



## The Impact of production management on the competitiveness of full-service supplement and beauty product manufacturing businesses: a case study of SCG Grand Co., Ltd.

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### ABSTRACT

This research examines the impact of production management on the market competitiveness of direct-selling herbal tea businesses. Using a quantitative research method, the study gathered data from a sample of 100 consumers via questionnaires and applied statistical tools such as mean, standard deviation, and multiple regression analysis to analyze the findings. The results reveal that cost leadership and innovation were significantly influenced by operational mission factors, which had the strongest effect on competitive capability, followed by environmental analysis and operational expertise. For product differentiation, factors related to product quality-including the taste, color, and aroma of the herbal tea-alongside the health benefits, such as the maintenance of normal blood sugar and blood pressure levels among consumers who tested the product, contributed substantially to competitiveness. Production innovation also played a key role, ranking as the second most impactful factor. Furthermore, in terms of production management's effect on product development plans, the most influential factor was market exploration and development, especially in identifying suitable sources for products and services. Establishing production networks was the second most impactful, followed by in-house production strategies. The findings highlight that most direct-selling products in this sector consist of herbal tea-based dietary supplements.

## Introduction

In the face of economic and political transformations, businesses are increasingly compelled to devise solutions that ensure their sustainable survival. Liu, Y., Wongkumchai, T., & Worapongpat, N. (2023) highlight that the continuous fluctuations in global competition necessitate a strategic response from Thailand, prompting enterprises to design operational strategies that enhance their competitiveness within the framework of modern business practices. This imperative aligns with the objectives set forth in the Eleventh National Economic and Social Development Plan, which emphasizes the creation of economic opportunities through the integration of knowledge, technology, innovation, and creativity, all founded on

environmentally sustainable production and consumption practices (Wang, J., Worapongpat, N., & Wongkumchai, T., 2024).

The aforementioned national development policy encourages enterprises to formulate business strategies that optimize the utilization of internal resources in response to emerging challenges (Chen, Y., Worapongpat, N., & Wongkumchai, T., 2024). Within this context, the present research focuses on production management, particularly the optimization of limited resources to generate value and enhance organizational potential (Yanga.L, Wongkumchaib.T, Worapongpat, N, 2023)

Production management is recognized as a pivotal approach to improving operational performance and establishing competitive advantages across various dimensions (Worapongpat, N., 2021). This discipline involves the efficient planning of resource utilization, necessitating a thorough analysis of the operational environment, the definition of clear operational missions, and the establishment of precise work objectives (Worapongpat, N., 2023). These components are integral to designing operational activities that foster organizational development (Yukai. S, Wongkumchai.T, Worapongpat, N, 2023).

Moreover, production management serves as a strategic tool for businesses, facilitating the delivery of high-quality goods and services to customers. This process entails a keen awareness of both internal and external environments, requiring the adaptation of strategies to fit the specific context of the organization (Qi, T., Wongkumchai, T., & Worapongpat, N., 2024). Ultimately, the goal of production management is to contribute to the attainment of competitive advantages through effective and contextually appropriate operations (Worapongpat, N., & Khamcharoen, N., 2024).

Given the aforementioned challenges, this study aims to explore production management practices that influence the competitiveness of direct-selling herbal product businesses in Thailand. The intensifying competition compels businesses to continuously enhance their production capabilities to ensure survival. The research investigates key factors such as production management and competitive ability, aiming to provide insights that can help entrepreneurs develop production strategies to increase competitiveness and managerial capabilities in the future.

## **Objective**

1. To analyze the impact of production management on the distinctive characteristics of direct-selling products.
2. To study the effect of production management on strategies for aligning products with customer needs.
3. To assess the impact of production management on the development of product enhancements.
4. To analyze the effect of production management on the suitability of raw material sources.

## **Literature Review**

### **1. Production Management and Distinctive Product Characteristics**

Research highlights that effective production management significantly influences the distinctive characteristics of products in the direct-selling industry. For instance, studies have shown that companies that implement lean production techniques can enhance product quality and reliability (Womack & Jones, 1996). This improvement not only attracts customers but also reinforces brand loyalty. Furthermore, innovations in production processes, such as Just-in-Time (JIT) systems, have been linked to reduced waste and improved responsiveness to market demands (Ohno, 1988).

### **2. Aligning Products with Customer Needs**

Numerous studies underscore the importance of aligning production strategies with customer expectations. For example, Kotler and Keller (2016) argue that understanding customer preferences is paramount in shaping production management strategies. Techniques such as Agile manufacturing allow companies to rapidly adapt their production processes based on customer feedback, thereby enhancing

satisfaction and market fit (Naylor, Naim, & Berry, 1999).

### 3. Impact on Product Development Plans

Research indicates that a structured approach to production management directly affects product development plans. Cooper and Kleinschmidt (1995) found that successful new product development is often contingent upon robust production planning and a clear understanding of market needs. Additionally, firms that invest in research and development (R&D) as part of their production management are more likely to introduce innovative products that meet evolving consumer demands (Griffin, 1997).

### 4. Suitability of Production Sources

The selection of production sources—whether in-house, contract manufacturing, or network production—can significantly influence operational efficiency and product quality. Studies by Prahalad and Hamel (1990) suggest that leveraging core competencies through strategic sourcing can lead to competitive advantages. Furthermore, recent research indicates that firms that adopt a collaborative approach to sourcing, such as partnerships with suppliers, can enhance innovation and reduce time-to-market (Cousins, 2005).

### 5. Types of Direct-Selling Products

Understanding the type of products offered by direct-selling businesses is crucial for tailoring production management strategies. The literature indicates that sectors such as dietary supplements and cosmetics have unique production requirements that necessitate specialized management approaches (B2B Marketing Research, 2020). For instance, regulatory compliance and quality assurance in dietary supplements require rigorous production oversight, which can influence both the choice of production processes and the type of products offered.

### Theoretical Framework

The integration of these insights reinforces the proposed hypotheses by illustrating the interconnectedness of production management with product characteristics, customer alignment, development plans, sourcing strategies, and product types. By drawing on these established theories and empirical findings, the current research can build a robust theoretical framework that addresses the nuances of production management within the context of direct-selling businesses.

## Conceptual framework

The sampling for this research will employ a multi-stage random sampling method to gather data through questionnaires and interviews. The detailed steps for selecting the sample group are as follows:

Step 1: Stratified random sampling will be used by dividing the sample groups into 17 subdistricts in Mueang District, Samut Sakhon Province.

Step 2: Simple random sampling will then be conducted by drawing lots to select one factory/business from each subdistrict, resulting in a total of 17 businesses, one from each subdistrict.

Step 3: The researcher will determine a total sample size of 400 participants. Thus, approximately 24 questionnaires will be distributed to each of the 17 businesses/factories.

Step 4: Convenience random sampling will be used by distributing questionnaires to those who voluntarily participate. The researcher will collect data from communities where a large number of participants can be found, ensuring the collection of the full sample size using prepared questionnaires.

For the interview portion, the researcher will conduct in-depth interviews with consumers who have ordered products from manufacturers/factories. This involves purposive sampling, focusing on those directly involved. Data will be collected from one representative of each of the 17 subdistricts, totaling 17 interviewees.

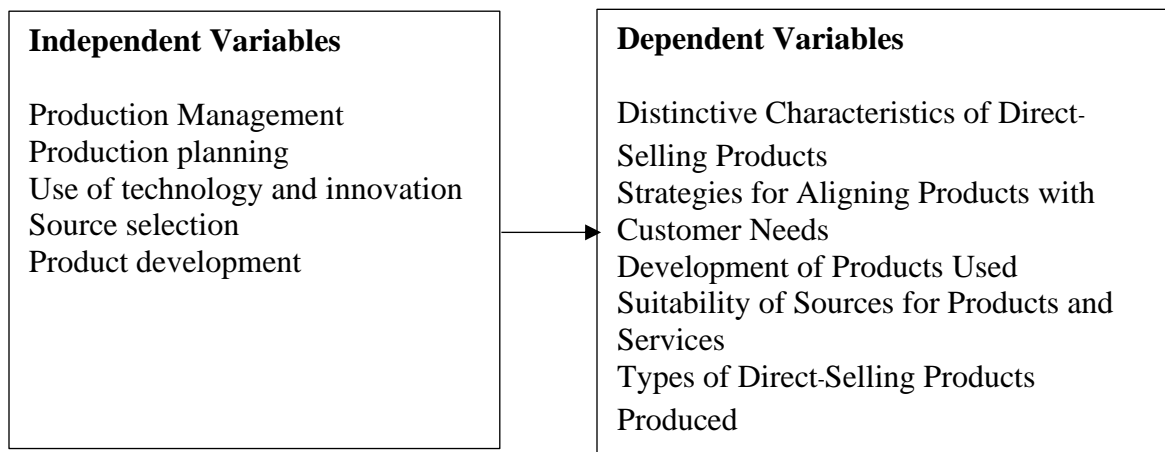


Figure 1 Conceptual framework

## Methods

To enhance the rigor of the research methodology and address the reviewers' suggestions, the following adjustments have been made:

### Methodological Rigor

In the sections on sample size and sampling method:

**Sample Size:** For this study, a sample size of 100 participants was selected from a total population of 388. Power analysis was conducted to confirm that the chosen sample size is adequate for testing the research hypotheses, ensuring that it reflects population trends accurately.

**Sampling Method:** A combination of stratified sampling and simple random sampling was used. The population was stratified by geographic area and business characteristics, with random selection within each stratum. This approach ensures that the sample is representative of the population and covers a broad range of perspectives.

### Data Collection and Instrument Validation

For the validation of the questionnaire:

**Expert Validation:** The questionnaire underwent content validation by three experts who reviewed the questions for clarity and relevance. Based on their feedback, the questionnaire was refined to better align with the research objectives. The Index of Item-Objective Congruence (IOC) was used to measure the alignment between the questions and the study objectives.

**Reliability Testing:** The questionnaire was pre-tested with a subset of the sample to calculate its reliability. The Cronbach's Alpha coefficient was found to be 0.789, indicating a good level of reliability.

### Statistical Analysis

In the statistical analysis section: **Use of Multiple Regression Analysis:** Multiple regression analysis was employed to test the hypotheses concerning the relationship between the independent variables (production management factors) and the dependent variable (competitive ability). Potential confounding variables were controlled to ensure the statistical significance of the relationships found, thereby strengthening the alignment with the theoretical framework established for the study.

## Results

In the statistical analysis section, further details have been added regarding the use of regression analysis to test hypotheses and control for confounding variables:

### Use of Regression Analysis

**Hypothesis Testing:** Multiple regression analysis was employed to assess the impact of various production management factors on the competitive abilities of direct-selling businesses. This method allows for the examination of the relationship between multiple independent variables (such as production quality, innovation, and pricing strategies) and a dependent variable (competitive ability). By utilizing regression, the analysis not only identifies significant predictors but also quantifies their respective contributions to the outcome variable.

**Controlling Confounding Variables:** To enhance the robustness of the analysis, potential confounding variables-such as respondent demographics (age, gender, etc.) and market conditions-were controlled in the regression model. This was achieved by including these variables as covariates in the model, which helps isolate the effect of the primary independent variables on the dependent variable, ensuring that the results are reflective of the true relationships being studied.

### Results

**Part 1 Frequency and Percentage of Respondents** The demographic characteristics of the respondents based on gender and age are summarized in the table below

Variable	Percentage
Gender	
- Male	32.8%
- Female	67.2%
Age	
- 20 years or younger	6.2%
- 21 - 30 years	40.9%
- 31 - 40 years	32.2%
- 41 - 50 years	18.2%
- Over 50 years	2.5%

The data indicates a predominance of female respondents (67.2%), with the majority of participants being aged 21-30 years (40.9%). This demographic overview provides insights into the characteristics of the study sample.

**Part 2 Analysis Results of Production Management Affecting the Distinctive Characteristics of Direct Sales Products** The analysis reveals the following frequency and percentage distribution of distinctive characteristics influenced by production management

Distinctive Characteristics of Direct Sales Products	Frequency	Valid Percent	Cumulative Percent
High product quality	243	60.8%	60.8%
Outstanding product appearance	86	21.5%	82.2%
Unique product features	52	13.0%	95.2%
Lower product price compared to competitors	19	4.8%	100.0%
Total	400	100.0%	100.0%

High product quality emerged as the most significant characteristic, with 60.8% of respondents identifying it as critical.

Part 3: Analysis Results of Production Management Affecting Product Alignment with Customer Needs  
The following table presents strategies utilized in product management to meet customer needs:

Product Management Strategy	Frequency	Valid Percent	Cumulative Percent
Production innovation	229	32.1%	32.1%
Product differentiation	200	28.0%	60.1%
Lower prices than competitors	123	17.2%	77.3%
Focus on niche markets	65	9.1%	86.4%
Market leadership	97	13.6%	100.0%
Total	714	100.0%	100.0%

The most frequently adopted strategy for aligning products with customer needs was production innovation (32.1%).

Part 4: Analysis of Production Management Data Affecting Product Development Plans  
The analysis of product development plans utilized by direct-selling businesses in the dietary supplement sector is summarized as follows:

Product Development Plan	Frequency	Valid Percent	Cumulative Percent
Market research and development	146	36.5%	36.5%
Company management research and development	107	26.8%	63.2%
Research and development in production	112	28.0%	91.2%
Analysis of high competition opportunities	35	8.8%	100.0%
Total	400	100.0%	100.0%

Market research and development was identified as the primary product development plan (36.5%).

Part 5: Analysis of Opinions on Suitable Production Sources for Dietary Supplement Products and Services  
The frequency and percentage distribution regarding suitable production sources among direct-selling businesses are as follows:

Suitable Production Source	Frequency	Valid Percent	Cumulative Percent
In-house production	174	43.5%	43.5%
Contract manufacturing	51	12.8%	56.2%
Network production	175	43.8%	100.0%
Total	400	100.0%	100.0%

Network production was favored by 43.8% of respondents.

Part 6: Analysis of Direct-Selling Businesses by Product Type The distribution of direct-selling businesses according to product type is summarized below:

Type of Direct-Selling Product	Frequency	Valid Percent	Cumulative Percent
Dietary Supplements	238	33.7%	33.7%
Cosmetics	232	32.8%	66.5%
Consumer Goods	169	23.9%	90.4%
Agricultural Equipment and Products	68	9.6%	100.0%
Total	707	100.0%	100.0%

Dietary supplements and cosmetics are the predominant product types handled by direct-selling businesses, making up 33.7% and 32.8% of responses, respectively.

## Discussion

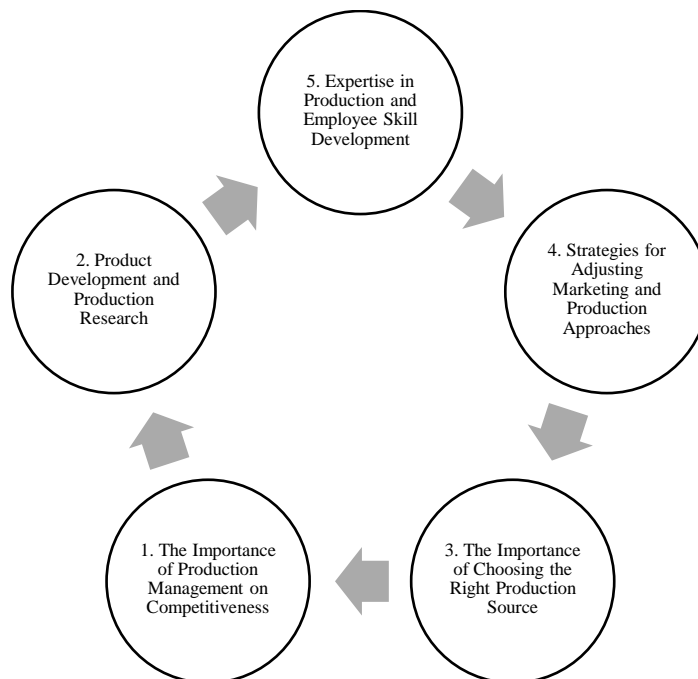
**Production Management Positively Influences Competitive Leadership Capabilities** The research findings confirm that production management has a direct positive impact on competitive leadership capabilities in cost leadership. This is consistent with the ideas presented by Sapsanguanboon, W., & Auanguai, P. (2021) in their study on innovation management in manufacturing businesses, which highlighted that efficient production processes that utilize resources effectively from raw material intake to the final product can significantly enhance competitiveness. This aligns with Ariya Songsangchai's research on halal food certification management, which notes that effective production management is crucial for cost efficiency, potentially leading to higher profitability through cost savings. Further support for this finding is provided by Wutthapong Sapsanguanboon & Priya Kamon Uang-ai's (2020) work on innovation in manufacturing, emphasizing that a well-managed production process is fundamental to achieving competitive advantage. Their study suggests that aligning production management with the business context starting from raw material procurement to the finished product is essential for creating competitive edge and organizational sustainability. Moreover, Nattapat Wongphongphat (2021) discusses marketing management strategies for comprehensive dietary supplement businesses, underlining that production management is integral to operational success and competitive advantage. This perspective is reinforced by Puttcharnon Athikongkiat & Sawaras Srisutto's (2019) study on consumer perceptions and attitudes towards marketing mixes, which stresses the importance of production techniques in meeting consumer demands.

**Importance of Production Management:** The study reveals that production management significantly influences organizational performance and competitive advantage. Efficient production processes encompassing product design, quality, and cost management are central to organizational success. Proper planning in production can lead to reduced resource costs and improved profitability, aligning with Patrachanon's (2020) findings on the impact of production management on growth in the dietary supplement industry. **Strategic Advantage through Production:** Businesses can gain a competitive edge by employing strategies such as cost leadership or product differentiation. As discussed by Sapsanguanboon & Auanguai (2021), adopting these strategies and consistently meeting customer needs can enhance market position. This includes innovations in production to offer unique products or targeting specific market segments, as supported by Nattapat Wongphongphat (2023) on digital marketing strategies for dietary supplements. **Focus on Workforce Development:** Effective production management also requires attention to workforce skills and expertise. Leaders should prioritize training and development to enhance employee capabilities in production processes. This approach is consistent with Vannachak Khamchong's

(2020) research on the effects of production management on organizational growth, highlighting the importance of developing specialized skills to improve operational performance.

## Originality and body of knowledge

From the study of The Impact of Production Management on the Competitiveness of Full- Service Supplement and Beauty Product Manufacturing Businesses: A Case Study of SCG Grand Co., Ltd. knowledge can be summarized into a diagram.



Record 2 shows the effect of production management on the competitiveness of the integrated supplement and beauty product manufacturing business: a case study. The knowledge of SCG Grand Co., Ltd. can be summarized in a diagram consisting of:

### 1. The Importance of Production Management on Competitiveness

The research findings reveal that production management is a crucial factor with a direct positive impact on a business's competitiveness, especially in terms of cost leadership. Effective production management can help reduce production costs and significantly enhance competitiveness. Good production planning and the use of appropriate technologies enable businesses to better meet market demands, thereby increasing opportunities for revenue and profit generation.

### 2. Product Development and Production Research

The research indicates that product development and production research play a significant role in gaining a competitive advantage. Designing and developing new products that meet market demands can enhance marketing opportunities and differentiate from competitors. Investing in research and development activities is essential for driving innovation and improving production processes to quickly respond to customer needs.

### 3. The Importance of Choosing the Right Production Source

Choosing the appropriate production source, such as in-house manufacturing or outsourcing,



significantly affects a business's competitiveness. Selecting the right production source helps businesses reduce costs and increase production efficiency. Building an effective production network and utilizing modern production systems enhance production flexibility and enable quick response to market demands.

#### 4. Strategies for Adjusting Marketing and Production Approaches

Employing targeted marketing strategies and developing distinctive products creates a competitive edge. Marketing strategies that focus on differentiation and new product development can make products more appealing and build better customer relationships, leading to improved and sustainable performance.

#### 5. Expertise in Production and Employee Skill Development

Developing employee skills and expertise is crucial for successful production management. Business leaders should prioritize training and developing employees to enhance their production capabilities. Organizing activities that promote knowledge and skill development will help businesses achieve better performance and increased competitiveness.

### **Suggestions**

#### 1. Recommendations for Utilizing Research Findings

1.1 Based on Objective 1: The research indicates that production management is crucial for cost competitiveness and cost leadership in businesses. Efficient production management can reduce costs and significantly enhance competitiveness. Therefore, relevant agencies should: Promote training and skill development in production management for entrepreneurs to enhance cost reduction and production efficiency. Support the adoption of new technologies and innovations in the production process to reduce costs and improve product quality. Recommend proper financial and cost planning to establish effective operational strategies.

1.2 Based on Objective 2: The research highlights that product development and production research play a critical role in gaining a competitive advantage. Developing products that meet market demands can improve marketing opportunities and business success. Therefore, relevant agencies should: Encourage research and development of new products that meet market demands and differentiate from competitors. Support market analysis and production trends to design products that align with customer needs. Continuously develop and improve production processes to maintain competitive advantage.

1.3 Based on Objective 3: The research finds that choosing the appropriate production source, such as in-house manufacturing or outsourcing, significantly impacts business competitiveness. Selecting the right production source can enhance efficiency and reduce costs. Therefore, relevant agencies should recommend evaluating and selecting appropriate production sources based on product characteristics and market demands. Support the creation of effective production networks to enhance flexibility and reduce production costs. Promote the use of modern production systems to respond quickly to market demands.

#### 2. Recommendations for Future Research

This study has identified key insights: effective production management and product development are essential for business competitiveness and success, applicable particularly to direct sales in the dietary supplement sector. Future research should focus on: Assessing the impact of innovations and technologies in the production process on competitiveness in other industries. Studying the relationship between product development and marketing strategy adjustments to enhance responsiveness to customer needs. Exploring production management methods in the context of small and new businesses to identify effective approaches for increasing competitiveness and reducing costs.

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