

**A STUDY ON THE DESIGN AND USE OF
PERFORMANCE MANAGEMENT SYSTEM IN
CHINA'S INNOVATIVE START-UPS**

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PERFORMANCE MANAGEMENT SYSTEM IN
CHINA'S INNOVATIVE START-UPS**

by

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LIST OF ABBREVIATIONS

AO	Assertiveness Orientation
CLT	Culturally Endorsed Implicit Leaderships Theory
CN_O/Ms	Chinese Owner-managers
Con_O/M	Contrasting Owner-manager
CSF	Critical Success Factor
EA	Expectation Alignment
ESE	Entrepreneurial Self-Efficacy
FO	Future Orientation
GE	Gender Egalitarianism
GLOBE	Global Leadership and Organizational Behaviour Effectiveness
HO	Humane Orientation
HRIS	Human Resources Information System
IGC	Collectivism II (In-group)
LOC	Locus of Control
MCS	Management Control System
MRT	Material Risk Taker
NFPM	Non-financial Performance Measures
OCB	Organizational Citizenship Behaviour
OCED	Organisation for Economic Co-operation and Development
PA	Performance Appraisal
PD	Power Distance
PM	Performance Management
PMEAS	Performance Measurement System
PMES	Performance Measurement
PMS	Performance Management System
PO	Performance Orientation
PRC	People's Republics of China
SC	Collectivism I (Societal)
SME	Small and Medium-sized Enterprise
UA	Uncertainty Avoidance
USM	Universiti Sains Malaysia

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**KAJIAN KE ATAS REKA BENTUK DAN PENGGUNAAN SISTEM
PENGURUSAN PRESTASI DI KALANGAN SYARIKAT PERMULA
INOVATIF DI CHINA**

ABSTRAK

Pasaran syarikat permulaan di negara China telah berkembang pesat apabila Kerajaan China mendorong usaha baru dan mengumumkan inisiatif "keusahawanan dan inovasi massa" pada tahun 2015. Walau bagaimanapun, kadar kegagalan syarikat permulaan boleh mencapai kadar 95%, sebahagiannya disebabkan oleh ketiadaan Sistem Pengurusan Prestasi (PMS) dalam mengurus dan mengawal organisasi. PMS dibentuk berdasarkan organisasi Barat yang mantap. Terdapat hanya sedikit kajian mengenai PMS di China, yang berkaitan dengan reka bentuk dan penggunaannya dalam syarikat permulaan inovatif. Oleh itu, kajian ini bertujuan untuk mengkaji jenis PMS yang diterima pakai di syarikat permulaan inovatif China dan bagaimanakan budaya China dan ciri personaliti pengurus syarikat permulaan mempengaruhi rekabentuk dan penggunaan sistem tersebut. Kajian kes kualitatif terhadap empat syarikat permulaan yang dipilih dengan data dikutip melalui kaedah temu bual separa berstruktur, pengamatan lapangan, dan penilaian dokumen. Salah satu daripada empat syarikat kes telah dipilih sebagai kes perbezaan untuk mengenal pasti persamaan dan perbezaan di antara pemilik-pengurus dalam menentukan pengaruh ke atas tingkah laku mereka. Teori GLOBE, Teori Ciri Personaliti, dan Teori Pengekangan dan Kompromi digunakan untuk menganalisis hasil kajian dan perbincangan. Hasil kajian menunjukkan bahawa pemilik-pengurus China menggunakan PMS yang mudah dan tidak formal dan juga menggunakan kawalan personal dan sosial dalam organisasi mereka. PMS dalam syarikat kes China dibentuk supaya bersesuaian dengan budaya

dan personaliti pemilik-pengurus. Juga terdapat autonomi kepada pekerja yang diberikan pada tahap tertentu dengan pengurusan secara mikro digunakan mengekalkan kawalan. Maklumat PMS yang dikumpulkan dari saluran tidak formal, digunakan secara interaktif. Hasil kajian ini dapat meningkatkan pemahaman mengenai konteks penggunaan PMS dalam syarikat permulaan inovatif di China. Ia juga memberikan pandangan bagaimana PMS dalam syarikat permulaan inovatif China dapat membantu pelabur ataupun rakan kongsi yang berpotensi untuk membuat perancangan dalam menjalinkan hubungan usaha sama dengan syarikat permulaan, dan bagaimana mereka dapat bekerjasama dengan syarikat permulaan inovatif.

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ABSTRACT

China’s start-ups market has grown rapidly since the Chinese Government encouraged new ventures and announced the “mass entrepreneurship and innovation” initiative in 2015. Nevertheless, start-ups’ failure rate can be as high as 95%, partly due to the lack of Performance Management Systems (PMSs) in managing and controlling organisations. PMSs are designed based on Western, well-established organisations. Existing research relating to PMSs in China, concerning their design and use in innovative start-ups, is scarce. Therefore, this study aimed to examine the types of PMSs adopted in China’s innovative start-ups, and how the systems are designed and used under the influence of Chinese culture and start-up managers’ personality traits. This study adopted a qualitative case study approach for four selected start-up companies, with data collected through the use of semi-structured interviews, field observations and document reviews to examine their management control behaviours. One of the four case companies was purposely selected as a contrasting case for identifying the similarities and differences among case owner-managers in order to uncover the underlying influence of their behaviours. The GLOBE theory, the Traits Theory of Personality, and the Theory of Circumscription and Compromise were used to underpin the findings and discussions. The findings revealed that the Chinese owner-managers used simplified and informal PMSs, through personnel and social controls, in their organisations. The PMSs in the Chinese case companies were designed to adapt to owner-managers’ cultural and personality traits, with a certain level of employee autonomy, while using micromanagement to

maintain control. The PMS information, collected from informal channels, was used in interactive ways. The findings can enrich understanding of the context of PMS use in innovative start-ups in China, offering insights into how PMSs in Chinese innovative start-ups can help potential investors or partners in terms of planning to enter into a venture relationship with start-ups, and how they can work with innovative start-ups.

CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter explains the background of this study and its objectives. The chapter begins with a synopsis of the current start-up market in China, which involves a high failure rate, whilst some studies on Performance Management Systems (PMSs) conducted outside of China are also examined, as they are considered to be helpful in overcoming risks and addressing issues. Then, the problem statements are discussed, followed by the declaration of research objectives, research questions and the research approach. Lastly, this chapter describes the significance of this research.

1.2 Background of the Study

China supported the biggest venture capital market in the Asia-Pacific region in terms of deal volume and value in 2021 (GlobalData Plc, 2021), and the country's competitiveness in this regard continued in the first three quarters of 2022, as it raised 8 of the top 10 largest deals in Asia (Lavender et al., 2022). China possessed 368 unicorn start-ups, continuing to sit in second place on a global scale (Forbes China, 2023), and accounting for 50% of the top 10 unicorns in the world (Hurun Research Institute, 2022). This prosperity of China's start-up market began in 2014 when the State Council of the People's Republic of China (PRC or China hereafter) announced new measures to boost employment by means of entrepreneurship, encouraging people to start their own businesses, contributing to the emergence of start-ups. The slogan "mass entrepreneurship and innovation" became the long-term state policy driving the growth of the start-up market (Xinhau, 2015; He et al., 2019). Riding on the wave of China's policy, the number of start-ups in China kept rising, as the start-ups market

has grown rapidly since 2015. On the one hand, the supporting policy for entrepreneurs encourages the investment of ample funds into start-ups, leading to the attraction of high-performing talent, while, on the other hand, it promotes innovation by easing regulation (Fujishiro, 2018). In the years since 2014, China's central government and universities have become the major drivers of start-ups (Kovbasko, 2019), seeking to meet recent goals in accelerating the strategic and emerging industries development (Huld, 2023). Following the emergence of this development, researchers have shown much attention and interest in exploring the topic of China's start-ups.

A start-up company is defined as a high-growth and scalable business, which uses frequent strategy changes in its initial operations until the product can fit into the market (Cukier & Kon, 2018). Thiel (2014) defined a start-up as involving a group of people whom the owner can convince of a business plan in order that they may create a different future and operate with minimal organisation size. He stated that every start-up is initially launched at a small size and with a very small market (Thiel, 2014, p. 10), mostly in the form of micro, small and medium enterprises (MSMEs). In general, companies employing a few hundred employees (below 500, for example) would be considered as medium-sized, while below 50 employees would be considered as small-sized, and below 10 would be considered as micro-sized (OECD, 2007). China has different definitions for MSMEs, and the classification is not only by means of team size, but also annual revenues and segmentation by industry (with 16 different industries used). For example, in the manufacturing segment, team size below 1000 employees with below 400 million Chinese Yuan (CNY) annual revenue would be considered as medium-sized, while below 300 employees with revenue below CNY200 million would be considered as small-sized, and below 20 employees with revenue below CNY3 million would be considered as micro-sized. For the retail

segment, team size below 300 employees with annual revenue below CNY200 million would be considered as medium-sized, while below 50 employees with revenue below CNY5 million would be considered as small-sized, and below 10 employees with revenue below CNY1 million would be considered as micro-sized. For the information service segment, team size below 300 employees with annual revenue below CNY100 million would be considered as medium-sized, while below 100 employees with revenue below CNY10 million would be considered as small-sized, and below 10 employees with revenue below CNY500 thousand would be considered as micro-sized. Below is a summary of these three segments' MSME classifications.

Table 1.1 Definitions of China's MSME for Manufacturing, Retail and Information Services

Industry segments	No. of Employees	Annual Revenue	Classifications
Manufacturing	< 1000	< CNY400M	Medium
	< 300	< CNY200M	Small
	< 20	< CNY3M	Micro
Retail	< 300	< CNY200M	Medium
	< 50	< CNY5M	Small
	< 10	< CNY1M	Micro
Information Services	< 300	< CNY100M	Medium
	< 100	< CNY10M	Small
	< 10	< CNY500K	Micro

(Ministry of Industry and Information Technology, 2011)

Nulkar (2016) revealed that MSME owners had not been educated fully, nor had they much experience in management. As start-ups mostly are in the form of MSMEs (Thiel, 2014), start-ups owners should also be expected to lack management experience. Therefore, it would be valuable to determine a management control system that can help start-ups to perform well.

In the short history of privately owned companies' development in China, and in the rapidly changing economic environment over the past four decades, PMSs are

different from systems in companies from countries other than China, and are still evolving. The Chinese companies using PMSs are mostly family-controlled, as the ties are naturally strong, and lead to the use of relatives in management instead of professional managers. With the rapidly changing environment, the companies are mainly focusing on expansion, and overlooking risk control (Zhang, 2014). Even so, Chinese companies are still facing different management problems, with the lack of a PMS collection to fit contemporary China's conditions (Shi & Jiang, 2016). Sporadic studies have shown that some scaled Chinese enterprises developed their own management controls to fit their unique conditions and needs (Shi & Jiang, 2016; Piao, Choi, Shang, Han, & Pan, 2021), while some of the others may be too small in scale to have sufficient resources to upgrade and set up the management system (Lin et al., 2021). Managers' management style, entrepreneurial personality and personal preference could be the obstacles hindering these upgrades (Lin et al., 2021).

The Start-up Outlook survey in 2019 involved 1,377 respondents from the US, UK, Canada and China. Around 60% of respondents and their respective businesses were based in the US, while 17% were based in China. Two-thirds of them were technology-based start-ups, with more than half being micro-sized or small-sized (Becker, 2019). This survey reveals that China's current start-up market is more concentrated on technology-based companies. China's innovative start-ups are becoming the main stream of entrepreneurship in the country, and playing an important role in the world's start-up market: *"The most prominent growth has been witnessed in high-tech sectors that emphasize innovation and technology"* (Men et al., 2020, p. 37).

As per the relatively loose definition of start-up in China, there is no solid figure on the number of Chinese start-ups (Huld, 2023). China's Ministry of Industry and Information Technology estimated that 23.8 thousand start-ups are born every day. As of 2022, there are more than 70 thousand innovative start-ups in China (People's Daily, 2023). Chinese start-ups are mostly concentrated on high-tech or innovation, and involved in such industries as high-end hardware, new vehicles, medical and healthcare, the digital economy, enterprise services, software services, the supply chain, e-commerce, fintech, new media, and new consumption (Huld, 2023). The e-commerce, healthcare, hardware and digital economy industries account for the greatest proportions of the unicorn pool in China (Ren, 2022), making these areas of greater concern. China is now a globally competitive powerhouse of fast-growing innovative start-ups. People seek to learn from this powerful example, making the examination of Chinese innovative start-ups a matter of significant interest (Dychtwald, 2021).

In the seemingly prosperous start-up markets in China, however, reports indicate that Chinese start-ups, including innovative start-ups, ecosystems and hub performance, have started to decline (David, 2022; Gauthier, 2022), and investors are wary in regard to investing in start-ups (Shen & Galbraith, 2022). Nevertheless, the Chinese government aims to repower the start-up markets, and has announced the target of 10,000 innovative start-ups by 2025 to fill the gap in strategic industries (Yu, 2021; Gauthier, 2022; Huld, 2023). With the continuously growing innovative start-up markets in China, while under the high competition in accessing the investment funds, the adoption of PMSs in start-ups represent one of the investors' concerns (Davila et al., 2014; Schachel et al., 2021). Therefore, the PMSs used in China's innovative start-ups have become the subject of greater concern.

1.3 Problem Statement

Dr. Shikhar Ghosh conducted a study revealing that the failure rate of start-ups is about 75% (Harvard Business School, 2012), while Eisenmann (2021) suggested that two-thirds of start-ups are not profitable. A newly issued report showed that approximately 90% of start-ups completely fail, although tech companies grow more than non-tech companies, riding on the wave of digitalisation since 2019 (Gauthier, 2022). According to the Associate Dean, Prof. Tian, at Tsinghua University's PBC School of Finance, China produces 8 new start-ups every minute. Despite the number of China's start-ups continuing to grow at a fast pace, the failure rate for Chinese start-ups can be as high as 95%, with an average survival time of 2.5 years (Tian, 2022). This high and increasing failure rate makes the sustainability of start-ups a concerning matter (Hasani & O'Reilly, 2020), which is more crucial for innovative start-ups, as most of them do not have tangible assets and face a high level of risk. Even though innovative start-up entrepreneurs are generally dynamic and creative, their lack of both management and marketing skills is also among the contributing factors leading to failure (Carraro et al., 2019). Crunchbase's CB Insights is a platform which heavily focuses on tracking emerging, innovative companies. Its analysis mostly focuses on innovative companies. It conducted an analysis of 111 start-up failure post-mortems, and reported the top 12 reasons for their failure (see Table 1.2) (CBInsights, 2021). It is believed that these failure reasons could be addressed by PMSs with the features of goal dissemination and adjustment through communication, analysis, learning, planning, evaluation and motivation, as a complete approach to management control over a firm's performance (Ferreira & Otley, 2009). For example, cash flow analysis provided by PMSs can help innovative start-ups to identify potential cash flow issues, allowing them to take corrective actions before they run out of cash. It was revealed

that PMSs can draw attention to issues, enabling appropriate actions and consequently helping to ensure the survival of organisations, while also allowing the identification of new opportunities, even in the event of a crisis (Kober & Thambar, 2022). The interactive use of PMSs can also help in monitoring internal and external changes, and adapting or redefining the strategy and tactics deployed by organisations. This can ensure their competitiveness and sustainability (Adler, 2011), ultimately resolving threats of failure with appropriate strategies and tactics. Table 1.2 shows how PMSs can address and resolve each of the reasons for start-up failure. Innovative start-ups are required to overcome these risks over project life cycles, managing challenges effectively in their uncertain environment in order to succeed. Therefore, calls were made for innovative start-ups to better manage challenges in this uncertain environment (Leong et al., 2017).

Table 1.2 Summary of the top 12 reasons for start-ups' failures

Ranks	Reason for Failure	Percentage	Address with PMS
1	Run out of cash / fail to raise new capital	38%	Financial tools for identifying potential cash flow issues. Visible MCs concerns by VCs.
2	No market need	35%	Evaluation tools for identifying new market opportunities.
3	Get outcompeted	20%	Analysis tools for reviewing the market positions of competitors and the start-up.
4	Flawed business model	19%	Business analysis, management and measurement leading to an effective business model.
5	Regulatory / legal challenges	18%	Compliance management tools for monitoring and guidance.
6	Pricing / cost issues	15%	Analysis tools for price and cost management.
7	Not the appropriate team	14%	Performance evaluation and rewards system in identifying and retaining of team members.
8	Product mistimed	10%	Analyse, monitor and adjust the product launch.
9	Poor product	8%	Quality control and customer feedback analysis, continuous improvement process.

10	Disharmony among team / investors	7%	Communication system, accountability promotion. Transparency of management system to investors.
11	Pivot gone bad	6%	Analyse and adjust plans as needed.
12	Burn out / lacked passion	5%	Workload and stress monitoring and management.

(CBInsights, 2021)

Some micro- and small-sized organisations have no knowledge of PMSs, neglecting their use (Gruenbichler et al., 2021). However, PMSs are considered to be useful in improving a start-up firm's potential for success (Ghadage et al., 2020), because the absence of PMSs will restrict the firm's growth, and may be a reason for its failure (Samagaio et al., 2018). PMSs are useful in managing the risks underlying the failure of innovative start-ups (Krishnan et al., 2022) and influence their creativity and innovation process (Gärtner & Tran, 2021). Therefore, the application of PMSs to start-ups and innovative start-ups probably represents a crucial action for their performance (Samagaio et al., 2018). However, the Chinese management style is often considered to be (and criticised for being) opaque, and China has ranked in bottom position in terms of management (Christensen, 2019). A study showed that Chinese managers prefer to use their intuition and instincts in managing their employees (Lee & Hempel, 2011), leading observers from the West to perceive that PMSs in China do not exist (Lockett, 1988). A start-up usually has limited resources and no PMSs; when the start-up is involved in creative or innovative works (Freeman & Engel, 2007), this can aggravate the burden of the missing PMSs. As there are increasing success stories of Chinese businesses, including innovative start-ups (Lavender et al., 2022; Hurun Research Institute, 2022), the methods used in running these Chinese companies are becoming a matter of interest, and people are becoming aware that PMSs actually exist in China's businesses, but are used according to an agile approach (Christensen, 2019), which is different from the approach used in the West. It is believed that China's

innovative start-up owners should have adopted a specific set of PMSs to better manage their organisations, leading to success. When comparing workplace cultures, management in China can be very different from that of the West, raising the issue of the suitability of contemporary PMSs, developed mainly for a Western context, being placed into practice in China. Chinese start-ups that operate within the Chinese socio-environmental and cultural context require specific perspectives in analysing entrepreneurial behaviours and their innovative personality traits, which may influence managers' choices and their designs and uses of PMSs (He et al., 2019; Huang et al., 2020; Neubert, 2018; Allport, 1937; Benedict, 1961). Therefore, understandings on how PMSs are adopted, designed and used in China's innovative start-ups represent an interesting topic for researchers.

In reviewing the current literature base, there is a gap concerning PMSs in a non-Western context, with most PMS literature involving Western-based organisations, hence PMSs are evolving mainly in the context of the West (Zhang, 2014; Ploss, 2018). Both practical and empirical literature about PMS design and use are oriented towards large, stable hierarchical organisations. Much literature is related to PMS use in well-established organisations, education institutes and public sectors. Moreover, limited empirical research has investigated management control systems (MCSs) in start-ups (Janssen, 2018). Zhang (2014) argued that the use of MCSs was initially proposed by Robert Anthony (1965) for Western organisations. Subsequently, MCS and PMS development and evolution continued, mainly in the context of the West (Zhang, 2014, p. 79). Ploss (2018) echoed Zhang (2014) that "*research on MCS in start-ups has almost exclusively focused on the United States ... studies outside the US are scarce*" (Ploss, 2018, p. 2).

Bianchi et al. (2015) considered formal PMS frameworks to be designed to fit large-sized organisations, public sectors and listed companies, based on the Western culture. Similarly, limited research relates to MCS and/or PMS use in China's innovative start-ups. However, this research did not attempt to cover how the PMSs are designed and used in start-ups, and the influence of Chinese cultures, managers' traits and leadership behaviours. Hence, the existing research concentrates mainly on the design and use of PMSs for Western, well-established organisations, meaning that the research focus of PMSs in the Chinese context of small organisations and innovative start-ups, under the influence of Chinese culture, is still open to explore. As there is increasing interest in understanding innovative start-ups in China (Dychtwald, 2021), more research needs to be undertaken to produce insights into PMS design and use in China's innovative start-ups, and the factors that influence them. Therefore, a knowledge gap exists, for which further study is required.

1.4 Research Objectives

With the knowledge gap stated in the previous section, the aim of this research is to determine, and produce insights into, the type of PMSs adopted and the design and use of PMSs in China's innovative start-ups under the influence of Chinese culture, managers' traits and leadership behaviours.

1.5 Research Questions

Based on the research objectives, the following research questions are setup:

1. What kind of Performance Management System (PMS), i.e. formal PMS or informal PMS, is currently used in China's innovative start-ups? How

do China's innovative start-ups use PMSs to manage and control their organisations?

2. How do Chinese culture and start-up owner-managers' traits and leadership behaviours influence the design and use of PMSs in China's innovative start-ups?

1.6 Research Approach

A qualitative research approach was used in this research, with the adoption of an interpretive case study. Based on the qualitative nature of this research, a qualitative methodology was used to collect, analyse and present the data. Four case companies were selected based on the inclusion criteria stated in Section 4.6.1. In brief, the inclusion criteria concern meeting the definition of a Chinese innovative start-up. As the innovative start-ups are mostly small in size and dominate China's start-up market (Becker, 2019), the additional criteria of having less than 50 staff and being engaged in an innovative industry (stated in Section 1.2) were adopted in the selection. An initial round of exploratory interviews was conducted to gain a preliminary understanding of the case start-up companies from their owner-managers, enabling further refinement of the research questions and the development of interview questions for the next phase. This was followed by a series of in-depth face-to-face, semi-structured interviews with owner-managers and selected employees, document reviews and field observations from selected case start-up companies in China.

Theories and observations were important in understanding and interpreting the research findings. Therefore, the Project GLOBE cultural dimensions and the culturally endorsed leadership theory proposed by House et al. (2002), the Traits Theory of Personality proposed by Allport (1937) and Benedict (1961), and the Theory

of Circumscription and Compromise proposed by Gottfredson (2002) were used to underpin the findings and discussions. It was expected that the outcomes would show that China's innovative start-ups have certain informal, un-structural and implicit PMSs, which are executed "unintentionally", but drive the company forward. Meanwhile, the outcomes elicit how the native Chinese owner-managers' management differs from that of owner-managers influenced by Western culture, allowing a better understanding of the nuances and variations involved, such that the underlying factors contributing to variations in Chinese innovative start-ups' PMSs can be identified.

1.7 Significance of the Research

The booming of China's start-up markets, dominated by those involved in technology and innovations (Becker, 2019), resulted in awareness of how start-ups can succeed despite the reality of a high failure rate (Harvard Business School, 2012; Tian, 2022). A PMS can be used to improve a start-up firm's potential to succeed (Ghadage et al., 2020). It is believed that the absence of a PMS will limit a start-up firm's growth, contributing to failure (Samagaio et al., 2018). The common perception is that Chinese managers manage their organisations opaquely (Christensen, 2019) and arbitrarily (Lee & Hempel, 2011), leading to the concept of the non-existence of PMSs (Lockett, 1988), especially when the firm size is small, as it is for innovative start-up firms. However, in considering the present knowledge of the difference in management culture between China and the West (Cunningham, 2019), the rebuttal arises regarding management control in Chinese firms actually existing, but appearing in the form of a different approach (Christensen, 2019). The existing research concentrates mainly on PMSs for western, well-established organisations and the PMSs for Chinese contexts, small organisations research is scarce. Thus, there is a need to understand and produce

insights into what kind of PMS is adopted, and how the PMSs are designed and used, under the influence of the Chinese culture and owner-managers' personality traits.

1.7.1 Theoretical Significance

This study has theoretical significance. A theoretical framework (shown in 3.9) has been proposed in this study to support the analysis of how and why PMS use in Chinese innovative start-ups is different from those using in western organisations. The study is significant in providing an understanding of the management control approach within China's innovative start-ups, helping observers from cultures other than that of China to understand the managerial practices, and untie their misconceptions regarding the absence of PMSs in China's innovative start-ups. The developed framework can take the influence of national cultures, managers' leadership behaviours and their personality traits into account in order for future research to analyse PMSs in innovative start-ups in cultures other than that of China. This study also contributes to expanding the body of literature concerning PMS practices deployed in innovative start-ups, especially in the Chinese context.

1.7.2 Practical Significance

The study also has practical significance. Understanding PMS use in Chinese innovative start-ups could assist owner-managers in creating a better configuration of PMSs for innovative start-ups, specifically in the Chinese context. The study can also trigger awareness of the importance of PMS adaptation to fit China's innovative start-ups, allowing the transfer of PMSs from the West to be effectively achieved, with considerations of the maturity of management and national differences (Shen, 2010). The findings from this research can provide insight into how modern innovative start-ups in China utilise their PMSs, assisting potential investors or partners to better

understand the management culture in China, when they are planning to enter into venture relationships with start-ups. The study also helps start-up managers or owners to better understand the design and use of the PMS, the existence of which they may not even be aware. Furthermore, the findings could help policymakers in adjusting requirements or implanting flexibilities when they are setting up supporting schemes and assistance policies to nurture start-ups, which are drivers of economic growth in the country.

1.8 Definition of Key Terms

This section defines several key terms which are used throughout this thesis for clarity and easy reference.

Chinese start-up: A company with an age of below 5 years, and a number of staff less than 300, while more than 30% of the staff holds a bachelor degree or above. The total investment of the company should not exceed 50 million Chinese Yuan, and at least 20% of expenses are represented by R&D. The company has not received any venture capital investment within the previous 2 years (State Taxation Administration, 2019). Two-thirds of Chinese innovative start-ups are technology-based, that is, innovative start-ups (Becker, 2019).

Chinese innovative start-up: A Chinese innovative start-up company operates in high-tech or innovative industries, which mostly concern high-end hardware, new vehicles, medical and healthcare, the digital economy, enterprise services, software services, the supply chain, e-commerce, fintech, new media, and new consumption (Huld, 2023; Ministry of Science and Technology, 2022). As of 2019, more than half of Chinese innovative start-ups were micro-sized or small-sized (Becker, 2019).

MCS (Management Control System): The management tools to enable planning, budgeting, analysing, measuring and evaluating accounting and financial information (Davila & Foster, 2005).

PMS (Performance Management System): A holistic approach to manage and control organisational performance and highlight the mutual interrelatedness and interdependence of managerial activities (Singh, 2010). It includes both formal and informal mechanisms, processes, systems and networks which evolve over time. This is used to convey the key objectives and goals initiated by management. This assists the strategic process and management by analysis, planning, measurement, control, rewarding and managing performance. PMSs also support and facilitate learning and change (Ferreira & Otley, 2009).

MSMEs (Micro-, Small- and Medium-sized Enterprises): In general, the classification of MSMEs is mostly based on the number of staff in a company. A company employing a few hundred employees (below 500, for example) would be considered as medium-sized, while below 50 employees would be considered as small-sized, and below 10 would be considered as micro-sized (OECD, 2007).

MSMEs in China: China has different definitions and a more complicated classification. The classification is not only made through means of number of staff, but also annual revenues and segmentation by industry (with 16 different industries used).

Table 1.3 Summary of China's MSME Definitions

Industry segments	No. of Employees	Annual Revenue	Classifications
1. Agriculture, forestry, livestock & fishing	Not specified	< CNY200M	Medium
	Not specified	< CNY5M	Small
	Not specified	< CNY500K	Micro
2. Manufacturing	< 1000	< CNY400M	Medium

	< 300	< CNY200M	Small
	< 20	< CNY3M	Micro
3. Construction	Not specified	< CNY800M	Medium
	Not specified	< CNY60M	Small
	Not specified	< CNY3M	Micro
4. Wholesale	< 200	< CNY400M	Medium
	< 20	< CNY50M	Small
	< 5	< CNY10M	Micro
5. Retail	< 300	< CNY200M	Medium
	< 50	< CNY5M	Small
	< 10	< CNY1M	Micro
6. Transportation	< 1000	< CNY300M	Medium
	< 300	< CNY20M	Small
	< 20	< CNY10M	Micro
7. Warehousing	< 200	< CNY300M	Medium
	< 100	< CNY10M	Small
	< 20	< CNY1M	Micro
8. Postal Service	< 1000	< CNY300M	Medium
	< 300	< CNY20M	Small
	< 20	< CNY1M	Micro
9. Accommodation	< 300	< CNY100M	Medium
	< 100	< CNY20M	Small
10. Catering	< 10	< CNY1M	Micro
	< 2000	< CNY1000M	Medium
11. Information Transmission	< 100	< CNY10M	Small
	< 10	< CNY1M	Micro
12. Information Services	< 300	< CNY100M	Medium
	< 100	< CNY10M	Small
	< 10	< CNY500K	Micro
13. Real Estate Development	Not specified	< CNY2000M	Medium
	Not specified	< CNY10M	Small
	Not specified	< CNY1M	Micro
14. Property Management	< 1000	< CNY50M	Medium
	< 300	< CNY10M	Small
	< 100	< CNY5M	Micro
15. Leasing & Business Services	< 300	< CNY1200M	Medium
	< 100	< CNY80M	Small
	< 10	< CNY1M	Micro
16. Others	< 300	Not specified	Medium
	< 100	Not specified	Small
	< 10	Not specified	Micro

(Ministry of Industry and Information Technology, 2011)

1.9 Outline of the Thesis

This thesis is organised into the following chapters. This chapter (Chapter 1) has provided an overview of the current situation of China's innovative start-up markets and the current management practices of managers. Subsequently, the

problem statement was presented, concerning the knowledge gap in regard to China's innovative start-ups' PMS use. This was followed by the research objectives of this study, based on the issues arising in the problem statement and the setting of research questions. Then, the research approach was explained for this study, followed by the presentation of the theoretical and practical significance of this research. The key terms used throughout this thesis are also defined in this chapter.

Chapter 2 provides a literature review on PMSs and their adaptation to different settings. The chapter starts with a broad discussion on the form of PMSs currently existing, and the constitution of the PMSs. Subsequently, discussions of particular PMSs frameworks and their relevant research in scaled Western organisations and SMEs will follow. The discussions concern PMS adoption among innovative start-up companies, and how national culture and managers' leadership styles influence choices of PMSs. The chapter also describes and compares the Chinese culture with that of the West, and presents the current research in relation to PMS use in Chinese companies.

Chapter 3 explains and elaborates the theoretical framework used in this study and the development of propositions. The GLOBE research program, which is the main theoretical lens for this study, is discussed in detail. It is followed by a discussion of managers' traits and the special traits of innovative managers. The implications of the GLOBE dimensions and managers' traits on the choice of PMS are also discussed, supporting the establishment of a theoretical framework and the development of propositions.

Chapter 4 explains and discusses the research methodology applied in this study. The chapter starts with a discussion of philosophical assumptions and the

researcher's position, which sets the research philosophy of this study to be interpretive and qualitative. A case study is selected, and the corresponding research methods are discussed in detail, followed by the selection of case start-up companies, and discussion of their backgrounds. Then, the details of data collection and data analysis methods are explained. The chapter ends with a review of research reliability and validity.

Chapter 5 shows the findings derived from the qualitative data collected by the case study. The chapter covers the three categories generated from the qualitative data analysis, including the interactions between actors and PMSs, the process of PMS development and evolution, and the elements used in PMSs in the context of China's innovative start-up companies.

Chapter 6 provides the theoretical analysis of the findings. The theoretical framework defined in Chapter 3 is used to generate theoretical analysis and to explain the findings of the case study. Subsequently, this chapter discusses the contribution of this study, research limitations and suggestions for future study.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter commences with an overview of performance management systems (PMSs) and their formal frameworks. Next, existing studies of PMSs are reviewed. Then, the adoption of PMSs in small and medium-sized enterprises (SMEs) and general start-up companies is detailed. In addition, a discussion follows regarding how the entrepreneurial characteristics, leadership styles and national culture, especially the Chinese culture, interact with PMSs.

2.2 Performance Management Systems (PMSs)

Otley (1999) proposed a performance management framework for management control systems (MCSs) research. Ferreira and Otley (2009) considered the term “MCSs”, which was widely used in the early literature, as a “*restrictive*” term and therefore, they preferred the more general term of “PMS” (Ferreira & Otley, 2009), in order to show the change from traditional organisational control, in a compartmentalised manner, to a wider view of control in managing organisational performance. Thus, MCS represents the traditional form of organisational control, while PMS represents the modern version (Demartini, 2014, p. 104). Yet, in certain circumstances, we can consider the terms “MCS” and “PMS” interchangeable or similar. However, more accurate definition may differentiate them in the sense that traditional MCSs can only provide too aggregated, late and distorted information that hinders decision making, while new PMSs can provide specific, timely and relevant information (Norhayati, 2009). The function of a PMS is “*to maintain or alter patterns in organizational activities*” (Simons, 1995), and involves employees improving the

effectiveness of an organisation (Qi, 2010). A PMS acts as a framework for analysing the MCS in a wider organisational context (Otley, 1999; Ferreira & Otley, 2009), and is one of the key features of an organisation in attaining competitive advantage and a high performance level (Bratton & Gold, 2017).

Researchers assert that the presence of an appropriate PMS might improve or enhance organisational performance (Thi, 2016) because of the linkage of organisational goals to actions taken in achieving these goals (Broadbent & Laughlin, 2009). Ferreira and Otley (2009) gave a comprehensive definition of PMSs

as the evolving formal and informal mechanisms, processes, systems and networks used by organizations for conveying the key objectives and goals elicited by management, for assisting the strategic process and ongoing management through analysis, planning, measurement, control, rewarding, and broadly managing performance, and for supporting and facilitating organizational learning and change. (p. 264)

Formal and informal PMSs can exist at the same time in the organisation (Jaworski et al., 1993; Thi, 2016; Lee et al., 2021). The PMS is connected with and related to management control systems (MCSs) and performance measurements (PMESs) (Thi, 2016), while the underlying concepts are based on goal-setting theory and expectancy theory within motivation theory (Kichigina, 2017) and rooted in principal-agent theory (Demartini, 2014). It is a planned process which requires the managers and employees to work together continuously, on the basis of negotiation and agreement during management. It mainly focuses on the future rather than the past in the continuous improvement and development of both individuals (Alasgarova, 2018) and organisation, and concerns rewards based on employees' contributions (Feng, 2016).

PMSs can be either formal or informal, influencing the alignment of a company's goals (Nani & Safitri, 2021). Jaworski et al. (1993) identified these two broad classes of control, clearly defining that the formal control mechanisms are processes that influence organisational members' behaviour in meeting predefined objectives in written, management-initiated manners; and the informal controls are processes in unwritten, worker-initiated manners, on the contrary. Similarly, Zhang (2014) linked formal management control with regulation, and informal management control with corporate culture and values. Thi (2016) also defined that with written or documented practices the system is classified as formal, while influencing practices with unwritten or undocumented rules to alter people's behaviour can be classified as informal (Thi, 2016). A formal control comprises strategy planning, reporting, rules, standard routines for operations, and a budgeting system, while an informal control comprises unwritten rules, unconsciously designed and usually derived from organisational culture (Kombate, 2016), and usually used without premeditation, evolving subconsciously and naturally (Kadak & Laitinen, 2016). As formal systems are more visible and objective, they are easier to research and, thus, empirical research primarily focuses on formal systems (Kombate, 2016; Nani & Safitri, 2021).

Otley (1999) defined PMSs using the five main sets of issues closely related to modern management and management accounting practice, including "organizational goal setting and processes defining", "strategy adopting and implementing", "performance target setting", "rewarding and penalizing" and "feedback learning" (Otley, 1999). With that, PMS can be understood as a process with planning, decision-making and controlling by means of generating specific, timely and relevant information, with the ability to capture the changes, both internal and external, of the organisation (Norhayati, 2009). Broadbent et al. (2009) explained that PMSs define,

control and manage results, and, from a wider perspective, the way to achieve these results (Broadbent & Laughlin, 2009).

The PMS functions as a bridge to link the inputs and practices of human resources to organisational performance strategically, steering work systems to boost performance and encourage engagement in the improvement of the organisation. This can reflect the culture of an organisation and managers' strategic thinking (Bratton & Gold, 2017). It bridges different levels within an organisation by means of goals, critical success factors (CSFs) and performance measures (Bratton & Gold, 2017), and supports “*performance through diagnosing development needs, ongoing feedback, review and coaching*” (Bratton & Gold, 2017, p. 192). PMSs can also help in strengthening mutual commitment and arranging appropriate actions in order to meet expected results (Nani & Safitri, 2021). DeCenzo and Robbins (2010) suggested that PMSs “*are an integral part of most organizations*” (DeCenzo & Robbins, 2010, p. 235). There are also some examples of innovative start-ups using PMSs in helping the identification and development of high-performance employees, leading to positive results (Priyanka et al., 2023). With proper development and implementation, PMSs can foster productive employees and, therefore, organisational goals can be achieved (DeCenzo & Robbins, 2010).

2.2.1 The MCS/PMS Frameworks

A formal PMS consists of rules, standard routines for operations, and budgeting systems, and is considered to be easier to approach in regard to research and study, because of its transparency and objectivity (Kombate, 2016; Nani & Safitri, 2021). An informal PMS is designed unconsciously with unwritten rules, and based on organisational culture, making potential research more complicated (Kombate, 2016).

The frameworks can assist in studying all individual parts or aspects of a PMS (Strauß & Zecher, 2013). Three well-known PMS frameworks, and two of their extensions, are chosen and reviewed in the following sub-sections, and summarised in Table 2.1 below.

Table 2.1 Summary of well-known MCS frameworks

	Simons' Levers of Control Framework	Ferreira & Otley PMS Framework	Malmi & Brown MCS Framework
Proposed Year	1995	2009	2008
Analysis by	4 control levers to address 4 core values	10 "what" and 2 "how" questions	5 scopes of controls
Scope	Strategic control mainly for top management	Research tool for top management analysis of MCS	Structurally categorising in different levels of the organisation, relevant more to lower to middle management
Focus	Formal routine and informational aspects	Analyse different aspects in PMS design and use	Broad scope of controls in MCS as a package
Extension	Tessier & Otley (2012) Introduces managers' intention and employees' perceptions to remove vagueness and ambiguities; classifies 3 types of controls	Broadbent & Laughlin (2009) Covers 2 influencing factors – rationality and context	

2.2.1(a) Levers of Control Framework

The *Levers of Control* framework developed by Simons (1995) seeks to hold balance between the empowerment of employees and maintenance of control in a dynamic and highly competitive environment. It focuses on formal procedures and information, but ignores informal controls, and is mainly useful for top management's strategic control (Ploss, 2018). The system consists of four control levers. *Diagnostic*

Control Systems are used to ensure that organisational goals can be effectively and efficiently accomplished. *Belief Systems* are used to target common organisational core values and objectives for each participant. *Boundary Systems* are used to set a borderline to define game rules and actions, and avoid risks. *Interactive Control Systems* are used to ensure that top management act proactively, while uncertainties, threats and opportunities are identified (Simons, 1995). The central theme within this framework is the balance between the forces of the four levers, established in order to control the business strategy. Although the Levers of Control framework has been well recognised in current management control studies, concepts of what the balance is and how the balance is reflected in the control system are not well defined (Kruis et al., 2016).

2.2.1(b) Performance Management Systems Framework

The *Performance Management Systems* framework developed by Ferreira and Otley (2009) integrates the earlier Performance Management Framework developed by Otley (1999) and aspects of Levers of Control (Simons, 1995), removing the apparent flaws in Otley's (1999) framework, as it cannot cover the "role of vision and mission", focuses too much on the "diagnostic control system" within the "levers of control", and does not emphasise accounting and control information use. Instead, this new PMSs framework focuses more on research tools for top management to analyse their organisation's PMSs (Ploss, 2018) with a set of 12 questions, including ten "what" and two "how" questions:

The ten "what" questions cover the following aspects:

- 1) Vision and mission and the mechanisms, processes and network used;
- 2) Future key success factors and the way in which they are delivered;