

Acknowledgements

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開發優質教材以推動香港製造業的優質變革

香港特別行政區政府工業支援資助計劃編號 AF/3/98 之終期報告：
鼓勵和推動香港製造業優質變革的教材
錢桂生博士，潘傑輝博士

Development of Educational Materials for Quality Transformation in Hong Kong

A Final Report on HKSAR Government IFS Project no. AF/3/98:
Educational materials to encourage and facilitate Hong Kong Manufacturers for Quality Transformation
Dr. K. S. Chin and Dr. K. F. Pun

HKSAR Government Industrial Support Fund Project
"Developing Educational Materials to Encourage and Facilitate Hong Kong
Manufacturers for Quality Transformation." (ISF Project no. AF/3/98)

香港特別行政區政府工業支援資助計劃
"開發優質教材以推動香港製造業的優質變革" (編號 AF/3/98)



Quality Transformation Series
優質變革系列

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02

EXECUTIVE SUMMARY
全書摘要

04

INTRODUCTION
引言

06

SECTION ONE: Hong Kong Industry Scenario
第一章: 香港工業概況

12

SECTION TWO: ISF Project on
Developing Educational Materials
• Implementation of the Project
• Project Deliverables

第二章: 關於教材開發ISF專案計劃
• 計劃的執行
• 計劃的成果

18

SECTION THREE: A Series of Educational Materials

- Creating a Reliable Organisation
- Quality Awards and Self-assessment
- Benchmarking
- Supply Chain Management
- Reliability-Centred Maintenance
- Staff Training and Development
- Developing Breakthrough Products That Break Through
- Total Control Methodology
- Beyond ISO 9000
- Grasp Opportunity – Key Success Factor for SME

第三章: 教材系列

- 建立一個值得信賴的機構
- 質量獎與自我評核
- 典範借鑒
- 供應鏈管理
- 以可靠性為中心的維護保養
- 人員培訓與發展
- 創造脫穎而出的突破性產品
- 全面控制方法 (TCM)
- 跨越 ISO 9000
- 掌握商機 - 中小企致勝之道

30

SECTION FOUR: Conclusion
第四章: 結論

36

REFERENCES
參考文獻

Executive Summary

EXECUTIVE SUMMARY

全書摘要

動態的貿易環境、多變的市場需求、以及不斷提升的品質要求都令製造業的競爭承受越來越大的壓力。這些壓力促使工業界擴展其目光在開發可行的策略以增加和保持競爭力。在1998年，香港特別行政區工業與技術局資助了名為“開發優質教材以推動香港製造業的優質變革”的工業支援計劃(編號AF/3/98)。

Manufacturing competitiveness has been complicated with the accelerating pressures of dynamic trading conditions, ever-changing market demands and uplifting quality requirements. These pressures have sharpened the industry's focus on developing viable strategies and tactics in gaining and retaining their competitiveness. In 1998, the Industry and technology Council of the Hong Kong Special Administrative Region (HKSAR) Government has funded a project entitled *“Developing educational materials to encourage and facilitate Hong Kong Manufacturers for Quality Transformation”*, under the provision of the Industrial Support Fund (ISF) Project no. AF/3/98.

This 3-year project aimed to develop handy and timely educational materials in quality management aspects. With the leadership of City University of Hong Kong, the project has attracted widespread interfaces and supports from government officials, academics, consultants and practitioners in industry and institutions. The project deliverables included a series of booklets and multi-media videos. Apart from introducing modern quality improvement tools and methodologies to Hong Kong manufacturers, these materials addressed different issues of quality management with case studies from the Hong Kong perspective. They focused on the Hong Kong environment and provided examples of best practices in industry. They also offered guidelines to the practitioners in industry to implement quality management practices, and encourage the senior management to commit to the quality transformation in their organisations. This report presents the conduct of the project and a summary of its achievements.

為期三年的專案計劃目的是開發容易推行和配合現時需要的優質管理教材。在香港城市大學的推動下，本計劃已經引起政府部門、學術界、工業界的廣泛關注。本計劃出版了一系列的書冊和多媒體資料，除了介紹給香港製造業界有關管理和提升品質的工具和方法外，這些資料著重探討業界在管理品質遇上的問題。本專案計劃主要集中在討論香港環境及提供對業界的實踐範例。同時，亦提供對業界實踐優質管理的輔導指引，及鼓勵管理層在機構推行的優質變革。本報告書闡述該專案計劃的實施情況和總結成果。

INTRODUCTION

引言

在發展中國家(如東南亞國家)不斷提升其競爭力的威脅下，已迫使香港製造業從低價值的原始設備製造轉移到高附加值的設計製造。為了維護競爭的優勢，製造業界應確保其產品的質量，同時要能找出比競爭對手更快捷和低成本的生产方法。管理優質變革要求製造業界能掌握實用的工具和技能，探索合適的管理運作與策略。許多企業在推動他們的產品和服務，已符合全球化品質系統(如ISO9000、QS9000等)認證要求的標準。然而，品質管理的基本原則是能配合人們的思想習慣以達到持續改善和完善，同時對技能、知識、技術等方面進行教育和培訓以實現預訂的品質目標。

為製造業界提供便利和及時的參考資料以幫助他們較有效處理挑戰和面臨的困難是目前緊迫需要的。由於進行優質變革有助增強香港製造業界的競爭能力，開發教材的工作是需要首先行動。在1998年，香港特別行政區政府通過工業支援基金計劃(編號AF/3/98)已開始了這方面的工作。後面的章節將介紹該專案計劃的執行概況、成果和總結。

The threats from increasing competition from the developing countries (e.g., South East Asian countries) have forced Hong Kong manufacturers to transform its low-cost Original Equipment Manufacture to a high value-added Original Design Manufacture. To maintain competitive edge, manufacturers should assure the quality of their products and find ways to produce them faster and cheaper than their competitors. Managing quality transformation challenges necessitates the imperatives for manufacturers to master practical tools and skills, pursue good management practices and sound strategies. Many companies have made their efforts contributing to continual improvement and push their products and services to meet the globally recognised standards of quality systems (e.g., ISO 9000, QS 9000, etc). Nevertheless, fundamental to quality management

practices is to align people's mindset towards quality improvement and excellence and to educate and training up with skills, knowledge and techniques to achieve the predetermined quality goals.

There has been a pressing need for manufacturing practitioners to have handy and timely references that could help them better manage the challenges and difficulties facing. A quest for the development of educational materials was initiated to strengthen manufacturers' capabilities and facilitate them for quality transformation. In 1998, the HKSAR government has taken a lead to activate the initiative by supporting a project via the provision of an Industrial Support Fund (no. AF/3/98). The following sections will review the background and the conduct of the project, and explain the main deliverables and achievements.

Hong Kong Industry Scenario

香港工業概況

香港作為亞太地區新興的工業經濟體系，實現了快速而又動蕩的成長。從50年代開始，其發展仿照許多發達國家(如美國、英國、德國和日本等)將其低價值的製造轉向高附加值，及設計和服務主導的製造中心。在80年代早期的中國的開放政策也加速了本地製造業從香港移向中國大陸境內，特別是珠江三角洲地區。這種轉移包括資金、技能以及核心技术直至鼓勵商務合作等方面。香港作為貿易之都，其獨一無二的環境給製造業提供了許多機遇和變革。然而，當中國成為世界貿易組織(WTO)的成員後，這將對香港製造業帶來更多的挑戰和機遇。

香港工業過去的成功歸功於對多變市場機遇能快速回應，對價格競爭及產品交付的支援。然而，隨著勞動力成本、土地價格、租金及生產成本的快速上升，香港開始失去了其競爭優勢。在新千禧年，香港經濟正在向知識型和全球化方面發展。首先應付涉及緊急商業危機問題的挑戰，比如：如何持續保持主要競爭能力，

Hong Kong, being a newly industrialised economy in Asia Pacific region, has grown fast but erratically. It has since the 1950s followed a similar track as that of many developed countries (e.g., the USA, the UK, Germany and Japan) to transforming its industry from a low-cost manufacturing base to a high value-added, design- and service-oriented manufacturing centre. The opening policy of China in the early 1980 also intensified the transfer of manufacturing functions from Hong Kong to the Mainland China particularly in the Pearl River Delta and nearby regions. The transfer has brought along capital, technical and management know-how to foster business collaborations. Hong Kong acts as a trading hub, and its unique environment has offered manufacturing businesses both the opportunities and problems of the transformation. Nevertheless, China will become one of full members of World Trade Organisation (WTO) soon, and this will also pose greater challenges and opportunities facing the Hong Kong's manufacturers.

The past successes of Hong Kong's industries were attributable to the highly responsiveness to fluctuating market opportunities, upholding the price-competitiveness and timely delivery. Nevertheless, with the rapid increment in labor costs, land prices, rent and production costs, Hong Kong started to lose its competitive advantage. In the new millennium, Hong Kong's economy is changing to be knowledge-based

and globalised. The first challenge concerns the mechanisms to cope with immediate critical business issues, such as sustaining core competencies, diversifying products and markets, enabling quick response, improving customer satisfaction and loyalty, and improving employee satisfaction. The second challenge deals with the specific ways to close gaps in the management practices against world-class performance in order to establish a sustainable infrastructure to support long-term business strategies. Excellence of capability in production is no longer sufficient to compete in the world market in the information age. Response speed and customer services are important factors on business success.

According to a recent report of the Hong Kong Trade Development Council (HKTDC)¹, Hong Kong organisations have to change rapidly and diversify product types leading to quality improvement. Manufacturing industry has always been the major contributor and stabilising force of Hong Kong's economy. To maintain its position as a key financial and business centre of the region, Hong Kong manufacturers need to overcome challenges from other emerging economies, and to enhance their

¹ HKTDC. Profiles of Major Hong Kong Manufacturing Industries, Hong Kong Trade Development Council, Research Department, Hong Kong, 2000

如何向多樣化產品和市場實現快速回應，如何提高客戶滿意度和忠誠度，如何提高訂貨商的滿意度等。其次的挑戰是找到解決管理經驗與世界級的產品性能融合的可行方法，以建立對長期商務策略支援的堅實基礎。在資訊時代，僅僅有優異的生產能力還不足以應付全球市場的競爭，回應速度和客戶服務對商務的成功都是極其重要的決定因素。

根據最近香港貿易發展局的一份報告¹，香港工業界不得不快速改變和多樣化產品類型以實現品質提升。製造業一直以來都是香港經濟的貢獻者和堅實基礎。為了保持製造業作為香港財政和經濟的核心地位，香港製造業界必須克服來自其他新興經濟的挑戰以及增強其自身的競爭力。通過正視各種不同的情況和思維的教育，製造業界不應忘記首要的任務是推動優質變革。這不僅能增加香港作為優質產品中心的

¹ HKTDC. 香港製造業大體現狀，香港貿易發展局，研究部，香港，2000

聲譽，同時也會通過減少產品投訴率和節省不必要的成本，而最終實現從原材料供應到最後產品檢驗各個階段的生產成本的下降。

許多研究指出一個好的優質管理系統可以推動新技術、新設備與生產方法，人力資源有效分配的應用，以及實現生產和管理的提升。為了保持競爭優勢，香港製造業界應當看到他們商務活動的關鍵特徵(如策略能力、主要競爭力和關鍵成功因素等)，以及考慮到如何有效地將這些特徵集成到優質管理經驗中去。不然，香港工業與香港一起會失去其對新興工業發展中國家的競爭力。

competitiveness. Though facing diverse options and schools of thought, manufacturers should not forget the prime and practical task is to initiate quality transformation. This will not only enhance the reputation of Hong Kong as quality production centre, it will also eventually lower the production cost involved in every stage from materials supply to final inspection of products, through the reduction in the output of non-complaint products and through savings in unnecessary expenditure.

Many studies advocate that a sound quality management system can also facilitate the applications of new technologies, equipment and production methods, the efficient allocation of human resources, and improvement in production and management. In order to sustain a competitive advantage, Hong Kong manufacturers should look at key characteristics of their business (e.g., strategic capability, core competency and critical success factors) and review how they integrate strategically into quality management practices. Otherwise, the industry and Hong Kong as a whole might lose its competitiveness to other new industrially developing countries.

ISF Project On Developing Educational Materials

關於教材開發的 ISF 專案計劃

Section
第二章

計劃的執行

本計劃從1998年開始，其目的是開發用於鼓勵和推動香港製造業實現管理優質變革的教材。本計劃由香港城市大學領導，同時得到多所香港研究和專業組織及機構²支持。本計劃已經成功推介了香港的優質管理運作經驗。推行整個計劃包括五個階段，見【表一】。

結合近年對香港優質管理實踐和相關問題的研究發現³，本計劃提出了一個管理優質變革的基本性架構。這架構是個中心庫其衍生了10個與優質技巧及實踐相關的模組，見【圖一】。

這10個模組包括：全面控制方法(TCM)，以可靠性中心的維護保養(RCM)，突破性產品創造，典範借鑒，供應鏈管理(SCM)，員工教育與培訓，品質量獎與自我評核，可信賴的組織，ISO 9000，以及把握成功的機遇等。優質變革與這些模組緊密相關，且成一個能使機構從中受益和鞏固採用優質變革的優勢的過程，所以它對於加強工業界的業務具有相當意義。這些技術模組支援當前的業務戰略。同時，

² 計劃諮詢委員會機構清單見本報告後頁

³ 見本報告的參考文獻部分

Implementation of the Project

Commenced in 1998, the ISF project aimed to develop educational materials that could encourage and facilitate Hong Kong manufacturers for managing quality transformation. With the leadership of City University, the project supported by several local institutions and professional bodies² that have been promoting quality management practices in Hong Kong. The overall implementation plan of the project consists of five stages as depicted in Table 1.

Based on the findings of some recent studies³ on quality management practices and related issues in Hong Kong, the project has developed a generic framework for managing quality transformation. The framework can be thought of as central repositories derived from ten blocks of quality techniques and practice components as illustrated in Figure 1.

They are total control methodology (TCM), reliability-centred maintenance (RCM), break-through product development, benchmarking, supply chain management (SCM), staff education and training, quality award and self-assessment, reliable organisation, ISO 9000, and grasping opportunity. Quality transformation is associated with these components and as a process that requires an organisation to tap the benefits and consolidate the advantages of adopting them so that they are meaningful to the business. The technique

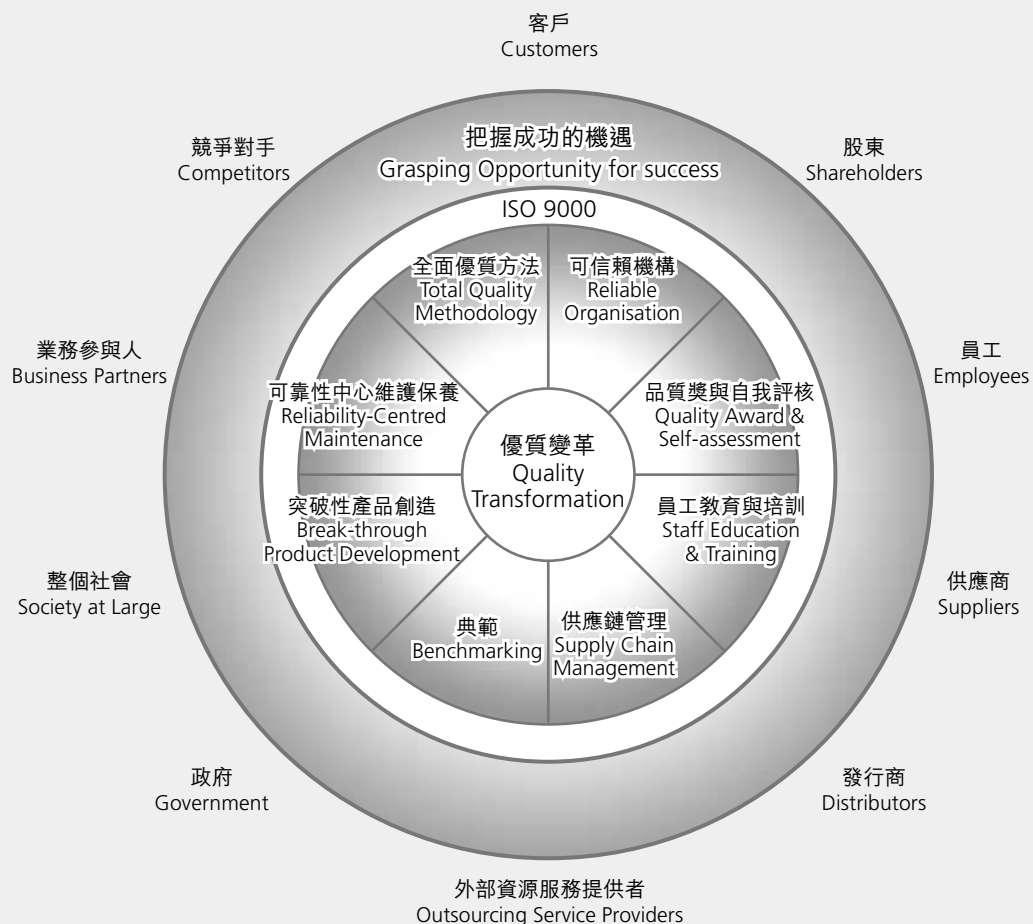
² A list of organisations in the Project Advisory Committee is given in the back page of the report.

³ See Reference section of this report

階段 Stage	主要任務描述 Descriptions of Main Tasks
階段 Stage 1: (3 個月 3 months)	<ul style="list-style-type: none"> 對工業界進行廣泛的調查以瞭解各種工業的特定需要和觀念。 制定一為期三年的出版計劃，包括焦點群用戶的確定，主題的選擇，出版媒體的形式以及獎勵方式等。 To carry out an industrial survey to identify the specific needs and to seek opinions from various industries. To help formulate a 3-year plan of publication that included the determination of focus group users, selection of topics, media of publication, promotional channels, etc.
階段 Stage 2: (10 個月 10 months)	<ul style="list-style-type: none"> 執行第一年的出版計劃，包括2本書冊和一套可視媒體。 為工業界組織相關的研討會以提升和強化專案的影響力。 進行一項參與性的調查以評價本階段的成果。 基於調查結果修改來年的年度計劃。 To execute the first-year publication plan that included 2 booklets and 1 video. To organise relevant seminars to industry participants to promote and strengthen the impact of the project. To conduct a participant survey to evaluate the outputs of this stage. To revise the subsequent years' plan based on the survey findings.
階段 Stage 3: (10 個月 10 months)	<ul style="list-style-type: none"> 執行第二年的出版計劃，包括3本書冊。 組織研討會。 進行另外一項參與性調查以評價本階段的成果。 調整第三年的年度出版計劃。 To execute the second-year publication plan that included 3 booklets. To organise promotion seminars. To conduct another participant survey to evaluate the outputs of the stage. To adjust the third-year plan.
階段 Stage 4: (10 個月 10 months)	<ul style="list-style-type: none"> 執行最後一年的年度出版計劃，包括3本書冊和一套可視媒體。 組織研討會。 To execute the final year plan to produce 3 booklets and 1 video. To organise promotion seminars.
階段 Stage 5: (3 個月 3 months)	<ul style="list-style-type: none"> 進行一項調查以全面評價本專案的貢獻。 總結整個計劃。 To carry out a survey to evaluate the overall contribution of the project. To report the results.

表一 ISF 專案執行計劃

Table 1 An Implementation plan of the ISF project



圖一 管理優質變革的架構

Fig.1 A Framework of managing quality transformation

components support current business strategy and the practice components open the door to new strategic opportunities. The framework was converted into a 3-year plan of publication that was later fine-tuned in the stages 2 and 3 of project implementation (see Table 1).

Project Deliverables

Throughout the project implementation, several quality management educational seminars, workshops and training courses were conducted along with the publication of a series of 2 video CDs and 8 educational booklets. All videos were produced and booklets published in bilingual languages of Chinese (including Cantonese and Mandarin for videos) and English. The project deliverables have attracted attendance from over thousand of delegates and participants from different industry sectors and levels of positions in their organisations. Real business improvement gains were reported and shared among the organisations who involved the project and others who have interested on the findings. The publication series has disseminated to the industrial users and other interested parties and individuals through the channels of Industry and Technology Council and other government departments, the supporting organisations and institutions. This has helped multiply the impact of the deliverables to industry. The outcome of the project was beneficial to organisations in the manufacturing sectors, as well as others in the service sectors, regardless of their business nature, scale and location.

實現這些模組亦有助打開了通向新戰略機遇的大門。這架構的模組轉成了三年的出版計劃，有關計劃在各階段的執行，見【表一】。

計劃的成果

通過計劃的執行，若干優質管理教育研討會，研習班與培訓課程等得以開展，出版2張多媒體VCD和8本教育書冊。所有VCD和書冊均用中英文兩種語言發佈，其中VCD的中文語言包括普通話和廣東話兩種。計劃的成果已引起來自工業界廣泛關注。曾參與本計劃的機構在企業營運上所獲到的益處，及成果都得到報道及其經驗亦與其他機構分享。所出版書冊及VCD均從香港工業與技術局、其他政府部門，以及支持機構和專業組織渠道分銷給工業界用戶及其他組織和人仕，這增強了本計劃鼓勵和推動優質變革的影響力。本計劃的成果對製造及服務行業的機構，不管他們採用何種業務形式、何種規模和地點，都具有其參考價值。

A SERIES OF EDUCATIONAL MATERIALS

Section 3

第三章

本計劃依據其目的出版了一系列的書冊，視頻媒體(VCD)，及主辦研討會、研習班等。書冊系列與視頻媒體清單見【表二】，每一項內容的主題描述下：

The aim of the project governed the design of the project deliverables in production of a series of booklets and videos and delivery of seminars and workshops. A summary of the series of booklets and videos is given in Table 2 and the themes of each are described separately below:

主題及作者 Topics and Authors	內容簡介 Brief Descriptions
1 建立一個值得信賴的機構 Creating a Reliable Organisation 作者: 克勞思比 Author: Crosby, P.B.	本書介紹如何建立可信賴機構的方法。內容包括建立管理業務行為、政策、獲取教育、定義要求，以及為可信賴機構論證。This is the first booklet that explains the roadmap for creating a reliable organisation. The content involves management taking action to establish a policy, obtain education, define requirements, and then demonstrates the insistence for reliable organisations.
2 品質獎與自我評核 Quality Awards and Self-Assessment 作者: 李達義 Author: Lee, T.Y.	第二書冊描述了美國鮑烈治國家品質獎模型的單元和指導方針，並為香港機構提供了相關的一些世界級的經驗以論證實踐的自我評核方法。The second booklet describes the elements and guidelines of the Malcolm Baldrige Award model and relates some world class performers' practices as examples to illustrate a practical self-assessment direction for Hong Kong organisations.
3 典範借鑒 Benchmarking 作者: 亞洲典範借鑒中心 Author: The Asian Benchmarking Clearinghouse	第三本書為描述一套較系統的通向典範方法，提供了一套指南作為機構較好的計劃和組織他們的典範行為的參考架構。書冊中強調一些鑒定因素，如學習組織和性能度量系統。The third booklet describes a more systematic approach to benchmarking. A step-by-step guide is provided and serves as a reference framework for organisations to better plan and organise their benchmarking activities. Some critical factors, such as a learning organisation and a performance measurement system, are emphasised throughout the text.
4 供應鏈管理 Supply Chain Management 作者 Author: Dale, B.G.	第四本書冊提供了對整個供應鏈的全面認識。解釋了關鍵的過程和包含的部分，並強調了分析和提升的好處和機遇。The fourth booklet provides an overall view of the entire supply chain. It explains the key processes and the parties involved and highlights the benefits and opportunities for analysis and improvement.
5 可靠性中心的維護保養 Reliability Centred Maintenance 作者 Authors: Tsang, A.H.C., Jardine, K.S., Campbell, J.D. and Picknell, J.V.	第五本書冊介紹了 RCM 方法和相關工具，以及在設備維護中消除浪費的可行策略。在書冊中給出了這些概念和工具的應用以說明各種工業中的實踐實例。The fifth booklet introduces the RCM methodology and associated tools, and enables tactics for eliminating waste in equipment maintenance. The application of concepts and tools presented in the booklet is illustrated through practical examples taken from various industrial settings.

6 員工培訓與發展 Staff Training and Development 作者 Author: Bremner, J.D.	第六冊書以程式化的形式提供了實踐指南，為香港機構提供了雇員培訓與發展計劃的執行方案。書冊包括了幾個實例以說明主要概念和過程。The sixth booklet provides the practical guidelines in the formulation and implementation of employee training and development plans and programmes for Hong Kong organisations. A handful of case studies are included to illustrate the main concepts and procedures.
7 創造脫穎而出的突破性產品 Developing Breakthrough Products That Break Through 作者: 漢密·羅理, 曾慶才 Authors: Noori, H. and Tsang, A.H.C.	第七本書冊為創造突破性產品提供了新的方法。其包括諸如變化的市場結構，客戶學習和行為改變，技術和基礎科學的發展，競爭者的加入以及政府制度的改變等一系列動態因素。The seventh booklet offers a new methodology for developing breakthrough products. The methodology includes dynamic factors such as changing market structures, customer learning and behaviour changes, the evolution of technology and infrastructure, entry of competitors, and changes in government regulations.
8 全面控制方法 Total Control Methodology 作者 Authors: Tummala, V.M.R. and Kwok, K.K.Y.	第八本書冊評價了 TCM 的核心原理以及應用這些工具的過程。本手冊解釋了 TCM 架構中每一單一工具的目的，以及他們之間的內部關係。建立了一套推行 TCM 策略，並給出了實例。The eighth booklet reviews the core principles of TCM and the process of applying these tools. It explains the purposes of individual tools involved in each level of a TCM framework. The interrelationships among these tools are discussed, and a TCM implementation strategy is elaborated. A case study of implementing TCM is presented.
9 跨越 ISO 9000 Beyond ISO 9000 開發者: 錢桂生, 李賢勝, 李達義 Developers: Chin K.S., Lee L. and Lee, T.Y. 語言形式: 普通話, 粵語, 英語 Language medium: Mandarin, Cantonese and English	第一張VCD是由香港演員演出的中國結婚典禮的電影。電影說明了為什麼管理需要實現通向品質管理系統和通向持續提升的探索。The first video CD records a film with Chinese marriage theme performed by Hong Kong actors and actresses. The film illustrates why management needs to be committed towards a quality management system and towards the search of continuous improvement.
10 掌握商機 - 中小企致勝之道 Grasp Opportunity - Key Success Factor for SME 開發者: 錢桂生, 李賢勝, 李達義 Developers: Chin K.S., Lee L. and Lee, T.Y. 語言形式: 普通話, 粵語 Language medium: Mandarin and Cantonese	第二張VCD序述了兩個香港機構如何應付困難的業務環境並將其轉化為機遇的成功經驗。同時詳細分析了在管理業務困難和壓力方面把握機遇的關鍵因素。The second video CD illustrates the success experiences of two Hong Kong organisations on how they managed to deal with difficult business situations and turn them into opportunities. Key success factors of grasping opportunities in managing business difficulties and pressures are elaborated.

表二 優質變革出版系列

Table 2 Series of Quality Transformation Publications

建立一個值得信賴的機構

在全球競爭年代，可靠的業務成功的關鍵是贏得與客戶、訂貨商和供應商之間存在的聯繫與信任。這可以通過可信賴來實現，即所有事務每次都能正確的完成，並與客戶、訂貨商和供應商等保持良好關係。建立可信賴機構的方法包括管理業務行為以建立政策、獲取教育、定義要求、論證主張等。這些內容詳見於系列教材的第一本書冊。

品質獎與自我評核

許多公司已經採用各種不同的品質卓越獎和標準去記錄及推行其保障品質的管理運作。為了贏過競爭對手和持續增長，美國鮑烈治國家品質獎的準則成為了卓越品質管理模型。它可用於機構的自我評核，亦幫助機構瞭解與世界級水平的差距。第二本書冊描述了這一模型和指導方針，並引用成功的品質實踐例子作為香港機構的借鑒。

Creating a Reliable Organisation

In an era of global competition, the key to sustainable business success is to earn the trust of stakeholders, those who interact with the organisation: customers, employees and suppliers. This can be accomplished by being reliable – all transactions are completed correctly each time, and relationships with stakeholders are successful. The roadmap for creating a reliable organisation involves management taking action to establish a policy, obtain education, define requirements, and then demonstrate insistence. These are explained in the first booklet in the series.

Quality Awards and Self-assessment

Many companies have taken their initiatives to employ different quality excellence awards and quality standards in one form or another to document, implement quality assurance practices. In order to outperform competition and sustain growth, the performance excellence model based on the Malcolm Baldrige Award criteria can be used to self-assess an organisation's performance and gauge the gap between the world class level. The second booklet describes the elements and guidelines of the model, and presents good examples and direction of some world class performers' practices for Hong Kong organisations to follow.

Benchmarking

Benchmarking is a continuous learning process that allows organisations to learn from the best in order to catch up and outperform their competitors, and continue to maintain their competitive advantage. Many leading manufacturers have used benchmarking for years and achieved results. The third booklet gives a precise introduction to the concept and objectives of benchmarking and provides a step-by-step guide to the implementation. The accompanying cases also show how organisations practice benchmarking in an effective manner. Attention has been paid to the important benchmarking factors that ensure success, such as identifying the key business process, establishing key measures, selecting the right type of benchmarking and the right partners. The booklet stresses a means to improve and excel, and helps transfer the knowledge and encourage the understanding and use of benchmarking.

典範借鑒

典範借鑒是個不斷學習的過程，它允許機構向最好的學習以跟上和超越他們的競爭對手，並始終維持其競爭優勢。許多主導潮流的製造業者都曾經使用典範並取得了成功。第三本書冊對典範的概念和目標進行了詳細的介紹，並提供了典範借鑒的逐步實施方法。同時給出了實例以表明機構如何用有效的方式去實踐典範。手冊中特別對確保典範成功的重要因素，如識別關鍵的業務過程，建立關鍵的措施，選擇正確的典範類型和合適的合作者等進行了分析。該書冊著重給出了提高和超越的方法，並幫助轉換知識和鼓勵對典範的理解和應用。

Benchmark

供應鏈管理

為了符合現今客戶的各種複雜的需求，需要建立一個全面的承諾和貿易夥伴(如供應商、製造者、銷售商、發貨商、銀行，及政府等)的全面合作。供應鏈管理(SCM)是一套集中於快速回應市場需求的每一變化和縮短訂貨時間的業務工具和策略。它是客戶驅動的管理經驗，滿足客戶的需要，同時向不斷增多的需求客戶以最低的價格和時間增加價值。SCM包括整個材料流和資訊流的所有階段，並必須最終包括對終端用戶的考慮。資訊流對整合各種業務功能和協調世界範圍內的不同機構至關重要。第四本書冊提供了整個供應鏈的全面介紹，並強調了分析和提升的機遇。

Supply Chain Management

In order to fulfill the sophisticated needs of today's customers, a total commitment and full collaboration of trading parties (such as suppliers, manufacturers, wholesalers, distributors, banks, and governments, etc) are needed. Supply chain management (SCM) is a business tool and strategy that focuses on the quick response to ever-changing market needs and shortened purchasing lead-time. It is a consumer-driven management practice, satisfying the needs of customers and adds value to increasingly demanding customers at the least cost and time. SCM includes all stages in the total flow of materials and information, and must eventually include consideration of the final customers. The information flow is crucial to integrate diverse business functions, and to coordinate activities across different organisations around the world. The fourth booklet is providing overall view of the entire supply chain and highlighting opportunities for analysis and improvement.

Reliability-Centred Maintenance

Maintenance of physical assets is a key process in industries such as manufacturing, transportation, utilities, and mining. It represents a significant component of the operating cost in these industries. Typically, much of such expenses are consumed by avoidable failures, premature replacements, sub-optimal operation of equipment, non-value adding management control or logistics related activities. Therefore, making the best use of physical assets to meet business goals at the lowest possible cost is the business imperative of capital intensive manufacturers if they are to succeed in the highly competitive environment. The RCM methodology is gaining acceptance as an effective approach to enhancing maintenance performance. While there are other publications on the same topic, their discussions are often limited to determining "What" maintenance tactics should be adopted. The uniqueness of the fifth book is that it also addresses the important issue of "When" to perform the required maintenance actions. It introduces the tools for optimising maintenance decisions. A decision on measuring maintenance performance is another distinct feature of the booklet.

以可靠性為中心的維護保養

有形資產的維護和保養對諸如製造業、運輸業、公用事業和採礦業等工業來說是關鍵的過程。它是決定這些工業運行成本的關鍵內容。許多保養費用因為不可避免的設備的失效、過早的替換、設備在非最佳狀況運行、無價值的附加管理控制或相關活動而消耗。所以，若企業要在高度競爭的環境中成功，能最佳利用有形資產以滿足盡可能最低成本的業務目標是他們的必須任務。RCM方法是一套增強維護性能的有效方法。然而有些其他的出版物也在討論這一主題，但他們的討論經常局限於決定“什麼”維護策略應當採用。第五本書冊的獨特之處是強調了“何時”這一重要問題以實現要求的維護活動。此外，該書冊介紹了優化維護決策的工具，以及度量維護性能的決策。

員工培訓與發展

培訓與教育的提供不僅是對質量和性能提升的回應，同時也對雇員學習和提高其技能至關重要。管理層應當以清晰的遠見和使命引導公司，並鼓勵各部門員工的創造力以充分發揮其作用。有效的教育和培訓可強化了雇員在適當的角色和團體結構中的職責方面的能力、知識和技能。同時也使得員工以優異的質量去獲取更高的效率。第六本書冊中介紹了員工培訓實施指南和實例，以幫助香港機構對其員工進行培訓。

創造脫穎而出的創造性產品

激烈競爭的市場壓力以及技術的快速發展使得創新在企業的所有策略中越來越重要。隨著產品生命周期的縮短，創造性產品成為了收入的最基本來源。前瞻型企業結合技術與市場趨勢以創造未來主導潮流的產品。第七本書冊介紹用於創造突破性產品的新方法。方法是實際可行且全面的。它包括諸如變化的市場結構、需求客戶的認識及

Staff Training and Development

Provision of training and education is not the only answer to quality and performance improvement, but it is definitely vital for employees to learn and improve. Management should lead the company with a clear vision and mission and unleash the creative power of people at all levels of the company to perform the intended functions effectively. Effective education and training maximises employee abilities, knowledge and skills appropriate to their roles and responsibilities within the corporate structure. It also brings people to attain a higher level efficiency with a commitment to performance quality. The practical guidelines described and case studies given in the sixth booklet are helpful in the formulation and implementation of people training and development for Hong Kong organisations.

Developing Breakthrough Products That Break Through

Competitive market pressures together with the rapid pace of technological development make innovation increasingly important in firms' overall strategies. With shortening product life cycles, breakthrough products are becoming an essential source of revenue. Forward-looking companies are combining technologies and trends to create the products of tomorrow. The seventh booklet presents a new methodology for developing breakthrough products. The methodology is novel yet

practical and comprehensive. It covers a wide range of dynamic factors including the changing market structures, requisite customer learning and behaviour changes, the evolution of technology, growth of an infrastructure, entry of competitors, and changes in government regulations.

Total Control Methodology

Many practitioners in quality management and academicians have developed impressive quality control and improvement tools, as well as problem solving techniques, and explained how to use them in the workplace. Manufacturing and service organisations responded well in using these tools to improve the quality of their products and services. Some of them have become popularised by the acronyms (e.g., 5S, DFM, DOE, FMEA, PM, QFD, SPC, SQC, and TPM, etc). The appropriateness and effectiveness of applying quality tools may determine the success of their adoption in an organisation. Companies can benefit if they know the relationships among various quality tools and the sequence in which they can be applied to improve the quality of their products and services. The eighth booklet explains a total control methodology (TCM), considering the relationships among quality tools and the sequence in which they can be applied. The methodology focuses the development of a process in which all the available quality tools and techniques are integrated meaningfully.

其行為改變，技術的革新，基礎的發展，競爭者的加入，以及政府制度的改變等動態因素及範疇。

全面控制方法

優質管理的從業者和學術界人士開發了許多品質控制和提升工具及問題解決技術，同時解釋了如何在使用它們在工作場所。製造與服務企業在使用這此工具提升它們產品和服務的品質得到了很好的反響。其中有些工具已經極為流行，如5S, DFM, DOE, FMEA, PM, QFD, SPC, SQC, 和 TPM等。應用品質工具的恰當性和有效性將決定其在機構中的成功與否。如果企業明瞭各種品質工具之間的關係及這些工具用以提高產品和服務的品質的順序，則可以從中受益。第八本書冊解釋了全面控制方法(TCM)，考慮了品質工具之間的關係以及這些工具應用的順序關係。TCM方法集中在過程開發，以使得所有可用的品質工具和技術可以有效整合。

跨越 ISO 9000

在1987年，國際標準化組織首次發佈ISO 9000系列品質保障標準，其後在1994和2000年進行了兩次修訂。ISO 9000是基於品質管理系統特性可以得到有效的標準化，供應商和客戶的相互收益。用簡單的話說，ISO 9000系列的目標是通過供應商滿足購買者的要求而向購買者提供產品和服務的品質保障。第一張VCD通過一戲劇表演來說明ISO 9000品質系統實施的核心觀念和管理原理。它強調了管理約定以及探索持續提高的重要性。該VCD同時開闢了一條通過遵從ISO 9000及全面優質管理實踐以維持和建立競爭力的道路。

Beyond ISO 9000

The ISO 9000 series of quality assurance standards were issued in 1987 and revised in 1994 and 2000 by the International Organisation for Standardisation. They are based on the concept that certain minimum characteristics of quality management system can be usefully standardised, giving mutual benefit to suppliers and customers alike. In simple terms, the objectives of the ISO 9000 series are to give purchasers an assurance that the quality of the products and services provided by a supplier meet their requirements. The series defines and sets out a definitive list of features and characteristics that it is considered should be present in an organisation's management control system through documented policies, manual and procedures, which help to ensure that quality is built into a process. The first video CD is using a drama play to present the core concepts and management principles of the implementation of ISO 9000 quality systems. It stresses on the importance of management commitment and the need in search of continuous improvement. The video also paves the way for maintaining and building competitiveness through the introduction of total quality management practices beyond ISO 9000.

Grasp Opportunity – The Key Success Factor for SME

The second video CD overviews the dynamic business environments (such as influences of recent economic turmoil and China joining to the WTO) being faced by Hong Kong manufacturers, particularly the small and medium-sized enterprises (SME). It underlines the importance of role of management, customer and market focus, process management, employee involvement and supplier relationship, and their links to organisational performance and success. The video bases the success experiences of two local manufacturers in dealing with business difficulties to illustrate how to harness the organisation's internal and external resources to grasp opportunity and achieve continuous quality improvement.

掌握商機 - 中小企致勝之道

第二張VCD全面考察了香港製造業者，特別是中小企業(SME)面臨的動態業務環境(如近來經濟動蕩影響和中國加入WTO)。它強調了管理角色、客戶和市場聚焦、過程管理、訂貨商與供應商的關係以及機構性能與成功之間的聯繫等因素的重要性。該VCD引用兩家香港當地製造業者在應付業務危機方面的成功經驗，說明了如何駕馭機構的內部和外部資源以把握機遇和實現持續的品質改善。

CONCLUSION

結論

Conclusion

Section
第四章



優質問題對香港製造業的未來至關重要。只有確保貨物、服務、製造過程和管理經驗的持續性和高品質，香港才有希望在全球日益加劇的競爭中保持其優勢。全面品質的主張已經成為當今面臨優質變革挑戰的業務中的一項基本準則。忽視這個準則的企業將會處於極其危險的地步。然而，即使許多製造業應用統計方法於程序控制，運用品質功能分配以將客戶要求轉換為產品規範，掌握品質成本資料，它們仍然不能實現真正的獲益。這也是本計劃推展教材開發的一個主要原因。

本報告書闡述了專案計劃的執行，優質變革架構和成果的總結。報告書分析管理優質變革的基本技巧和實踐元素。鑒於優質變革架構的各個關鍵模組的重要性，計劃的成果成為香港和中國的製造業界在提升及維護其在全球市場中的競爭力有價值的參考資料。這架構的模組包括：

The issue of quality is one that remains of vital importance to the future of manufacturing in Hong Kong. Only by ensuring consistent and high quality of goods, services, manufacturing processes and management practices can Hong Kong hope to maintain its edge in an increasingly competitive world market. Insistence on total quality has become the fundamental principle in business facing the challenge of quality transformation today. Companies that ignore it will put their business enterprise at serious risk. Nevertheless, even though many manufacturers apply statistical methods for process control, employ quality function deployment for translating customers' requirements into product specification, and capture quality cost data, they may still not achieve the real benefits. This was therefore one of the main reasons for having the ISF project on developing educational materials in this regard.

This report presents the implementation plan, a quality transformation framework and a summary of the deliverables of the project. It contributes to identifying the need of, assessing the provision of, and garnering industry-wide awareness on essential quality techniques and practice elements for managing quality transformation. In view of the importance of various key components of the quality transformation framework, the project deliverables serve as a valuable reference for manufacturers in Hong Kong and China

who are gearing up to maintain their competitiveness in the global market. These components are:

1. Creating a Reliable Organisation
2. Quality Awards and Self-assessment
3. Benchmarking
4. Supply Chain Management
5. Reliability-Centred Maintenance
6. Staff Training and Development
7. Developing Breakthrough Products That Break Through
8. Total Control Methodology
9. Beyond ISO 9000
10. Grasp Opportunity for Success

In particular, the underlining philosophy of managing quality transformation sets a baseline for quality improvements and breakthroughs to be built upon. Other nine components (e.g., TCM, SCM, benchmarking, staff training and development and ISO 9000, etc) serve as the coherent bond that support business strategies and works together to exploit new strategic opportunities. The driving roles of senior executive leadership on managing the transformation success are explicitly stressed.

1. 建立一個值得信賴的機構
2. 品質獎與自我評核
3. 典範借鑒
4. 供應鏈管理
5. 以可靠性為中心的維護保養
6. 員工培訓與發展
7. 創造脫穎而出的創造性產品
8. 全面控制方法
9. 跨越 ISO 9000
10. 掌握商機

此外，管理優質變革的基本哲理為品質提升和突破提供了基礎。其他9個模組(如TCM、SCM、典範、員工培訓與發展、跨越ISO9000等)作為一個整體支援商務策略和工作以開拓新的戰略機遇。本報告書特別的強調管理層在企業指導優質變革成功的重要。

生產操作的活動的提升已經成為幾十年來關注的焦點。許多製造業者已經不自覺的達到了某變革階段，其支撐功能已不能有提升。可以預見，所出版的一系列便利、及時的教育書冊和VCD可幫助企業推行、實現、持續各種類型的優質變革專案。本計劃及其成果對負責優化製造過程及實現持續改善和完善的管理者和實踐者來說，都是有價值的參考資料。

最後，本計劃若沒有香港特別行政區政府工業與技術局的基金支援是不可能開展的。同時，本計劃取得的成果是與計劃管理委員會、計劃諮詢委員會、以及各支持單位、機構、企業和人仕的通力合作分不開的。

Improvement of production/operations activities has been the focus of attention for several decades. Many manufacturers have inadvertently reached a stage in which the support functions are constraining improvement in organisational performance. It is anticipated that the series of handy and timely booklets and video CDs can provide guidance for company executives in leading, implementing and sustaining various types of quality transformation projects. The project and its deliverables are a valuable source of reference for managers and practitioners committed to achieving sustainable performance through excellence in their manufacturing operations.

Lastly, this project cannot be undertaken as planned and completed on schedule without the funding from the Industry and Technology Council of the HKSAR Government. Its achievements also rely tremendously on the joint efforts of the Project Management Committee and Project Advisory Committee, as well as the supports and contributions of supporting organisations, institutions, companies and individuals involved in various stages of the project.



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