee motivation and organizational performance (Shane & Stuart, 2002). Especially in technology-based enterprises, equity incentives can not only attract excellent talent but also stimulate employees' innovative potential (Hellmann & Puri, 2002). For example, well-known technology companies like Google and Facebook successfully attracted and retained a large number of outstanding engineers and scientists through extensive equity incentive plans in their early stages of development. However, the demand and effect of equity incentives in Sci-Tech enterprises may vary significantly at different development stages. Bhide (2000), pointed out that Sci-Tech enterprises in the early stages need incentive mechanisms more to attract key talent, while in the mature stage, they need to optimize resource allocation through equity distribution. Furthermore, the effectiveness of equity incentives is also influenced by corporate governance structure, corporate culture, and the market competition environment (Kaplan & Strömberg, 2003).

In China, Sci-Tech enterprises face unique cultural and institutional challenges in implementing equity incentives. Research indicates that Chinese enterprises need to consider local cultural characteristics, such as the influence of collectivism and authority culture, when adopting Western incentive mechanisms (Lu et al., 2013). Moreover, the uncertainty of laws and regulations may also affect the implementation effect of equity incentives (H. Cao & Zhang, 2020). For example, relevant provisions of the Company Law and Securities Law impose strict requirements on the design and implementation of equity incentive plans, necessitating flexible responses from enterprises in practice. Guo and Jiang (2013)'s research found that Chinese Sci-Tech enterprises focus more on the issues of equity dilution and control protection in the design of equity incentives, which is closely related to the market environment and the corporate life cycle stage.

Despite the large volume of theoretical and empirical findings accumulated regarding Sci-Tech enterprises and equity incentives, there are still some underexplored areas. Current research primarily focuses on macro-level incentive mechanism design and lacks in-depth analysis of specific industries or corporate development stages. Especially in China's technology-based Sci-Tech enterprises, the incentive needs and implementation effects at

different development stages have not been fully studied. By conducting in-depth interviews and analysis of Chinese technology-based Sci-Tech companies at different stages, more suitable equity incentive plans for their development can be identified and summarized. This research direction not only holds important academic value but also provides practical guidance for corporate management practice (W. Chen & Zhou, 2020).

In summary, Sci-Tech enterprises play a vital role in economic development, and effective incentive mechanisms are one of the key factors for their success. Future research should focus more on the differentiated incentive needs across the corporate life cycle, providing precise incentive guidance for technology-based Sci-Tech companies at different stages, helping them achieve sustainable development. Especially against the backdrop of increasing global economic uncertainty, exploring innovative models and best practices for equity incentives can provide stronger support for the sustained growth of Sci-Tech enterprises.

2.4 Summary

Equity incentives, serving as a long-term motivation mechanism, are widely employed in modern corporate governance, demonstrating significant value in addressing principal-agent problems, enhancing corporate performance, and attracting and retaining senior management. Rooted in Jensen and Meckling's Principal-Agent Theory, equity incentives align the interests of management with those of shareholders, thereby mitigating agency costs arising from information asymmetry and interest misalignment.

Empirical studies, such as those by Murphy (1999) and Bebchuk and Fried (2006), affirm the positive role of equity incentives in improving corporate performance and optimizing governance structures. Core and Guay (2001) further highlight that equity incentives effectively link managerial interests with long-term corporate goals, reducing agency issues and enhancing governance efficiency. In high-growth sectors like technology and emerging markets, equity incentives are particularly crucial, enabling firms to attract and retain talent without immediate cash outlays, thus maintaining competitive advantage amid financial and market pressures.

Beyond alleviating short-term financial burdens, equity incentives foster long-term commitment among employees at all levels. Gompers et al. (2005) note that by tying personal interests to corporate long-term objectives, equity incentives strengthen employees' sense of belonging and responsibility, thereby boosting organizational cohesion and innovation—key drivers of corporate growth in dynamic industries.

The Corporate Life Cycle Theory (Levitt, 1965) provides a framework for understanding

the phased application of equity incentives. During the Startup Stage, equity incentives help attract key talent and conserve cash while aligning employee efforts with rapid growth. In the Growth Stage, incentives evolve toward long-term performance and shareholder value, often through performance shares or long-term plans, to sustain expansion and retain core staff. In the Mature Stage, the focus shifts to balancing motivation with stability, though poorly designed incentives may encourage short-termism. However, the linear assumption of traditional life cycle models often overlooks the non-linear, complex realities of corporate development, especially in fast-changing technological and competitive landscapes.

For Sci-Tech enterprises, which face long R&D cycles, high costs, and rapid iteration, equity incentives are vital for motivating talent and enhancing performance. At early stages, incentives aim to attract and retain key personnel to drive growth; at maturity, they emphasize balancing long-term performance with shareholder value. In China, Sci-Tech enterprises encounter unique cultural and institutional challenges, such as collectivism influences and regulatory uncertainties, leading to greater emphasis on equity dilution and control protection in incentive design. Existing research lacks in-depth analysis of industry-specific or stage-specific practices, highlighting a notable gap.

Addressing these gaps, this study investigates the application of equity incentives in Sci-Tech enterprises, examining how they aid in attracting talent, easing salary pressure, and optimizing human resource management amid R&D challenges. Through in-depth analysis of four typical Sci-Tech firms at different life cycle stages, the research explores the design, implementation, and effectiveness of equity incentives tailored to specific corporate needs, resources, and goals. It aims to provide practical guidance for managers, fill academic literature voids, and offer empirical insights into maximizing incentive effects for long-term corporate sustainability.

In summary, this research seeks to elucidate the mechanisms and outcomes of equity incentives across diverse Sci-Tech enterprises, offering theoretical and practical references for enhancing core competitiveness in a rapidly evolving market environment.

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Chapter 3: Research Methodology and Research Strategy

In academic research, the choice of research methodology is crucial for the validity and reliability of the findings. Especially when dealing with complex, multi-dimensional, and dynamically changing research questions, selecting an appropriate method not only ensures the depth and breadth of the study but also guarantees the theoretical and practical value of the results. According to Yin (1994)'s classic theory, the Case Study Method demonstrates unique advantages in specific contexts and is particularly applicable in three scenarios: when the research question is posed in the form of "how" or "why"; when the researcher cannot directly control the research subject or event; and when the research focuses on contemporary phenomena in real-life settings. The core of this method lies in explaining the decision-making process, why these decisions were made, how they were implemented, and what the final outcomes of these decisions were (Schramm, 1971). In this study, exploring how Science and Technology Innovation-oriented enterprises (Sci-Tech enterprises) at different life cycle stages design and implement equity incentive mechanisms is a complex research question highly consistent with the applicable context of the case study method. Therefore, adopting the case study method is undoubtedly a scientific and rational choice.

The Case Study Method, as a qualitative research method, is widely used due to its ability for in-depth analysis of complex, ambiguous, and changing phenomena. Eisenhardt (1989b) pointed out that the case study method not only plays a significant role in theory building but is also an indispensable method, especially when the research question is novel and existing theories are insufficient for full explanation. It can reveal the complex causal relationships and interaction mechanisms hidden beneath phenomena through in-depth analysis of real-world contexts. For this study, the design and implementation of equity incentive mechanisms in Sci-Tech enterprises at different life cycle stages involve multiple complex internal and external factors, including the enterprise's strategic goals, market competitive environment, organizational culture, and talent structure. These factors show significant differences across the enterprise's different development stages, and these differences are difficult to fully capture and explain through traditional quantitative research methods. Therefore, the application of the case study method can help us, in a natural corporate environment, reveal the specific needs and coping strategies of enterprises for equity incentive mechanisms at different stages through

in-depth observation and analysis of these interacting relationships.

Yin (1994), emphasized that the case study method has a unique advantage in addressing "how" and "why" type questions because it can capture and analyze multi-dimensional influencing factors within complex real-world contexts. The flexibility and depth of the case study method make it a powerful tool for studying complex social phenomena (Yin, 1994). Stake (1995), also noted that the case study method is particularly suitable for research that requires understanding the background and process of phenomena. This is especially important for this study, as the design and implementation of equity incentives are not merely technical issues but are the result of corporate strategy and management decisions, influenced by a combination of internal and external factors. Through the case study method, we can systematically explore how these factors influence a company's equity incentive mechanism at different life cycle stages, thereby revealing the commonalities and differences in the equity incentive practices of Sci-Tech enterprises.

To deeply explore how Sci-Tech enterprises at different life cycle stages implement equity incentive mechanisms, this study adopts a Multiple-Case Study Design. This design method can not only enhance the external validity of the research findings through cross-case comparative analysis but also provide a broader and deeper understanding by identifying and verifying commonalities and differences across cases (Yin, 1989, 2009). The multiple-case study approach allows the researcher to conduct multi-dimensional analysis of similar phenomena in different contexts, a method particularly effective in revealing the internal mechanisms of complex phenomena.

This study will select four Sci-Tech enterprises at different life cycle stages as research subjects: Startup Stage, Growth Stage, pre-IPO, and Mature Stage. Selecting enterprises at these different stages is conducive to a comprehensive understanding of the impact of life cycle factors on equity incentive mechanisms. Enterprises at each stage exhibit significant differences in strategic goals, resource allocation, and organizational structure, and these differences directly influence the design and implementation of their equity incentives. Through in-depth analysis of these four cases, we will be able to reveal the specific impact of the life cycle stage on the design and implementation of equity incentive mechanisms and explore the applicability and operability of these mechanisms in different contexts.

For data collection, this study will employ multiple data sources to ensure the comprehensiveness and reliability of the research. Specifically, data will be collected through semi-structured interviews with corporate management, employees, and external experts, combined with corporate internal documents, financial reports, and public market data, to form

a panoramic understanding of each case. Yin (1994) emphasized that the use of multiple data sources not only helps improve the credibility of case studies but also enhances their internal validity. Eisenhardt (1989b) also pointed out that by integrating data from different sources, researchers can build a more complete and precise theoretical framework, thereby more effectively explaining the behavior and decisions of the research subjects.

In the data analysis process, this study will adopt cross-sectional (horizontal) and longitudinal (vertical) analysis methods. Cross-sectional analysis will compare the differences in the design and implementation of equity incentive mechanisms among enterprises at different life cycle stages, while longitudinal analysis will examine the evolutionary process of the enterprise's incentive strategies over different periods. This analysis method can not only reveal the commonalities and differences between the cases but also help identify the mechanism through which life cycle factors influence equity incentives. Yin (1994) suggests that case studies should be guided by constructing a theoretical framework for the data analysis process to ensure systematic rigor and logical consistency. Furthermore, M. B. Miles and Huberman (1994), proposed that through longitudinal analysis, researchers can track changes in corporate behavior over different periods, thereby revealing the dynamic evolution of equity incentive mechanisms throughout the corporate life cycle.

3.1 Selection of cases

3.1.1 Company A

Company A, founded in 2021, is a national high-tech enterprise focused on three-dimensional (3D) digital technology (see Table 3.1). To date, it holds 13 authorized invention patents and 18 software copyrights. Currently, Company A focuses on providing users with solutions for digital content creation, military simulation training, and big data visualization. It has already provided multiple simulation training systems and 3D digital twin services to several national defense research institutes and large state-owned enterprises and has engaged in virtual simulation training base construction cooperation with multiple universities in Sichuan province.

Table 3.1 Company A's main products and solutions

Core Product	Solution	Description
ZTHREE (Z3)	Platform	Description: Focuses on technological innovation and product research and development (R&D) around "modeling and simulation, artificial intelligence, virtual reality, and big data", creating the ZTHREE (Z3) technology platform. This platform forms a hardware-software integrated, general-purpose technology base for constructing the 3D digital world, providing common support for the company's business areas: Simulation Training, Smart City, and Virtual Production.
	Simulation Training and Emulation	Comprehensive use of modern simulation technology to build simulation training systems, wargaming systems, live-action engagement, and simulation equipment. These simulation training products feature informatization, networking, and intelligence, providing trainees with a near-realistic, simulated training experience.
	Smart City Power Grid (Digital Twin)	Based on the self-developed ZTHREE (Z3) software as a technical platform, utilizing GIS, city-level BIM, and other technologies, it forms an intelligent, visualized platform with full-domain coverage and 3D stereoscopic views through 3D modeling and data full-domain identification. It rapidly creates a high-precision 3D digital city base, achieving massive business visualization and interaction, serving the command and control of cities and power grids.

Equity Incentives: Company A established XX Enterprise Management Partnership (Limited Partnership) in 2022 as its equity incentive platform for the employee stock ownership plan. According to the employee stock option incentive plan formulated by the company, Company A's equity incentives are mainly divided into two categories: First, equity incentives for key employees through the Career Partner System, and Second, overall employee motivation through phased stock option incentive plans. To date, the company has completed two phases of Career Partner incentives, with four key employees receiving stock options. Furthermore, the company implemented the first phase of the overall employee stock option incentive plan between June 2023 and June 2024, rewarding employees who made outstanding contributions during this period, and distributing a portion of the stock options as rewards to all employees, achieving full-employee motivation.

3.1.2 Company B

Company B (see Table 3.2) was registered and established in August 2016. It is a National High-tech Enterprise, a National-level Specialized, Refined, Differential, and Innovative "Little Giant" Enterprise, and has been continuously listed in the "*China's Top 500 Invisible Unicorns"* and the "*Top 100 Comprehensive Innovation Capabilities of High-tech Enterprises in Hunan Province"*. It has established the Hunan Provincial Engineering Technology Research Center

for "*Key Equipment for Maglev Transportation*", the Hunan Enterprise Technology Center, and the Graduate Innovation Practice Base for "*Intelligent Equipment Inspection and Autonomous Controllable Technology*". Currently, the company has applied for 238 patents and has over 240 employees, with R&D personnel accounting for more than 50. This includes over 40 Ph.D. and Master's degree holders in the fields of control, mechatronics, and aerospace. Two individuals have been selected for national-level talent programs by the Organization Department of the CPC Central Committee and the Ministry of Science and Technology, and 20 individuals have been selected for various talent programs in Changsha City. The team as a whole was selected for the Hunan Provincial Enterprise Science and Technology Innovation and Entrepreneurship Team Support Program and the Advanced Collective of the Second New Hunan Contribution Award. The company is currently in the Mature Stage of its life cycle and is one of the earliest domestic enterprises focusing on the R&D and application of core maglev technology. In its early days, the company persevered in R&D investment despite the pressure of consecutive years of losses, introduced high-quality talent, and continuously improved its technical capabilities. Eight years later, Hunan Company B Maglev has grown to become the main supplier of suspension controllers for China's medium-low speed maglev trains, with a market share exceeding 70.

Table 3.2 Company B's main products and description

Business Segment	Core Products	Key Applications/Features
1. Maglev Transportation	Suspension Controllers Electromagnets Speed & Positioning Systems	It is applicable to medium and low-speed as well as high-speed maglev trains, providing core power support and operation control.
2. Magnetic Tracking Systems (MTS)	Maglev Circular Tracks Logistics Conveying Lines Heavy-Duty Conveying Lines	To realize contactless, high-precision and dust-free transmission; widely used in semiconductor, pharmaceutical and high-end manufacturing automated production lines.
3. Magnetic Bearing Products	Maglev High-Speed Motors Centrifugal/Turbo Blowers	It features no friction, no need for lubrication, long service life and low energy consumption; it is often used in industrial energy-saving fields such as sewage treatment and pneumatic conveying.

Company B's main business is centered on maglev technology, the core of which is electromagnetic force control. The essence is to use electromagnetic force to replace mechanical force for power transmission, bringing a series of advantages such as high speed, high precision, intelligence, flexibility, and energy saving. In the Maglev Transportation sector, the company's business covers key on-board maglev train products, ground testing and simulation equipment for maglev trains, and inspection, maintenance, and operation equipment and services for maglev lines. Its technology level is leading domestically, and its product market share ranks first. In the Maglev Industrial Conveying sector, the company's main product forms include

maglev circular shuttle lines, heavy-duty maglev conveying lines, circular inductive encoders, and 3-in-1 direct drive modules. It provides intelligent, efficient, and flexible production conveying solutions for customers in industries such as consumer electronics, automotive, biomedical, wire harness processing, new energy, and packaging. In the Maglev Energy and Power Equipment sector, the company's main product forms include maglev blowers, air compressors, refrigeration compressors, and micro-wind generators. It provides energy-saving, low-noise, and durable energy and power equipment solutions for customers in industries such as environmental protection, electric power, chemical engineering, HVAC, and food processing.

Company B's Equity Incentive Status: On January 8, 2020, Company B established the employee stock ownership plan platform, "XX Investment Partnership (Limited Partnership)". In March 2020, XX Investment Partnership (Limited Partnership) acquired 5 equity (corresponding to RMB 1.0526 million) in Company B, serving as an employee equity incentive. The key beneficiaries mainly included the company's actual controller, XX, General Manager XX, and Supervisor XX. On September 23, 2021, the company established a second employee stock ownership plan platform, "XX Investment Partnership (Limited Partnership)". In October of the same year, the original shareholder, XX Company, transferred 8.5 of its equity to this partnership, as part of the employee equity incentive. XX Investment Partnership (Limited Partnership) has a registered capital of RMB 29.124 million, a total of 29 partners, with XX serving as the executive partner.

3.1.3 Company C

Company C (see Table 3.3) was established in September 2012. The company's main business is based on three major platforms: missile-borne, airborne, and shipborne. It specializes in the R&D, production, sales, and service of high-reliability, high-security embedded integrated control computer systems and control communication navigation integrated equipment products. It possesses core independent intellectual property rights and has comprehensive technical service capabilities, ranging from systems to modules and from hardware to software. Based on the four platforms, missile-borne, airborne, shipborne, and ground, it specializes in the R&D, production, sales, and service of high-reliability, high-security embedded integrated control computer systems and control communication navigation integrated equipment products. It possesses core independent intellectual property rights and comprehensive technical service capabilities, ranging from systems to modules and from hardware to software. The company is committed to becoming a leading domestic supplier of special electronic information equipment and application system solutions. The company takes "high-reliability,

high-security" embedded integrated control computer technology as its main focus, features control + communication + navigation integrated design, and revolves around the intelligent application of major equipment models, spanning the four application platforms of missile-borne + airborne + shipborne + ground, forming a product system of "special equipment + general equipment". The company currently has more than forty products, many of which have been finalized and are in the process of being equipped, with some products filling domestic gaps and some technologies reaching leading domestic levels.

Table 3.3 Company C's main products and description

Platform	Product	Clients
Missile-borne Platform	Missile-borne Control Computer Missile-borne Positioning Terminal, Missile-borne Data Link, and Ground Station	Military branches such as the Navy, Army, Air Force, and Rocket Force Multiple military industry research institutes such as AVIC, Aerospace, NORINCO, and CSIC Industry users such as meteorology, agriculture, and telecom operators
Airborne Platform	UAV Flight Control Computer, Four-follower Equipment Airborne Anti-collision System, Airborne Navigation Terminal Airborne Radar Signal Processor	
Shipborne Platform	Shipborne Integrated Control Computer Sonar Signal Acquisition and Recording System	
Ground Platform	Ground Flight Control, Avionics Simulation Testing System IETM Terminal, Vehicle-mounted Integrated Support Equipment Radar Transceiver Module Cloud Seeding Intelligent Fire Control System	

Equity Incentives: Company C established the employee stock ownership plan platform, "XX Enterprise Management Partnership (Limited Partnership)", on January 4, 2017. In January 2018, the company's actual controller, XX, transferred RMB 1 million of his registered capital (accounting for 10 of the total equity) to the partnership as part of the employee equity incentive. Company C regulates and manages employee equity incentives through documents such as the Employee Stock Ownership Plan Management Measures, the XX Enterprise Management Partnership (Limited Partnership) Partnership Agreement, and employee incentive agreements. As of July 19, 2024, XX Enterprise Management Partnership (Limited Partnership) has a total of 36 partners, with the actual controller, XX, serving as the executive partner (general partner), and the remaining 35 individuals being limited partners, all of whom are equity incentive beneficiaries. These limited partners have joined the partnership in batches through equity transfer since May 2018.

3.1.4 Company D

Company D was founded in 2009 with a registered capital of 160 million RMB. After 11 years of development, it was listed on the A-share STAR Market (Science and Technology Innovation Board) in July 2020. Since its establishment, the company has continuously focused on the R&D and manufacturing of products related to the satellite application technology field. It is a national-level Specialized, Refined, Differential, and Innovative "Little Giant" Enterprise for the R&D, manufacturing, sales, and technical service of satellite navigation and satellite communication terminal equipment. Its main products include series of satellite navigation, satellite communication, and electronic countermeasures products. The company's satellite navigation products primarily consist of navigation terminal equipment and core component products based on the Beidou Satellite Navigation System, such as satellite navigation receivers, components, and dedicated testing equipment, currently mainly used in the national defense and military sector. Satellite communication products primarily include satellite communication antennas and components, and satellite communication phased array antennas and components, currently mainly used in maritime, aviation, and other markets. Electronic countermeasures products primarily involve radar countermeasures, including terminal defense products, electronic attack products, and training and testing products, all belonging to the military electronic countermeasures industry and mainly used for terminal defense, deception, training, and testing across various fields and platforms. The company has a total of 497 employees, with 195 R&D personnel, accounting for 39.24% of the total staff.

Main Business: The company's main products include satellite navigation, satellite communication, and electronic countermeasures series products. The main uses of the various products are introduced in Table 3.4 below.

Table 3.4 Company D's main products and introduction

Main Product		Description
Satellite Navigation Products	Satellite Navigation Receiver Products	An electronic device capable of receiving Global Navigation Satellite Signals (Beidou, GPS, GLONASS), measuring the position distance and relative velocity between the carrier and the satellites, and calculating the position, velocity, and time information of the carrier in the corresponding coordinate system; in military and certain special applications, anti-jamming functions can be added to enhance the device's survivability in complex electromagnetic environments.
	Satellite Navigation Component Products	Primarily component-level products supporting satellite navigation complete systems or subsystems, including navigation RF components, data transmission components,

Main Product		Description
		navigation display computers, landmark pick-up devices, time and frequency equipment.
	Data Transmission Products	Data transmission equipment provides multiple types of data transmission applications for various types of carriers, primarily constructing data transmission links between the carrier and the ground, and between carriers in line-of-sight and beyond-line-of-sight application environments, to achieve smooth information links and build network information systems. Product types include line-of-sight data transmission, satellite data transmission, and network data transmission communication terminals.
	Dedicated Data Transmission Testing Equipment	Primarily provides testing conditions for the functions and performance indicators of various data transmission equipment in ground environments, including line-of-sight data transmission testing equipment, and network data transmission testing equipment.
	Dedicated Testing Equipment Products	Primarily ground simulation and testing products developed for testing satellite navigation receivers and data transmission components, including regenerative transponder-type navigation simulators and autonomous navigation simulators.
Satellite Communication Products	Satellite Communication Antenna Products	An electromechanical integrated device installed on a moving or stationary carrier (aircraft, vehicle, ship.) that integrates a communication transceiver antenna and servo control. It can control the transceiver antenna to constantly point to the communication satellite through servo tracking algorithms, maintaining a stable and reliable communication link between the carrier terminal and the satellite master station.
	Satellite Communication Phased Array Antenna Products	Primarily controls the phase of the antenna element's transmitted or received signal to achieve beam steering control for the antenna, constantly pointing to the communication satellite, maintaining a stable and reliable communication link between the carrier terminal and the satellite master station.
	Satellite Communication Component Products	Primarily component and module-level products used in satellite communication systems, including beacon tracking receivers, monopulse tracking receivers.
Electronic Counter-measures Products	Terminal Defense Products	Applied for the self-defense protection of fixed, semi-mobile, and mobile targets, mainly by emitting electronic jamming to disrupt the target search and tracking process of missile-borne radar, making precision-guided weapons unable to effectively attack the target. This protects important platforms or facilities, such as armored vehicles, command posts, airports, and radar stations, that are prone to missile attacks, enhancing the battlefield survivability of important military facilities. The company's products mainly include vehicle-mounted and land-based terminal protection equipment for important targets.
	Electronic Attack Products	Primarily used to deceive enemy guided weapons into leaving the true target. The company's products use wideband reconnaissance and jamming antennas to intercept radar radiated signals. After frequency conversion

Main Product	Description
	and signal acquisition, digital channelization, parameter analysis, and digital radio frequency memory (DRFM) processing are performed. Subsequently, DRFM is used to rapidly form repeater or false target signals to achieve deception and suppression jamming signals. After frequency conversion and power amplification, the signals are transmitted through wideband antennas, thereby achieving interference with the seeker. The company's products mainly include disposable radar electronic decoy flares and air-launched decoy mission payloads.
Training and Testing Products	Focused on combat training and exercise needs, forming an adversarial simulation analysis system that covers key indicator realization, signal waveform processing, interference effectiveness assessment, and other aspects of simulation. The equipment can address support jamming application scenarios, simulating threat signals to test the signal interception and communication warning functions of synthetic aperture radar jamming equipment and radar jamming equipment. The company's products mainly include radar simulation testing equipment and electronic countermeasures equipment simulators.

Equity Incentives: On April 7, 2022, Company D released a draft of its employee equity incentive plan. The total number of Restricted Shares proposed to be granted under this incentive plan was 1.249 million shares, accounting for 1.09% of the company's total share capital of 114.67 million shares at the time of the draft announcement. Of this amount, 1.004 million shares were granted initially, representing 0.88% of the company's total share capital at the time of the announcement and 80.38% of the total proposed grants; 245,000 shares were reserved, representing 0.21% of the total share capital at the time of the announcement and 19.62% of the total proposed grants. The reserved portion did not exceed 20% of the total proposed grants under the incentive plan.

The incentive plan was divided into two types of Restricted Share grants:

Type I Restricted Shares: The total grant volume was 378,000 shares, accounting for 0.33% of the company's total share capital at the time of the announcement and 30.26% of the total proposed grants, with no reserved portion set aside. As of June 1, 2022, all Type I Restricted Shares, totaling 378,000 shares, had been registered.

Type II Restricted Shares: The total grant volume was 871,000 shares, accounting for 0.76% of the company's total share capital at the time of the announcement and 69.74% of the total proposed grants. Of this, 626,000 shares were granted initially, accounting for 71.87% of the total Type II Restricted Shares grant; 245,000 shares were reserved, accounting for 28.13% of the total Type II Restricted Shares grant.

3.2 Basic corporate profile and strategic positioning

3.2.1 Startup stage: Company A

(1) Entrepreneurial Background and Team Composition

The enterprise was co-founded by three co-founders with complementary backgrounds, and a technology orientation became a core trait in its DNA. In the early stage of entrepreneurship, the enterprise concentrated a large amount of resources on technology R&D and the refinement of core products, striving to gain market competitiveness through technological innovation. This strategic decision is highly consistent with Becker's Human Capital Theory, which posits that the key to corporate success lies in the accumulation and development of technology and human capital. The enterprise's technology orientation not only dictated the allocation of initial resources but also clearly defined the company's future development path, with technological innovation as the core driving force. This path aligns with Schumpeter's theory of "Creative Destruction". Schumpeter argued that enterprises must continuously achieve technological breakthroughs and innovation to stand out in the competition and occupy the market commanding heights.

Despite the small team size in the startup stage, the enterprise demonstrated a strategic intention to build long-term organizational capability from the outset. This strategic intent is manifested in the company's forward-looking planning for talent pipeline development. Especially in the absence of a formal equity incentive mechanism, the company relied on psychological contracts and identity alignment to unify core members. The psychological contract is the employee's expectation of long-term commitment to the enterprise, often not established through formal contracts but strengthened through implicit agreements. This approach not only helps stimulate a sense of ownership among team members but also mitigates potential agency cost issues in the early stages. By tightly linking individual career development with the company's long-term future, the enterprise can effectively reduce the moral hazard arising from information asymmetry.

For the core technical team, especially early joiners, their human capital has a high degree of specificity, meaning their knowledge and skills are critical to the company's success. Therefore, the design of the equity incentive mechanism is particularly important. Options serve as a flexible incentive method tightly linked to the company's future value, effectively motivating team members and binding their long-term interests to the company's success. This practice conforms to the principle of deferred payment in Incentive Theory, where the granting

conditions for options are often tied to non-financial goals such as the company's technical milestones or product releases, thereby incentivizing the team to propel the enterprise forward.

(2) Strategic Positioning and Development Vision

The enterprise clearly positions its strategy in the frontier technology field, focusing on the exploration of 3D interactive scenes and next-generation internet forms (such as the Metaverse). This strategic positioning not only reflects the company's ambition to occupy the commanding heights of future industries but also embodies the practice of Schumpeter's theory of "Creative Destruction". Schumpeter emphasized that enterprises break existing market structures through innovation, opening up new markets and reshaping the industry landscape. The company, through its mission statement "*Create Your Reality*", combined with the grand vision of becoming the "*Pioneer of the Next-Generation Human-Computer Interaction Revolution*", constructs its core narrative and organizational identity.

From the perspective of Incentive Theory, the company's vision not only motivates internal employees, unifies the team's mindset, and ignites members' work passion but also sends a strong signal externally, attracting top talent and investors who recognize the future potential of this field. This vision becomes a crucial source of non-monetary motivation for the enterprise, aligning with Herzberg's "Motivator Factors" theory. Herzberg et al. (1959) posited that motivators are not merely salary and material rewards, but the company's vision and sense of mission are also important drivers of employee motivation.

However, this strategic positioning is also accompanied by a high degree of uncertainty. The nature of exploratory innovation dictates that the enterprise faces the predicament of "not yet forming a clear market demand path", which is one of the common market risks for innovative enterprises. According to the Market Uncertainty Theory, this complicates the construction of the corporate business model and simultaneously increases the difficulty of designing the equity incentive contract. In this situation, the flexibility of the equity incentive contract is especially important. Contract terms should be forward-looking and flexible to adapt to needs in different future development scenarios, such as the speed of technological breakthroughs, market acceptance, and potential M&A risks. As pointed out by Milgrom and Roberts (1992), incentive contracts are inherently incomplete, so the contract design should minimize the risks arising from uncertainty.

(3) Development Path and Phased Planning

Currently, the enterprise is still in the critical early stage of technical feasibility verification and product prototype optimization. The "sustaining R&D with projects" model adopted by the enterprise is a typical self-reliance strategy under resource constraints, which aligns with the

idea in the Resource-Based View (RBV) that emphasizes the need for enterprises to utilize existing resources to accumulate a competitive advantage. Although this model protects the founder's control, it may lead to delays in core technology R&D progress and market advancement. Therefore, early-stage equity incentive mechanisms often lean towards non-cash payments, such as options, which can still incentivize the core technical team's commitment despite tight cash flow, consistent with Option-based Incentive Theory.

Company A plans to launch its first round of financing in mid-2024, marking its transition from an opportunity-driven to a resource-driven stage. Successful financing will not only provide the necessary capital for the enterprise but also bring higher requirements from external capital for the company's governance structure and equity incentive mechanism. Property Rights Theory holds that the company's equity structure is critical in the interaction of the capital market. The entry of external investors typically promotes a more standardized and structured equity incentive mechanism to ensure investment returns and stabilize the innovation momentum of the core team. This shift may lead the enterprise to transition from early flexible, informal incentive design to a more market-oriented and standardized structure, and the governance structure and power dynamics will be adjusted accordingly.

In this process, one of the biggest challenges facing the enterprise is how to clearly articulate its profit path, especially when market demand is unclear. Information Asymmetry Theory suggests that when facing uncertainty, the difference in information between the enterprise and investors will exacerbate the difficulty of equity valuation. This information asymmetry increases investor uncertainty about future value, making the design of equity incentives highly focused on how to reasonably allocate equity to balance risk and return. Furthermore, considering the possibility of multiple rounds of financing, the incentive mechanism design should possess sufficient flexibility to adapt to future changes and avoid development bottlenecks or subsequent conflicts due to unreasonable equity terms.

3.2.2 Growth stage: Company B

Company B adheres to a unique corporate culture and business philosophy, with the core values of "*Sharing Credit and Taking Blame, Commitment is Gold, and Openness and Integrity*". This not only reflects its inherent sense of responsibility and integrity culture but also demonstrates the company's transparency and fairness in market operations. Specifically, "*Sharing Credit and Taking Blame"* emphasizes responsibility and a spirit of collaboration, where the company encourages team members to share success collectively while being brave enough to take responsibility in the face of challenges. This culture helps enhance team cohesion and combat

effectiveness. Concurrently, "Commitment is Gold" and "Openness and Integrity" reflect the company's commitment to promises and the public transparency of its operations, ensuring a foundation of trust among the company, customers, employees, and partners. The shaping of these values is not only part of the company's development but also constitutes the cultural support for attracting high-end talent, maintaining customer relationships, and advancing market strategies.

In terms of business philosophy, Company B adheres to the core ideology of "*Customer-centric, Development through Contribution, and Win-Win through Cooperation*". This highlights the company's high level of attention to external market demands and its emphasis on internal synergistic collaboration. The company continuously enhances customer value through innovation and technological progress, thereby driving its own development. This philosophy in practice requires employees not only to meet customer needs but also to facilitate the achievement of company goals through continuous effort and contribution. Company B's business model aligns with the core ideas of profit sharing and synergy effects in modern enterprise management theory, emphasizing long-term win-win outcomes for the company, employees, customers, and partners.

From the perspective of strategic positioning, Company B's short-term goal is to achieve a revenue breakthrough of RMB 1 billion from the maglev conveying business. This specific strategic objective reflects the company's accurate assessment of market potential and its determination in technological innovation and market expansion. This goal not only embodies the company's leading advantage in the technological field but also indicates Company B's strategic intent to rapidly expand and consolidate its market position within the next three years. Achieving this goal will help increase the company's influence in the industry and lay a solid foundation for future capital market operations.

Company B sets its "Survival Line" at RMB 500 million in revenue. This is because reaching this revenue level provides the company with a certain degree of risk resistance, enabling it to generate tens of millions in annual profit, which is crucial for the company to withstand market fluctuations and cope with unforeseen risks. By setting a goal for this critical node, the company effectively ensures stability across different development stages and provides a guarantee for subsequent capital investment and strategic adjustments. Specifically, RMB 500 million in revenue is not only a phased victory of market recognition but also a key indicator of the company's stable entry into the high-growth stage.

In the long term, Company B plans to achieve a net profit of RMB 100 million by 2027 in preparation for its IPO. This goal reflects the company's long-term strategic vision, especially

in the current pre-IPO stage. By setting clear long-term development goals, the company not only demonstrates its potential for future profitability but also provides clear expectations for investors in the capital market. The setting of this long-term strategic goal aligns with the cyclical theory of modern corporate development, emphasizing the gradual realization of corporate scaling and capitalization through steady accumulation and the achievement of phased goals.

Company B's strategic planning and goal setting adhere to the guiding principles of several academic theories. Firstly, it conforms to the "*challenging yet achievable"* goal-setting criteria of the SMART principle (Specific, Measurable, Achievable, Relevant, Time-bound). The company's short-term goals and long-term vision are clearly specific, measurable, and time-bound, and achievable within the framework of existing resources and capabilities. Furthermore, Company B fully demonstrates a growth mindset model in formulating strategic goals, gradually realizing the transition from stable development to rapid expansion and avoiding overly aggressive strategies through the setting of phased goals, allowing the company to advance steadily under controllable risk. Finally, combining Porter's Value Chain Theory, Company B enhances its market competitiveness by improving technological innovation capability, optimizing production processes, and strengthening supply chain management. The application of this theory not only helps the company improve efficiency in all aspects but also ensures that the enterprise can maintain a competitive advantage in an ever-changing market environment.

Through the above analysis, Company B's core corporate values and strategic positioning not only provide a clear direction for the company's development but also form a solid theoretical foundation during strategic implementation. The company demonstrates its competitiveness and potential for future growth in the industry through scientific strategic goal setting, flexible market response measures, and continuous innovation drive.

3.2.3 Expansion stage: Company C

Company C is currently in the Expansion Stage of its corporate life cycle and is in the process of IPO coaching, with plans to complete its IPO in 2027. Going public is a critical step in the company's development strategy, meaning the company will face more external pressures and challenges. Therefore, the company's strategic focus is on ensuring fundamental stability before IPO, sustainable revenue growth, and effective risk control. The company leadership explicitly stated that stabilizing and strengthening the core personnel team is fundamental to achieving the company's strategic goals. The stability of core personnel is particularly crucial during the

IPO process, as this group is directly related to the stability of company operations and the continuity of its innovation capabilities.

Currently, Company C is in its expansion stage and is investing heavily, especially in technological innovation and market expansion. Thus, maintaining the cohesion and stability of core employees while undergoing rapid growth has become a key focus for management. To ensure the smooth implementation of the corporate strategy, Company C recognizes that equity incentives should not be just a short-term motivational tool but must be integrated with the company's long-term strategic goals to stimulate employee motivation for mutual growth with the company, thereby driving the company's technological innovation, market expansion, and corporate culture building.

The implementation of equity incentives is especially important because, in its early stages of development, Company C offered high-potential equity incentive plans to attract excellent technical and managerial talent. In the startup stage, equity incentives could not only compensate for inadequate cash compensation but also allow employees to perceive a deeper bond between their interests and the company's, stimulating their creativity and sense of ownership. However, as the company continues to grow and expand, the design of equity incentives faces increasingly complex challenges, requiring continuous dynamic adjustment based on the different needs of the company's development stages.

3.2.4 Mature stage: Company D

Company D was established in 2009, focusing on product R&D and manufacturing in the field of satellite application technology. In July 2020, the company was successfully listed on the A-share STAR Market and continues to dedicate itself to technological innovation and application promotion for a series of products including satellite navigation, satellite communication, and electronic countermeasures. Company D is recognized as a national-level Specialized, Refined, Differential, and Innovative "Little Giant" Enterprise, making it one of the leaders in this sector.

Company D's main products include: (a) Satellite Navigation Products: mainly navigation terminal equipment and core components based on the Beidou Satellite Navigation System, such as satellite navigation receivers, components, and dedicated testing equipment, primarily applied in the national defense and military sector. Satellite Communication Products: including satellite communication antennas and components, and satellite communication phased array antennas and components, primarily serving the maritime, aviation, and other markets. (b) Electronic Countermeasures Products: focused on radar countermeasures, including terminal defense products, electronic attack products, and equipment for training and testing, mainly

used in military and other defense areas.

(1) Selection of Incentive Beneficiaries and Talent Philosophy: Structural Definition of "Talent"

In selecting the beneficiaries of its equity incentive plan, Company D adopted a structured talent classification standard, dividing employees into three major categories: core technical talent, core management talent, and excellent front-end and back-end personnel. This classification method helps the company more precisely identify which talents have the most critical impact on the company at different development stages.

(a) Core Technical Talent: These employees are responsible for the company's scientific R&D work and are the backbone of the company's technological innovation. Since the company's business involves radio technology, satellite communication, and electronic countermeasures, the core position of technical personnel cannot be ignored. Core technical talent must not only solve practical technical problems but also take the lead in technological breakthroughs and product innovation. Given the relatively intense market competition the company faces, especially in the military sector, technological leadership and innovativeness directly affect the company's market position and competitiveness. Therefore, core technical talent not only possesses strong technical capabilities but also holds an irreplaceable strategic significance for the company's long-term development.

(b) Core Management Talent: These employees are primarily responsible for the company's strategic planning and efficient organization, typically constituting the company's senior management team. Core management talent plays a crucial role in the company's development; their decisions directly affect the company's direction, especially during company scaling, product line expansion, and market development. Particularly at critical junctures such as financing and IPOs, the decision-making and execution capabilities of the core management team have a profound impact on the company's stability and future growth. Therefore, the selection and motivation of this group of talent are especially important in the equity incentive plan.

(c) Excellent Front-End and Back-End Personnel: Although these employees do not directly participate in core technology R&D or strategic decision-making, they play an important role in functions such as marketing and logistical support. Front-end marketing personnel are key forces for the company's market expansion and brand influence enhancement, while back-end support department employees ensure the smooth operation of the company's operations and services. These employees are typically the company's "hands-on" team, and their work efficiency and execution determine the quality of the company's daily

operations. Although their direct contribution may not be as prominent as that of technical and managerial personnel, excellent front-end and back-end personnel still play a vital role in the company's stable operation and market expansion.

Through this structured talent classification, Company D can more clearly identify which employees are most important to the company at different development stages, thereby providing targeted equity incentives to employees at different levels. This precise mechanism for selecting incentive beneficiaries ensures the reasonable distribution of equity incentives and effectively enhances employees' sense of belonging and loyalty.

(2) Implementation of a "Value-Oriented" Talent Screening Mechanism

When selecting incentive beneficiaries, Company D not only focuses on employees' skills and performance but also highly values "value alignment". Specifically, the enterprise requires incentive beneficiaries to possess an "Owner's Consciousness", meaning they should think from the perspective of a shareholder, proactively controlling risks and optimizing resource allocation. This requirement reflects the company's expectation of employees' long-term sense of responsibility and value identification. To achieve this goal, Company D incorporates corporate cultural values into the important dimensions for selecting incentive beneficiaries, in addition to evaluating employees' professional capabilities and work performance.

"Owner's Consciousness" refers to employees not only focusing on their short-term interests but also, from the perspective of the company's overall development, focusing on the alignment of company interests with shareholder interests. This consciousness can prompt employees to pay greater attention to the implementation of the overall strategy and long-term planning in their work, while also enhancing their initiative and sense of responsibility. Especially for management and core technical talent, possessing an "Owner's Consciousness" means they can be more cautious in decision-making, reducing risks caused by short-sighted behavior, thereby enhancing the company's sustainable development capability.

To ensure that incentive beneficiaries possess this "Owner's Consciousness", Company D integrates values as part of its daily performance appraisal and quantifies it through various methods. For example, behavioral assessment tools such as 360-degree feedback evaluation and the Delphi method are used to quantitatively measure employees' value alignment, ensuring that in addition to skills and performance, employees can fully demonstrate a high degree of alignment with the company's mission and vision. These tools help the company fully understand employees' value inclinations through multi-dimensional, multi-perspective assessment, thereby selecting employees who truly align with the company's culture for incentives.

This value-oriented talent screening mechanism can not only ensure that equity incentive beneficiaries possess values consistent with the company's long-term development goals but also enhance employees' sense of identification with and belonging to the corporate culture through the regulation of employee behavior. According to Corporate Culture Theory, an effective incentive mechanism should be deeply integrated with the company's values; only when employees truly identify with and internalize the corporate culture can they unleash their maximum potential under the guidance of the incentive mechanism, driving the company's overall development. Therefore, by integrating the consideration of values into the equity incentive plan, Company D has not only optimized the talent selection process but also further enhanced the cohesion and influence of the corporate culture.

Through the structured talent selection and value-oriented talent screening mechanism, Company D accurately identifies and motivates employees who are crucial to the company at different development stages. By meticulously classifying levels and emphasizing "Owner's Consciousness", the company's equity incentive plan helps the company attract and retain core talent while also promoting the deep alignment of employees with the corporate culture. The combination of this incentive beneficiary selection and talent philosophy further enhances employees' sense of belonging, responsibility, and initiative, laying a solid foundation for the company's sustained development.

3.3 Research design

3.3.1 Data collection

3.3.1.1 Primary data

To deeply explore the application of equity incentives in Sci-Tech enterprises at different life cycle stages, this study selected four typical Sci-Tech enterprises at different developmental stages as case subjects. These were: a Company in the Startup Stage, a Rapidly Expanding Company in the Growth Stage, a Pre-IPO Company, and a Post-IPO Company that has entered the Mature Stage. By systematically collecting and analyzing data on these enterprises, the research aims to reveal the impact of equity incentives on corporate performance, employee motivation, and talent retention across different periods.

To gain in-depth insights into the design and implementation of equity incentive plans, this study conducted in-depth interviews with senior management, heads of human resources, core employees participating in equity incentives, and general employees of the four companies (see

Table 3.5). These interviews not only helped to understand the enterprises' original intentions, considerations, and decision-making processes when formulating their equity incentive plans but also revealed the challenges encountered and coping strategies adopted during implementation. Through semi-structured interviews, researchers were able to obtain firsthand experience regarding the effectiveness of equity incentives and understand the genuine feedback and feelings of employees at various levels towards the incentive plans. Particular attention was paid, especially in the startup and growth-stage companies, to how the conflict between short-term cash needs and long-term equity incentives was balanced, and how employees' expectations for the company's future development influenced the incentive effect.

Table 3.5 Roles and positions of interviewed personnel

Company	Code	Role	Position
A (Startup Stage)	A1	Founder	General Manager
	A2	Head of Human Resources	Deputy General Manager
	A3	Core Employee with Equity Incentive	R&D Team Leader
	A4	Core Employee with Equity Incentive	Implementation Team Leader
	A5	General Employee with Equity Incentive	R&D Engineer
	A6	General Employee with Equity Incentive	3D Modeling Engineer
	A7	General Employee with Equity Incentive	Designer
	A8	General Employee with Equity Incentive	Financial Staff
B (Growth Stage)	B1	Founder	Chairman and General Manager
	B2	Head of Human Resources	Head of Human Resources
	B3	Core Employee with Equity Incentive	Core Employee
	B4	Core Employee with Equity Incentive	Core Employee
	B5	General Employee with Equity Incentive	General Employee
	B6	General Employee with Equity Incentive	General Employee
	B7	General Employee with Equity Incentive	General Employee
	B8	General Employee with Equity Incentive	General Employee
C (Growth Stage)	C1	Founder	Chairman
	C2	Head of Human Resources	Head of Human Resources
	C3	Core Employee with Equity Incentive	Core Employee
	C4	Core Employee with Equity Incentive	Core Employee
	C5	General Employee with Equity Incentive	General Employee

Company	Code	Role	Position
	C6	General Employee with Equity Incentive	General Employee
	C7	General Employee with Equity Incentive	General Employee
	C8	General Employee with Equity Incentive	General Employee
	D1	Founder	Chairman
	D2	Head of Human Resources	Head of Human Resources
	D3	Core Employee with Equity Incentive	General Manager
	D4	Core Employee with Equity Incentive	Core Employee
D (Mature Stage)	D5	General Employee with Equity Incentive	General Employee
	D6	General Employee with Equity Incentive	General Employee
	D7	General Employee with Equity Incentive	General Employee
	D8	General Employee with Equity Incentive	General Employee

Between September 2022 and March 2024, this study conducted a total of 11 in-depth interviews, including individual and group interviews. This research emphasizes the importance of problem identification and discussion, employing a dynamic research method where data collection, analysis, and supplementary data collection occur iteratively. When the research process encountered concepts or categories with incomplete connotations, unclear logical relationships, or when new hypotheses were proposed or new issues were discovered during analysis, a new round of data collection was initiated. The data collection for this study is characterized by continuity, dynamism, and a problem-oriented approach, and was not a one-time process. To ensure the reliability of the research data, this study performed triangulation on data from different sources, guaranteeing that every fact originated from at least two data sources.

3.3.1.2 Secondary data

In this study, the collection and analysis of secondary data is a crucial step to ensure the depth and breadth of the research. By systematically acquiring and reviewing secondary materials related to the four Sci-Tech enterprises at different life cycle stages, the research can be analyzed within a broader context, and the findings from primary data can be placed within a more comparative and verifiable framework. The following details the specific strategies and methods adopted during the secondary data collection process of this study:

The study first conducted an extensive and systematic literature review to organize the existing theoretical and empirical research in the fields of equity incentives, corporate life cycle

management, and the development of Science and Technology Innovation-oriented enterprises. Through the comprehensive analysis of classic literature and the latest research findings in related fields, the researcher not only constructed the theoretical framework for this study but also identified key gaps and areas of controversy in current research. This process is highly significant for clarifying the research direction and formulating research hypotheses. During the literature review, this study paid particular attention to the commonalities and particularities of equity incentive implementation across different industries and development stages, as well as the multi-level impact of equity incentives on corporate performance and employee behavior. Through this systematic literature analysis, the study laid a solid theoretical foundation for subsequent empirical research and provided clear guidance for data collection and analysis.

To gain an in-depth understanding of the industry background and market environment of the four enterprises, this study collected and analyzed a large amount of industry reports and market analysis materials. These materials covered long-term trends in industry development, the dynamic evolution of the market competitive landscape, and the industry standards and policy environment for Sci-Tech enterprises. The analysis of these materials allowed the researcher to comprehensively grasp the overall status of the macro-environment in which the enterprises operate and to understand the potential impact of the industry background on corporate strategic choices and the effectiveness of equity incentives. Specifically, through the analysis of development trends and market demands in different industries, the researcher could reveal the opportunities and challenges the enterprises might face at specific development stages and discuss the effectiveness of equity incentives as a coping strategy. These industry analyses not only provided the external context for corporate decisions but also offered a more holistic perspective for the researcher to understand and explain corporate behavior.

This study also conducted detailed collection and analysis of the four enterprises' historical financial statements, annual reports, and other public data. This data included the companies' financial health, cash flow management, shareholder equity structure, and the implementation status of employee stock ownership plans. Through the cross-sectional and longitudinal comparison of this financial data, the researcher could deeply understand the actual impact of equity incentives on corporate operating performance and analyze the implementation effectiveness of equity incentive plans under different financial conditions. Furthermore, the analysis of financial data allowed the study to more objectively verify the information provided by the enterprises in the interviews and reveal the companies' financial performance at different development stages through quantitative data. The study paid particular attention to tracking and analyzing the financial data of the listed company to observe the relationship between

equity incentives, corporate development, and capital market performance, thereby providing richer empirical support for the research.

Given that the implementation of equity incentives must comply with the framework of national laws, regulations, and policies, this study systematically collected and deeply analyzed secondary materials related to equity incentive laws, regulations, policy documents, government guidelines, and industry norms. These materials included legislative texts on equity incentives, tax preferential policies, and guidelines from securities regulatory agencies issued by national and local governments. By interpreting these laws and policy documents, the researcher could better understand the constraints and support provided by the policy environment for enterprises implementing equity incentives, and thus analyze the impact of these external institutional factors on the design and effectiveness of corporate incentive mechanisms. This analysis not only provided the necessary legal and policy background for the research but also ensured the legality and compliance of the research conclusions in practical operation. Additionally, this study explored the impact of policy changes on the implementation of equity incentives, especially how to adjust incentive plans to adapt to new legal and policy requirements during corporate transformation periods or changes in capital market conditions.

To strengthen the empirical foundation of the research, this study systematically reviewed and analyzed a large number of academic papers and case studies related to equity incentives and corporate life cycle management. These academic resources covered classic studies, the latest empirical analyses, and detailed case study reports in relevant domestic and international fields. By integrating and analyzing these research findings, the researcher could identify and compare the views and findings of different scholars regarding the effectiveness of equity incentives and the impact of the corporate life cycle on incentive design, forming a multi-dimensional understanding of the research problem. Furthermore, this study specifically focused on the success and failure cases of other enterprises implementing equity incentives in similar contexts. These cases provided a comparative reference for the case analysis of this study, thereby enhancing the external validity and generalization value of the research findings. The study also adopted a cross-disciplinary perspective, introducing theories and empirical findings from fields such as behavioral economics and organizational behavior to discuss the multiple effects of equity incentives more comprehensively.

To obtain more diversified perspectives, this study also collected and analyzed analysis reports from industry experts, market commentaries, and reports on relevant enterprises and industries by mainstream financial media. These secondary materials not only helped the researcher to capture the diverse evaluations and opinions regarding Sci-Tech enterprise equity

incentives from within and outside the industry but also provided feedback from the market and public opinion on these enterprises and their incentive strategies. For example, media reports on the implementation effectiveness of corporate equity incentive plans and employee reactions provided a valuable external perspective for the research, allowing for a more comprehensive understanding of the actual impact and social perception of equity incentives. Furthermore, the views of industry experts offered deep industry insights, enabling the research to better position the industry characteristics and competitive dynamics of corporate behavior. By integrating these views and analyses, this study could more comprehensively evaluate the operating mechanisms and actual effects of equity incentives across different corporate life cycles.

Through the implementation of the above strategies, this study conducted a systematic and in-depth analysis based on the extensive collection of secondary data. These materials not only provided the necessary background support for the analysis of primary data but also enhanced the scientific rigor and universality of the research conclusions by placing the study within a broader theoretical and empirical context. The extensive collection and detailed analysis of secondary data ensured the depth and breadth of this study on both theoretical and empirical levels, providing a solid foundation that makes the research findings more valuable for both academia and practice.

3.3.2 Data processing: Gioia Method

In qualitative research, a key challenge facing researchers is how to abstract a meaningful theoretical framework from complex raw data. The Gioia Method (Gioia et al., 2013), as a systematic qualitative research methodology, is widely applied in fields such as management and organizational behavior because of its ability to maintain empirical grounding and theoretical novelty during the data analysis process. This method, through open coding, second-level coding, and the eventual generation of core concepts, constructs a highly explanatory theoretical model, providing a powerful tool for understanding complex social phenomena. In the study exploring how Science and Technology Innovation-oriented enterprises (Sci-Tech enterprises) at different life cycle stages implement equity incentive mechanisms, the Gioia Method is similarly highly applicable.

3.3.2.1 First-order concepts

Data processing in the Gioia Method begins with Open Coding, a stage also referred to as the extraction of First-Order Concepts. In this stage, the researcher meticulously analyzes the raw data (such as interview transcripts, internal corporate documents, market analysis reports, erase.)

word by word, extracting as many preliminary concepts as possible. During this stage, the researcher primarily focuses on the specific content within the data, adopting an "indigenous perspective", meaning they try to use the language and expressions of the interviewees, without incorporating the researcher's interpretations or preset theoretical framework. The purpose of Open Coding is to build a preliminary theoretical foundation by preserving the original detail of the data and identifying all concepts potentially relevant to the research question.

In this study, the process of Open Coding is particularly important because Sci-Tech enterprises at different life cycle stages exhibit significant differences in the design and implementation of their equity incentive mechanisms. By deeply analyzing the interview content and corporate documents, we will be able to extract the enterprises' specific understanding and practical approaches to equity incentives at different stages. This process will reveal the perceptions and attitudes of corporate managers and employees toward equity incentives, thereby laying the groundwork for subsequent coding and theory construction.

3.3.2.2 Second-order themes

Following Open Coding, the researcher proceeds to the Second-Level Coding stage, also known as the refinement of Second-Order Themes. In this phase, the researcher begins to categorize and integrate the First-Order Concepts to form more abstract themes or categories. This is a transition process from the "indigenous perspective" to the "researcher perspective", where the researcher clusters similar or related concepts and identifies the relationships between them, based on the research questions and theoretical framework, thereby forming themes with a higher level of abstraction.

The core of Second-Level Coding lies in understanding and interpreting the commonalities and differences in equity incentive mechanisms across Sci-Tech enterprises at different life cycle stages. Through this process, we can integrate the initially extracted concepts into more systematic themes. These themes will reflect the specific requirements and methods of implementation for equity incentive mechanisms that enterprises employ during their various developmental stages. For example, a startup-stage enterprise might emphasize the attractiveness and cost-effectiveness of equity incentives, whereas a mature-stage enterprise might focus more on the long-term incentive effect and organizational alignment of the mechanism. Through Second-Level Coding, I will be able to identify these key themes across different stages, providing support for the construction of the theoretical model.

3.3.2.3 Aggregate dimensions

Upon completion of Second-Level Coding, the research enters the stage of Core Concept

Generation. This stage is also referred to as the Formation of Aggregate Dimensions, and its purpose is to generate core concepts capable of explaining the research phenomenon through further abstraction and integration of the Second-Order Themes. Core concepts are crucial in the Gioia Method; they aggregate multiple themes into more abstract theoretical dimensions, thereby constructing a highly explanatory theoretical framework.

In this study, the generation of core concepts will help me build a theoretical model that can comprehensively explain how Sci-Tech enterprises at different life cycle stages design and implement equity incentive mechanisms. This model will reveal how enterprises achieve their strategic goals through equity incentive mechanisms at different developmental stages and analyze the effectiveness and limitations of these mechanisms in different environments. By further abstracting the themes from Second-Level Coding into core concepts, we will be able to identify the key patterns and relationships that run through the entire research phenomenon, thus providing the theoretical foundation for the research findings.

3.3.2.4 Construction of the theoretical model

Ultimately, the goal of the Gioia Method is to construct a theoretical model through the generation of core concepts. This model should not only explain the phenomenon under study but also provide a theoretical basis for future research. In this study, the theoretical model will integrate the equity incentive mechanisms across different life cycle stages, systematically analyzing the core concepts to demonstrate how these mechanisms function during various developmental stages of the enterprise. The theoretical model will not only help to understand the equity incentive practices of Sci-Tech enterprises at each stage of the life cycle but will also provide practical guidance for corporate managers in designing and implementing incentive mechanisms.

In the process of exploring the equity incentive mechanism of Sci-Tech enterprises, the data processing steps of the Gioia Method ensure the systematic nature and depth of the research. Through open coding, we can capture the unique perspectives and practical needs of enterprises at different life cycle stages; through second-level coding, we can systematically organize and interpret the commonalities and differences between these needs; and through the generation of core concepts and the construction of the theoretical model, we can provide comprehensive theoretical support for the design of equity incentives for Sci-Tech enterprises at different developmental stages. This process not only enhances the theoretical depth of the research but also provides an effective reference framework for actual corporate management practice.

3.3.2.5 Theoretical saturation testing

Theoretical Saturation is a crucial criterion in qualitative research, signifying the point at which further data collection and analysis yield no new attributes, dimensions, or relationships; in other words, the contribution of new data to existing theoretical concepts becomes negligible. In this study, the testing for theoretical saturation will permeate the entire data collection and analysis process, specifically manifested in the following aspects:

Firstly, during the Open Coding phase, we will continuously collect and review interview data until the initial concepts and themes emerging from new interviews no longer show significant additions. This implies that we have a preliminary, comprehensive understanding of interviewees' views and practices regarding equity incentives, covering the unique circumstances of enterprises at different life cycle stages.

Secondly, upon entering the Second-Level Coding phase, we will continue to scrutinize the data to ensure that the identified categories, subcategories, and their interrelationships are sufficiently rich and stable. For instance, if a new critical influencing factor or practical difference is discovered in the equity incentive model of a certain life cycle stage, we will re-examine the data, and even consider conducting supplementary interviews, until all relevant dimensions have been fully explored.

Finally, in constructing the Theoretical Model and Core Concepts, we will repeatedly compare and analyze all data to ensure that the constructed model can comprehensively and deeply explain the phenomenon of equity incentives in Sci-Tech enterprises at different life cycle stages, and that no critical theoretical insights are missed. If the model is found to have insufficient explanatory power or cannot encompass certain phenomena, we will re-examine the coding and conceptualization process until the theoretical structure can robustly explain all observed data.

Through this continuous, iterative testing process, this study will ensure that the constructed theoretical model is not only based on a solid empirical foundation but also possesses a high degree of reliability and explanatory power, thereby offering a robust theoretical contribution to the research on equity incentives in Sci-Tech enterprises.

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Chapter 4: Empirical Study: Gioia Methodology

4.1 Open coding generation

4.1.1 Open coding for Company A's equity incentive program

For Company A, a technology-based enterprise in the Startup Stage, equity incentives play a pivotal role within the organization. An analysis using open coding reveals that Company A confronts myriad challenges in the design and implementation of its equity incentive mechanisms. Concurrently, this process highlights the company's adaptability to its incentive structure during this specific developmental stage. (The detailed open coding is available in Annex B.)

1. Equity Structure Design and Incentive Mechanisms

Equity Structure Design: Company A began designing its equity incentive scheme at the beginning of 2023, primarily focusing on the equity allocation between founders and employees (Code A-1). The equity incentive scheme includes an adjustment to the founders' equity and an equity incentive plan for employees (Code A-2), as well as a dynamic stock pool reserved for the founders (Code A-3). Additionally, the company established an option pool, planning to reserve 15 of the pool and release it in batches (Code A-4).

Incentive Recipients (Targets of the Incentive): The recipients of the incentive vary at different stages, with Company A mainly focusing on research and development (R&D) personnel and those in market-facing roles (Code A-5).

2. Challenges in Implementing Incentives

Variations in Incentive Effectiveness: Company A found that the effectiveness of its equity incentive scheme was closely linked to the company's development status and the market environment. Specifically, the difficulty in converting options into actual value led to employees having low sensitivity to the equity (Code A-7). Employees generally had insufficient perception of the actual value of the options, resulting in the incentive effect not meeting expectations (Code A-13).

Employee Response to Equity Incentives: The employee response to the equity incentives was poor. The lack of clarity regarding the options' actual value made it difficult to stimulate employee motivation (Code A-10).

Options as Supplementary Incentive: Options were intended as a supplementary incentive measure. Although the company guaranteed salary levels around the market median, the value of the options still failed to translate into actual motivation (Code A-8).

3. Relationship Between Founders and Investors

Founder Equity Protection: To ensure the founders could maintain core equity, Company A incorporated a founder equity protection mechanism into the equity incentive design to prevent excessive equity dilution (Code A-44).

Shareholder Relationship Management: Shareholder relationship management is closely related to equity incentives. Company A is committed to balancing the interests of shareholders and employees to ensure their mutual benefit (Code A-27).

4. Financing and Market Environment

Financing Difficulties: Company A faces challenges with a poor financing environment, noting that investment in technology companies in the capital market still needs improvement, which increases the difficulty of cashing out equity incentives (Code A-24). At the same time, the financing plan (such as the plan to secure financing in 2024) is closely tied to the actual realization of the equity incentives (Code A-12).

Market Demand and Strategic Positioning: Company A faces issues such as unconfirmed market demand and immature technology (Code A-16). Therefore, the design of the equity incentive must flexibly adapt to changes in market demand and the company’s development stage (Code A-25).

5. Transparency and Fairness of the Incentive Plan

Incentive Transparency: Company A recognizes that the transparency of the equity incentive plan helps increase employee acceptance of the incentive mechanism, thereby enhancing its effectiveness (Code A-29). Employee recognition and participation in the incentive scheme directly affect their motivation and loyalty (Code A-54).

Fairness and Incentive Effect: Although Company A strove to ensure fairness when designing the incentive scheme, it remains difficult to avoid issues of unfairness in incentive distribution, especially given the company’s unstable development and market uncertainty (Code A-31).

6. Long-Term Incentives and Corporate Culture

Long-Term Incentive Plan: Company A designed a long-cycle equity incentive plan aimed at ensuring employees’ long-term participation in the company's development (Code 28). This plan not only aligns with the company’s strategic goals but also attempts to shape the corporate culture and enhance team cohesion through equity incentives (Code A-26).

Alignment of Incentives with Corporate Vision: The equity incentive scheme is closely centered on the company's vision and mission, designed to help the company overcome current market and technological challenges, and to attract and retain key talent (Code A-21).

7. Flexibility and Sustainability of the Incentive Scheme

Dynamism of the Incentive Scheme: Company A recognizes that the equity incentive scheme needs to be flexible and dynamic to allow for adjustments based on changes in the company and the market (Code A-38). This design principle helps the company adapt to the rapidly changing external environment during its startup stage.

Sustainability of Incentives: Company A also emphasizes the long-term sustainability of the incentive scheme, avoiding the negative consequences of over-incentivizing during the startup stage (Code A-48).

8. Risk Management of Incentive Options

Risk Management of Incentive Options: Company A conducted detailed risk management for the equity incentive options, ensuring that stock options would not be overly relied upon to the exclusion of other types of incentives (Code A-34).

Summary: In designing its equity incentive scheme during the startup stage, Company A fully considered the protection of founder equity, employee incentives, and changes in the market environment. Although the company faces challenges such as unconfirmed market demand, financing difficulties, and low employee perception of the equity incentives, Company A is striving to implement an effective equity incentive scheme in a dynamic market environment through measures like flexibly adjusting the scheme, enhancing incentive transparency, and protecting the interests of shareholders and founders. These efforts not only help attract core talent but also, to some extent, strengthen employee loyalty and recognition of the company's vision.

4.1.1.1 Design and implementation of the equity incentive mechanism - startup Company A

Company A established an equity pool, accounting for 15% of the company's total share capital, during its initial startup stage. The first batch of release from this pool was set at 1.5% of the total share capital (i.e., 10% of the equity pool). This configuration reflects the company's strategic consideration of leveraging equity as a tool to attract and retain core talent during a resource-scarce early stage. Based on the Power and Resource Theory, nascent technology enterprises often struggle to compete with cash compensation in the short term. Therefore, a relatively generous option pool is used to compensate talent for their risk-taking, which not

only serves as an acknowledgment of their core R&D capabilities but also reserves flexibility for future financing and the strategic layout of shareholder control.

In terms of implementation details, Company A adopted a mechanism combining vesting by milestone with a three-year maturity period. Options are progressively unlocked annually or upon achieving predetermined milestones. This arrangement is designed to both discourage short-term behavior resulting from premature entitlement and to strengthen employees' commitment to long-term objectives through phased incentives. Furthermore, the company set a low grant/exercise price for the options (RMB 0.02 per share for the core batches), which was moderately raised to RMB 0.2 per share in subsequent financing rounds. This pricing strategy reflects compensation for the risks undertaken by early employees and incentivizes the expected future appreciation of the company's value. The overall pricing and vesting schedule aim to reduce employees' perceived entrepreneurial risk and tightly link their returns with the company's valuation growth through a "low entry price + value-added returns" structure, thus realizing shared benefits and shared risks.

To counteract subsequent equity dilution and financing adjustments, Company A concurrently established a unified repurchase and redistribution mechanism. This facilitates the rational adjustment of the shareholder structure during new rounds of financing, thereby preserving the control and governance stability of the founders and the early team. In summary, Company A's equity incentive plan institutionally addressed the triple objectives of attracting talent, securing long-term commitment, and protecting control; however, its effectiveness has encountered several challenges concerning execution and employee perception.

4.1.1.2 Analysis of incentive effectiveness and employee feedback - startup Company A

The incentive targets of Company A showed phased adjustments. In the first phase (2023–2024), the incentive focus centered on the R&D team, aiming to achieve breakthroughs in key technologies and build the product platform. As the company entered the marketization promotion period (expected from 2024 onwards), the incentive focus gradually shifted towards the Marketing and Operations teams to support commercialization and scale expansion. This practice of dynamically adjusting incentive targets across phases reflects the company's dynamic matching of human capital needs across different life cycles: prioritizing specialized technical talent in the early stage and shifting towards market capabilities and operational efficiency in the middle stage, thereby achieving optimal resource allocation.

Regarding mechanism innovation, the company introduced the so-called "*Venture Partnership Program (or Business Partner Program)*", which aimed to enhance the sense of

ownership and encourage active participation in decision-making among core personnel by granting them higher status recognition and additional equity options. Theoretically, this program combined monetary incentives with identity recognition, attempting to bind core talent through both emotional and financial ties. However, interviews and frontline feedback indicated that the actual effectiveness of the program was unsatisfactory, mainly due to the following reasons: First, the lack of a psychological contract, employees harbored doubts about the company's ability to deliver on its promises. Second, the disconnection between options and reality, opacity regarding exercise conditions, vesting pathways, and market prospects undermined the options' attractiveness. Third, insufficient management and cultural support—the lack of clear strategic guidance and supporting management practices made it difficult for identity recognition to translate into actual behavior. It is thus evident that if identity-based incentives lack a transparent path for value realization and sustained organizational support, their symbolic value struggles to convert into long-term commitment.

4.1.1.3 Diagnosis of problems and analysis of core issues - startup Company A

After analyzing the implementation of the company's equity incentive mechanism and employee feedback, we can further diagnose a series of core problems affecting corporate growth and incentive effectiveness (see Table 4.1). By systematically dissecting these issues, the company can better understand its pain points in equity incentive design, market positioning, and strategic execution, and make targeted adjustments and optimizations.

Table 4.1 Problems in the implementation of equity incentives: manifestations, conflicts and attribution dimensions

Problem Type	Manifestation	Causal Analysis
Market Uncertainty	Demand not yet apparent, difficulty in financing	The sector is still cutting-edge, strong wait-and-see sentiment from capital
Defective Incentive Design	Ambiguous equity valuation, unclear exit mechanism	Arbitrary pricing, lack of liquidity, insufficient employee understanding
Low Employee Participation	Unwillingness to bear risk, focus only on salary	Entrepreneurial atmosphere is not strong, employees lack a sense of ownership
Strategic Implementation Difficulty	Idealized direction, vague roadmap	Lack of a clear commercialization model, insufficient team experience
Lagging Cultural Shaping	Vision has not been converted into behavioral drive	Strong idealistic coloration from the founder, employees fail to empathize

A comprehensive analysis of the interviewed employees and management allows the incentive effectiveness and problems of Company A to be summarized in the following aspects:

Firstly, there is a gap in cognition and understanding. Most employees view the equity as *"a distant and uncertain return"* and lack sufficient understanding of options and the equity market mechanism. This leads to low expectations and a stronger preference for short-term cash

compensation. Within this cognitive structure, the long-term orientation function of equity incentives is difficult to fully realize. Secondly, the opacity of the value realization path and exit mechanism. Employees struggle to ascertain under what circumstances the options' value can be realized. Especially when financing is frustrated or valuation growth falls short of expectations, employees' psychological disappointment and sense of distrust significantly increase, consequently reducing participation enthusiasm and increasing the risk of turnover. Thirdly, the insufficient fit between incentives and corporate culture. When the corporate culture fails to effectively translate the vision into perceivable behavioral norms, the emotional bonding effect of the equity incentive is weakened. These issues collectively lead to specific manifestations of incentive failure: on the one hand, some employees conflate the expected option returns with salary expectations, leading to unrealistic hopes; on the other hand, in scenarios where financing plans are obstructed or technological breakthroughs are delayed, employees' confidence in the company's prospects declines, and team stability is compromised.

Applying Schumpeter's theory of innovation and the principal-agent framework, these phenomena can be understood as follows: In high-uncertainty environments, if the incentive contract fails to provide a clear path for value realization and reasonable risk compensation, problems of information asymmetry and adverse selection will be amplified, thus undermining the stimulating effect of the incentive.

4.1.2 Open coding of Company B's equity incentive program

Company B is in its growth stage, facing numerous challenges in the design and implementation of its equity incentive program, while also making innovations and adjustments. Details of the open coding are provided in Annex B.

1. Corporate Culture and Values

Corporate Values and Business Philosophy: Company B emphasizes the clarity of its values and business philosophy, which helps establish shared goals and team collaboration during its development (Code B-1, 2). For example, it advocates for "Honoring Commitments" and "Cooperation for Mutual Benefit", and positions customer-centricity as a core competency. These philosophies help motivate employees to contribute to the company's long-term development, and in the design of the equity incentive plan, they foster team cohesion and a sense of responsibility (Code B-5).

2. Role and Challenges of Equity Incentives

Role of Equity Incentives: The role of equity incentives during Company B's growth stage is relatively clear, capable of boosting morale. However, in times of company distress, the effect

of equity incentives is limited, relying more on corporate culture and the team's shared goals (Code B-4). When the company's development is unfavorable, equity incentives can potentially become a burden (Code B-6).

Challenges of Equity Incentives: When facing the difficulties of its Sichuan subsidiary, Company B realized that equity incentives were not effective in helping the company navigate the critical moment. Instead, they found that organizational culture's cohesion was more important during times of distress (Code B-9). This reflects the limitations of equity incentive effectiveness, especially in a corporate crisis, where equity incentives cannot immediately translate into momentum for corporate development.

3. Equity Allocation and Incentive Plan

Equity Allocation Scheme and Incentive Plan: Company B initially allocated equity to the founders and gradually incorporated key talent. It currently has a 12-employee equity incentive platform and plans to launch a second round of equity incentives, expected to be around 10 (Code B-7, 8). In the design of the equity incentive, Company B particularly emphasizes phased implementation to ensure a reasonable proportion for each round and to consider future incentive space for employees (Code B-27, 26). Fairness and Reflection on Equity Incentives: Although Company B strives for fairness in equity allocation, it acknowledges that absolute fairness is difficult to achieve (Code B-11). Furthermore, following the difficulties with the Sichuan subsidiary, Company B reflected that equity incentives failed to effectively help the company survive a life-or-death cycle (Code B-9).

4. Pricing and Market Response

Importance of Equity Pricing: Company B stresses that the pricing of equity incentives is crucial, as it affects the incentive effect, but an effective pricing methodology has not yet been formed (Code B-15). The company questions the current pricing methods, believing that capital increase is a better way to confirm equity value and reduce unnecessary complications (Code B-24). Furthermore, private placement (directional issuance) is considered more effective than equity transfer in ensuring fair pricing and avoiding negative impacts (Code B-25).

Market Response to Equity Incentives: Despite the challenges in pricing, the market response to the equity incentives is relatively positive, helping to enhance the company's brand image and attract more investment (Code B-51). This response also plays a positive role in Company B's long-term equity incentive effectiveness.

5. Flexibility and Innovation of Equity Incentives

Flexibility and Innovation of the Incentive Plan: Company B designed a flexible and innovative equity incentive scheme to adapt to the needs of different development stages and

market environments. The company implements incentives in phases based on stage-specific goals, and the schemes emphasize flexibility and operability to ensure they adapt to the company's constantly changing needs (Code B-34, 43).

Innovation Mechanisms for Equity Incentives: Company B is also exploring innovative equity incentive mechanisms to ensure the attraction and retention of top talent (Code B-58). This innovative design helps the company maintain its appeal to talent in a highly competitive market.

6. Incentive Effectiveness and Employee Behavior

Equity Incentives and Employee Behavior: Company B recognizes the impact of equity incentives on employee behavior, noting that they can effectively enhance employee motivation, change work attitude, and promote the company's long-term development (Code B-56, 64). Through equity incentives, employees can better perceive the growth of company value, strengthening the mutual interests between employees and the company (Code B-48).

Short-Term vs. Long-Term Incentive Effect: In the short term, equity incentives can significantly increase employee work motivation; however, their long-term effect is expected to manifest during the company's stabilization period, especially when linked to company performance (Code B-32, 31).

7. Differentiated Incentives for Senior Management and Technical Backbone

Incentive Differences for Senior Management and Technical Backbone: Company B explicitly distinguishes the incentive methods for senior management and technical backbone staff. Senior management incentives are focused on performance drive, while technical talent incentives emphasize innovation encouragement (Code B-38). This helps ensure that the incentive scheme appropriately rewards contributions based on different roles, avoiding the unfairness caused by a uniform incentive approach.

Alignment of Incentives with Corporate Strategy

Alignment of Incentives with Corporate Strategic Goals: Company B places great importance on the consistency between equity incentives and the company's vision and strategic goals, ensuring that employees' efforts align with company objectives (Code B-55). Furthermore, the equity incentive scheme also considers the development of corporate culture, promoting team cooperation and shared growth (Code B-39, 54).

Summary: Company B's equity incentive scheme during the growth stage has successfully boosted the motivation of the core team and, to some extent, promoted standardized operations through reasonable equity allocation, flexible incentive plans, and alignment with corporate strategic goals. Despite facing challenges with equity pricing and the effectiveness of equity

incentives, particularly the reflections during times of distress, Company B is striving to promote sustained corporate development and long-term talent incentives by adjusting the incentive mechanism, strengthening the balance between shareholder and employee interests, and innovating the forms of equity incentives.

4.1.2.1 Design and implementation of the equity incentive mechanism - growth stage Company B

As a typical long-term incentive mechanism, equity incentive aims to stimulate employee motivation and creativity by linking equity to corporate performance, thereby achieving mutual growth for both the company and its employees. In structuring its equity incentive system, Company B developed the core philosophy that "*incentives are a means, not an end*". The founder emphasized that the ultimate goal of equity incentive is to enhance organizational performance and the cohesion of the core team, rather than being merely a wealth distribution tool. This philosophy is not only reflected in the institutional design but also permeates the formation and practice of the corporate culture.

The founder noted, that "*Sharing prosperity is easy, sharing adversity is hard*", a statement that reveals the fragility of equity incentives during corporate cyclical fluctuations. When the company's operating conditions deteriorate and its equity value falls, employees' expected returns diminish, and the incentive effect is consequently weakened. This shows that the effectiveness of equity incentives is not constant, but dependent on the company's performance and employees' psychological expectations. At the same time, the founder still stressed the strategic significance of equity incentives, "*during the growth stage of the enterprise, it is a crucial means to stabilize the core team and reinforce the sharing of responsibility*".

Regarding control arrangements, Company B demonstrates the founder's high identification with the concept of the "*Actual Controller and the Community of Shared Destiny*". The founder believes that "*the actual controller is the only person who cannot run away*". This realization led them to maintain core control in the equity design while simultaneously granting a portion of equity to incentivize key employees, achieving a balance between "shared responsibility and shared benefits".

In terms of implementation path, Company B's equity incentive mechanism evolved from non-institutionalized to standardized. In the startup stage, the founder primarily relied on trust and verbal agreements to share development dividends with the early team. According to the founder "*In the very beginning, equity was worthless; the company had nothing, just three people".* Incentives during this stage were based more on vision alignment than on financial

returns. As the company entered its growth stage, it officially established a core team shareholding platform in September 2021. The initial incentive proportion was 10%, which was later diluted due to financing to approximately 7.7%. This institutionalized measure significantly improved team stability and organizational standardization, laying the groundwork for further financing and expansion.

In terms of specific design, Company B linked its equity incentives to phased objectives, forming a "Goal-Oriented Incentive" model. For instance, the founder suggested that "*every incentive should be tied to revenue targets, such as milestones of RMB 300 million, 600 million, 1 billion*". This phased release model aligns with the dynamic incentive theory, helping to continuously motivate employees across different development stages. Simultaneously, the company emphasized fairness and transparency in equity pricing, adopting the method of capital increase and share expansion to avoid accusations of "*the boss earning the spread*". Through an internal discount mechanism based on valuation, the company balanced both incentive effect and capital structure stability.

4.1.2.2 Analysis of incentive effectiveness and employee feedback - growth stage Company B

Since its establishment, Company B has implemented two rounds of equity incentive plans. Each round has been progressively improved and optimized to meet the company's needs at different development stages. These equity incentive plans are not only a core component of the company's management but also a key initiative in its talent strategy and long-term development. Table 4.2 presents an overview and detailed analysis of Company B's equity incentive implementation:

Table 4.2 Comparison table of equity incentive grant ratios and core characteristics at key development stages

Date	Incentive Method	Proportion	Characteristics
2020	1st Phase Holding Platform	Approx. 10	Preliminary version, not fully institutionalized
2021.9	2nd Phase Standardized Platform	Initial 10, diluted to 7.7	Targets core team, serves to stabilize the workforce and promote standardization

Since its establishment, Company B has successively implemented two rounds of equity incentive plans, corresponding to the company's transition from early exploration to institutionalized management. The first phase was established in 2020, primarily targeting the founding team and early key personnel. The second phase formally established the shareholding platform in 2021, with an initial incentive proportion of 10%, later diluted to 7.7% due to financing. The implementation of both plans has not only perfected the corporate governance

structure but also enhanced the team's stability and cohesion.

In terms of incentive target selection, Company B adheres to the guiding principle of "position contribution – value creation". It adopts differentiated incentive models for technical, sales, and back-end support roles to achieve the optimal allocation of incentive resources. Technical personnel are considered the primary subjects of long-term incentives due to their core role in the company's innovation and R&D. Linking their interests to the long-term development of the enterprise through equity incentives reduces the agency problems caused by information asymmetry, aligning with the core assumptions of the Principal-Agent Theory. Sales personnel, due to their short performance cycle, prefer immediate incentives and cash bonuses. The company combines equity awards with this to form a hybrid model of "short-term incentive + long-term constraint", which reflects the flexibility of the Dynamic Incentive Theory. For back-end support departments, the company grants a smaller proportion of equity but enhances their organizational identification and sense of participation through moderate incentives.

Regarding the form of incentives, Company B rejects the practice of "gratuitous stock grants" and instead adopts an "employee capital contribution + discount incentive" model to strengthen employees' cost awareness and sense of responsibility. According to Behavioral Economics Theory, the greater the investment, the higher the value placed on the reward. This approach encourages employees to view the equity as a personal long-term investment, reinforcing the awareness of "co-creating value", thus forming a stronger incentive effect.

More critically, Company B deeply recognizes that equity incentives must be grounded in organizational culture. While equity incentives are an extrinsic driver, organizational culture is the source of intrinsic cohesion. Company B strengthens employees' sense of belonging and mission by building a culture of "*shared struggle and shared value*". When the company faces difficulties, this culture is what sustains team stability and trust. The founder pointed out that culture is a "*power that traverses cycles, capable of exerting a lasting effect even when equity incentives falter*".

This culture-oriented incentive mechanism is highly congruent with the Human Capital Property Rights Theory. This theory posits that employees are co-creators of enterprise value, rather than merely suppliers of labor. Through equity incentives, Company B imbues employees with an "owner's mindset", prompting them to shift from executors to value co-creators. Equity incentive is thus not merely an economic incentive but also a cultural transmission mechanism. Employees' deep participation in corporate governance through shareholding reinforces their sense of ownership, achieving an organic unity of cultural internalization and incentive

externalization.

4.1.2.3 Diagnosis of problems and analysis of core issues - growth stage Company B

Despite the significant success achieved by Company B's equity incentive mechanism, there is still room for further optimization, primarily focusing on four areas: the pricing mechanism, the allocation mechanism, the incentive cadence, and cultural integration.

(1) Transparency and Dynamism of the Pricing Mechanism: Currently, there is still some uncertainty surrounding the pricing of equity incentives. It is recommended that the company's valuation serve as the pricing basis, referencing external financing prices, and adopting a phased discounted pricing mechanism to ensure the subscription price for employees is fairer and more incentivizing. Concurrently, prioritizing capital increase and share expansion over old share transfer is advised to avoid conflicts of interest and enhance capital structure stability. By establishing a mechanism for periodic valuation assessments, the company can ensure that the incentive price is updated in sync with the enterprise value, thereby combining dynamic incentives with fair incentives.

(2) Scientific and Differentiated Allocation Mechanism: To enhance the precision of the incentives, Company B should establish a comprehensive evaluation system based on performance, position value, and cultural fit, combined with 360-degree feedback and results-oriented assessment, to guide incentive allocation with quantified standards. A differentiated strategy should be adopted for various job roles: (i) Sales roles should emphasize short-term incentives and immediate feedback; (ii) technical roles should prioritize long-term incentives and innovation orientation, and (iii) managerial roles should be assessed based on a combination of performance and organizational contribution. This approach can effectively mitigate principal-agent conflicts and make the incentive structure more hierarchical and equitable.

(3) Control of the Incentive Plan Cadence: The release of equity incentives should be synchronized with the company's revenue growth trajectory. It is recommended to adopt a "Three-Phase Release Method": releasing 30%, 30%, and 40% of the incentive quota when revenue reaches milestones of RMB 300 million, 600 million, and 1 billion, respectively. This model not only ensures that incentives are tied to performance but also sustains employees' momentum for continued dedication. Simultaneously, the overall incentive proportion should be controlled to within 10% to preserve future incentive capacity and capital flexibility. Each incentive implementation should be reviewed and approved by the General Meeting of Shareholders to ensure transparency and institutional authority.

(4) Cultural Building and Cognitive Enhancement: The foundation of equity incentive lies

in cultural support. Company B should systematically conduct equity incentive training and return simulations to help employees understand the long-term value and risk attributes, preventing them from viewing equity as a short-term income tool. Furthermore, the company must continuously reinforce the "community of shared destiny" concept, using cultural guidance and institutional education to help employees understand the alignment between corporate and individual interests. According to the Human Capital Property Rights Theory, equity incentive should function as a cultural bond for value co-creation, rather than merely a tool for profit distribution.

In conclusion, if Company B continues to optimize in the four aspects of pricing, allocation, cadence, and culture, it will forge an equity incentive ecosystem that is fair, motivating, and sustainable, further driving the company's steady expansion and enhancement of its sustainable competitive advantage during the growth stage.

4.1.3 Open coding of Company C's equity incentive program

Company C is in a rapid development stage and is currently entering the pre-IPO tutoring period. The design and implementation of its equity incentive plan are closely aligned with the company's IPO strategy and long-term objectives. The results of the open coding indicate that Company C demonstrates strong systematicity and strategic orientation in its equity incentive practices. It focuses not only on short-term incentive effects but also emphasizes the long-term value of the scheme in stabilizing the core team, driving technological innovation, and optimizing the corporate governance structure. Details of the open coding can be found in Annex B.

1. Integration of IPO Planning and Equity Incentives

In Company C's pre-IPO stage, the design of the equity incentive program is tightly integrated with its IPO planning and strategic goals. The company is currently in the IPO coaching stage, and the equity incentive must not only motivate employees but also align with the company's listing objective, ensuring the workforce remains stable and the listing goal is achieved during the IPO process (Code C-1, 2). At this stage, the equity incentive serves as a critical strategic tool, helping the company enhance employee loyalty and stability. Especially when shareholders and employees are uncertain about the company's future prospects, equity incentives can effectively boost employee participation and motivation.

2. Core Personnel and Team Stability

Company C recognizes that the stability of core personnel is a crucial factor in ensuring the realization of the company's strategic goals, particularly during the IPO process. The equity

incentive program primarily focuses on senior management and core technical personnel, considering these two groups to be the driving force behind a successful IPO (Code C-3, 4). The loss of the core team before or after the listing could negatively impact the company's strategic goals and market positioning. Thus, through equity incentive measures, Company C aims to retain these key personnel, ensuring they exert maximum effort toward the company's listing objective at critical moments.

3. Balancing Incentive Goals and Profit

In designing the equity incentive program, Company C faces the challenge of balancing the incentive effect with the company's interests. The equity incentive must not only promote employee motivation but also ensure that company profits are not unduly diluted. To avoid excessive dilution of shareholder equity, the company adopts a refined equity allocation strategy and sets multiple dimensions of incentive targets to balance employee motivation and shareholder interests (Code C-5, 6, 7). This balanced design helps ensure that the company, while driving employee motivation, does not damage its overall financial health and profit distribution during the IPO process.

4. Implementation and Flexibility of Equity Incentives

Company C adopts a phased approach to implementing the equity incentive program. The scheme's design is closely linked to the company's development stage and changes in the external environment (Code C-9, 10). This flexibility ensures that the equity incentive program can be adjusted in a timely manner across different stages of the company's life cycle and with changes in strategic goals, maximizing the incentive effect and ensuring alignment with the company's long-term strategic objectives. Furthermore, Company C particularly emphasizes the flexibility of the incentive program to respond to future market changes and the dynamic adjustment of the company's strategy.

5. Compliance and Legal Support

The compliance of the equity incentive program is a key focus for Company C in the pre-IPO stage. The company collaborates with professional law firms to ensure the equity incentive program complies with local laws and regulations, avoiding future legal risks (Code C-11, 12). This measure ensures that the equity incentive program operates within the legal framework, reducing the risk of legal proceedings due to compliance issues, and ensuring the company can smoothly enter the capital market.

6. Incentive Effectiveness and Phased Evaluation

After implementing the equity incentive program, Company C conducts regular evaluations of the incentive effect, ensuring the program effectively achieves its stated goals at different

development stages. Through phased evaluation, Company C can timely adjust the equity incentive program to better align with the company's strategic development needs (Code C-13, 14). This measure not only ensures the continued effectiveness of the equity incentive program but also accumulates experience for the company's further development.

7. Retention of Early Employees and Equity Appreciation

In the company's early stage, the equity incentive served as an important tool to stabilize the team and attract and retain key employees. Due to the company's limited early-stage cash flow, the equity incentive helped employees remain patient despite lower wages, driving them to play an active role in the company's initial development (Code C-15, 16). As the company developed, the effect of equity appreciation gradually became apparent, with the value of employee equity increasing significantly, strengthening their confidence in the company's future and their sense of belonging (Code C-17, 18). This not only boosted employee motivation but also enhanced their identification with the company's long-term development.

8. Integration of Technological Innovation and Incentives

In the context of a technology-driven industry, Company C pays particular attention to the equity incentive design for core technical personnel. The equity incentive is not merely a means of motivating employees but also an effective way to drive the company's technological innovation and R&D progress (Code C-19, 20). Through equity incentives, Company C ensures that the core technical team focuses on technological R&D, thereby enhancing the company's technical competitiveness in the market.

9. Incentive Differences Across Different Job Levels

Company C's equity incentive program considers the differences in incentive effectiveness among employees at different job levels. Senior management and technical backbone staff receive a richer incentive design due to their critical role in the company's development strategy, while ordinary employees may have a weaker response to equity incentives because they cannot perceive the direct value of the equity (Code C-23, 25). This phenomenon suggests that the company may need to combine other forms of incentives to enhance the incentive effect for ordinary employees.

10. Integration of Incentives and Corporate Culture

Company C also views equity incentives as part of corporate culture building. Through equity incentives, employees not only receive financial returns but also better identify with the company's vision and values, strengthening their trust and support for the company's long-term development (Code C-35). Equity incentives, to some extent, serve as a tool for shaping corporate culture, contributing to the formation of long-term employee values and behavioral

patterns.

11. Incentives and Market Competition

In a fierce market competition environment, Company C enhances its attractiveness to outstanding talent and strengthens its competitiveness in the talent market through equity incentives (Code C-45). Especially in a phase where technological innovation and management stability are crucial, equity incentives become an effective means of attracting and retaining core talent.

12. Shareholder and Control Concerns

In designing the equity incentive program, Company C also specifically considered the risk to shareholder and founder (de facto controller) control. Equity incentives can lead to founder equity dilution, which may further affect the stability of control, especially during the company's IPO process. Therefore, Company C took corresponding measures in the equity incentive design to ensure the program effectively motivates employees without excessively diluting the founder's equity (Code C-30, 31, 32).

Summary: Company C's equity incentive program, designed in the pre-IPO stage, successfully balances employee motivation and the achievement of corporate strategic goals through refined design and flexible implementation strategies. The program has effectively coordinated and optimized interests, particularly regarding IPO planning, core personnel retention, technological innovation, and shareholder interests. As the company gradually approaches the IPO stage, equity incentives will continue to play a vital role in stabilizing the workforce, driving company innovation, and realizing strategic goals.

4.1.3.1 Design and implementation of the equity incentive mechanism - growth stage Company C

Company C's equity incentive mechanism design during its growth stage adheres to the principle of phased and dynamic adjustment to adapt to changes in the company's development rhythm and market environment. This design not only allows incentive measures to be closely tied to the company's strategic goals but also ensures that employees receive sustained and effective motivation at different stages of growth. Specifically, the company typically initiates the equity incentive plan based on actual conditions, such as achieving specific performance targets, completing key technological breakthroughs, or successful market expansion. This performance- and stage-based strategy effectively guarantees the operability and long-term effectiveness of the incentives.

In designing incentive objectives, Company C emphasizes multi-dimensional incentives.

In addition to performance results, the company also focuses on employees' cultural fit and value orientation, especially cultivating an "owner's mindset". By integrating equity incentives with corporate culture building, employees are not only motivated to focus on short-term performance but also to understand and participate in the company's long-term strategic goals, gradually transitioning from "executors" to "value co-creators", thereby enhancing overall execution capability and innovation capacity.

The company also fully considers the differentiated needs of employees across various job levels. Equity incentives for senior management and core technical personnel are designed to be more direct and substantial, given their critical role in the company's strategic objectives. For general employees, the company employs flexible incentive measures, supplemented by equity value education and return simulations, to enhance their sense of identification and participation.

Furthermore, the financial affordability of the equity incentive is a key consideration for Company C. While equity incentives can effectively mobilize employee enthusiasm, they may put pressure on the company's profits and financial stability. To address this, the company utilizes a professional financial team for cost accounting and allocation design, ensuring that the cost of equity incentive payments remains within controllable limits while balancing shareholder interests and the effectiveness of management incentives.

4.1.3.2 Analysis of incentive effectiveness and employee feedback - growth stage Company C

The implementation of the equity incentive plan has significantly boosted the work enthusiasm and performance of Company C's employees, particularly in core business departments such as R&D and technical support. Equity incentives tightly link the personal interests of employees with the company's long-term development goals, stimulating their sense of responsibility and commitment. Specifically, the incentive plan has driven overall performance growth, with employees' contributions being fully reflected, especially in the areas of corporate R&D and technological innovation.

Company C has effectively attracted external high-potential talent and improved the loyalty of existing employees through its equity incentive plan. Particularly in technical roles and R&D teams, equity incentives have not only helped the company recruit core technical personnel but also enhanced employee stability and retention rate. Data indicates a significant decrease in the turnover rate for key positions compared to the period before the incentive plan was implemented.

The execution of the equity incentive plan provided strong support for the shaping and development of Company C's culture. Employees, through their participation in the equity incentive process, more strongly identified with the company's core value of "win-win", thus enhancing their sense of responsibility and belonging towards corporate goals. The equity incentives strengthened the cohesion between employees and the company, further improved the team collaboration atmosphere, and progressively boosted employees' loyalty and sense of responsibility to the company.

The equity incentive plan facilitated the optimization of Company C's performance appraisal mechanism. By establishing clear performance evaluation standards, the company linked employee performance to equity incentives, ensuring the fairness and transparency of the plan. Regular performance evaluations, assessment of goal achievement, and a comprehensive review of employee contributions allowed for the rational allocation of the equity incentive plan, further boosting employee motivation and corporate performance.

Based on employee feedback, the implementation of Company C's equity incentive plan received positive affirmation from most employees. Particularly for employees in key positions such as R&D and technical support, the equity incentives enhanced their sense of belonging and trust in the company's future. Employees generally believe that the equity incentive is not just a reward for their efforts but also allows them to directly participate in the company's long-term development, promoting mutual growth for both the individual and the company. Although the majority of employees approved of the incentive plan, some still expressed certain doubts about the specific implementation process of the equity incentives. Especially concerning equity unlocking conditions, assessment standards, and the timing of equity grants, some employees hoped the company would further increase the transparency of the scheme and reduce uncertainty. Furthermore, some employees mentioned that the fairness of the scheme still requires further assurance, particularly regarding the incentive opportunities and rights for employees in non-core positions. Some employees suggested that the equity incentive could be more flexible, offering other forms of long-term incentives besides equity, such as stock options or performance bonuses. Diversified incentive methods would not only meet the needs of different employees but also enhance the overall attractiveness and effectiveness of the plan. Employees expect to be able to choose the most suitable incentive format based on their individual role, contribution, and needs, thereby further enhancing the personalization and targeted nature of the incentive.

Through the equity incentives, Company C's employees have developed greater confidence in the company's future development. Driven by personal interests, equity incentives encourage

employees to focus more on the company's long-term growth objectives and actively contribute to its growth and innovation. Employees commonly believe that equity incentive is not merely the acquisition of economic benefits but an acknowledgment of and commitment to the company's future prospects.

4.1.3.3 Diagnosis of problems and analysis of core issues - growth stage Company C

A core challenge faced by Company C during the implementation of its equity incentive program is the balance between equity dilution and controlling rights. For the company's actual controller, the implementation of equity incentives inevitably leads to a decrease in the individual's shareholding percentage, which may subsequently impact corporate control. Although shareholders can attract exceptional talent through the initial stages of the equity incentive plan, the issue of shareholder control dilution becomes increasingly significant as the program gradually expands.

Management has recognized that the implementation of equity incentives requires careful handling to prevent excessive dilution of shareholder equity or instability in corporate control. This issue is further exacerbated as the company enters the pre-IPO stage, where changes in the shareholder structure become more critical. Company C aims to design the equity incentive scheme in a way that ensures the actual controller's command is not overly diluted while guaranteeing that employees receive sufficient motivation through the incentives.

Concurrently, Company C has consistently faced the challenge of balancing incentive effectiveness with financial stability during the execution of the equity incentive. As a long-term incentive tool, equity incentives can exert significant pressure on the company's short-term financial data, especially when the company is in a stage of rapid expansion. To prevent the equity incentives from becoming an undue financial burden, Company C has adopted a series of financial control measures, including engaging professional financial personnel for cost accounting and monitoring of the equity incentives, ensuring that the payments do not compromise the company's overall profitability.

Furthermore, the effectiveness of the equity incentive implementation varies across different job levels, particularly with general employees demonstrating a weaker sense of identification with the scheme. Company C recognizes that, moving forward, it needs to place greater emphasis on the transparency and employee identification of the equity incentives. Through regular educational training, increased information transparency, and other means, the company aims to help employees better understand the long-term value and risks of the equity incentives, thereby enhancing their sense of participation and belonging.

4.1.4 Open coding of Company D's equity incentive program

Company D is in its mature stage and is listed on the China Science and Technology Innovation Board (STAR Market). Company D has made numerous successful explorations and practices in the design and implementation of its equity incentive program. Details of the open coding are provided in Annex B.

1. Design of the Equity Incentive Program

In designing the equity incentive program, Company D clearly defined the core goals of the incentive: attracting and retaining talent and improving corporate performance (Code D-1). To achieve these goals, the company selected Restricted Stock as the main incentive method, ensuring the practical motivational effect of the equity. The incentive quota is set at no more than 10% of the share capital (Code D-2). This design ensures the maximization of shareholder interests while providing sufficient incentive space. Through this design, Company D controls the degree of equity dilution and safeguards shareholder control while attracting core talent.

2. Incentive Purpose and Employee Attraction

Company D explicitly stated the purpose of attracting and retaining core talent in its equity incentive program. Through equity incentives, Company D aims to attract high-potential employees and enhance their work enthusiasm and loyalty (Code D-3). This incentive not only boosts employees' sense of belonging but also helps the company attract more strategically important employees, providing talent assurance for the company's long-term development.

3. Employee Shareholding and Sense of Responsibility

Providing employee shareholding opportunities is one of the core components of Company D's equity incentive program. Through employee shareholding, Company D strengthens employees' sense of responsibility and belonging, making employees more invested in the company's growth process (Code D-4). This not only enhances employee participation but also helps the company achieve profit-sharing, strengthening the long-term linkage between employees and the company.

4. Program Refinement and Implementation Flexibility

Company D has undertaken detailed refinement and adjustment in the implementation process of the equity incentive program. Incentive recipients and incentive proportions are flexibly adjusted according to the company's specific circumstances (Code D-5). Annually, Company D evaluates and adjusts the incentive program to ensure it aligns with market conditions and company development (Code D-6). This flexible implementation strategy ensures that equity incentives can adapt to changes in the external environment and corporate

strategy, enhancing the incentive's focus and effectiveness.

5. Incentive Mechanism and Assessment

In the implementation of equity incentives, Company D sets clear assessment indicators, ensuring that employee performance is linked to equity allocation (Code D-7). The close link between the incentive program and employee performance ensures the fairness and effectiveness of the incentive. Concurrently, Company D uses an annual evaluation mechanism to regularly adjust the incentive effect (Code D-8). This assessment and evaluation mechanism helps the company adjust the incentive program based on actual effects, ensuring continuous incentive effectiveness.

6. Market Changes and Program Adjustments

Changes in the market environment are important factors affecting the effectiveness of the equity incentive program. Company D recognizes that market changes may affect the setting of equity incentives and employees' actual returns, thus maintaining a high degree of flexibility in the program design (Code D-9). This not only helps the company cope with market changes but also ensures that employees' actual incentive returns can reflect actual market conditions.

7. Setting Incentive Goals

In setting the goals for equity incentives, Company D combines financial goals with non-financial goals. Specific financial goals include net profit growth rate and revenue growth, ensuring the incentive program is linked to the company's financial performance (Code D-12). Concurrently, Company D also sets incentive indicators related to non-financial goals such as corporate culture, employee development, and innovation, ensuring the comprehensiveness and multi-dimensionality of the incentive (Code D-13). This practice helps the company balance financial and non-financial goals, making the equity incentive more comprehensive and aligned with the company's long-term strategic objectives.

8. Incentive Recipients and Position Selection

Company D selects incentive recipients based on position and contribution, prioritizing employees in core positions, such as R&D, technology, and sales personnel (Code D-15, 16). Personnel in these positions are crucial to the company's development, so the company provides priority incentive opportunities to ensure the stability of key personnel (Code D-17). Additionally, the company evaluates and adjusts incentive recipients annually, ensuring the incentive accurately covers the employee group that contributes most to the company (Code D-18).

9. Equity Pricing and Grant Conditions

In terms of equity pricing and grant conditions, Company D sets the equity grant price

based on market environment and company development (Code D-20). The conditions for equity grants include employee years of service and achieving specific performance targets (Code D-21), ensuring the equity incentive is linked to employee personal performance and company performance. By setting these conditions, the company ensures that incentive recipients possess a sufficient sense of responsibility and long-term commitment.

10. Equity Vesting and Vesting Conditions

Company D adopts a phased vesting approach for equity, with a vesting cycle typically of 3-5 years (Code D-25, 26). The vesting conditions are linked to the employee's personal performance and company performance, ensuring the equity incentive fully serves its purpose (Code D-27). This vesting arrangement encourages employees to strive for the company's long-term goals and also ensures the company does not lose key talent in the short term.

11. Balancing Interests and Shareholder Interests

Company D focuses on balancing shareholder interests and employee interests, ensuring that shareholder equity is not harmed (Code D-30). By setting a reasonable equity incentive proportion, the company can both motivate employees and avoid the dilution of shareholder equity. Furthermore, Company D ensures that employees, shareholders, and the company can grow together and achieve mutual benefit through a model of interest-sharing (Code D-33).

12. Incentive Fairness and Transparency

Company D ensures the fairness of the incentive program, avoiding employee dissatisfaction caused by uneven incentive allocation (Code D-34). To this end, the company sets incentive proportions based on employee contribution, ensuring that high-performing employees receive more equity incentives (Code D-35, 36). The company also establishes a clear performance appraisal system, using employees' personal performance and goal achievement status as key factors for determining the incentive quota (Code D-37, 38).

13. Financial Arrangements and Risk Management

In the design of the equity incentive program, Company D fully considers financial arrangements and risk control. Through reasonable capital management and budget control, the company ensures the equity incentive program does not affect the company's cash flow and financial stability (Code D-40, 41). Furthermore, Company D effectively manages risks such as legal and financial risks that may arise from equity incentives and develops contingency plans (Code D-51, 52).

14. Compliance and Audit

Company D highly values the compliance of the equity incentive program, ensuring the program adheres to laws and regulations and is monitored through an internal audit mechanism

(Code D-55, 56). By establishing compliance assurance and audit procedures, Company D ensures the equity incentive program complies with relevant laws and regulations during its implementation and timely identifies potential compliance issues (Code D-59).

Summary: Company D's equity incentive program, designed at the post-IPO stage, effectively balances the interests of shareholders and employees, and enhances employee participation and loyalty through refined goal setting, flexible implementation strategies, and a rigorous performance appraisal mechanism. By phased equity vesting, setting clear performance standards, and grant conditions, Company D ensures the fairness and long-term effectiveness of the incentive. Additionally, in the implementation process of equity incentives, Company D places particular emphasis on financial arrangements, risk management, and compliance review, ensuring the smooth progression and sustainable development of the incentive program.

4.1.4.1 Design and implementation of the equity incentive mechanism - mature stage Company D

(1) Dynamic adjustment of incentive system with enterprise development stages

When Company D entered the market promotion stage in its initial stage (around 2014), equity incentives became an important means to attract and motivate core employees. At that time, the equity incentive price was set at 0.25 RMB per share, but the company already had a relatively high valuation. This incentive setting reflected that the founder's consideration in the first round of equity incentives was more focused on rewarding employees. Since the company was in the startup stage, it was difficult to accurately quantify employee contributions, so equity incentives relied more on the expectation of employees' future potential. In this stage, traditional compensation systems struggled to precisely reflect employee effort and contribution, while equity incentives provided a relatively flexible tool that could both attract talent and enhance employees' commitment to the company's future development.

As the company gradually entered the growth stage, it faced more complex market competition, and the equity incentive program was progressively adjusted. To cope with this change, Company D successively implemented three rounds of equity incentive plans, with prices of 0.25 RMB, 1 RMB, and 4 RMB per share, respectively. The gradual increase in stock price aligned with the company's rising valuation. This move not only ensured that the employees maintained their confidence in the future at different stages of the company's development but also effectively strengthened the sense of responsibility among shareholders and management. In this stage, the pricing of equity incentives gradually ceased to rely solely

on the founder's personal considerations and began to approach market-based valuation, reflecting the application of Principal-Agent Theory. Through phased equity grants, the interests of management and employees are highly aligned with those of shareholders, effectively reducing agency costs and information asymmetry.

Entering the pre-IPO stage, the design of the equity incentive program focused more on employees' expectations for future value appreciation. Employees no longer solely focused on short-term salary rewards but paid more attention to the potential appreciation of equity after the IPO. At this time, the equity incentive not only served as a retention tool but was also an important way for the company to stabilize its core team. In the design of the post-IPO equity incentive, constrained by the exchange's compliance requirements, the incentive usually takes the form of "Second Category Restricted Stock", with a maximum discount rate of 50. This design not only reflects the shareholders' long-term incentive for employees but also reflects the shared concern for control between shareholders and management, avoiding excessive dilution of shareholder control.

In this process, the progressive marketization and compliance requirements of equity incentives reflect the company's continuous adaptation and adjustment of its incentive tools during its development. Each stage's equity incentive is designed to match the strategic goals and market environment of the company at that stage.

(2) Scientification of incentive goal setting

In designing the equity incentive program, Company D clearly set specific performance achievement conditions, including financial indicators and individual performance appraisal standards. The setting of these goals considers both the company's overall development direction and ensures the rationality and operability of the incentive program. To ensure the incentive effect, the goal setting follows the principle of "*within reach but requires striving*", meaning the goals are both challenging and capable of motivating employees to strive towards the predetermined direction. If the goals are set too high, employees may lose confidence due to an inability to achieve them; while goals set too low may weaken the incentive effect and even reduce it to a form of benefit. To ensure the rationality of the goals, Company D adopted a "*small steps, quick pace"* strategy, setting short-term goals annually and timely realizing rewards based on goal completion. This design helps to maintain the continuity of the incentive and ensures employees have a clear sense of direction and action guide at each stage. This goal setting method aligns with the SMART Principle (Specific, Measurable, Achievable, Relevant, Time-bound). By setting short-term and quantifiable goals, Company D ensures that employees clearly understand their responsibilities and tasks, and can receive rewards after achieving

certain performance targets annually. This setting can effectively enhance employees' sense of accomplishment, stimulate their work enthusiasm, and avoid frustration caused by overly high expectations.

Furthermore, in the practice of Company D's equity incentive program, equity incentive is not merely regarded as a "Hygiene Factor", i.e., the expectation of employees to receive some equity, but more importantly, as a "Motivating Factor", capable of enhancing employees' loyalty and participation in the company by strengthening their sense of accomplishment and responsibility. In Company D's design, equity incentives not only focus on short-term performance but also emphasize employees' contribution and recognition of the company's future growth. Setting clear goals and realizing rewards annually not only allows employees to feel tangible returns but also gives them a deep understanding of the future value growth of the enterprise.

Through these carefully designed goals and incentive measures, Company D successfully integrated equity incentives with employees' personal goals and the company's strategic goals, providing momentum for the company's sustained development.

4.1.4.2 Analysis of incentive effectiveness and employee feedback - mature stage

Company D

With the development of the enterprise and the changes in its capital structure, the design and implementation of equity incentives also present different characteristics. Especially the equity incentive programs before and after the IPO are influenced by the market environment, financing methods, regulatory requirements, and other factors faced by the enterprise, thus exhibiting significant differences. Understanding these differences helps in designing more reasonable and effective equity incentive mechanisms for enterprises at different development stages (see Table 4.3).

Table 4.3 Multi-dimensional comparative analysis of equity incentive mechanisms in the pre-IPO stage and post-IPO stage

Dimension	Pre-IPO (Primary Market)	Post-IPO (Secondary Market)
Incentive Forms	Phantom Stock, Dividend Rights, Options	Category I Category II Restricted Stock
Incentive Price	Lower, flexible pricing	Subject to market price, minimum discount must not be below 50
Vesting Conditions	Mostly tied to IPO, M&A exit	Phased vesting after performance meets standards
Incentive Cycle	Long cycle, high exit uncertainty	Short cycle, strong realization ability
Incentive Effect	High expected return, high incentive intensity	Stable expected return, strong compliance

1. Differences in incentive forms

Before the IPO, enterprises typically adopt flexible equity incentive forms, such as Phantom Stock, Dividend Rights, and Options. The core advantage of these methods is their ability to quickly adapt to the uncertainty of the enterprise's early stage. Since the company is not yet listed, the market value and liquidity of the equity are unclear. Incentive forms like Phantom Stock and Options can provide employees with an expectation of future value appreciation without involving the actual transfer of equity. The flexibility and cost-effectiveness of these forms make them ideal choices for the startup stage.

In the early stages, since it is difficult to precisely quantify employee contributions, enterprises often use Options or low-priced Equity as incentive tools. The advantage of these tools lies in their flexibility and low cost, while avoiding the problem of enterprises being unable to offer high salaries due to funding shortages in the early stage. However, once the enterprise successfully goes public, the form of equity incentives tends to become standardized and transparent, usually adopting Category I and Category II Restricted Stock. The price of these stocks is influenced by market fluctuations, and their liquidity and value are clearer, while also needing to comply with the exchange's compliance requirements. Adopting these forms post-IPO ensures the transparency of the incentive and helps enhance the trust of shareholders and investors.

2. Changes in incentive price

Pre-IPO, the pricing of equity incentives is usually more flexible. Enterprises set a relatively lower price based on the prevailing market environment and company valuation. For example, in the company's early development stage, the expected return for shareholders and employees is relatively vague. Low-priced equity incentive plans can effectively attract employees to participate and motivate them to contribute to the company's future growth. This flexible pricing approach aligns with the Incomplete Contract Theory. In the startup stage of an enterprise, due to market uncertainty, the design of equity incentives is often highly flexible and elastic.

However, with the company's IPO, the pricing of equity incentives is constrained by the market price, and the price must not be below 50 of the market prices. The stock price of a listed company is determined by the relationship between market supply and demand, and the expectations of shareholders and employees are more stable. Therefore, post-IPO equity incentive pricing is usually more cautious, needing to consider market reaction, shareholder interests, and the expectations of external investors to ensure the fairness and compliance of the equity incentive. The rights and interests of shareholders and employees are more clearly

protected under this pricing, meaning a clear definition of rights is a prerequisite for the efficiency of resource allocation, ensuring the balance of interests among all parties in the market.

3. Changes in vesting conditions

Pre-IPO, as the company is not yet public, employee equity incentives are often tied to the IPO or M&A exit. The conditions for equity incentives are usually vague, and the exit mechanism is often based on future capital market events, such as the company successfully going public or being acquired. For employees, this form involves greater uncertainty but also brings higher potential returns. Shareholders and management typically link employee goals to the company's future capital market performance through the incentive plan, thereby stimulating employee motivation and driving company development.

This design aligns with the Principal-Agent Theory, which states that incentive mechanisms should link employee goals with the company's long-term interests, reducing the agency costs between management and owners. Since the company is in its early development stage, the equity value of incentive recipients relies more on market events, so vesting conditions are often set as external events like IPO or M&A.

Post-IPO, the vesting conditions for equity incentives are usually linked to company performance. Listed companies need to vest equity in batches based on company profitability and market performance. The incentive cycle becomes clearer and more controllable. This approach reduces uncertainty, clearly defines employees' long-term incentive goals, and helps ensure that company control is not excessively diluted. The interests of shareholders and management are further protected, and the responsibilities between shareholders and management are matched.

4. Differences in incentive cycle

Pre-IPO, the equity incentive cycle is usually longer, and employees' equity often cannot be realized immediately. This design helps the company maintain a low-cost incentive program and ensures employees bear greater responsibility and risk during the company's growth. Therefore, the expectations of shareholders and employees are primarily focused on future capital market events and the appreciation of the company's valuation. This long-cycle equity incentive can effectively solve the problem of early-stage companies being unable to offer high salaries, while motivating employees to actively participate in the company's long-term development, promoting mutual growth for the company and employees.

Post-IPO, the equity incentive cycle is usually shorter, and the realization ability is stronger. Returns for shareholders of listed companies are more stable, and employees can realize gains

through equity incentives in a relatively short period. This design can provide a higher short-term incentive effect, enhance employees' sense of belonging and loyalty, and contribute to the company's long-term stable development.

5. Differences in incentive effect

Pre-IPO, due to the lower and flexible pricing of equity incentives and their close link to future market performance, employees' expected returns are generally higher, and the incentive intensity is also greater. This expectation often greatly enhances employees' work enthusiasm and sense of responsibility, contributing to the company's rapid development.

Post-IPO equity incentives, while having strong compliance and high transparency, tend to have a stable incentive effect because the price is usually determined by the market, and employees' expected returns are relatively more stable. Post-IPO, the main advantages of the incentive effect lie in its compliance and stability. Employee goals are clearer and can align with the company's long-term interests.

Summary: The form and effect of equity incentives differ significantly before and after the IPO. Pre-IPO, equity incentives are generally more flexible, capable of motivating employees through low-priced equity, options and rely on future market events for higher returns. Post-IPO, equity incentives tend to be standardized, with pricing constrained by the market, and the incentive program is more compliant and stable. Whether pre- or post-IPO, the core of the equity incentive mechanism lies in adjusting the incentive program to balance the interests between employees and the company, thereby maximizing the company's development potential and employees' work motivation.

4.1.4.3 Diagnosis of problems and analysis of core issues - mature stage Company D

The design and implementation of equity incentives at different stages of a company are not only influenced by changes in the market and legal environment but are also closely related to the company's culture, strategic goals, and employees' perception of the incentive. By analyzing the evolution of incentive philosophy and practical feedback, one can gain a clearer understanding of how the equity incentive mechanism continuously optimizes with corporate development and meets the needs of various employees at different development stages.

(1) Incentive philosophy is basically consistent, but implementation environment constantly changes

Regardless of the startup or mature stage, the company's equity incentive philosophy consistently adheres to the core goal of "*Cohering the Core Team and Sharing Development Outcomes*". The company hopes to mobilize employee enthusiasm, enhance their sense of

responsibility and mission, and enable employees to grow together with the company and share the fruits of success through the equity incentive mechanism. Equity incentives serve as a bridge in this process, allowing employees to benefit from the company's future development, strengthening their sense of belonging and loyalty to the enterprise.

As the company gradually enters the capital market, equity incentive methods become standardized and compliant. Pre-IPO equity incentive mechanisms are often more flexible. Enterprises can design various incentive forms according to their actual circumstances, such as Phantom Stock, Dividend Rights, and Options. These methods can minimize incentive costs and have a relatively significant incentive effect. However, with the advent of the IPO, the compliance requirements for incentive methods become more stringent. Equity incentives need to comply with legal and market regulatory requirements, which leads to the standardization of incentive methods, with the form and cycle of incentives gradually becoming fixed.

This transition is a natural result of the company moving from a private market to a public market. In the private market, information asymmetry between shareholders and management is greater, and the incentive mechanism is relatively flexible, allowing for customization based on the actual needs of the enterprise and employees. In the public market, the interest demands of shareholders and investors are clearer, and the compliance and transparency of equity incentives become the main focus. Therefore, post-IPO, the design of equity incentives pays more attention to shareholder interests, legal compliance, and market regulation, which also requires enterprises to be more prudent and standardized in designing incentive programs.

Employees' perception of equity incentives is also gradually evolving. In the startup stage, employees' understanding of equity incentives is more focused on the attractiveness of "scarce resources". They are willing to accept lower liquidity and higher uncertainty, expecting high returns through future capital market appreciation. In the mature stage, employees' focus gradually shifts to "predictable returns". They begin to care about whether the vesting conditions of the equity incentive are clear and whether the returns are attainable. With the company's IPO, equity incentives become more transparent and standardized. Employees no longer solely focus on potential returns but pay more attention to the rationality and predictability of the incentive.

(3) Employee feedback shows a trend of differentiation

As the enterprise development stage changes, employee feedback on equity incentives also shows a trend of differentiation. In the startup stage, employees are generally younger, full of passion and aspiration for the future. They are willing to accept lower salaries and higher risks because they see the high-return potential brought by equity incentives. Employees at this stage

focus more on future capital market appreciation and show less concern for the liquidity and vesting conditions of equity incentives. Therefore, startup-stage equity incentives emphasize high-return potential and incentive intensity, a form of incentive that is highly attractive to employees and can effectively stimulate their enthusiasm.

However, as the enterprise enters the mature stage, employees' focus gradually shifts. Mature-stage employees, especially those who have worked in the enterprise for a long time, focus more on whether the "*vesting conditions are reasonable"* and the "*certainty of incentive realization*". Since the company's shareholder structure has changed and the value of equity has become clearer, employees hope the incentive program has higher stability and clarity. At this point, the alignment of goals and expectation management between shareholders and employees become particularly important. The enterprise needs to adjust the incentive program in a timely manner based on employee needs, ensuring the feasibility and fairness of the incentive program.

Post-IPO employee feedback shows a certain degree of differentiation. Some employees may be dissatisfied with the "discount rate" of the equity incentive, especially when the incentive price is close to the market price. Employees may feel that their return is not proportional to the effort invested. Therefore, how to manage employee expectations when formulating the equity incentive program and ensure that their expected returns align with the company's overall development strategy becomes an urgent problem to be solved in post-IPO equity incentives. This also prompts enterprises that in the process of equity incentives, they must strengthen communication with employees and enhance employees' recognition and acceptance of the incentive program through transparent information disclosure and reasonable expectation management.

Summary: The evolution of incentive philosophy and practice reflects how enterprises optimize their equity incentive programs according to changes in the internal and external environment at different development stages. Startup-stage employees value high-return potential, mature-stage employees focus more on the certainty of incentive realization, and post-IPO employees need clearer expectation management and a fair incentive program. Enterprises need to flexibly adjust their incentive strategies based on employee feedback and needs at different stages, ensuring the equity incentive mechanism maximizes employee potential while maintaining the company's stable development.

4.2 Secondary coding generation

The design of employee equity incentives needs to be differentiated according to the company's

various life cycle stages. Secondary coding reveals that during the Startup Stage, equity incentive programs focus on the core team and early employees, guided by short-term objectives, ensuring team stability and core technology development, and primarily addressing difficulties such as financing and market demand. The Growth Stage focuses more on technological innovation and middle senior management incentives, linking equity incentives to performance, and supporting company expansion and performance growth while maintaining team stability. The key focus in the Pre-IPO Stage is to deeply align employee incentives with the listing objective, ensuring employees share in the post-IPO benefits and synchronize with the company's financial goals, listing plan, and market valuation. The Mature and Post-IPO Stage should focus on employee long-term stability and sustained company growth momentum, balancing shareholder and employee interests, and avoiding excessive dilution of shareholder equity. Overall, equity incentives should align with the strategic goals of each life cycle stage, ensuring consistency between incentives and long-term development, innovation, and market expansion goals. Given the substantial differences in goals across stages, incentive programs need to be flexible, capable of phased adjustment with changes in corporate strategy and the market environment. Concurrently, the focus of risk management differs across stages: the startup stage primarily considers financing risks, the growth stage focuses on market competition risks, and the post-IPO stage needs to guard against conflicts of interest between shareholders and management. Therefore, establishing a regular evaluation and feedback mechanism to timely adjust the program based on the company's development stage and market demand changes is key to ensuring the effectiveness of equity incentives. Details of the secondary coding process are provided in Annex B.

4.2.1 Dynamic evolution of equity incentive design

Equity incentive, as a strategic human capital management mechanism for enterprises, is not a static tool but must be continuously adjusted and optimized in response to corporate growth and development needs. Its core objective is to tightly bind employee interests with the company's long-term development, helping the enterprise solve critical problems at different life cycle stages, and promoting organizational value creation. The Corporate Life Cycle Theory provides an effective framework for analyzing the dynamic evolution of equity incentives. Typically, the corporate life cycle can be divided into the Startup Stage, Growth Stage, Expansion Stage (e.g., Pre-IPO Stage), and Mature Stage (Post-IPO Stage). Significant differences exist in the strategic priorities, resource endowments, risk characteristics, organizational structure, and talent requirements across these stages, and these factors collectively shape the design logic,

implementation focus, and expected results of the equity incentive plan.

(1) Startup Stage: Attracting pioneers, sharing risks, laying the foundation. In the startup stage, the company faces multiple challenges, including capital shortage, immature technology, insufficient market awareness, and a scarcity of human resources. The primary goal of equity incentive at this stage is to attract the founding team and core early employees who possess vision and are willing to take high risks. These employees are not only the drivers of technological innovation but also the builders of the corporate culture and initial strategy. Incentive tools are predominantly stock options, including Incentive Stock Options (ISOs) and Non-statutory Stock Options (NSOs), used to attract key talent at a lower cost. The high leverage and deferred payment nature of options closely link employee incentives to the long-term value of the enterprise. The grant price is usually set based on the current fair value, focusing the recipients on the company's potential future appreciation rather than short-term gains. Through this approach, the company not only enhances employees' psychological ownership but also signals confidence in future growth to external investors.

(2) Growth Stage: Accelerating expansion, stabilizing key personnel, initial system building. Companies in the growth stage have achieved initial market validation, and their business model or technology is starting to gain recognition. The objective of equity incentives at this stage shifts towards retaining and motivating middle managers and key technical personnel who support the company's expansion and organizational system building. The company needs to advance market share expansion and organizational refinement while maintaining innovation vitality. The coverage of equity incentives expands, extending recipients from the founding team to management and professional talent who make significant contributions to the company's growth. Restricted Stock Units (RSUs) become the mainstream tool, offering more certainty of value compared to options, making them more attractive to employees with lower risk tolerance. Vesting conditions begin to link to specific performance indicators, such as revenue growth, market share, and user growth, and may also include non-financial metrics like product innovation and market expansion. By setting clear and quantifiable goals, the company not only stimulates employee motivation but also reduces agency costs, ensuring employee behavior aligns with the overall corporate strategy.

(3) Expansion Stage (Pre-IPO Stage): Value lock-in, core stability, preparing for the public market. In the pre-IPO stage, the company's goal shifts to achieving a successful IPO and maximizing expected market capitalization. The core of the equity incentive is to ensure the stability of executives and core technical personnel and to enhance the company's valuation potential in the public market. Incentive tools at this stage need to consider the impact of the

post-IPO stock price and regulatory requirements, typically including larger-scale equity grants to reward historical contributions and incentivize future performance. RSUs are widely adopted, as their certainty of value aligns with the need to balance the interests of management and shareholders during the IPO process. The vesting period is usually linked to the success of the IPO and post-IPO stock performance, aiming to ensure management continues to contribute to the company's long-term value creation after IPO. Meanwhile, potential conflicts of interest between shareholders and management are significant, requiring the equity incentive plan to strike a balance between stabilizing the team and protecting shareholder interests.

(4) Mature Stage (Post-IPO Stage): Sustained incentive, shareholder orientation, governance compliance. After a successful listing, equity incentives enter a normalized, long-term phase, with objectives focusing on ensuring sustained corporate performance growth, strengthening the alignment of interests between management and shareholders, and preventing excessive dilution of shareholder equity. Incentive tools become more diversified, including RSUs, Performance Share Units/Awards (PSUs), and Employee Stock Purchase Plans (ESPPs), to enhance employees' shareholder identification. The vesting conditions for PSUs are typically linked to financial or strategic goals over the next few years, such as Relative Total Shareholder Return (Relative TSR) or Return on Invested Capital (ROIC), ensuring employee incentives remain consistent with shareholder value creation. The design and implementation of the equity incentive plan become a crucial component of corporate governance. Mechanisms like independent review by the board and compensation committee, along with regular disclosure, ensure the plan's fairness, transparency, and compliance. With the rise of shareholder activism, companies must continuously optimize incentive transparency, performance orientation, and risk management to reduce agency costs and maintain a reasonable governance structure.

In conclusion, equity incentive design should evolve dynamically with the corporate life cycle. The startup stage emphasizes attracting and retaining the core founding team; the growth stage focuses on expansion and stabilizing key personnel; the pre-IPO stage stresses management stability and value lock-in; and the mature stage centers on long-term incentives and protecting shareholder interests. By flexibly adjusting the equity incentive plan according to the life cycle, companies can effectively motivate employees, foster long-term corporate development, and achieve a balance between shareholder and employee interests, assessment of incentive effectiveness, and tight alignment with corporate strategy, thereby ensuring the company's sustained growth and stable development.

4.2.2 Flexibility and dynamic adjustment of equity incentives

Equity incentive, as a long-term human capital management tool for enterprises, must possess a high degree of flexibility and adaptability to ensure its continued effectiveness across diverse environments and developmental stages. Throughout the corporate life cycle, changes in the market environment, company strategy, organizational structure, and external regulatory policies all profoundly impact the effectiveness of an equity incentive plan. Rigid or monolithic incentive plans often struggle to meet the demands of rapid corporate growth and may even diminish their intended motivational effect. Therefore, the flexibility and dynamic adjustment of equity incentives become crucial factors in maintaining a company's long-term competitive advantage.

Adjustments to a company's equity incentive plan typically arise from various internal and external factors. Shifts in the market environment, such as macroeconomic fluctuations, industry structural adjustments, or the impact of emerging technologies, can directly affect the company's financial condition, strategic direction, and talent needs. During economic downturns, companies may need to moderately reduce the intensity of incentives or adjust option exercise conditions to prevent excessive financial pressure. Conversely, when technological innovation drives market demand changes, companies need to optimize the incentive plan to attract key talent in relevant fields. Similarly, significant adjustments to corporate strategy impose new requirements on equity incentive design. Whether it involves business transformation, merger and acquisition integration, or market repositioning, the company must accommodate the new business model, organizational structure, and employee interests within the incentive plan to ensure smooth strategic execution. Furthermore, changes in the supply and demand of the key talent market, as well as updates to regulatory guidelines like tax laws and accounting standards, also affect the effectiveness of the equity incentive plan, requiring the company to periodically review and adjust the plan to mitigate compliance risks.

To achieve flexibility, companies typically ensure the adaptability of the incentive plan through various mechanisms. The equity incentive plan usually specifies the authority of the Board of Directors or the Compensation Committee to adjust incentive terms under specific conditions, allowing the company to respond quickly to market or internal changes. Concurrently, reserving a certain percentage of the equity pool provides incentive capacity for new hires or strategic projects, ensuring the timeliness and effectiveness of incentive measures. Granting management, a degree of discretionary power in the grant agreements allows the company to flexibly adjust vesting conditions when faced with emergencies or strategic shifts.

Moreover, regular evaluation and revision of the incentive plan help to promptly identify issues and optimize the design, ensuring the plan remains aligned with the company's strategy and the market environment. However, flexibility must be balanced with predictability, fairness, and employee trust. Excessive or frequent adjustments, especially unfavorable changes to already-granted equity, can damage the company's credibility and weaken the incentive effect. Thus, dynamic adjustment must be reasonable and stable.

From a change management perspective, the flexibility of equity incentives not only relates to modifying incentive terms but also involves managing the employee psychological contract. When an organization faces external and internal environmental changes, appropriate adjustments help employees understand the rationale behind the changes, thereby reducing resistance and maintaining the incentive effect. Transparent and timely communication is an indispensable part of this process. The company should clearly explain the reasons, logic, and potential impact of the adjustments to employees to enhance understanding and support. Only when employees recognize that the dynamic adjustment of the incentive plan is necessary to address the challenges in corporate development, and maintain sufficient trust in the company, can the adjustments to the equity incentive achieve the desired effect.

In summary, the flexibility and dynamic adjustment mechanism of equity incentives are crucial for ensuring the relevance and effectiveness of motivation in a complex and ever-changing environment. Through the reasonable design of adjustment mechanisms, reservation of the stock pool, granting of discretionary power, and regular evaluation, companies can maintain the adaptability of equity incentives across different life cycle stages. Combined with change management theory, through transparent communication and employee psychological contract management, the company can effectively implement the equity incentive plan, thereby supporting the achievement of long-term strategic goals and maintaining employee motivation and loyalty.

4.2.3 Balancing shareholder and employee interests

Equity incentive, as a strategic human resource management tool for enterprises, not only relates to employee motivation but also concerns the protection and distribution of shareholder interests. Achieving a balance of interests between shareholders and employees has always been a core issue in equity incentive design. Particularly across different stages of the corporate life cycle, the focus of interests, power structure, and potential conflicts between shareholders and employees can change significantly. Therefore, balancing the interests of shareholders and employees is not only an important consideration in equity incentive plan design but also a key

strategic factor for sustainable corporate development.

The conflict of interest between shareholders and employees primarily manifests in the issue of equity dilution. Shareholders, especially early investors, and founders are more concerned with protecting their own shareholding percentage to maintain corporate control and realize expected investment returns. Conversely, employees, particularly core talent joining in later stages, hope to acquire a certain number of shares through equity incentives to share in the company's long-term development fruits. This conflict is evident not only in the choice of equity instruments but also in risk preference and time horizon. Shareholders tend to use high-leverage instruments like stock options to incentivize employees to assume risk, while employees often prefer RSUs, which offer more certainty of value, to safeguard their interests. The difference in the time horizon also exacerbates the tension: shareholders focus more on long-term value creation and sustained growth, while employees may be more concerned with short-term returns, particularly the realizable value of the equity. This difference in time focus is particularly prominent during the company's IPO stage, where employees' expectations for future equity returns may conflict with shareholders' demands for short-term performance.

The difference in interests between shareholders and employees exhibits phased characteristics across the corporate life cycle. In the Startup and Early Growth Stages, due to the company facing survival pressure, the goals of shareholders and employees largely converge, focusing on corporate growth and market share expansion. At this stage, employee incentives are closely related to the company's growth potential and innovation capability, allowing for a high degree of alignment between shareholder and employee goals. However, as the company enters the Pre-IPO Stage, conflicts of interest gradually emerge. Early shareholders may prioritize capital exit and maximization of listing proceeds, while management and core employees focus more on equity value realization and long-term returns after the IPO. At this stage, designing an equity incentive plan that balances shareholder exit needs with long-term employee incentives becomes a major challenge. Post-IPO, as pressure for short-term returns from public shareholders increases, new divergences may appear between shareholders and management: management focuses on long-term strategy and innovation implementation, while shareholders are more concerned with short-term performance and stock price. This divergence necessitates that the company coordinate the relationship between short-term returns and long-term incentives in its equity incentive plan design.

To achieve a balance between shareholder and employee interests, companies need to comprehensively utilize various mechanisms in the equity incentive design. Transparent communication mechanisms are foundational, reducing information asymmetry and enhancing

employee understanding and acceptance of the plan's rationality by clearly defining the purpose, value, and strategic relevance of the incentive scheme. A sound corporate governance structure, especially an independent and professional Compensation Committee, plays a crucial role in plan design and review, ensuring that both shareholder and employee interests are considered on a fair and impartial basis. Concurrently, a scientific equity incentive design is vital, including reasonably setting the grant size and proportion, designing performance metrics linked to long-term value creation, and controlling shareholder dilution through share repurchase or capital operations. These measures help incentivize employees while protecting shareholder rights, achieving an alignment of interests. Modern enterprises increasingly recognize that employee incentives and shareholder value maximization are not contradictory but can be mutually reinforcing. Through balanced design, companies can incentivize employees to contribute to the company's long-term value creation while ensuring shareholder returns, thereby achieving a win-win situation for multiple parties.

In conclusion, the balance between shareholder and employee interests is of core significance in equity incentive design. Companies should coordinate the demands of shareholders and employees at different life cycle stages through scientific plan design, transparent communication, and a sound governance structure. Shareholder Theory and Stakeholder Theory provide theoretical support for this process, enabling companies to ensure the long-term effectiveness of the equity incentive plan and sustainable corporate development while maximizing shareholder value and accommodating employee incentive needs.

4.2.4. Evaluation and continuous optimization of equity incentive effectiveness

Equity incentive, as a strategic human resource tool for enterprises, has a core objective that lies not only in attracting and motivating core employees but also in driving the company's long-term sustainable development. However, the incentive plan alone cannot guarantee the intended results; the lack of a scientific evaluation mechanism can lead to resource mismatch and even negative effects. Therefore, establishing a robust mechanism for equity incentive effect assessment and continuous optimization is crucial to ensuring the long-term effectiveness of the incentives.

The assessment of equity incentive effectiveness requires a multi-dimensional approach, combining quantitative and qualitative indicators to form a systematic analytical framework. Quantitative indicators primarily include the retention rate of key talent, the performance achievement rate of the incentive recipients, and the incentive cost as a proportion of the total labor cost or revenue. Through these metrics, the company can directly judge the actual effect

of equity incentives on talent retention and performance improvement, while also assessing the reasonableness of the incentive cost. Return on Investment (ROI) can be used to measure the overall contribution of equity incentives to shareholder returns and the company's financial performance, providing actionable data support for the enterprise.

Qualitative indicators are equally indispensable. Employees' understanding, satisfaction, and sense of fairness regarding the incentive plan directly influence the effectiveness of the incentives. Collecting employee feedback through surveys and interviews helps management understand the acceptance and rationality of the incentive plan in practice. Furthermore, the fit between equity incentives and corporate strategy and culture, as well as changes in employee behavior, such as an increase in innovative activities or improved cross-departmental collaboration, are all important references for assessing whether the equity incentive drives the realization of corporate strategy.

In practice, the assessment of equity incentive effectiveness faces numerous challenges. Firstly, the attribution problem is significant: since corporate performance is influenced by multiple factors, it is difficult to isolate and quantify the sole contribution of the equity incentive. Secondly, equity incentive is inherently a long-term mechanism, and its effect often takes several years to manifest, especially for option-based incentive tools, leading to a time lag in assessment. Data availability and comparability also increase assessment complexity; for small and medium-sized enterprises, in particular, the lack of industry comparative data can affect assessment accuracy. Moreover, qualitative factors such as employees' psychological state and team cohesion are difficult to quantify, introducing a degree of subjectivity to the evaluation results.

To address these challenges, companies should integrate equity incentive assessment into a closed-loop management system, running through the entire process of ex-ante prediction, in-process monitoring, and ex-post evaluation. Before the plan's implementation, thorough prediction and planning ensure a high degree of alignment between incentives and strategic goals. During implementation, regular monitoring and adjustments are made based on actual circumstances. After implementation, a comprehensive assessment is necessary to provide the basis for subsequent optimization. Concurrently, establishing a sound feedback mechanism, by communicating and explaining the goals and logic of the incentive plan to employees, helps enhance employee identification and ensures the realization of the incentive effect.

Overall, the evaluation and continuous optimization of equity incentive effectiveness are core components of corporate human resource management. Through scientific multi-dimensional assessment, systematic closed-loop management, and continuous feedback,

companies can not only fully grasp the actual effects of equity incentives but also continuously refine incentive strategies, achieving alignment between shareholder and employee interests, thereby fostering the company's long-term stable development and maximizing the strategic value of the equity incentive.

4.2.5 Technological innovation and core team stability

In technology-based enterprises, technological innovation and the stability of the core team are critical factors for maintaining sustained growth and competitiveness. Equity incentive plays a crucial role in this process, as it can not only stimulate innovative potential but also help solidify high-caliber technical teams. Particularly in knowledge-intensive industries, human capital is the company's most core asset, and equity incentives, by linking employee interests with the company's long-term development, can enhance employees' motivation and creativity, thereby driving the enterprise's long-term growth.

Technological innovation is inherently characterized by high risk, long cycles, and uncertain outcomes. Against this backdrop, equity incentives link R&D personnel's future returns with the market value of their innovative achievements, encouraging employees to take necessary risks and commit to long-term efforts. This is not merely a material incentive but also creates a driving force on a psychological and emotional level, enabling employees to sustain efforts toward the company's long-term innovation goals. Specifically, companies can link equity incentives to R&D milestones, such as patent applications, product prototype completion, and market release dates. This not only helps track R&D progress but also provides reasonable returns to R&D personnel at each stage. Furthermore, establishing a technological innovation award pool allows for timely incentives for key innovative achievements, further boosting the R&D team's innovation drive. Human Capital Theory posits that a company's knowledge and technical capabilities rely on the skills and experience of employees as "knowledge carriers". Equity incentive is thus also viewed as an investment in high-value human capital, fostering a community of shared interests by encouraging employees to grow with the company and driving the transformation of technological innovation into market value.

The stability of the core team is equally vital for the continuous advancement of technological innovation. Core technical personnel not only possess the company's key technologies and tacit knowledge but often also undertake decision-making functions; their departure can lead to technical disruption, knowledge loss, and even a decline in competitiveness. Equity incentives, by designing a long vesting period, create a "golden handcuff effect", allowing employees to realize equity gains only after a certain number of years,

thereby effectively mitigating the risk of core talent turnover. Long-term incentives not only ensure employees' continuous commitment to corporate goals but also enhance their emotional identification and sense of belonging, cultivating an identity as a "venture partner" within the company's development. This long-term alignment both safeguards team stability and promotes continuous cross-departmental collaboration and the sustained exercise of innovative capabilities.

In summary, equity incentive plays a dual role in technology-based enterprises concerning technological innovation and core team stability. On one hand, through an incentive mechanism linked to innovative achievements, it encourages R&D personnel to assume high risks and drive long-term technical breakthroughs. On the other hand, through the design of long-term incentives and vesting periods, it ensures the stability of the core technical team, mitigating the risk of knowledge loss and technological discontinuity. Equity incentive is more than a financial tool; it is an organic integration of the company's human resource management and innovation strategy. As the corporate life cycle advances, the form and content of equity incentives continuously adjust, but its core role in promoting technological innovation and maintaining team stability remains constant, serving as a vital driver for the company's sustained development.

4.2.6 Legal compliance of equity incentives

As an enterprise gradually grows and expands from the startup stage, particularly upon entering the pre-IPO and post-IPO stages, the legal compliance of the equity incentive plan progressively becomes a core issue. At these stages, equity incentive not only concerns employee motivation and the achievement of corporate strategic goals but also directly impacts the company's ability to smoothly conduct capital operations, complete its IPO, and maintain long-term stable development. In China, with the continuous improvement of the capital market and the increasing stringency of regulatory policies, the legal compliance of equity incentive is an important prerequisite for the design and implementation of the plan. When designing an equity incentive scheme, enterprises must fully understand current Chinese laws and regulations to guard against the occurrence of potential legal and financial risks.

Compliance of equity incentives involves multiple legal domains, each having a significant impact on the design and implementation of the plan. Securities Law forms the foundation of equity incentive compliance; enterprises must comply with regulations pertaining to the public issuance of securities and share-based payments when implementing an equity incentive plan. For unlisted companies, the plan must meet the requirements of the Securities Law, while listed

companies must follow regulations related to information disclosure and shareholder right to information, ensuring the transparency and legality of the incentive plan. Tax Law also plays a critical role in equity incentives, as different types of equity incentive instruments, such as stock options or restricted shares, have differing tax treatments. Companies must ensure tax compliance in accordance with the Enterprise Income Tax Law and the Individual Income Tax Law to avoid legal risks arising from tax issues. Accounting Standards set clear requirements for the recognition, measurement, and disclosure of share-based payments; listed companies must strictly adhere to CAS 11 - Share-based Payments, ensuring the financial treatment of equity incentives is lawful and compliant. The Company Law and Stock Exchange Listing Rules also impose requirements on equity incentive plans. Companies must obtain Shareholder General Meeting approval for the incentive plan, protect shareholder rights, and ensure the fairness and transparency of the scheme.

The importance of compliance is reflected not only in the fulfillment of legal obligations but also in corporate risk management. Non-compliant equity incentives can trigger regulatory fines, tax penalties, plan invalidation, financial restatements, and even reputational damage, which profoundly affect corporate development and employee motivation. Especially at the pre-IPO stage, the legality and transparency of equity incentives are often critical factors determining the smooth completion of the listing approval process.

In practice, the key to ensuring equity incentive compliance lies in establishing a systematic internal control and risk management mechanism. Companies should engage professional legal, tax, and accounting advisors to regularly review the incentive plan and make timely adjustments to adapt to changes in the legal and regulatory environment. Concurrently, enterprises must strengthen internal communication to ensure employees fully understand the legal basis, tax treatment, and rights protection of the equity incentive, thereby enhancing trust and participation. Although compliance management increases a company’s administrative costs, in the long run, a compliant equity incentive plan can mitigate legal risks, improve execution, and boost the confidence of employees and investors, promoting stable corporate development.

4.2.7 Precise alignment of equity incentive with corporate strategy

Equity incentive is not merely an economic tool; it should be deeply integrated into the company’s overall strategic planning. Its effective implementation relies not only on the reasonableness of the design but also on ensuring a tight alignment with corporate strategic goals. Without a strategic orientation, equity incentive can lead to resource waste and cause employees’ efforts to deviate from the company's long-term development objectives. Therefore,

when designing an equity incentive plan, the enterprise must fully consider its strategic goals to ensure that the incentive mechanism effectively drives strategic execution.

Enterprises at different development stages have distinct strategic priorities. Whether the focus is on market expansion, technological innovation, cost control, or improving customer satisfaction, these macro goals need to be translated into specific, actionable tasks. One of the core functions of equity incentive, as a long-term incentive mechanism, is to align employee efforts with corporate strategic goals, using rational design to guide employees to concentrate their energy on key areas crucial for strategy realization. In this way, equity incentive not only stimulates employee motivation but also closely links employee behavior to the company's long-term development.

For example, under a technological innovation strategy, the equity incentive plan can measure employee performance by setting R&D milestones, such as new product development or patent applications. Tying performance indicators to core strategic goals guides employee behavior, ensuring their work is highly congruent with the enterprise's long-term development. Equity incentive not only allows employees to perceive the long-term value of their work but also acts as an important lever for advancing the achievement of corporate strategic goals.

Achieving precise alignment between equity incentives and strategic goals requires systematic planning and meticulous execution. The company must first conduct an in-depth analysis of strategic goals, clarifying priorities and core elements. This typically involves collaboration between senior management and the Human Resources department to decompose strategic goals into quantifiable Key Performance Indicators (KPIs), covering the overall enterprise, department, team, and even individual levels, ensuring that goals at all levels remain consistent with the strategy. In equity incentive design, using these KPIs as vesting conditions or performance assessment standards directly links strategic goals with employee motivation. For instance, if the company's strategy focuses on international market expansion, the equity incentives for teams and executives involved in international business can be tied to the number of new markets opened or the growth in international business revenue. This design both drives strategic execution and enhances employees' identification with and commitment to the company's strategy.

The strategic alignment of equity incentives depends not only on top-level decisions but also on close collaboration among various departments. Marketing, R&D, and Sales departments should translate strategic goals into specific performance indicators based on their respective business characteristics and incorporate them into the equity incentive plan, ensuring the incentive measures are operable at the execution level. When designing equity incentives,

the company should both reward employees' past achievements and define their contribution to strategic goals, utilizing the incentive mechanism as a crucial tool for driving strategic implementation, rather than merely a reward for short-term performance.

However, over-quantification or inappropriate indicator setting can lead to incentive design deviation. For example, excessive reliance on short-term financial goals might trigger "indicator gaming" among employees or lead them to concentrate efforts on short-term results while neglecting the achievement of long-term strategic objectives. Therefore, equity incentive design must balance strategic goals with incentive goals to ensure the mechanism drives long-term value creation.

In conclusion, the design of equity incentive must be deeply embedded in corporate strategy. By translating strategic goals into quantifiable indicators and directly linking them to employee incentives, the company ensures that the incentive plan drives strategic implementation. Strategic Alignment Theory provides the theoretical basis for equity incentives, emphasizing its inherent connection with corporate strategy. Through effective strategic alignment, equity incentive not only stimulates employees' short-term enthusiasm but also provides continuous momentum for the company's long-term development and the achievement of strategic goals.

4.2.8 Symbiotic relationship between corporate culture and equity incentives

Equity incentive is not merely an economic incentive tool; it also plays a significant socio-psychological role within the enterprise, both reflecting and shaping the corporate culture. A symbiotic relationship of dual shaping exists between corporate culture and equity incentive: the design and implementation of the equity incentive plan are influenced by the corporate culture, while simultaneously reinforcing and shaping that culture. This interaction determines the company's core values, employee behavioral orientation, and long-term development potential.

Firstly, corporate culture profoundly influences equity incentive design. Corporate culture is the composite of employees' values, behavioral norms, collaboration styles, and organizational atmosphere. Core cultural characteristics—such as fairness, teamwork, risk-taking spirit, and results-orientation—directly impact the philosophy and strategy of incentive design. A culture that emphasizes equality and collaboration often leans towards ESPPs or broadly covered option/RSU plans to boost participation and team cohesion. Conversely, a culture that stresses elitism and results-orientation is more likely to concentrate grants on core executives and key contributors, setting challenging performance targets to incentivize breakthroughs in critical areas. The culture's risk tolerance also affects the choice of incentive

tools: companies that encourage risk and tolerate failure favor high-leverage stock options to incentivize employees to assume innovation risks, while stable companies may prefer RSUs to offer reliable returns.

Secondly, equity incentive itself can shape the corporate culture. Through transparent and fair incentive design and sound communication mechanisms, equity incentive can foster a culture of trust, openness, and collaboration. For instance, linking rewards to team goals rather than solely individual performance can reinforce the spirit of teamwork. Long-term oriented equity incentives (such as longer vesting periods and performance conditions tied to strategic goals) encourage employees to focus on the company's long-term development, cultivating cultural values of sustainable growth. Conversely, a lack of transparency or unfair incentive design can erode employee trust and harm the healthy development of the organizational culture.

Finally, corporate culture can, to a certain extent, reconcile the conflict of interests between shareholders and employees. Shareholders typically focus on maximizing enterprise value, while employees are more concerned with individual returns, meaning their interests are not always perfectly aligned. However, when employees highly identify with the company's mission, vision, and values, their personal interests merge with the enterprise's long-term development goals, leading them to respond more actively to the equity incentive plan and thus boosting overall enterprise value. A positive and healthy culture serves as a mechanism for intrinsic motivation and behavioral norms, helping employees look beyond short-term economic gains and strengthening their identification with the company's long-term strategy. A good corporate culture not only reconciles shareholder and employee interests but also guides employees toward a common goal, achieving long-term shared success for the company, shareholders, and employees.

In summary, a profound symbiotic relationship exists between equity incentive and corporate culture. By designing an equity incentive plan that is highly congruent with the corporate culture, the enterprise not only motivates employees to achieve performance targets but also consolidates and reinforces the cultural core. Equity incentive can stimulate employees' intrinsic motivation, enhance team cohesion, and drive strategic execution. Simultaneously, corporate culture can reconcile shareholder and employee interests, realizing a triple win. Therefore, equity incentive design must fully consider the characteristics of the corporate culture, ensuring their organic integration to maximize the incentive effect and provide a solid impetus for the company's continuous innovation and growth.

4.3 Core concept generation

Based on the deep coding analysis, this study extracts four core conceptual categories of equity incentives for science and technology innovation (Sci-Tech) enterprises (see Figure 4.1).

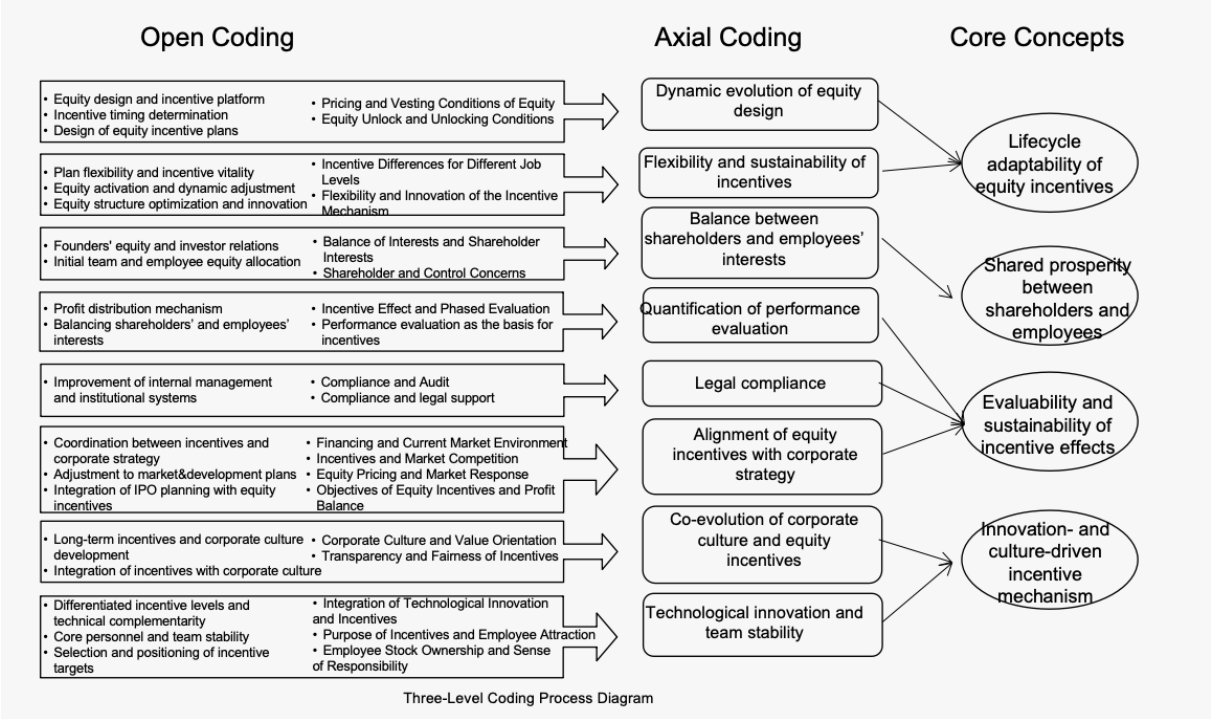


Figure 4.1 Schematic diagram of the three-level coding convergence process

Firstly, the “Life Cycle Adaptability of Equity Incentives” is the overarching, top-level logic that runs throughout the scheme. It reveals that the incentive mechanism is not a static tool but an adaptive system that must dynamically evolve in line with the enterprise's strategic focus as it progresses from the Startup, to the Growth, and to the Mature stages (e.g., “Survival Alignment” in the Startup Stage, “Expansion Empowerment” in the Growth Stage, and “Value Co-creation” in the Mature Stage).

Secondly, within this dynamic evolutionary process, enterprises must continuously address two core propositions: The first is how to construct a “Win-Win Mechanism for Shareholder and Employee Interests”. This demands that incentive design must directly confront and balance the inherent conflicts arising from equity dilution, risk preference, and time horizon to forge a “Community of Shared Interests”. The second is how to achieve “Incentive-Driven Technological Innovation and Core Team Stability”. This clarifies the “soul” of equity incentives in technology-based enterprises, namely, serving as a core strategic lever to attract, retain, and drive top technical talent, thereby protecting intellectual capital and stimulating innovative potential.

Finally, to ensure the realization of the aforementioned objectives, equity incentive must function as a closed-loop management system, characterized by “Assessability and Sustainability of Incentive Effect”. This requires the enterprise to move beyond “black box operations” and establish a multi-dimensional evaluation system (e.g., talent effectiveness, organizational performance) to verify the true impact of the incentives. Furthermore, it necessitates safeguarding the long-term effectiveness and strategic adaptability of the incentive system through a flexible combination of tools, proactive equity pool management, and dynamic adjustment mechanisms.

4.3.1 Life cycle adaptability of equity incentives

Equity incentives exhibit characteristics of dynamic evolution throughout the life cycle of technology-based enterprises, and their effectiveness depends on the degree of alignment between the company’s development stage and the external environment. The Corporate Life Cycle Theory suggests that enterprises at different stages have significant differences in strategic focus, resource constraints, and organizational characteristics. Therefore, the design of equity incentives should reflect a phased adaptation logic. As a company grows, moving from the startup stage to the growth stage, and then to the pre-IPO and post-IPO stages, the goal of equity incentive gradually shifts from attracting and retaining core talent to performance drive and long-term value creation. This process not only reflects the maturation of the company's internal governance structure but also embodies the evolutionary logic of incentive mechanisms from “risk sharing” to “value co-creation”.

In the Startup Stage, technology-based enterprises face high uncertainty and funding pressures, making equity incentives a crucial means of attracting key talent and stabilizing the founding team. Due to the company’s lack of cash flow support, equity becomes the primary non-monetary incentive tool, essentially exchanging potential future returns for current human capital investment. Stock Options, particularly ISOs, are the most common choice. Their low exercise price design not only tightly links employees to the company’s future value growth but also signals the founding team’s confidence in the company’s prospects to the market, a mechanism consistent with the logic of Signaling Theory (Spence, 1973).

Furthermore, options usually set a longer vesting period (e.g., a four-year period including a one-year lock-up) to reinforce the long-term binding relationship with employees and reduce early employee turnover. This design psychologically strengthens the employees’ “psychological ownership” (Pierce et al., 2001), prompting them to integrate personal goals with the corporate mission, thereby generating entrepreneurial-like behavioral commitment. In

other words, equity incentive in the startup stage is not just an economic incentive but also a mechanism for shaping culture and belief, helping the company to coalesce the team and maintain a spirit of innovation and risk-taking in a resource-scarce environment.

When the company passes the early growth stage and enters the rapid growth stage, the goal of equity incentive shifts from simply attracting talent to stimulating organizational synergy and performance growth. At this stage, companies typically face challenges such as rapid scaling of organizational size, an increase in management hierarchy, and systemization of processes. The focus of equity incentive design is to motivate middle managers and key technical personnel while maintaining the entrepreneurial culture and innovation vitality. In terms of tool selection, companies begin to adopt a diversified incentive mix, such as retaining stock options while introducing RSUs to balance incentive stability and risk. RSUs offer greater certainty of value compared to options, satisfying the employees' psychological need for "immediate return" during the company's rapid growth. Concurrently, equity incentives are progressively integrated with performance appraisal mechanisms, forming a "performance-oriented incentive" model. According to Goal Setting Theory (Locke & Latham, 1990), clear and challenging goals significantly enhance employee performance; thus, companies often link incentives to core metrics like market share, revenue growth, and user base expansion to reinforce the strategic focus of execution. It is noteworthy that equity incentive in the growth stage must strike a balance between "innovation" and "execution". Overemphasizing performance targets can undermine the R&D team's innovation drive; consequently, some companies design separate equity awards linked to technological breakthroughs specifically for the R&D department to maintain the continuity of technological evolution. Through this differentiated design, equity incentive not only serves the company's short-term scale expansion but also provides institutional support for the accumulation of long-term innovation capabilities.

When the company enters the Mature or Pre-IPO Stage, the strategic function of equity incentive further shifts towards capital market orientation and refinement of corporate governance. At this point, the company's main challenge is no longer survival or expansion but how to achieve sustained growth, optimize the capital structure, and maintain investor trust. The equity incentive plan must balance motivating management performance with protecting shareholder interests. PSUs and RSUs become the main instruments at this stage, with the core aim of directly linking incentives to the company's long-term financial performance (e.g., EPS growth rate, ROIC, Relative TSR) to ensure executive behavior aligns with shareholder value objectives. This incentive structure embodies the governance logic of Agency Theory, which uses long-term incentive mechanisms to mitigate management's short-term focus and drive

them toward long-term value creation. Furthermore, the proportion of Long-Term Incentives (LTI) in the executive compensation structure significantly increases, serving as a key lever for corporate strategic execution.

Concurrently, compliance and transparency become indispensable constraints in equity incentive design. Pre-IPO stage companies must satisfy capital market regulatory requirements, establish a Compensation and Nomination Committee, and ensure the fairness of the incentive plan and the standardization of information disclosure. The incentive mechanism at this stage is not just a performance tool but a vital component of the corporate governance system, and its design directly impacts capital market trust and valuation levels.

4.3.2 Win-Win mechanism for shareholder and employee interests

The “Win-Win Mechanism” for shareholder and employee interests is the core objective of equity incentive design, and its role is particularly crucial in Sci-Tech enterprises. The common goal of shareholders and employees is to realize shared benefits during the process of driving sustained corporate value growth. Especially for enterprises relying on technological innovation, the alignment of interests between shareholders and employees is extremely high. In the knowledge economy era, the success of an enterprise depends not only on capital investment but more on innovation, talent accumulation, and stimulation. Therefore, the win-win of shareholder and employee interests has become the foundation for the enterprise’s sustainable growth.

Equity incentive, as a key tool for achieving the win-win for shareholders and employees, aims to ensure that both parties can share the results of value creation through mechanisms that motivate employees to create greater value via a fair and reasonable allocation mechanism. However, due to the inherent differences between shareholders and employees in terms of information, risk preference, time horizon, and interest demands, establishing a win-win mechanism is not an easy task.

4.3.2.1 Deep roots and specific manifestations of interest conflicts

The conflict of interests between shareholders and employees is particularly complex in technology-based enterprises. The core reasons for this complexity primarily include equity dilution, differences in risk preference, inconsistency in time horizon, and information asymmetry.

Firstly, the equity dilution issue constitutes the most direct focal point of conflict. For shareholders, especially founding teams and early investors, maintaining their controlling

shareholding percentage and ensuring capital returns are core demands. For employees, equity incentive represents a vital source of potential future income. As the company secures financing and expands, the continuous introduction of new equity incentive plans inevitably results in the cumulative effect of equity dilution. This constant tension between the "transfer of ownership" and the "necessity of incentives" runs through the entire corporate growth cycle. Without a rational allocation mechanism, shareholders may fear the erosion of their control, while employees may feel their contributions are not adequately recognized, potentially leading to incentive failure.

Secondly, in terms of risk preference and incentive tool selection, the differences between shareholders and employees are highly significant. Shareholders, particularly venture capitalists and founding teams, generally possess a high risk tolerance and are more inclined to use high-leverage stock options to incentivize employees to generate abnormal returns. In contrast, ordinary employees, facing financial pressures and personal liquidity constraints, often prefer the greater certainty provided by RSUs. This divergence in preference makes it difficult to achieve complete consensus on incentive tool selection: a design that is too risky may reduce employee motivation, while an overly conservative plan may fail to generate breakthrough incentive effects.

Thirdly, the difference in time horizon further intensifies the tension. Employees, especially early joiners, often expect their equity to achieve liquidity realization within a relatively short period, such as through an IPO or merger and acquisition exit. Shareholders, conversely, prioritize the company's long-term strategy and capital accumulation, hoping to delay realization to stabilize corporate governance and the valuation base. This tension between "short-term realization" and "long-term returns" is particularly pronounced in the pre-IPO stage.

Finally, information asymmetry is a key root cause of a lack of trust. Gaps often exist between shareholders and employees regarding the company's true operating condition, future prospects, and valuation perception. If the company lacks sufficient communication mechanisms and transparent disclosure, employees may develop a sense of "perceived unfairness" regarding the incentive plan, thereby undermining trust and participation. Especially in technology companies with volatile valuations, if information asymmetry is not effectively managed, it can easily lead to incentive distortion and a decline in organizational morale.

4.3.2.2 Institutional guarantee and practical strategies for building a win-win mechanism

Against the backdrop of the aforementioned conflicts, achieving a balance of interests between

shareholders and employees through institutional design is key to the success of an equity incentive plan. Constructing a win-win mechanism requires systematic consideration across multiple dimensions, including strategic alignment, tool combination, time structure, information transparency, and organizational culture.

Firstly, value creation-oriented strategic design should be the logical starting point for the win-win mechanism. The equity incentive plan must be tightly coupled with the company's core strategy, ensuring that incentive goals remain consistent with the company's long-term value orientation. Performance appraisal indicators should not solely focus on short-term financial metrics but should include long-term indicators such as market expansion, technological breakthroughs, and customer retention, achieving synchronous resonance between shareholder value and the direction of employee effort. This "strategic-aligned incentive" design helps the enterprise foster an endogenous driver for continuous innovation.

Secondly, at the tool level, a balance between risk sharing and benefit sharing should be achieved. Through a diversified incentive mix, such as the organic combination of stock options, RSUs, and PSUs, the company can achieve risk matching across different levels and roles. Executives with a higher risk appetite can be offered high-leverage instruments, while general employees can share stable returns through stock units with greater certainty. A rational portfolio structure can not only prevent excessive dilution of shareholder equity but also protect employees' incentive expectations, realizing a dynamic balance of risk and reward.

Thirdly, establishing a long-term oriented incentive structure is a crucial safeguard against short-term myopia. Longer vesting periods and tiered unlocking arrangements can effectively guide employees to focus on the company's long-term growth rather than pursuing short-term monetization. This temporal deferral mechanism is essentially an institutional constraint on the company's long-termism, aligning employee behavioral logic with the goal of shareholder value maximization.

Furthermore, a transparency and communication mechanism is the basis for the long-term sustainability of the win-win mechanism. By clearly explaining the rules, expectations, and risks of the equity incentive, and enhancing employees' cognitive understanding of the incentive system, the company can significantly reduce perceived unfairness. Establishing regular communication channels, such as equity incentive roadshows, annual disclosure, and interactive Q&A sessions, can effectively boost the level of trust and prevent internal fractures caused by information asymmetry.

Finally, the enterprise must also build an independent and impartial compensation decision-making system at the governance level. By establishing an independent Compensation

Committee and engaging external professional institutions in the evaluation process, the company ensures the reasonableness and market competitiveness of the equity incentive plan. This institutional arrangement not only enhances governance transparency but also provides a neutral coordination platform for the negotiation of interests between shareholders and employees.

A deeper win-win mechanism requires the support of culture and identification. Corporate culture, as an informal institution (North, 1990), strengthens the employee psychological contract and organizational identification, closely linking individual development with the corporate destiny. By cultivating a "community of shared interests" culture, the alignment between shareholder and employee interests is extended from the institutional level to the value level, forming a cultural foundation for the enterprise's continuous innovation and mutual growth.

4.3.3 Assessability and sustainability of incentive effect

Equity incentive, as a strategic human capital investment tool for Sci-Tech enterprises, is not inherently effective or sustainable; rather, its effectiveness depends on being safeguarded by a scientific evaluation system and a dynamic optimization mechanism. For innovation-driven technology companies, equity incentives typically involve high equity usage costs and accounting costs. The design and implementation effects are directly related to the company's resource allocation efficiency and long-term value creation capability. Without systematic evaluation and continuous optimization, the incentive plan will operate as a "black box", making it difficult to ascertain its true performance and potentially leading to the misallocation of capital and human resources. Therefore, establishing a quantifiable, comparable, and traceable evaluation system and utilizing it as the foundation for the iterative optimization of the incentive mechanism is the critical path to ensuring the long-term effectiveness and sustained appreciation of equity incentives.

The assessment of equity incentive effects should be based on a multi-dimensional measurement system to achieve systematic insight into the "Incentive–Behavior–Performance–Value" chain. Firstly, from a human capital perspective, talent attraction and retention efficacy are the primary indicators for measuring incentive effectiveness. Quantifiable data such as key position recruitment cycle, offer acceptance rate (conversion rate), and core personnel turnover rate directly reflect the external attractiveness and internal stickiness of the equity incentive. Especially for core technical and managerial roles, horizontal comparison with non-incentivized groups or industry benchmarks can further validate the marginal effect of the

incentive plan. Secondly, from an employee behavior perspective, the focus should be on the incentive mechanism's influence on employees' psychological cognition and behavior patterns. Employees' awareness, sense of fairness, satisfaction, and sense of belonging regarding the incentive plan can be quantified through surveys and interviews; changes in their engagement, initiative, and innovative behavior can be tracked using performance data and innovation outcome metrics. These indicators reflect the guiding effect of equity incentives on employee behavior at the micro level. Thirdly, from an organizational performance perspective, equity incentive should be evaluated based on the extent to which it promotes the achievement of corporate strategic goals. Changes in KPIs such as revenue growth rate, profit margin, per capita output, R&D intensity, and market share can reveal the impact of the incentive system on overall corporate performance. Concurrently, from a shareholder value perspective, financial indicators like stock price performance and TSR can further validate whether the equity incentive has achieved a "people-centered" value appreciation path.

However, the assessment of equity incentive effects faces significant challenges: Firstly, the incentive effect often lags and is indirect, making short-term causal attribution difficult. Secondly, there are limitations in data availability, indicator selection, and quantification accuracy. Thirdly, fluctuations in the external environment (e.g., capital market cycles) can also mask the true effect. Therefore, enterprises should enhance the scientific rigor of the assessment by setting baselines, combining quantitative and qualitative analysis, and implementing longitudinal tracking. They should also introduce market benchmarking mechanisms and peer comparison analysis to ensure the results have external comparability and strategic reference value. More importantly, enterprises must build a closed-loop system of assessment–feedback–optimization to ensure evaluation results genuinely enter the decision-making process, facilitating the continuous evolution of the incentive system.

The sustainability of equity incentive is reflected in its ability to maintain its attractiveness, motivational power, and strategic synergy over the long term. For Sci-Tech enterprises operating in highly uncertain environments, the long-term effectiveness of the incentive mechanism hinges on its adaptability to external market changes and internal strategic evolution. If the system design is rigid, equity pool management lags, or employee trust is compromised, the incentive effect will quickly decay, potentially even backfiring and damaging organizational morale.

Firstly, the diversification and combination design of incentive tools are key to achieving sustainability. Companies should flexibly utilize tools such as options, RSUs, PSUs, phantom stock (virtual equity), and Employee Stock Ownership Plans (ESOPs) according to their

development stage and employee characteristics, achieving a balance between different risk preferences and incentive objectives. Secondly, forward-looking equity pool management ensures that the enterprise possesses sufficient incentive resources for future years, preventing incentive interruption due to resource depletion. The company should regularly review the usage of the equity pool and dynamically replenish it based on financing plans and adjustments to the employee structure. Furthermore, a dynamic adjustment mechanism is crucial for ensuring the resilience and adaptability of the incentive plan. Based on periodic evaluation results, the company should adjust performance indicators, update vesting conditions, or introduce new incentive tools to respond to changes in the external market and internal strategy. Concurrently, continuous communication and transparency building are indispensable. Through information disclosure, employee training, and internal communication mechanisms, the company can enhance employees' understanding and trust in the equity incentive system, avoiding "perceived unfairness" caused by information asymmetry. Finally, a robust governance and compliance system is the institutional safeguard for the sustainable operation of equity incentives. Professional review by the independent Compensation Committee, external consultant evaluation, and rigorous compliance audit processes effectively prevent execution deviations and legal risks associated with the incentive plan, ensuring its long-term stability and credibility.

4.3.4 Incentive drive for technological innovation and core team

In the era of the knowledge economy, technological innovation capability has become the most core and enduring source of competitive advantage for science and technology innovation (Sci-Tech) enterprises. Particularly for companies whose survival depends on technological breakthroughs and rapid iteration, sustained innovation capability not only dictates the speed of growth but also relates to whether they can dominate in the global technological competition. Fundamentally, the realization of this capability relies on the core R&D team, composed of top scientists, senior engineers, and technical architects. Therefore, the design of the equity incentive system must revolve around how to stimulate innovative potential, attract high-end talent, and stabilize the core technical team. It can be argued that, in Sci-Tech enterprises, equity incentive is not merely a compensation mechanism but an institutional engine driving technological innovation.

4.3.4.1 Unique value of equity incentive to technological innovation and core team

The unique value of equity incentive in the field of technological innovation is first reflected in

its powerful attraction for global high-end technical talent. Currently, the competition for talent in frontier industries such as Artificial Intelligence, Biomedicine, New Energy, and Semiconductors is intensifying. Compared to large tech enterprises, startup Sci-Tech companies often struggle to gain an advantage in terms of cash compensation or stability. However, the potential for wealth appreciation and the sense of achievement in a technical career brought by equity incentive become important leverage points for attracting top talent. Equity incentive not only grants employees the potential for future returns but also sends a signal of "co-founding the venture and co-sharing the results", psychologically transitioning the employees from "employees" to "partners", thereby enhancing their sense of mission and innovative momentum.

From the perspective of the innovation process, equity incentive can effectively mitigate the problems of risk and uncertainty inherent in technological innovation. Disruptive innovation is often accompanied by high investment, long cycles, and uncertain outcomes. Equity incentive addresses this by linking the interests of R&D personnel to the market success of project outcomes, establishing an institutional mechanism for shared risk and shared reward. This incentive structure enables R&D personnel to maintain commitment and resilience even when facing technical bottlenecks or short-term failures, encouraging them to approach technical exploration with a long-term perspective. Consequently, equity incentive is not merely a material incentive but also a psychological contract, prompting R&D personnel to deeply bind their personal goals with the enterprise's innovation strategy.

4.3.4.2 Protection of core technical assets and stable realization of talent value

Core technical personnel are not only the implementers of corporate innovation activities but also the primary carriers of knowledge assets. They possess the company's critical algorithms, process flows, architectural logic, and often tacit knowledge that is difficult to formalize. The turnover of such talent often signifies a discontinuity in the R&D system or even the disclosure of trade secrets. Equity incentive, by setting a longer vesting period and linking grants to continuous contribution, effectively raises the talent conversion cost, thus mechanically mitigating the risk of core personnel turnover. Concurrently, when complemented by non-compete clauses, confidentiality agreements, and long-cycle performance appraisals, it further strengthens the protective barrier for the company's technical assets.

On the other hand, equity incentive can also foster collaboration and knowledge sharing within R&D teams. Modern innovation often requires interdisciplinary and cross-domain cooperation, and breakthroughs by a single researcher are often insufficient to support systemic innovation. By linking a portion of the incentive to overall team performance or project phase

outcomes, equity incentive implicitly shapes a sense of "team community", driving employees to shift from an individual contribution orientation to a collaborative outcome orientation. This mechanism, while stimulating group innovation capability, also enhances organizational cohesion and learning ability.

In terms of specific implementation, enterprises must accurately identify their key technical domains and core positions and design differentiated incentives based on strategic priorities. Core technical positions (such as R&D leads, algorithm architects) should receive a higher proportion of equity grants, with performance standards set against long-term technical objectives. Simultaneously, the setting of performance indicators should move beyond traditional financial metrics to incorporate technical indicators that reflect innovation quality and R&D output, such as the number of patents, key technical breakthroughs, conversion rate of research achievements, and market reaction to innovative products. These innovation-oriented indicators create a tighter correspondence between incentives and the company's long-term innovation strategy.

Furthermore, considering the cyclical nature of major R&D projects, enterprises should introduce a milestone-based vesting mechanism, linking equity grants to the achievement of critical R&D nodes or outcomes, with phased realization. This "long-term + phased" structure both maintains the long-term stability of the team and continuously stimulates motivation through feedback on phased achievements. For top scientific research talent, non-material factors beyond economic incentives are equally important, such as the sense of accomplishment from technical challenges, autonomy in innovation, continuous learning opportunities, and identification with the corporate culture. If equity incentive can form a synergy with these non-material incentive factors, it will be more conducive to building a stable and highly efficient technical team with a strong innovation atmosphere and a clear learning orientation.

4.3.4.3 Mutual integration and promotion of corporate culture and equity incentives

Effective equity incentive is not just a set of institutional arrangements but an organic extension of corporate culture. The virtuous interaction between culture and incentives can form a closed-loop mechanism that reinforces innovative behavior. For Sci-Tech enterprises, their cultural DNA often encompasses the spirit of innovation, risk-taking, and collaboration, and equity incentive is precisely positioned to take root in this cultural soil. By transmitting the cultural signal of "failure tolerance and shared success", the company can maintain a psychological sense of safety among employees when facing innovation uncertainty, thereby encouraging them to dare to try and bravely breakthrough. In other words, the institutional efficacy of equity

incentive often depends on its ability to achieve alignment with the enterprise culture at the level of core values.

Meanwhile, as the company scales up and its governance structure becomes increasingly complex, the compliance and transparency of equity incentive become particularly important. Especially when the company enters the pre-IPO or post-IPO stages, it must strictly adhere to relevant tax, securities, and accounting regulations to avoid potential legal and reputational risks. To this end, the enterprise should establish an independent Compensation Committee or a specialized governance body to review and supervise the design, execution, and information disclosure of the equity incentive plan, ensuring the plan's impartiality and sustainability.

The relationship between equity incentive and corporate culture also continuously evolves across different life cycle stages. Incentives in the Startup Stage are typically based on the personal trust and career vision of the founding team, characterized by strong emotional bonds. As the company enters the Growth Stage, institutionalization and standardization become key to ensure that the incentive mechanism maintains fairness and motivational power amidst team expansion and the replacement of old and new members. As the company gradually transitions into the Mature Stage, finding a balance between stability and innovation and continuously reinforcing the leadership and innovation orientation of the technical management through equity incentive become crucial directions for institutional optimization.

In summary, equity incentive plays a multi-dimensional role in technological innovation and core team building: it is both a market mechanism for attracting top talent and a driving mechanism for continuous innovation, as well as a governance mechanism for maintaining organizational cohesion and cultural identification. From the integrated perspective of Human Capital Theory, Innovation Diffusion Theory, and Agency Theory, it can be argued that equity incentive establishes a positive cycle of risk sharing and value co-creation by deeply binding individual goals with the corporate innovation strategy. This mechanism not only promotes the sustained output of the company's technological innovation but also lays the institutional foundation for maintaining a long-term competitive advantage in a dynamic environment.

Chapter 5: Conclusions and Outlook

Based on the theories of property rights, incentive, and corporate life cycle, this study employs the Gioia methodology to conduct in-depth interviews and case analyses on four science and technology innovation enterprises (Sci-Tech enterprises) at different stages of their life cycle. It constructs a theoretical model that reflects the dynamic evolutionary logic of the equity incentive mechanism, systematically analyzing its institutional characteristics, behavioral manifestations, and optimization paths in practical operation. The research conclusions are as follows:

(1) Life cycle stage profoundly influences the design logic of equity incentive mechanisms

The study finds that the corporate life cycle stage has a decisive influence on the design philosophy, tool selection, and execution rhythm of the equity incentive mechanism.

In the Startup Stage (e.g., Company A), due to limited resources and high external uncertainty, the company focuses more on attracting early core talent using low-cost tools like stock options, while simultaneously maintaining the founding team's controlling interest and strategic dominance. The incentive logic at this stage revolves around "Survival + Commitment", emphasizing the creation of long-term partnership expectations and an entrepreneurial community spirit.

Upon entering the Growth Stage (e.g., Company B), the enterprise gradually stabilizes in terms of market, product, and organizational structure. The incentive focus shifts to the integration of mid-to-high-level talent and the synergy of strategic execution. Equity incentive becomes a crucial tool for mobilizing team enthusiasm and sharing operational risks. This stage is characterized by "Expansion + Performance Orientation", with the incentive mechanism increasing in complexity, differentiation, and structural flexibility.

In Mature and Post-IPO Enterprises(e.g., Company D), the incentive mechanism gradually becomes institutionalized and standardized. It often forms an institutional combination using diversified tools such as stock options, restricted stock, and phantom stock, and emphasizes the deep alignment between incentive and performance. The incentive logic at this time revolves around "Steady-State + Value Realization", focusing more on the dynamic balance among shareholder value, market expectations, and organizational governance.

(2) Equity incentive effect is influenced by multiple factors, showing stage-specific

differences

This study further reveals that the implementation effect of equity incentive is jointly influenced by multiple factors including the life cycle stage, organizational culture, institutional foundation, and employee cognition, exhibiting strong stage-specific and non-linear characteristics.

In the Startup Stage, due to the company's lack of a stable valuation basis and a clear exit mechanism, employees often feel uncertainty about the option value and anxiety over liquidity, thus weakening the motivational power of the incentive. However, the incentive intensity and sense of commitment at this stage still contribute to talent aggregation and the co-building of the entrepreneurial vision to a certain extent.

In the Growth Stage, as the incentive system gradually improves and the organizational mechanism is optimized, employee confidence in the company's future increases, and the behavioral guidance role of the incentive becomes increasingly prominent. Especially in the case of Company B, the phased, differentiated, and adjustable incentive mechanism effectively supported the stability of talent in key positions and the effective alignment of organizational goals.

In the Mature and Post-IPO Stages, although the dual effect of incentive and constraint from equity incentives becomes more evident, the enterprise also faces challenges such as incentive short-sightedness, performance manipulation, and the weakening of internal fairness perception. This indicates that the sustainability and fairness of incentive effectiveness require joint support from institutions and culture.

Thus, the actual effect of equity incentives in enterprises at different life cycles shows significant stage-specificity and condition dependence. In the initial stage, despite the relatively high incentive amount, issues such as financing uncertainty, lack of an exit mechanism, and insufficient employee understanding of equity value often result in the incentive effect falling short of expectations. After entering the growth stage, equity incentive begins to play a role in stabilizing the workforce, enhancing organizational cohesion, and improving work motivation. In the mature and post-IPO stages, as the company's standardization increases and capital liquidity strengthens, the positive effect of equity incentive on improving corporate performance is more significant, but it also faces new challenges such as the short-term focus of incentives and a sense of internal unfairness.

(3) Effective equity incentive programs must dynamically match the enterprise's development pace and strategic focus

Through comparative analysis of practices in different enterprises, this study further

proposes that the design of the equity incentive program should not be a static, one-time decision but should be dynamically adjusted according to changes in the enterprise's development stage, talent structure, and external environment.

In the case of Company A, the enterprise adopted a "reserve + phased release" model, using options to seek long-term returns when capital was scarce. In Company B, the approach was "capital increase + round-based incentive" to match stage-specific goals and market conditions. It is evident that an effective equity incentive mechanism needs to "change with the times", focusing not only on current incentive effects but also considering future strategic flexibility and continuous organizational development.

(4) Organizational culture and institutional arrangements have a moderating effect on the implementation outcome of equity incentive

In addition to the incentive design factors themselves, corporate culture, governance structure, and institutional foundation also have a critical impact on the effectiveness of equity incentives.

In the practice of Company B, even when a subsidiary's operation encountered difficulties, a strong sense of mission and team culture still effectively maintained organizational stability, compensating for the short-term failure of the equity incentive. Furthermore, the transparency, fairness, and alignment of the equity incentive with the company's vision determine employee acceptance and incentive intensity. If the incentive mechanism lacks organizational support and institutional guarantees, it may instead trigger a crisis of trust and organizational infighting.

(5) Effective equity incentive requires the dynamic match of "incentive-capability- goal"

The study finds that the effectiveness of equity incentive depends on whether a dynamic matching relationship is achieved among the "capability structure of incentive recipients", "enterprise development stage goals", and "incentive tools and mechanisms".

On one hand, the enterprise needs to identify key positions and key talent based on its strategic goals and design the incentive program in combination with their career life cycle. On the other hand, the equity incentive mechanism itself should possess the ability for dynamic adjustment, such as through phased granting, performance-based vesting, and exit mechanisms, to enhance its flexibility and targeting.

(6) Pricing and implementation of equity incentives: achieving a dual balance of incentive effectiveness and governance legitimacy

In the actual operation of the equity incentive mechanism, the design of the pricing mechanism and the method of implementation directly determine the sustainability of the incentive effect and the employees' trust in the enterprise.

This study finds that if an enterprise grants equity in the form of "gratuitous gift" or "symbolic low price", it is often difficult to form a genuine incentive and constraint mechanism, and it is prone to trigger the phenomenon of "equity numbness". Therefore, a scientific and reasonable pricing mechanism is the crucial foundation for building effective incentive expectations.

5.1 Theoretical contributions

Focusing on the dimension of "Life Cycle-Equity Incentive Mechanism", this study makes the following theoretical contributions by combining and deeply analyzing real-world cases, thereby expanding the depth and breadth of equity incentive research.

(1) Extension of the life cycle perspective in Equity Incentive Theory

Traditional equity incentive research is mostly anchored in incentive economics and agency theory, analyzing the mechanism primarily from the perspective of economic incentive effect and corporate governance function. However, these studies often overlook the profound influence of the enterprise's development stage on equity incentive design and effect. This study introduces the Corporate Life Cycle Theory, emphasizing that the equity incentive mechanism design should dynamically evolve with the changes in the enterprise's development stage.

The introduction of this perspective not only broadens the theoretical horizon of equity incentives but also deepens the understanding of how the mechanism operates at different life cycle stages.

In the Startup Stage, equity incentive mainly serves to attract and retain key talent and enhance team cohesion. In the Growth Stage, it focuses more on aligning the interests of management and employees, and linking corporate culture with strategic goals. In the Mature and Post-IPO Stages, it becomes closely linked with corporate governance and capital markets, serving as a key tool for driving sustained growth and value creation.

By introducing the life cycle perspective, this study enriches the contextual explanatory power of the equity incentive mechanism and promotes theoretical innovation in equity incentive research.

(2) Emphasis on the embedded role of institutional configuration and cultural factors in the incentive mechanism

Traditional equity incentive research often focuses on the design of the incentive tool itself, neglecting the moderating effect of institutional and cultural factors on the implementation outcomes. Through empirical analysis of multiple Sci-Tech enterprises, this study finds that the

effectiveness of the incentive mechanism depends not only on the design and implementation of the incentive tool but is also deeply nested with "soft factors" such as the enterprise's governance structure, organizational culture, and market signals.

Specifically, the construction of corporate culture and the improvement of the governance structure can significantly increase the transparency, fairness, and employee recognition of equity incentives, thereby enhancing the incentive effect. For example, in Company B, despite huge external pressure, a strong sense of corporate mission and team culture helped the company maintain organizational stability, compensating for the short-term underperformance of the equity incentive.

Furthermore, the design of the equity incentive mechanism must be consistent with the enterprise's strategic goals and cultural vision; otherwise, it may lead to employee skepticism, thus affecting the actual incentive outcome.

By emphasizing the role of institutional configuration and cultural factors, this study fills the gap in current equity incentive research regarding the insufficient consideration of "soft factors" and expands the design and implementation framework of the equity incentive mechanism.

(3) Proposal of "Stage Matching" and "Dynamic Sustainability" principles for equity incentive design

Based on the specific needs of enterprises at different life cycle stages, this study proposes the equity incentive design principles of "Stage Matching" and "Dynamic Sustainability", pushing equity incentive research toward a more practically guiding direction.

Specifically, the equity incentive program should be dynamically adjusted according to the enterprise's development stage, talent structure, and changes in the external environment. Startup-stage enterprises should focus more on equity structure protection, stock pool establishment, and employee incentive expectation management. Growth-stage enterprises should focus on ensuring equity fairness while aligning incentive tools with market conditions and corporate development goals. Mature and post-IPO enterprises should link the equity incentive mechanism more closely with performance assessment, external investor returns, and other factors, reflecting a tight integration with capital markets and corporate governance.

Through these "Stage Matching" and "Dynamic Sustainability" design principles, this study provides new ideas and perspectives for the theoretical development of the equity incentive mechanism, as well as feasible incentive design strategies for Sci-Tech enterprises at different life cycle stages.

5.2 Practical recommendations

Based on the main findings of this study, the following practical recommendations are proposed for Sci-Tech enterprises when designing and implementing equity incentive mechanisms at different life cycle stages:

(1) Startup-stage enterprises: focus on incentive expectation management and equity structure protection

In startup-stage enterprises, due to a lack of capital and high uncertainty, equity incentives are primarily used to attract and retain key talent. At this time, equity incentive should focus on rationally setting the stock pool, a flexible equity allocation structure, and dynamic incentive window design to enhance employees' understanding of the company's growth trajectory and future valuation.

The company needs to provide employees with clear expectations for equity incentive returns while preventing excessive dilution of the founding team's control due to unreasonable early equity distribution. Equity incentive at this stage serves more as a resource allocation tool than an immediate financial return tool.

(2) Growth-stage enterprises: optimize equity allocation structure and ensure incentive fairness

Upon entering the growth stage, the enterprise begins to have a certain market foundation and scale. At this point, equity incentive is not just a tool for attracting talent; more importantly, it should play a role in optimizing the organizational governance structure and motivating mid-to-high-level managers and technical backbones.

The enterprise should optimize the equity allocation structure, ensuring fair pricing and equitable incentives, and establishing phased goals and a return mechanism.

In this stage, the design of equity incentive should consider both employee personal goals and the alignment with the overall corporate strategy, fostering employees' long-term commitment and performance orientation.

(3) Mature and post-IPO enterprises: strengthen performance linkage and improve exit mechanisms

In mature and post-IPO stages, the enterprise's equity incentive should be linked more closely with corporate performance goals and the needs of the capital market. The equity incentive mechanism needs to be further standardized and tightly aligned with corporate strategic goals, long-term development plans, and investor returns. At this stage, the enterprise should strengthen the linkage between performance assessment and equity incentives to ensure

the mechanism effectively promotes the performance improvement of the executive team and core employees.

Concurrently, the exit mechanism should be optimized to increase the trust of shareholders, employees, and external investors, ensuring the fairness and sustainability of the equity incentive program.

(4) Cross-Stage common recommendation: integration of equity incentive with corporate culture, organizational goals, and talent strategy

Regardless of the stage, equity incentive should not operate in isolation. It should be closely integrated with corporate culture, organizational goals, and talent strategy to form a long-term incentive community. The equity incentive mechanism should be part of the corporate strategy, not merely a financial tool.

Simultaneously, the enterprise should strengthen the construction of organizational culture to ensure the long-term effectiveness of the incentive mechanism, preventing the weakening of the incentive effect due to inadequate systems or cultural non-recognition.

(5) Pricing and implementation of equity incentives: reasonable pricing, capital increase incentive, and phased implementation

Equity incentive is an asset with value-added potential. Simply “giving away” equity may not only weaken the incentive effect but also affect employees’ correct perception of the company’s value. Equity, as a representative of long-term value, is essentially about the potential for appreciation, not short-term financial benefits. Therefore, the implementation of equity incentives needs to follow certain principles to ensure the maximization of its motivational effect on employees and contribute to the company's long-term development.

Firstly, the Capital Increase method as a means of implementing equity incentives has obvious advantages. By using targeted new issuance rather than shareholder transfer, the company can ensure the fairness and transparency of the incentive price and reduce employees’ skepticism about excessively low or high transfer prices from shareholders. The capital increase method not only provides the enterprise with a new round of funding support but also requires employees to “pay” a certain price to acquire equity, thereby enhancing their recognition and appreciation of the equity value. This “payment” mechanism can effectively reduce the “paper effect” of equity incentives, leading employees to psychologically embrace the potential for equity appreciation.

Secondly, reasonable equity pricing is crucial for the effect of the incentive. Equity incentive pricing should be combined with market valuation to ensure its rationality. Overpricing may cause a psychological burden on employees, potentially leading to distrust

towards the founder or management for "seeking private gain". Conversely, underpricing may weaken the incentive effect because employees might perceive it as a "low-value" benefit. Therefore, the optimal pricing strategy is to price based on the enterprise's financing price or market valuation, with an appropriate discount for internal employees. This approach not only guarantees the fairness of the pricing but also allows employees to feel the tangible benefits brought by the company's growth and development while witnessing their equity appreciation.

Finally, equity incentive should be designed in phases according to the different stages of corporate development. Enterprises in different industries and at different life cycle stages have varying development goals and employee incentive needs. Therefore, equity incentive should be designed in a "phased + goal-linked" format. For instance, achieving certain financial or operational goals (such as revenue surpassing a certain amount, market share growth) can trigger corresponding equity incentives. This method ensures that each incentive realization is based on actual performance and development achievements, thereby strengthening employee confidence and commitment.

Furthermore, phased implementation of equity incentive can avoid the problem of "incentive space depletion" caused by a large one-time equity distribution. By gradually releasing equity in phases, the enterprise can timely adjust the incentive strategy according to the development process, ensuring long-term incentive effectiveness. For example, it can be designed to release a certain amount of equity incentive proportionally upon reaching a certain milestone, such as "incentivize 5 equity when revenue exceeds 300 million, 7 at 600 million, and 8 at 1 billion". This method can stimulate the continuous motivation of employees and ensure the reasonable distribution and long-term benefits of the equity incentive.

5.3 Future outlook

5.3.1 Research limitations

Although this study constructs a relatively systematic analytical framework based on property rights theory, incentive theory, and life cycle theory, and utilizes the Gioia methodology to conduct in-depth analysis of the equity incentive mechanism in typical Sci-Tech enterprises, it still has the following limitations that urgently need to be further improved and refined in future research:

(1) Sample size restriction: The case sample for this study is limited to four typical Sci-Tech enterprises. While these can represent the basic characteristics of enterprises at different

life cycle stages, the number and geographical scope of the sample are quite limited. In practical application, the equity incentive mechanism of Sci-Tech enterprises is influenced by a multitude of factors, such as industry type, market environment, and company scale, and the diversity of these factors was not fully covered in this study. Therefore, the general applicability and representativeness of the conclusions still require further verification through data support from a larger sample. Future research should aim to expand the sample scope, particularly conducting comparative analysis of Sci-Tech enterprises across different industries, regions, and market environments, to enhance the broad applicability of the conclusions.

(2) Predominantly cross-sectional study: This study primarily relies on cross-sectional data, analyzing the current state and historical interviews of Sci-Tech enterprises at different life cycle stages. However, the effect of the equity incentive mechanism throughout the corporate life cycle is not constant; its incentive effect often changes dynamically with shifts in the enterprise's internal and external environment. Due to the lack of longitudinal tracking research, this study is difficult to fully grasp the evolutionary process of the equity incentive mechanism over the long term and its long-term effects. Therefore, future research should introduce longitudinal tracking data to explore the sustained effectiveness of equity incentive programs across different development stages, the differences between short-term and long-term incentive effects, and the trends in employee behavior and company performance.

(3) Interview perspective biased towards senior management: The interviews in this study were primarily concentrated on the founders and senior managers of the enterprises. Although this senior management perspective helps in understanding the strategic intent and macro design of the equity incentive mechanism, its focus is on the experience and views of the strategic decision-making level and failed to fully cover the perceptions and reactions of general employees and middle managers to the equity incentive plan. Employees are the core audience of the incentive mechanism, and their cognition, expectations, and behavioral response to equity incentives directly affect the incentive outcome. Therefore, future research should pay more attention to the perspectives of employees at different levels, especially the genuine feelings and micro-level behavioral responses of middle and general employees regarding equity incentives, thereby providing a more comprehensive theoretical basis for optimizing the incentive mechanism.

5.3.2 Future research directions

To further deepen and expand the theoretical and practical value of the equity incentive mechanism in Sci-Tech enterprises, subsequent research can be developed in the following

directions:

(1) Expanding sample coverage and strengthening comparative research: Future research should enhance the breadth and applicability of the study through sample expansion across multiple industries, regions, and life cycle stages. Furthermore, combining quantitative research methods, large sample data should be used to conduct horizontal comparison and verification of the performance effects of different equity incentive mechanisms, especially examining whether there are significant differences in the design and implementation effects of the equity incentive mechanism under various market environments and industry backgrounds. Through such research, the best practices and universal laws of equity incentives across different industries, regions, and life cycle stages can be revealed, providing theoretical support and practical guidance for more Sci-Tech enterprises.

(2) Introducing longitudinal tracking to study dynamic effects: This study lacks longitudinal tracking of the long-term effects after the implementation of the equity incentive mechanism. The effect of equity incentives often exhibits stage-specific and dynamic changes. Therefore, future research can establish a long-term tracking database to conduct in-depth analysis of the evolutionary process of the enterprise's equity incentive program, the sustainability of its effects, and changes in employee behavior. This will not only help to understand the role of the incentive mechanism at different life cycle stages but also provide empirical support for designing more flexible and sustainable equity incentive programs.

(3) Focusing on the psychological and behavioral responses of incentive recipients: Current research on equity incentives mostly focuses on the design and implementation of the mechanism, but research on the psychological perception, behavioral response, and cognitive process of the incentive recipients is relatively weak. Combining perspectives from organizational behavior, psychological contract theory, an in-depth exploration of employees' expectations, motivation, and behavioral choices in the actual operation of equity incentives can reveal the micro-level operating logic of the incentive mechanism. Future research can combine qualitative and quantitative methods to explore the gap between employees' psychological contracts, expectations, and actual incentive outcomes, thereby providing a more detailed theoretical foundation for optimizing the equity incentive mechanism.

(4) Exploring incentive innovation in the digital context: With the rapid development of the digital economy, especially in remote work and virtual work environments, traditional equity incentive methods may face new challenges. Future research can explore how to achieve effective alignment with corporate strategy and employee needs through novel incentive tools (such as phantom stock, blockchain incentives.) in the digital context. By analyzing the

application effects of these new incentive methods within organizations, the research horizon of the equity incentive mechanism can be further broadened, promoting the integration of incentive mechanism innovation and corporate talent management, and providing new paths for the sustainable development of Sci-Tech enterprises in the digital economy era.

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Annex A: Interview Outlines

1 Interview Outline for Founders

1.1 Background Information

(1) How do you define the company's current stage of development? What are the primary impacts of this stage on the company's strategy?

(2) Has your philosophy regarding equity incentives changed across different stages of the company's development? If so, what are the reasons behind these changes?

1.2 Current Status of Equity Incentives

(1) How has the company's equity incentive scheme evolved alongside the company's growth stages? What are the core changes?

(2) What role have equity incentives played in shaping the company's culture and conveying its core values?

(3) How do you perceive the role of equity incentives in the company's governance structure? Have they exerted any influence on the decision-making process?

1.3 Performance of Equity Incentives

(1) How effective have equity incentives been in driving the company's key objectives (e.g., talent acquisition, team stability, innovation-driven growth)?

(2) Are there specific cases or data that can demonstrate the positive impact of equity incentives on the company's development?

(3) How do you evaluate the effectiveness of the equity incentive scheme across different employee levels? Are there any differences? How do you address these differences?

1.4 Impacts of the External Environment

(1) Have external factors such as market competition and policy changes affected the company's equity incentive strategy? How do you respond to these challenges?

(2) Have you referred to the equity incentive schemes of other enterprises? What factors have motivated you to draw on their experiences or carry out innovations?

1.5 Future Outlook

(1) As the company advances further in the future, what plans do you have for adjusting or optimizing the equity incentive scheme?

(2) How do you view the challenges and opportunities of implementing equity incentives

across different industries and growth stages?

(3) In your opinion, how can equity incentives maintain their effectiveness and competitiveness in supporting the company's long-term development?

2 Interview Outline for Human Resources Directors

2.1 Background Information

(1) How do you perceive the special requirements for talent management in the company's current stage? How have these requirements influenced the design of equity incentives?

(2) In your view, does the company's existing equity incentive scheme meet the needs of the company's growth? How can this be measured?

2.2 Current Status of Equity Incentives

(1) In the process of designing the equity incentive scheme, how does the HR department ensure that it aligns with the company's strategic development needs?

(2) How do you measure the effectiveness of equity incentives among different employee groups (e.g., senior executives, core employees, general staff)?

(3) In the company's governance and decision-making processes, how has the equity incentive scheme affected employees' participation and loyalty?

2.3 Performance of Equity Incentives

(1) How does the HR department monitor and evaluate the impact of equity incentives on employee performance and company performance? What are the key measurement indicators?

(2) How has the equity incentive scheme performed in terms of employee recruitment, retention, and promotion? Has it achieved the expected goals?

(3) How do you think the equity incentive scheme adapts to different industries or market environments? Does it require adjustments?

2.4 Impacts of the External Environment

(1) What impacts have external market conditions (e.g., industry competition, laws and regulations) exerted on the design and implementation of equity incentives?

(2) Have you observed any successful experiences in equity incentives from other enterprises? What insights can these experiences provide for the design of your company's scheme?

2.5 Future Outlook

(1) In your opinion, what new challenges will the HR department face in terms of equity incentives as the company develops further?

(2) How will the HR department support the continuous improvement of equity incentives amid the company's future development?

(3) How do you view the necessity of optimizing the equity incentive scheme at different times to maintain its competitiveness?

3 Interview Outline for Core Employees Participating in Equity Incentives

3.1 Background Information

(1) What is your role in the company? Since when have you participated in the equity incentive scheme?

(2) What was your initial impression of the company's equity incentive scheme? Does it align with your career expectations?

3.2 Current Status of Equity Incentives

(1) How do you evaluate the design of the company's equity incentive scheme? What are its strengths and weaknesses in your daily work?

(2) What specific impacts do you think equity incentives have had on your work motivation and personal development?

(3) Have you perceived any changes in the company's equity incentive strategy across different growth stages? Are these changes reasonable?

3.3 Performance of Equity Incentives

(1) How effective have equity incentives been in enhancing your work performance, innovation capabilities, and teamwork?

(2) How do you assess the effectiveness of the company's equity incentive scheme in talent retention and innovation stimulation?

(3) Have you experienced any adjustments to the equity incentive scheme? What impacts have these adjustments had on your career development?

3.4 Impacts of the External Environment

(1) Do you think market conditions or industry changes have affected the value of equity incentives? If yes, how are these impacts manifested?

(2) During your career, have the equity incentive models of any other companies left a deep impression on you? What aspects of these models do you think are worth learning from?

3.5 Future Outlook

(1) What are your expectations for the company's future equity incentive scheme? In which aspects do you hope to see improvements?

(2) How do you think the role of the equity incentive scheme will change amid the company's future growth?

(3) Do you expect the equity incentive scheme to be more flexible in adapting to different industries and market conditions?

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Annex B: The Open Coding Process

Table B.1 The open coding process of Enterprise A

No.	Enterprise Lifecycle Stage	Keywords	Relevant Content
A-1	Start-up Stage	Equity Design	The design of equity incentive allocation schemes for founders and employees was initiated in early 2023.
A-2	Start-up Stage	Incentive Dimensions	Adjustment of founders' equity; equity incentives for employees.
A-3	Start-up Stage	Dynamic Equity Pool	An equity pool reserved for founders with dynamically adjusted equity ratios.
A-4	Start-up Stage	Option Pool	A 15% option pool set aside for phased release.
A-5	Start-up Stage	Incentive Targets	Incentive targets vary by stage, including R&D personnel and market-oriented staff.
A-6	Start-up Stage	Short-term Goals	Initial construction of the product platform from 2023 to 2024.
A-7	Start-up Stage	Challenges in Incentive Implementation	Employees show low sensitivity to equity; difficulty in converting equity into tangible value.
A-8	Start-up Stage	Options as Supplementary Incentives	Options serve as additional rewards, with salaries maintained at the market median level.
A-9	Start-up Stage	Career Partner Program	Cultivation of core employees, who are granted special identities and additional options.
A-10	Start-up Stage	Employee Response to Incentives	Employees give a poor response to equity incentives, particularly due to the unclear tangible value of options.
A-11	Start-up Stage	Variations in Incentive Effectiveness	Incentive effectiveness is correlated with the company's development status and market environment.
A-12	Start-up Stage	Financing Plan	A financing plan scheduled for 2024; the actual realization of equity and options depends on the implementation of this financing plan.
A-13	Start-up Stage	Perceived Value of Equity and Options	Employees perceive options as having no value, failing to form expectations of returns.
A-14	Start-up Stage	Psychological Impact of Incentives	Unfulfilled incentive plans lead to employee frustration, which affects employer-employee relations.
A-15	Start-up Stage	Conversion of Options into Cash	Employees prioritize tangible cash benefits; the intangible value of equity incentives struggles to attract them.
A-16	Start-up Stage	Market Demand	The enterprise faces unvalidated market demand and immature technologies.
A-17	Start-up Stage	Strategic Positioning	Positioned as a technology-driven enterprise, with equity incentives closely aligned with the company's development direction.
A-18	Start-up Stage	Founding Team Decision-making	Selecting appropriate industry and technology directions is critical to the company's success.

No.	Enterprise Lifecycle Stage	Keywords	Relevant Content
A-19	Start-up Stage	Competitiveness and Positioning	Competitiveness stems from technology, uniqueness, and accurate grasp of market demand.
A-20	Start-up Stage	Market Evaluation	The enterprise must assess the market ceiling to avoid distorted development directions caused by overly low market expectations.
A-21	Start-up Stage	Equity Incentives and Corporate Vision	Equity incentives are closely linked to the company's vision and mission.
A-22	Start-up Stage	Growth Path	The enterprise's growth path determines team building and strategic execution.
A-23	Start-up Stagev	Technological Innovation	Continuous technological innovation is the cornerstone of competitiveness for technology-driven enterprises.
A-24	Start-up Stage	Financing Difficulties	Unfavorable financing environment; the capital market's investment mechanisms for technology enterprises still need further improvement.
A-25	Start-up Stage	Market Orientation	To achieve long-term development, enterprises must adjust products and strategies based on market demand.
A-26	Start-up Stage	Equity Incentives and Corporate Culture	Equity incentives help shape corporate culture and enhance team cohesion.
A-27	Start-up Stage	Shareholder Relationship Management	Shareholder relationship management and equity incentives complement each other, ensuring alignment between shareholder and employee interests.
A-28	Start-up Stage	Long-term Incentive Plan	Design of a long-cycle equity incentive plan to ensure employees' long-term participation in the company's development.
A-29	Start-up Stage	Transparency of Incentive Plans	Transparency of incentive plans helps enhance employees' recognition of the incentive mechanism.
A-30	Start-up Stage	Evaluation of Incentive Effectiveness	Regular evaluation of equity incentive effectiveness, with scheme optimization to improve efficiency.
A-31	Start-up Stage	Fairness of Equity Incentives	Efforts are made to achieve fairness in equity incentive schemes, but instances of unfairness are unavoidable.
A-32	Start-up Stage	Shareholder Interests and Employee Incentives	Equity incentive design must balance shareholder interests to avoid damaging shareholder benefits through excessive incentives.
A-33	Start-up Stage	Regular Equity Adjustment	Regular equity adjustments based on the company's development stage to ensure alignment between equity incentives and corporate goals.
A-34	Start-up Stage	Risk Management of Incentive Options	Risk management is required for incentive options to avoid over-reliance on equity options at the expense of other incentive methods.
A-35	Start-up Stage	Equity Incentives for Senior Management	Equity incentives for senior management must be closely aligned with the company's strategic goals to ensure the achievement of long-term objectives.
A-36	Start-up Stage	Investors' Attitudes Toward Equity Incentives	Investors' attitudes toward equity incentives influence scheme design, requiring the acquisition of investor support.
A-37	Start-up Stage	Market Competition Pressure	Market competition pressure impacts the design and implementation of equity incentives, necessitating schemes that maintain attractiveness in a competitive environment.

No.	Enterprise Lifecycle Stage	Keywords	Relevant Content
A-38	Start-up Stage	Dynamism of Incentive Schemes	Equity incentive schemes should be flexible and dynamic to adapt to changes in the company and market.
A-39	Start-up Stage	Psychology of Employee Incentives	Incentive plans need to consider employees' psychological needs, especially their expectations of future returns and recognition of the incentive mechanism.
A-40	Start-up Stage	Universality of Incentive Policies	Incentive policies should take into account differences among employee groups to ensure universality and broad coverage.
A-41	Start-up Stage	Legal Compliance of Equity Incentives	Equity incentive scheme design must comply with relevant laws and regulations to avoid legal risks.
A-42	Start-up Stage	Equity and Compensation Structure	Equity incentives and the company's compensation structure should be coordinated to avoid conflicts between the two.
A-43	Start-up Stage	Short-term and Long-term Incentive Goals	Incentive plans need to balance short-term and long-term goals to ensure employees receive appropriate incentives at different stages.
A-44	Start-up Stage	Founder Equity Protection	Mechanisms for founder equity protection should be incorporated into equity incentive schemes to avoid excessive dilution of founders' equity.
A-45	Start-up Stage	Market Feedback on Incentive Plans	Market feedback on incentive plans helps the company optimize schemes, enhancing employee participation and corporate attractiveness.
A-46	Start-up Stage	Difficulty in Option Conversion	Employees face significant challenges in converting options into tangible benefits; particularly when company development falls short of expectations, the prospects for option realization remain unclear.
A-47	Start-up Stage	Financial Support and Incentive Schemes	Financial support is crucial for equity incentives; reasonable financing support facilitates the smooth implementation of equity incentive plans.
A-48	Start-up Stage	Sustainability of Equity Incentives	Incentive scheme design must ensure long-term sustainability to avoid excessive incentives in the short term.
A-49	Start-up Stage	Incentives and Employee Loyalty	Equity incentives help improve employee loyalty, reduce turnover rates, and enhance team stability.
A-50	Start-up Stage	Diversification of Equity Incentives	Equity incentive schemes should be diversified, including both option incentives and actual equity allocation.
A-51	Start-up Stage	Alignment of Incentives and Organizational Goals	Incentive schemes must align with the company's strategic goals to ensure employee behaviors are directed toward corporate objectives.
A-52	Start-up Stage	Metrics for Evaluating Incentive Effectiveness	Clear metrics for evaluating incentive effectiveness should be established to assess scheme implementation and enable timely adjustments.
A-53	Start-up Stage	Flexibility of Incentive Schemes	Incentive schemes should be flexibly adjusted based on the company's operating environment and market changes to maximize incentive effectiveness.
A-54	Start-up Stage	Employee Engagement and Incentive Effectiveness	Enhancing employee engagement and recognition of equity incentive schemes can improve incentive effectiveness.

No.	Enterprise Lifecycle Stage	Keywords	Relevant Content
A-55	Start-up Stage	Tax Implications of Equity Incentives	The tax treatment of equity incentive schemes must consider tax policies to avoid unnecessary tax burdens on employees.
A-56	Start-up Stage	Tracking and Evaluation of Incentive Plans	Regular tracking and evaluation of equity incentive effectiveness are required to adjust incentive strategies based on actual conditions.
A-57	Start-up Stage	External Factors Affecting Incentive Schemes	External factors such as the economic environment, market conditions, and legal policies may impact the effectiveness of incentive schemes.
A-58	Start-up Stage	Operational Complexity of Equity Incentives	The implementation of equity incentives involves high operational complexity, requiring precise operational and management mechanisms.
A-59	Start-up Stage	Linkage Between Investor Returns and Incentives	Linking investor returns to equity incentives helps maintain alignment between shareholder and employee interests.
A-60	Start-up Stage	Phased Implementation of Incentive Schemes	Incentive schemes should be implemented in phases to ensure precise and timely incentives for employees at different stages.
A-61	Start-up Stage	Founder-Investor Relationship	Founders and investors maintain close relations; equity incentive scheme design must fully balance the interests of both parties.

Table B.2 The open coding process of Enterprise B

No.	Enterprise Lifecycle Stage	Keywords	Relevant Content
B-1	Growth Stage	Corporate Values	Credit others with achievements and take responsibility for failures; keep every promise made; conduct business with integrity and transparency; promote maglev technology to benefit human production and daily life.
B-2	Growth Stage	Business Philosophy	Customer-centricity, pursue development through contributions, seek win-win results via cooperation, with core competitiveness as the orientation for development.
B-3	Growth Stage	Goal Setting	The target is to achieve 1 billion RMB in revenue in the maglev transmission field, with 500 million RMB set as the survival threshold; cash reserves are essential to resist risks.
B-4	Growth Stage	Role of Equity Incentives	Equity incentives can boost employee morale, yet their effectiveness is limited when the enterprise faces difficulties, and the company has to rely more on organizational culture instead.
B-5	Growth Stage	Organizational Culture	In times of adversity, organizational culture becomes more crucial, which requires shared goals and value propositions for all team members.
B-6	Growth Stage	Challenges of Equity Incentives	When the enterprise is under sluggish development, equity incentives may turn into a burden and fail to exert their intended effect.
B-7	Growth Stage	Equity Allocation Scheme	Equity was initially allocated to founders, and talents have been gradually absorbed; at present, there is a 12% equity incentive platform for employees.
B-8	Growth Stage	Equity Incentive Plan	A second round of equity incentives is planned to be launched, with an expected proportion of around 10%,

No.	Enterprise Lifecycle Stage	Keywords	Relevant Content
			and discussions are underway with existing shareholders and securities brokers.
B-9	Growth Stage	Reflection on Equity Incentives	After going through the predicament of the Sichuan subsidiary, it has been realized that equity incentives failed to help the company get through the survival cycle, while organizational culture demonstrates stronger cohesion.
B-10	Growth Stage	Risks After IPO	"Free riders" may emerge after the company goes public, and equity incentives may fail to drive sustainable development.
B-11	Growth Stage	Fairness of Equity Incentives	Efforts should be made to achieve fairness in equity allocation, yet absolute fairness is difficult to attain.
B-12	Growth Stage	Industry Challenges	It is crucial to gain a deeper understanding of customer needs; technological innovation and customer stickiness are of great importance.
B-13	Growth Stage	Equity Incentives Version 1.0	The current equity incentive scheme is still at Version 1.0, which remains in the preliminary stage and has much room for improvement.
B-14	Growth Stage	Effectiveness of Equity Incentives	Equity incentives have achieved remarkable effects on the core team, stabilizing the workforce and promoting the standardized operation of the company.
B-15	Growth Stage	Importance of Pricing	The pricing of equity incentives is crucial as it directly affects incentive effectiveness; currently, no efficient pricing method has been formulated yet.
B-16	Growth Stage	Founders' Responsibilities	Founders shall bear the ultimate legal responsibilities. Although equity incentives can unite the team, founders cannot shirk their responsibilities when facing risks.
B-17	Growth Stage	Initial Equity Allocation	The initial equity allocation was rather non-standard, which was based on the founders' own cognition without the application of rigorous criteria.
B-18	Growth Stage	Asset Attribute of Equity	As an asset, equity can bring investment returns. After obtaining equity at a low price, shareholders can benefit from the value appreciation of equity along with the company's development.
B-19	Growth Stage	Equity Value Cognition	It is emphasized that employees need to understand the value of equity, help them see the long-term returns brought by equity appreciation, and thus enhance the incentive effect.
B-20	Growth Stage	Beneficiaries of Equity Incentives	Equity incentives are mainly targeted at technical backbone employees, especially the R&D team.
B-21	Growth Stage	Incentive Effectiveness	Equity incentives can significantly motivate employees, especially the core technical team, helping the company advance steadily.
B-22	Growth Stage	Difficulties in Equity Incentives	Equity allocation is fraught with difficulties; especially when the company is in trouble, some employees may not have sufficient funds to purchase equity.
B-23	Growth Stage	Drawbacks of Equity Grants	It is held that equity should not be given away for free. Free equity comes with no risks attached, so employees will not cherish it, which may instead be detrimental to the company.
B-24	Growth Stage	Pricing of Equity Incentives	There are doubts about the pricing methods of equity incentives; it is believed that the method of capital

No.	Enterprise Lifecycle Stage	Keywords	Relevant Content
			increase can better confirm the value of equity and reduce unnecessary troubles.
B-25	Growth Stage	Equity Private Placement and Pricing	Private placement is more favorable than equity transfer, as it can ensure fair pricing and avoid adverse impacts.
B-26	Growth Stage	Phased Implementation of Incentives	It is recommended to implement equity incentives in phases according to the company's stage-specific goals (such as reaching 300 million, 600 million and 1 billion RMB in revenue).
B-27	Growth Stage	Design of Equity Incentives	Design phased equity incentive schemes, ensure a reasonable proportion of incentives each time, avoid allocating excessive equity prematurely, and reserve room for future employees.
B-28	Growth Stage	Relationship Between Founders and Employees	Emphasize the community of shared future between founders and employees, enhance employees' confidence, and improve the actual effect of equity incentives.
B-29	Growth Stage	Advantages of Private Placement	Private placement can solve the pricing problem, and incentivize employees through discount pricing to ensure the value growth of employees' equity holdings.
B-30	Growth Stage	Market Response to Equity Incentives	Highlight the positive effects brought by equity appreciation to motivate employees to make continuous contributions.
B-31	Growth Stage	Linkage Between Incentives and Performance	Equity incentives must be closely linked to the company's performance to ensure that incentive effects keep pace with the company's development.
B-32	Growth Stage	Short-term Effects of Incentives	The short-term effects of equity incentives are mainly reflected in the improvement of employees' work enthusiasm, while the long-term effects need to be manifested during the company's stable development period.
B-33	Growth Stage	Transparency of Incentive Mechanism	The transparency of the equity incentive mechanism is crucial; employees should be fully aware of the incentive rules and specific goals to enhance trust.
B-34	Growth Stage	Flexibility of Incentive Plans	Incentive plans should be flexible enough to be adjusted according to the company's development stage, performance goals and market conditions.
B-35	Growth Stage	Periodicity of Equity Incentives	Equity incentive schemes should be periodic, with incentives granted when goals of each stage are achieved to ensure long-term incentive effects.
B-36	Growth Stage	Diversity of Incentives	The company has designed diversified incentive forms based on the contributions and positions of different employees, including stock options and restricted stocks.
B-37	Growth Stage	Equity Incentives for Senior Management	Equity incentives for senior management should focus on alignment with the company's long-term strategic goals to ensure that senior executives contribute to the company's long-term development.
B-38	Growth Stage	Incentive Differences Between Management and Technical Staff	The focus of incentives differs between senior management and technical backbone employees: technical talents are incentivized with emphasis on innovation, while senior management are driven by performance.

No.	Enterprise Lifecycle Stage	Keywords	Relevant Content
B-39	Growth Stage	Equity Incentives and Team Culture	Equity incentives are not only a material reward, but also a part of cultural construction, which promotes team cooperation and mutual growth.
B-40	Growth Stage	Short-term and Long-term Incentives	Short-term incentives are mainly targeted at the company's performance and employees' immediate contributions, while long-term incentives focus more on the company's sustainable development and long-term goals.
B-41	Growth Stage	Incentives and Employee Sense of Belonging	Equity incentives enhance employees' sense of belonging, help them achieve long-term development in the company, and promote the long-term retention of talents.
B-42	Growth Stage	Flexibility of Equity Allocation	Equity allocation should be flexibly adjusted according to the company's actual needs and employees' contributions to avoid excessive rigidity.
B-43	Growth Stage	Operability of Incentive Plans	Equity incentive schemes need to be operable, which can be adjusted according to actual situations during implementation without affecting their long-term effectiveness.
B-44	Growth Stage	Innovation of Equity Incentives	Equity incentive schemes should be innovative to adapt to the company's ever-changing market demands and employees' diversified needs.
B-45	Growth Stage	Transparency of Equity Incentives	The transparency of equity incentives affects employees' recognition of the incentive plan, ensuring the fairness and impartiality of incentives.
B-46	Growth Stage	Balance Between Shareholder Interests and Incentives	A balance needs to be struck between shareholder interests and employee incentives to avoid damaging shareholder interests due to excessive incentives.
B-47	Growth Stage	Adjustment of Incentive Schemes	Regularly adjust equity incentive schemes according to the company's development stage and market changes to ensure the sustainability of incentive effects.
B-48	Growth Stage	Equity Incentives and Employee Value Perception	Equity incentives help employees perceive the growth of the company's value, strengthen the common interests between employees and the company, and enhance employees' loyalty.
B-49	Growth Stage	Equity Incentives and Talent Attraction	Equity incentives are also an important means for the company to attract outstanding talents, which can enhance competitiveness in recruitment.
B-50	Growth Stage	Incentives and Risk Management	When designing equity incentives, it is necessary to integrate the company's risk management measures to avoid potential risks caused by excessive incentives.
B-51	Growth Stage	Market Reaction to Equity Incentives	The market reaction to equity incentives is relatively positive, which helps improve the company's brand image and attract more investments.
B-52	Growth Stage	Popularity of Incentive Schemes	Promote equity incentives across different levels of the company to ensure that more employees can benefit from them and increase employee participation.
B-53	Growth Stage	Measurability of Incentive Goals	Equity incentive goals should be measurable, with quantitative indicators used to ensure the achievement of incentive effects.
B-54	Growth Stage	Equity Incentives and Corporate Culture	Equity incentives are not only an economic reward, but also a part of corporate culture building, which can enhance the enterprise's cohesion and centripetal force.

No.	Enterprise Lifecycle Stage	Keywords	Relevant Content
B-55	Growth Stage	Incentives and Corporate Vision	Equity incentives need to be consistent with the company's vision and strategic goals to ensure that employees' efforts are aligned with the company's objectives.
B-56	Growth Stage	Impact of Incentives on Employees	Equity incentives can significantly change employees' work attitudes, improve work efficiency, and promote the long-term development of the enterprise.
B-57	Growth Stage	Sustainability of Incentive Schemes	The design of incentive schemes should ensure sustainability, avoiding a situation where short-term effects are satisfactory but long-term effects fail to meet expectations.
B-58	Growth Stage	Innovative Mechanisms of Equity Incentives	The company should continuously explore innovative mechanisms for equity incentives to ensure the attraction and retention of top talents.
B-59	Growth Stage	Equity Incentives for Management	The design of equity incentives for senior management should focus on long-term performance goals to ensure that senior management is highly aligned with the company's interests.
B-60	Growth Stage	Founder Incentives and Control Rights	In equity incentives, founders should focus on maintaining their equity control rights to prevent the company's control from being affected.
B-61	Growth Stage	Potential Stimulation Through Incentives	The design of equity incentives should be able to stimulate employees' potential and promote their continuous growth and innovation within the company.
B-62	Growth Stage	Long-term Incentive Mechanism for Employees	A sustainable and effective employee incentive mechanism should be established to ensure that employees have sufficient motivation to grow with the enterprise in the long run.
B-63	Growth Stage	Alignment of Incentives with Corporate Strategy	The design of incentive schemes needs to be consistent with the company's overall strategy to ensure the achievement of strategic goals.
B-64	Growth Stage	Impact of Incentives on Employee Behavior	Equity incentive schemes can change employees' behavior patterns, encouraging them to pay more attention to the company's long-term development.
B-65	Growth Stage	Market Sensitivity of Incentives	Equity incentives should be market-sensitive, with timely adjustments made according to external environment and industry changes.

Table B.3 The open coding process of Enterprise C

No.	Enterprise Life Cycle Stage	Keywords	Relevant Content
C-1	PRE-IPO	IPO Planning	The company is in the IPO tutoring stage, with the strategic goal of maintaining stable fundamentals and ensuring steady revenue recognition.
C-2	PRE-IPO	IPO Tutoring Phase	The company is preparing for IPO, and the equity incentive plan is closely integrated with the listing strategy to stabilize employees and achieve listing goals.
C-3	PRE-IPO	Core Personnel Stability	The stability of core personnel is crucial to the achievement of the company’s strategic goals, especially before and after IPO.

No.	Enterprise Life Cycle Stage	Keywords	Relevant Content
C-4	PRE-IPO	Importance of Core Team	Senior management and technical backbones are the key to the company's strategic success, so the equity incentive plan shall focus on these groups.
C-5	PRE-IPO	Equity Incentives & Profits	Equity incentives will affect the company's profits, so the equity incentive plan needs to be designed from multiple dimensions to balance incentive effects and corporate interests.
C-6	PRE-IPO	Profit Pressure	When providing equity incentives, the company must control incentive costs and avoid excessive equity allocation that impairs corporate profits.
C-7	PRE-IPO	Objectives of Equity Incentives	It is necessary to both motivate employees and ensure the achievement of the company's strategic goals, especially when the company faces IPO pressure.
C-8	PRE-IPO	Dual Objectives of Equity Incentives	In designing the equity incentive plan, it is required to meet employees' expectations while safeguarding the interests of the company's shareholders and investors.
C-9	PRE-IPO	Phased Implementation of Equity Incentives	Equity incentives shall be implemented in phases, aligned with the company's performance and investment & financing status, to ensure effective incentives and drive corporate development.
C-10	PRE-IPO	Flexibility of Equity Incentives	The incentive plan shall be flexible in implementation and adjustable according to the company's phased goals.
C-11	PRE-IPO	Compliance & Legal Support	The equity incentive plan must comply with regulations; the company cooperates with law firms and seeks professional legal opinions to ensure the plan's legality and operability.
C-12	PRE-IPO	Legal Compliance Risks	The equity incentive plan needs to guard against legal compliance risks, ensure adherence to all laws and regulations, and avoid potential legal disputes for the company in the future.
C-13	PRE-IPO	Phased Incentive Objectives	Set differentiated goals at different stages, and implement equity incentives upon goal achievement to stimulate employee enthusiasm and advance the realization of corporate goals.
C-14	PRE-IPO	Phased Evaluation	Regularly evaluate the effectiveness of equity incentives to ensure the achievement of phased incentive goals, and adjust the plan timely to adapt to the company's needs.
C-15	PRE-IPO	Initial Effects of Equity Incentives	In the early stage of the company, equity incentives help employees remain patient with low salaries and stabilize the team.
C-16	PRE-IPO	Early Employee Retention	Initial equity incentives effectively retain key employees and motivate them to play an active role in the company's early development stage.
C-17	PRE-IPO	Equity Appreciation Effect	Employees who acquired equity at a low price in the early stage have seen substantial equity value appreciation, enhancing their confidence in and sense of belonging to the company.
C-18	PRE-IPO	Equity Appreciation Incentive	Employees accumulate wealth through equity appreciation, strengthening their recognition of the

No.	Enterprise Life Cycle Stage	Keywords	Relevant Content
			company and expectations for its long-term development.
C-19	PRE-IPO	Technological Development & Equity Incentives	During the company's rapid expansion stage, the design of equity incentives focuses on stabilizing management and core technical staff to promote technological innovation.
C-20	PRE-IPO	Incentives & Technological Innovation	For technology-driven companies, the equity incentive plan shall prioritize incentivizing core technical personnel to support the company's R&D and innovative development.
C-21	PRE-IPO	Actual Effect of Incentives	Equity incentives significantly boost employee enthusiasm, stability and sense of belonging, and exert a positive impact especially on innovation-driven development.
C-22	PRE-IPO	Motivation Enhancement	Equity incentives can effectively improve employees' work enthusiasm and innovation motivation, especially in the face of market competition.
C-23	PRE-IPO	Incentive Effect Differences Across Job Levels	Equity incentives deliver obvious effects on senior, middle-senior and core technical staff, but have little impact on ordinary employees, possibly due to their weak perception of equity value.
C-24	PRE-IPO	Senior Management Incentives	Senior management can better align their interests with the company's through equity incentives, thereby driving the company's better development.
C-25	PRE-IPO	Incentive Differences for Ordinary Employees	Ordinary employees may have a weak perception of equity value, so the equity incentive plan may need to be implemented in combination with other incentive methods.
C-26	PRE-IPO	Equity Incentive Platform Design	Drawing on the practices of other companies, a dedicated vice president is responsible for the planning, implementation and evaluation of the equity incentive plan to ensure its execution effect.
C-27	PRE-IPO	Equity Incentive Management Platform	The company has designed an equity incentive management platform to facilitate the monitoring of plan implementation and ensure process transparency and compliance.
C-28	PRE-IPO	Financial Accounting Issues	Equity incentives involve financial accounting and require professional participation to minimize the impact on corporate profits and ensure reasonable cost allocation.
C-29	PRE-IPO	Incentive Cost Control	Controlling incentive costs is the key in plan design to prevent excessive incentives from causing financial pressure.
C-30	PRE-IPO	Equity Dilution of Controlling Shareholder	Equity incentives may lead to equity dilution of the controlling shareholder, with further dilution occurring during IPO, which may affect the company's control right.
C-31	PRE-IPO	Risks of Equity Dilution	Equity incentives result in shareholder equity dilution, which may arouse the founder or controlling shareholder's concerns over control rights, hence requiring meticulous design.

No.	Enterprise Life Cycle Stage	Keywords	Relevant Content
C-32	PRE-IPO	Controlling Shareholder's Participation in Equity Incentives	The controlling shareholder intends to participate in the equity incentive plan to align interests with the team, while avoiding excessive dilution of their equity control right.
C-33	PRE-IPO	Alignment of Controlling Shareholder's Incentives with the Team	The controlling shareholder's participation in the equity incentive plan helps strengthen the interest community with the team and enhance team cohesion.
C-34	PRE-IPO	Incentives & Team Cohesion	Equity incentives strengthen the bond between employees and the company, and enhance team cohesion and collaborative spirit.
C-35	PRE-IPO	Incentives & Corporate Culture	Equity incentives are also part of corporate culture building, helping to shape employees' awareness of long-term development and corporate values.
C-36	PRE-IPO	Senior Management Incentives & Performance Goals	Senior management's equity incentives are closely linked to performance goals to ensure senior leaders assume more responsibilities for the company's development.
C-37	PRE-IPO	Technical Talent Incentives	For technical personnel, the equity incentive plan shall be tailor-designed to stimulate their innovation and R&D potential and support the company's competition in the technical field.
C-38	PRE-IPO	Strategic Goal Consistency	The design of equity incentives must ensure alignment between the company's strategic goals and incentive goals to avoid deviating from the company's long-term development direction.
C-39	PRE-IPO	Key Position Retention	Equity incentives serve as an effective tool to retain employees in key positions and prevent the loss of core talents.
C-40	PRE-IPO	Transparency of Incentive Plan	Transparency of the equity incentive plan is critical; employees shall understand the details and objectives of incentives to enhance their sense of participation and trust.
C-41	PRE-IPO	Fairness of Incentives	Fairness of the incentive plan is also a key factor for employees to accept equity incentives, ensuring all employees can perceive the fairness and value of the incentives.
C-42	PRE-IPO	Employee Stock Ownership Plan	The company implements an employee stock ownership plan, enabling employees to gain more benefits from the company's future development through equity incentives.
C-43	PRE-IPO	Investor Relations	The design of the equity incentive plan needs to take investor relations into account to ensure it does not harm shareholders' interests.
C-44	PRE-IPO	External Financing & Equity Incentives	During the external financing phase, the design of the equity incentive plan needs to balance the interests of new investors and existing shareholders.
C-45	PRE-IPO	Incentives & Market Competition	Equity incentives can serve as a measure to respond to market competition, attract and retain outstanding talents, and enhance the company's market competitiveness.

No.	Enterprise Life Cycle Stage	Keywords	Relevant Content
C-46	PRE-IPO	Performance-Driven Incentives	The equity incentive plan shall be adjusted in conjunction with the company's performance goals to ensure incentives are tied to performance and boost overall corporate performance.
C-47	PRE-IPO	Long-Term & Short-Term Incentives	Diverse incentive methods including long-term and short-term incentives can be designed based on employees' different positions and contributions.
C-48	PRE-IPO	Diversity of Incentive Mechanisms	The company has designed diversified incentive mechanisms for different employee groups, including stock options, restricted stocks and other forms.
C-49	PRE-IPO	Performance Evaluation Tied to Incentives	Performance evaluation is directly linked to equity incentives, and employees' incentive rewards are closely associated with individual and team performance.
C-50	PRE-IPO	Incentive Adjustment & Flexibility	The equity incentive plan shall be flexibly adjusted according to corporate development and market changes to ensure it always adapts to the company's strategic needs.

Table B.4 The open coding process of Enterprise D

No.	Enterprise Life Cycle Stage	Keywords	Relevant Content
D-1	Post-IPO	Equity Incentive Plan Design	Define incentive objectives: attract and retain talents, improve performance; select incentive method: restricted stock; determine incentive quota: no more than 10% of the share capital.
D-2	Post-IPO	Incentive Objectives	Attract and retain core talents, and enhance corporate performance.
D-3	Post-IPO	Talent Attraction	Attract high-potential employees through equity incentives, and boost their work enthusiasm and loyalty.
D-4	Post-IPO	Employee Stock Ownership	Provide employees with stock ownership opportunities, strengthen their sense of belonging and responsibility, and support the company's joint growth.
D-5	Post-IPO	Plan Refinement	Refine incentive targets and ratios, formulate specific implementation rules, and adjust flexibly according to the company's actual situation.
D-6	Post-IPO	Incentive Plan Adjustment	Evaluate and adjust the incentive plan annually; adjust incentive targets and ratios based on market and corporate conditions.
D-7	Post-IPO	Incentive Mechanism	Clarify assessment indicators and ensure employee performance is linked to equity allocation when implementing equity incentives.
D-8	Post-IPO	Annual Adjustment	Regularly evaluate incentive effectiveness and adjust the incentive plan annually to adapt to corporate development and market demand changes.
D-9	Post-IPO	Market Changes	Market changes may affect the formulation of incentive plans and employees' actual returns, so flexibility must be maintained.
D-10	Post-IPO	Performance Evaluation	Evaluate the effectiveness and rationality of the equity incentive plan based on corporate and

No.	Enterprise Life Cycle Stage	Keywords	Relevant Content
			employee performance to ensure incentive fairness and validity.
D-11	Post-IPO	Equity Incentive Goal Setting	Set financial and non-financial goals based on corporate strategy; align goals with job positions.
D-12	Post-IPO	Financial Goals	Set specific financial goals such as net profit growth rate and revenue growth to ensure incentives are linked to corporate financial performance.
D-13	Post-IPO	Non-Financial Goals	Link with non-financial goals such as corporate culture, employee development and innovation to ensure comprehensive incentives.
D-14	Post-IPO	Strategic Goals	The incentive plan shall align with the company's long-term strategic goals to help the company achieve overall development objectives.
D-15	Post-IPO	Incentive Target Selection	Prioritize employees in core positions; adjust incentive ratios based on contribution; evaluate and adjust incentive targets annually.
D-16	Post-IPO	Core Positions	Provide priority incentive opportunities for the company's core positions such as R&D, technology and sales to ensure the stability of key position personnel.
D-17	Post-IPO	Key Positions	Select positions critical to corporate development as incentive targets to ensure incentives cover the groups contributing the most to the company.
D-18	Post-IPO	Contribution Evaluation	Evaluate incentive quota and select incentive targets based on employees' contribution to corporate development to ensure fairness and effectiveness.
D-19	Post-IPO	Incentive Ratio	Adjust incentive ratios according to positions and contributions to ensure key talents receive reasonable incentives.
D-20	Post-IPO	Equity Pricing	Determine equity grant price based on market and corporate development; employees must meet conditions to obtain equity.
D-21	Post-IPO	Grant Conditions	The grant of incentive equity is subject to certain conditions, such as serving the company for a specified period or achieving specific performance goals.
D-22	Post-IPO	Equity Price	Set the equity grant price based on the company's market value, development potential and industry background to ensure fairness and market rationality.
D-23	Post-IPO	Market Pricing	Refer to market equity pricing to ensure the equity grant price is not lower than market value and avoid shareholder equity dilution.
D-24	Post-IPO	Evaluation Mechanism	Establish an internal evaluation mechanism to assess the feasibility and effectiveness of the equity incentive plan based on corporate profitability, employee performance and other factors.
D-25	Post-IPO	Equity Vesting	Equity vests in phases, usually over 3-5 years; vesting is linked to corporate performance and employee performance.
D-26	Post-IPO	Vesting Period	The equity vesting period is usually 3-5 years, implemented in phases to ensure employees have

No.	Enterprise Life Cycle Stage	Keywords	Relevant Content
			sufficient commitment and responsibility to the company.
D-27	Post-IPO	Vesting Conditions	Equity vesting conditions are linked to employees' individual performance and corporate performance to ensure joint efforts of the company and employees.
D-28	Post-IPO	Performance Appraisal	Judge whether employees meet vesting conditions through annual assessment and performance evaluation to ensure the effectiveness of equity incentives.
D-29	Post-IPO	Time Lock-up	Determine equity vesting time points when setting up equity incentives to avoid weakened incentive effects caused by employees' early resignation.
D-30	Post-IPO	Interest Balance	Ensure the balance of interests between shareholders and employees; ensure incentives are fair and reasonable.
D-31	Post-IPO	Shareholder Interests	Ensure the incentive plan does not harm shareholder interests, and maximize shareholder equity through appropriate equity allocation.
D-32	Post-IPO	Employee Interests	Enhance employees' sense of participation and loyalty through equity incentives, and strengthen their sense of responsibility and investment in corporate development.
D-33	Post-IPO	Interest Sharing	Realize interest sharing among employees, the company and shareholders through the equity incentive plan to ensure the common development of all stakeholders.
D-34	Post-IPO	Incentive Fairness	Formulate a reasonable incentive plan to ensure fairness and avoid employee dissatisfaction.
D-35	Post-IPO	Performance Appraisal System	Combine business performance and individual performance assessment; high-performing employees receive more incentives.
D-36	Post-IPO	Performance Linkage	Ensure equity incentives are directly linked to employees' work performance, and assess incentive quota based on individual contributions and team achievements.
D-37	Post-IPO	Individual Performance	Consider employees' specific performance such as work attitude and skill improvement as important basis for performance appraisal.
D-38	Post-IPO	Goal Achievement	The incentive plan needs to be linked to employees' goal achievement to ensure the implementation of the incentive plan can directly promote the realization of corporate goals.
D-39	Post-IPO	Employee Contribution	Assess employees' equity incentive share based on their specific contributions to the company to ensure the impartiality of rewards.
D-40	Post-IPO	Financial Arrangement	Ensure the incentive plan does not affect corporate cash flow; prevent shareholder equity dilution; conduct tax planning.
D-41	Post-IPO	Cash Flow	Ensure the implementation of the equity incentive plan will not lead to corporate financial distress, and maintain stable and sufficient corporate funds.

No.	Enterprise Life Cycle Stage	Keywords	Relevant Content
D-42	Post-IPO	Shareholder Equity Dilution	Set the ratio of equity incentives to avoid excessive equity allocation diluting the equity of existing shareholders, and ensure shareholders' control rights and economic interests are not affected.
D-43	Post-IPO	Capital Operation	Reasonably arrange capital use and allocation in the equity incentive plan to ensure the efficiency and effect of capital utilization.
D-44	Post-IPO	Budget Control	Ensure the equity incentive plan is within the company's financial affordability through budget control and fund management, and guarantee the implementation of the incentive plan does not affect corporate operations.
D-45	Post-IPO	Employee Acceptance	Survey employees' opinions on equity incentives and optimize the plan; provide relevant training on equity incentives.
D-46	Post-IPO	Employee Training	Conduct professional training on equity incentives to help employees better understand the significance and potential benefits of equity incentives.
D-47	Post-IPO	Employee Satisfaction	Regularly evaluate employees' satisfaction with the incentive plan and improve based on feedback to enhance employees' sense of participation and belonging.
D-48	Post-IPO	Participation Degree	Increase employees' participation in the equity incentive plan to ensure they fully understand and actively participate in the plan implementation.
D-49	Post-IPO	Risk Management	Identify potential risks and take response measures.
D-50	Post-IPO	Risk Control	Effectively control legal, financial and other risks brought by the equity incentive plan and take necessary preventive measures.
D-51	Post-IPO	Response Measures	Formulate emergency handling measures for potential risks in the equity incentive process, such as shareholder opposition and employee turnover.
D-52	Post-IPO	Risk Assessment	Conduct a comprehensive risk assessment of the equity incentive plan to minimize uncertainty and negative impacts during implementation to the greatest extent.
D-53	Post-IPO	Management Mechanism	Establish a dedicated equity incentive management team and process to ensure effective supervision and management of the incentive plan during implementation.
D-54	Post-IPO	Compliance Review	Ensure the plan complies with legal and regulatory requirements; establish an internal audit mechanism.
D-55	Post-IPO	Legal Compliance	Ensure the design and implementation of the equity incentive plan comply with relevant laws and regulations to avoid legal risks for the company.
D-56	Post-IPO	Internal Audit	Establish a dedicated audit mechanism to regularly review the implementation of equity incentives and ensure the compliance and transparency of the plan.
D-57	Post-IPO	Audit Procedures	Set specific audit processes and inspection standards to ensure the implementation of the equity incentive plan complies with the company's internal control standards.

No.	Enterprise Life Cycle Stage	Keywords	Relevant Content
D-58	Post-IPO	Compliance Guarantee	Provide legal guarantee for the equity incentive plan to ensure its compliance in different regions and environments.

Annex C: Axial Coding Process

Table C.1 Axial coding process

Code	Axial Coding	Relevant Content
1	Equity Incentive Design in the Start-up Stage	In the start-up stage, the equity incentive plan focuses on the core team and early employees to ensure team stability and the development of core technologies. Designed with short-term goals as the priority, it addresses challenges such as financing and market demand.
2	Equity Incentive Design in the Growth Stage	In the growth stage, equity incentives attach greater importance to motivating technological innovation and middle-senior management. While ensuring corporate expansion and performance growth, it maintains team stability, and equity incentives shall be linked to performance.
3	Equity Incentive Design in the PRE-IPO Stage	In the PRE-IPO stage, the core of equity incentives is to align employee incentives with listing goals, ensure employees' post-IPO returns, and synchronize with the company's financial objectives, listing plans and market evaluations.
4	Equity Incentive Design in the Post-IPO Stage	The equity incentive plan in the post-IPO stage shall focus on employees' long-term stability and the driving force for the company's sustainable growth. It integrates the interests of shareholders and employees to ensure a balance between shareholder equity and employee incentives.
5	Alignment of Corporate Strategy and Equity Incentives	Equity incentives shall align with the company's strategic goals at each life cycle stage, ensuring incentives are consistent with the company's long-term development goals, innovation goals and market expansion goals, thereby boosting employees' enthusiasm.
6	Differences in Equity Incentive Objectives Across Life Cycle Stages	Equity incentive objectives vary significantly across different life cycle stages: the start-up stage focuses on attracting the core team and financing; the growth stage on performance growth; the PRE-IPO stage on alignment with listing goals; and the post-IPO stage on team stability and long-term development.
7	Flexibility and Adjustment of Incentive Plans	Incentive plans at different life cycle stages need to be flexible. As the company's strategy and market environment change, equity incentives shall be adjusted phasedly to ensure effective motivation of employees at each stage.
8	Balance of Shareholder and Employee Interests	The balance of interests between shareholders and employees is crucial at different life cycle stages. The design of equity incentive plans needs to consider how to strike a balance between control rights and employee incentives to avoid excessive dilution of shareholder equity.
9	Risk Management of Equity Incentive Plans	Risk management of equity incentive plans differs across various life cycle stages: the start-up stage mainly focuses on financing risks; the growth stage on market competition risks; and the post-listing stage on interest conflicts between shareholders and management as well as shareholder equity dilution.
10	Evaluation and Feedback of Incentives	Regularly evaluate the effectiveness of equity incentives and adjust the plan according to the company's development stage and changes

Code	Axial Coding	Relevant Content
		in market demand to ensure the achievement of incentive objectives at different stages.