

Shouldn't "Engineering Business" be Needed before "Business Engineering"?

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Abstract

To maximize effectiveness, not just efficiency, of the applications of Business Engineering approaches, all design and implementation works must be geared towards the fundamental essence of business. In the core sense of business, the effectiveness should be seen as the profitability and sustainability of a business. A generic business framework that can withstand an ever changing and dynamically complex business environment is to provide better ways of translating business processes to business strategic objectives and corporate performance; and to suggest directions of constructing processes and workflows. Business Engineering aims at facilitating the success of business through methodical design approaches and IT implementations. To meet corporate strategic objectives and to pursue the success of a business, it is beneficial to have a better comprehension of the fundamental essence of business first.

This paper is to propose a business system from the perspective of management requirements with a focus on strategic management view. The business system connects essential factors in a concise manner, which allows senior managements to be able to capture a holistic picture of their enterprises and the markets they confront for better strategic planning and management. Business in its nature is a holistic and indivisible undertaking, yet it is complex, volatile and conceptual. In this regard, specifically, our achievement can

be realized by boiling down an entire business to 44 factors and 80 relations in a visualized graph. The development of the framework involves the effort of re-engineering business concepts at fundamental level, linking essential concepts from otherwise separated subjects, yet without violating the general business principles. Its holistic coverage of business can be realized in the integration and coherency of components – finance, business functions and market; and the integration and coherency of management functions – business process management, functional management and strategic management.

Keywords: Business Engineering, Business Mindframe, Business process, Strategic management, Management functions

INTRODUCTION

What is missing, but is important?

Since the inception of the management notion, there have been many splendid theories and concepts dedicated to strategic business management. Among these, the better known strategic frameworks are SWOT, Five Forces, value-chain, Balance Scored Card, PEST, VRIO (Barney, 2002) etc. None of these concepts and tools provides a holistic and integrative approach in reasoning a business in strategic perspective. In fact, those business strategic models have been

striving for the balance between holistic coverage and practicality. SWOT is one of the best approaches, which describes business strategy by using four essential factors: Strengths, Weaknesses, Opportunities and Threats. However, its simplicity leads to highly general, vague description of a business operation, which limits its use to detailed strategic analyses, and contributes virtually nothing to business process management. Besides, due to its oversimplification, different people could end up with quite different analytical outcomes while attempting to analyze the same business circumstance.

Business Engineering as a discipline aims to provide methods and models which support all phases and aspects of collaboratively constructing men-machine systems in business. Methods and models cover business strategy development, business process development and information system development (Österle, 1995, Österle and Winter, 2000, Winter, 2003). It involves the development of design methods and implementation of business solutions, from business operations and organizational structures to business processes to information applications and infrastructure with the desirable objective of achieving high sustainability and adaptability to environmental change. With the objective set, all relevant factors must be taken into consideration before they are logically assembled for strategic judgment and decision-making. The question of how to put everything in a right and concise perspective becomes the crucial endeavor to success. For the purpose of integrating factors and formulating ideas, a framework of thinking is considered an effective approach for representation and reasoning. As Hrebiniak (2005) put it, the frameworks are most useful in strategy formulation. Business frameworks strive to achieve in modeling the essence of the business in some or all aspects (some could be overly concise, or unnecessarily complicated). Ideally, a good framework should comprise the unchanged factors, and be able to capture a holistic view of business, which can help readily capture the essential indications for judgment and decision-making at certain scenarios, provide grounds for reasoning things out and give people explicit perceptions of insight and foresight of business. Furthermore, a desirable feature of a framework is being logically structured and as concise as possible but without losing its essence, thereby allowing it to be reasoned in the human mind, and that is what we call the "Mindframe".

By far, there lacks a top-level architectural framework for a single business, which allows users to visualize an overview

of a business status-quo, strategic positioning, financial well-being, capabilities of major business functions, market potential confronted, market trend, appropriateness of cost allocations towards market, and the last but the most important aspect -- their coherency. It is obvious that the said tasks are held at the strategic level of business management and are of primary concern to top management. The organizational structures of enterprises need be designed to facilitate the business operations to run and to be transformed effectively and efficiently according to strategic plans. But, determining the structure and business processes entails sound managerial decisions that must be in line with the directions indicated by strategic plans. A strategic plan is the result of how top managements match between the internal capability and external environment they perceive and foresee. Therefore, effective strategic management must be in place and communicated top-down to business process management for supporting relevant decisions in the design and operations of business processes, IT application and infrastructure. The key to success in the communication lies in a clear and clean interface in between.

This paper proposes a systematic framework that connects essential factors in a concise manner, which allows senior managements to be able to capture a holistic picture of their enterprises and the markets they confront for better strategic planning and management. On the other hand, the framework helps the senior managements to channel their strategic ideas to business process designers and developers as part of the strategy implementation.

In order to overcome the complexity and vagueness of business management, the development of our framework involves re-engineering business concepts from the ground up, in which a structure of business knowledge is constructed with fundamental business elements defined (or redefined.) However, the redefined business knowledge structure does not violate the general business principles. Rather, we re-organize and integrate business knowledge to make it more sensible and concrete. Besides, we developed four reasoning principles - Basic, Integrative, Holistic and Systematic, by which the re-engineering process of this framework was conducted:

- *Basic*: Identifying fundamental, essential and distinct business elements; aggregating similar concepts into homogeneous elements;

- *Integrative*: Arranging the elements into a highly logical structure with defined relationships;
- *Holistic*: Putting necessary basic concepts in place for a representation of the entirety of a business;
- *Systematic*: Making it systematic by devising guiding principles, objectives, evaluation criteria, steps & procedures etc. to drive the framework for performing business undertakings at strategic level. We make sure the construct provides suitable reasoning methods for resolving business problems.

Over the years, we have put our system through intensive studies and verifications repeatedly with a large volume of practical business cases.

WHY BUSINESS MANAGEMENT NEEDS BE ENGINEERED?

Over the past 200 years, a profound load of business management theories, concepts, notions, techniques and tools have been developed from different schools of thought (Koontz, 1980). However, pragmatic applications of these knowledges to business in practice was far from satisfactory as evidenced by the failure cases of enterprises for being reactive (instead of proactive) to the environmental changes, misjudging environment trend, ineffective execution of strategic plan and bias in analyses. One of the key issues is due to the lack of an integrative and holistic structural business model.

Traditionally, business subjects offered in universities are studied and delivered separately without much integration among themselves. Management practitioners and students need to rely on themselves to connect the dots among the subjects for capturing a holistic view of business. On the contrary, business in its nature is a holistic and indivisible piece of matter, yet it is a complex, huge, volatile and conceptual matter. Failing to perceive and tackle these problems can hinder the business practitioners from operating, managing and making decisions coherently. Without a holistic and integrative framework and engineering mindset, the tasks of business planning and implementation might end up like constructing a cross-sea bridge without an overall blueprint due and engineering practices. The truth is there has been an overwhelming proliferation of the in-depth studies with focus on narrow and specific areas of business. However, there are

only a handful of researches about holistic and structured view of business context.

Besides, one of the critical success factors for formulating and implementing strategies is effective communications, both vertical and horizontal. Many business systems have attempted to provide a common platform for communications between strategic level and operational level, as well as among the members within top management. However, in order to facilitate effective communications and discussions among them, a holistic and integrative framework should be in place serving to link otherwise separated business concepts and ideas, providing a common footing for synchronizing the thoughts of management team for addressing specific business issues. Robert (2003) stated that strategy development can be significantly improved if business models and business strategies are developed, maintained, documented and communicated using appropriate conceptual models. Unfortunately, not many business frameworks provide such a holistic system view at strategic level nowadays.

OUR DEFINITION OF BUSINESS ENGINEERING

We borrow the name *engineering* as the approach in constructing our business system since our approach shares some characteristics of the conventional engineering disciplines. The engineering approach provides the guiding notions for constructing our business framework and the systematic methods for analyzing business management problems. In definition, engineering is the branch of science and technology involved with the applications of principles, logics, science of mathematics, rationales, etc. to design and develop structures, frameworks, guidelines, steps and procedures in solving non-trivial problems. Equally importantly, engineering is to adopt systematic methods in tackling complex and large-scale *problems-in-reality* that are closely associated with the environment in which the constructions are built. That exactly is the major source of complication and that is the reason why engineering practices should be brought in. The piecemeal of the business knowledge might not be able to feed us in a balanced manner for the nutrition of our overall body.

In our definition, *Business Engineering* is the use of the engineering approach to create a basic, holistic, integrative and systematic framework for rational business management and decision-making. Of course, it is arguable that the

business engineering is impossible to fully mimic the engineering approach as in the other disciplines, such as Civil engineering, Electronic engineering, etc. For instance, engineering practices emphasize on experimentation in enhancing optimality and predictability, which is notoriously infeasible in business world due to the intangible environmental factors.

Despite having shared the common views, vision and advocacy of holistic and integrative view of business, we have taken another approach in resolving the alleged problems. We put forth principles and framework mainly addressing strategy management and decision-making system, in which we solidified key business concepts and defined fundamental elements as the building blocks for formulating business mindset and strategic reasoning. Among all these, identifying the essential, stable (or even unchanged) elements and their relationships in the changing business environment is a crucial achievement in our research study. On the top of it is the *Business Mindframe*, also called PVC-BQ systems (to be elaborated below), that is a holistic business system with reasoning mechanisms for strategic judgement and decision-making. Specifically, this system concisely captures the essential factors that must be considered in analyzing, planning, implementing a strategy of a business.

Compared with the traditional Business Engineering, our approach is mainly dedicated to business strategy and business knowledge re-engineering, but not design level strategy and method development. Besides, we pay little attention to IT applications and infrastructure. However, we devise structural strategic layout that poses requirements and guidance for the implementations of detailed business processes, tasks and resource allocation.

INTEGRATIVE VIEW OF BUSINESS MANAGEMENT

We see business management as a framework constructed in five layers or views, illustrated in the shape of pyramid, as shown in figure 1 below. Running on the right side of the pyramid is the eight process areas that altogether represent the general business cycle. All layers are dedicated to serve the eight process areas on their own views. Each of the process areas comprises a number of processes. Furthermore, these process areas also imply the major decisions or concerns enterprises need to focus at certain stages of business cycle. For instance, *Investment decisions* need be made for building

proper productivity capacity while the accounting department transits *Capital to Asset*; *Productivity* is the major concern while going through production process with the setting of *Assets* at hand. The process areas will be elaborated in further details in the following section.

The five layers of business management indicate the different management focuses on running a business. Each of these layers maintains its own structure and mechanism in undertaking the tasks for striving to achieve the objectives of its own layer, as shown below. Ideally, the objectives of all layers should be aligned and coherent through the entire stack of layers. Besides, the objectives of various parts at a certain layer should be coherent as well in order to better achieve the objectives set at a higher layer.

The *Strategic view* aims at crafting and achieving business goals by scanning the environment, evaluating capability & capacity, allocating costs to different business functions, and other strategic tasks for directing a business, which is the responsibility of top management – the *Management function*. At the *Functional view*, the business operations lie in the three other core business functions: *Finance*, *Production* and *Marketing*. At its simplest form, there are three major questions to ask regardless of the types of industry, scale and nature of any enterprise, as shown in the table 1 below.

Table 1: Business functions and their essences and responsible tasks

<i>Essence</i>	<i>Function</i>	<i>Responsible tasks</i>
Where the money comes from?	Finance	Sourcing, Financing, Accounting
What to sell?	Production	Merchandising, Developing, Producing, Maintaining
Whom to sell to?	Marketing	Promoting, Selling, Delivering, After-sale servicing

All diversified functions (e.g. R&D, customer service, Public Relations, CRM, logistics etc.) are established just for supporting these four core functions (the three core business

functions and the Management function) and incorporated in one or more of these core functions according to their contributions. In the perspectives of cost control and effectiveness evaluation, all costs are divided into four segments for the four core functions. The *Business Process view*, *Task view* and *Resource view* involve the

implementation of the *Strategic* and *Functional* views. The PVC Business Mindframe mainly spans the top two views: *Strategic view* and *Functional view*. The tasks involved in each layer are list below:

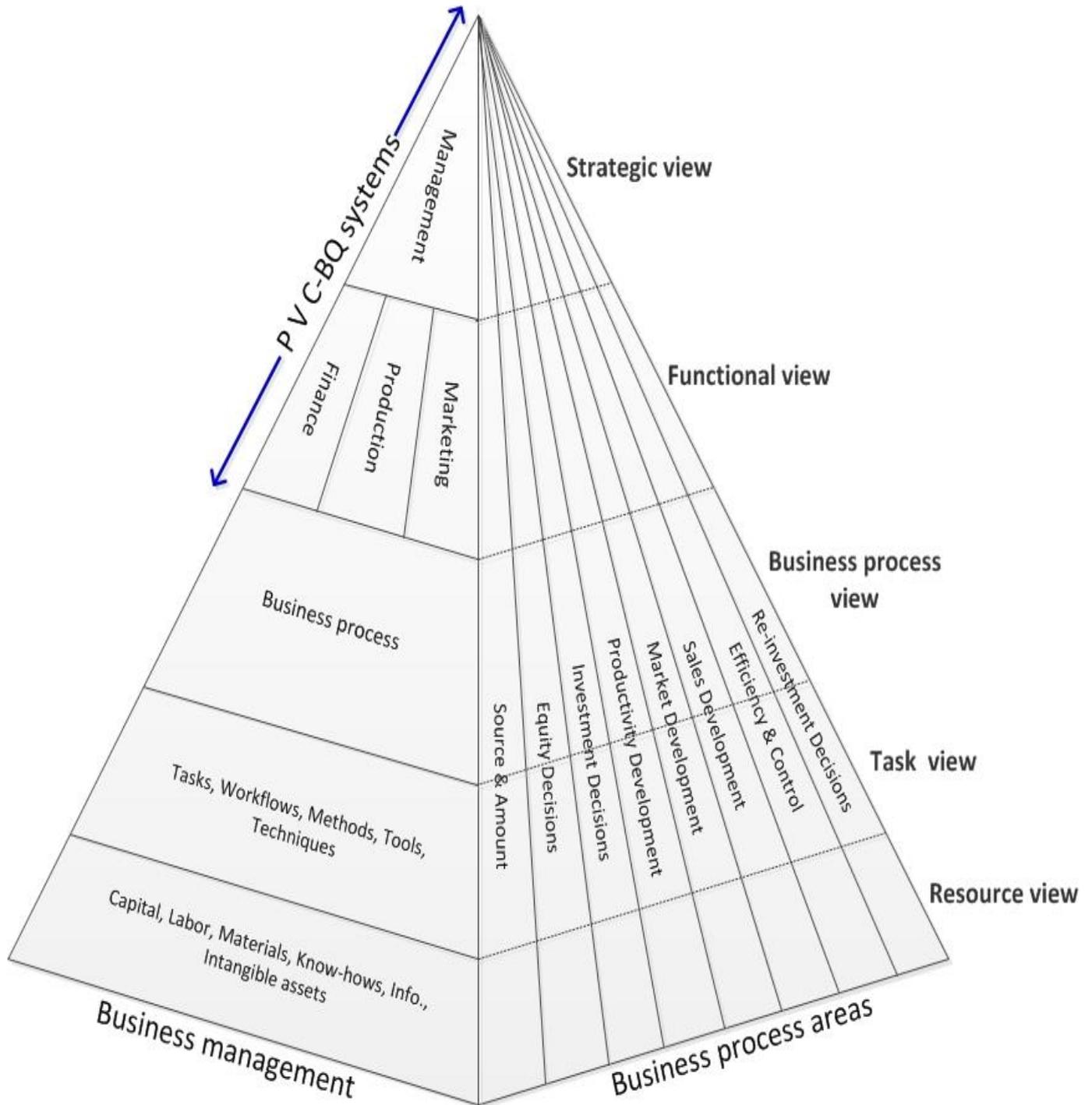


Figure 1: The integrative view of business management

Strategic view

- Crafting and review corporate vision and missions
- Environmental scanning
- Risk assessment
- Evaluation of internal capacity & capability
- Strategic positioning
- Strategy formulation and selection
- Cost allocation to the four core business functions
- Strategy implementation
- Strategy review
- Corrective adjustment

Functional view

- Setting functional objectives to meet strategic target
- Evaluation of the capacity & capability of functions
- Resource allocation to business processes
- Crafting action plans with the consideration of time and cost
- Reviewing efficiencies of the functions
- Reviewing effectiveness of functional allocation

Business Process view

- Implementation of action plans by designing the business processes
- Evaluating capacity & capability of the business processes
- Establishing performance metrics for the individual processes
- Controlling and monitoring progress of the processes
- Resource allocation to the specific tasks and workflows (a series of related tasks)

Task view

- Determining the time and resources (materials, labor, know-hows etc.) needed for individual tasks
- Implementing the business processes by designing the tasks with the resources available
- Developing/sourcing techniques, tools and methods as needed for the individual tasks
- Establishing performance metrics (KPIs) for the individual tasks
- Controlling and progress monitoring of the workflows and tasks
- Analyzing, designing and optimizing the workflows and work schedules

Resource view

- Supplying the needed quantity and quality of the resources at the requested schedules
- Maintaining and safeguarding the needed quantity and quality of the resources for supplies with cost considerations
- Determining the time and sources to acquire needed resources
- Developing/sourcing the resources as needed
- Establishing performance metrics (KPIs) for making the resources available as requested with the consideration of cost-effectiveness

PVC-BQ SYSTEMS - BUSINESS MINDFRAME

The name Business Mindframe connotes that the business model/system is designed to fit in the human mind for reasoning, for that the design must be concise, logically organized and even visually meaningful. Through around twenty years of research and practice, we (the Institute of Business Engineering, Hong Kong) have developed our own Business Engineering approach, which has been applied in executive trainings, entrepreneurial development and corporate strategic consultations in Hong Kong and Mainland China since 2003. To illustrate our knowledge of body generally, Business Engineering is an approach of resolving business problems at strategic level, including the Business Mindframe, basic concepts, principles and reasoning mindset. Under the umbrella of Business Mindframe, there are three constituents: PVC Strategic management system; PVC Macro environment analysis system; and Business Quotient (BQ) - Managerial competency analysis system. Simply speaking, our holistic view of business is realized in these three systems. The three systems were designed to cover all essential and directional aspects of business strategic management. Each system has its own areas to focus on, as shown below:

- *PVC Strategic management system*
 - Strategic positioning
 - Financial performance analysis
 - Evaluation of the capabilities of major business functions
 - Cost allocation analysis
 - Market potential and market trend analyses

- *PVC Macro environment analysis system*
 - It extends the environmental factors from market to a broader scope, comprising economic, social, global factors with an attempt to provide forward indications to enterprises.
 - Evaluation of macro environment impact in pace and magnitude to either entire industries or individual enterprises
- *BQ Managerial competency analysis system*
 - Evaluation of managerial competence
 - Management team collaborativeness
 - Potential analysis of managerial executives
 - Training and enhancement
 - Performance appraisal

PVC-BQ Systems

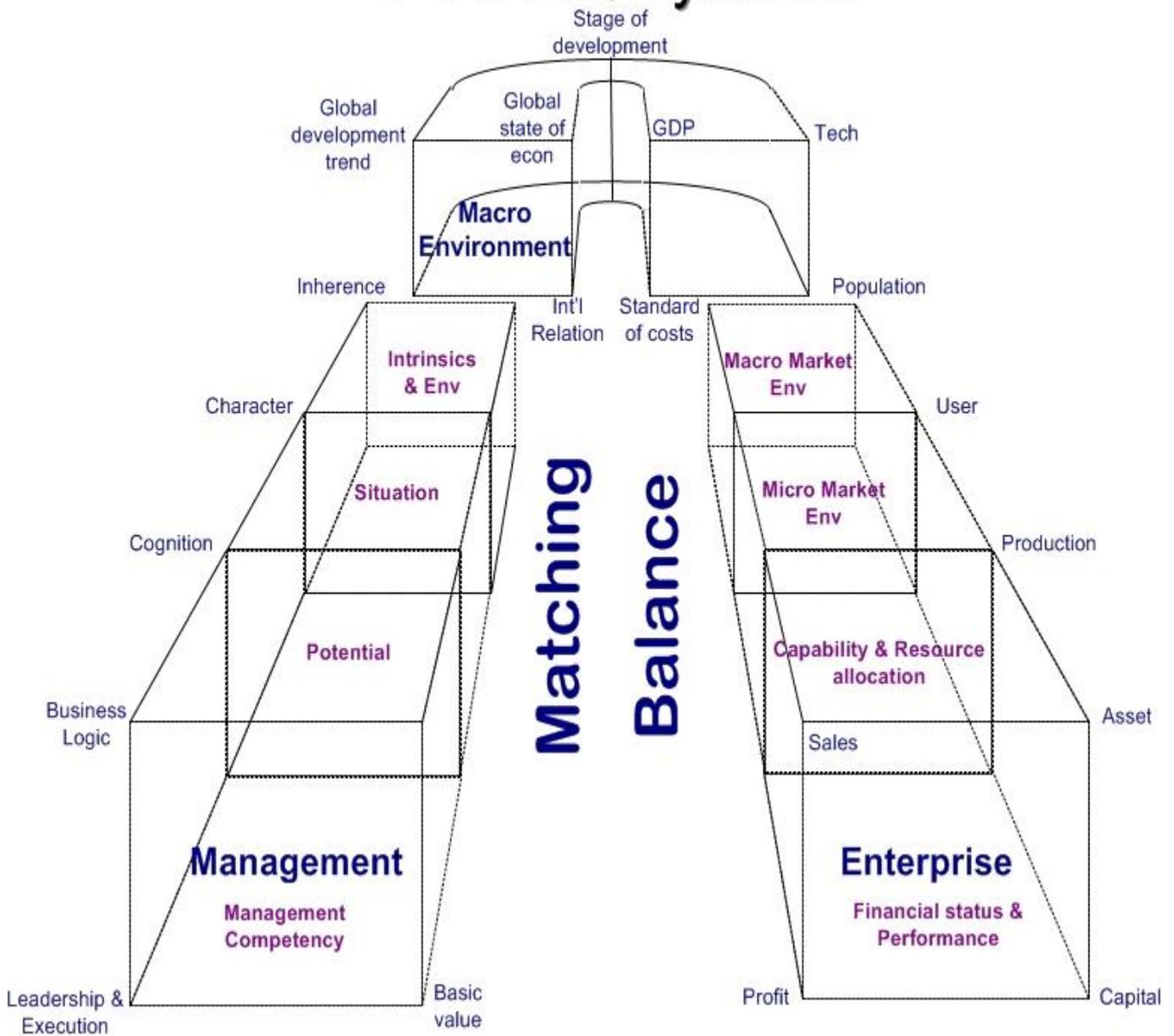


Figure 2: PVC-BQ Systems

Each of the three constituents is constructed with a number of essential elements (or factors) and the links among them, representing relevant business parts and reflecting their states and changes, such as imminent market situation, corporation's capability, market potential, financial status and performance etc. The three systems are similar in structure. Each of these systems is formed in a shape of 3D rectangle. The visual layout can better arouse managerial consciousness in making proactive plans regarding the situations confronted. In the PVC-BQ systems, there contain in total 44 essential business elements that depict a complete view of a business system, including 16 elements in the PVC Enterprise management system, 12 elements in the PVC Macro environment analysis system and 12 elements for the BQ Management competency analysis system. This paper only covers the PVC Enterprise management system.

THE GOALS OF BUSINESS - PVC (PROFIT, VOLUME AND CONTINUITY)

Enterprises are to go through a business process in order to achieve PVC (Profit/unit, Volume and Continuity) - the goals of business, that is, earning the highest profit for each unit of product sold or service rendered; selling the highest volume; and running a long lasting lifespan. In principle, the decision-making must be balanced between PV and C, in which PV (more precisely $P_0 \times V_0$) represents the net profit of current year period, whereas the C denotes the health of the enterprise, which helps in making PVs (total profits = $\sum_{i=1}^n P_i \times V_i$) in subsequent years. Within the current year, the optimal balance of P and V should be achieved as well. In most cases, an inverse correlation between P and V often holds. According to the Law of Demand, when price goes up leading to a raise of unit profit, the volume sold will go down accordingly. On the other hand, C has an obvious inverse correlation with P. If a company looks for a better C, more money need be invested for future prospect, such as renewing equipment, employee training, brand building, R&D etc. In doing so, the P will be lower due to a higher unit cost. In all,

all business decisions and activities must be geared towards these goals. The decisions include strategic positioning, formulating suitable strategies, deciding market segments for the products/services, pricing, determining cost allocation to business functions, processes etc. In the meantime, the sustainability of the business should be considered as well. Specifically, the enterprises must plan strategically and allocate proper amount of resources to create the conditions for future profits. On the contrary, putting too much resource for future prospect without caring about short-term profit will create a strain for short-term operations. Generally speaking, top managements need to seek an optimal mix of the three competing goals through strategy planning and implementation with limited resources and the environment confronted. This is the number one and core concept in our 12 basic concepts.

Enterprises are PVC-oriented machines – aiming for the PVC goals. Some may argue that the ultimate goals of establishing a business is to create value to societies through providing wanted and needed goods and services, to create customers' satisfaction, to protect natural environment etc. They sound sensible and honorary, and it is particularly reasonable that you cannot sustain your business without satisfying your customers' needs. However, creating value for consumers and societies is just the means for attaining the PVC goal, particularly benefiting the C – making the business sustainable. The notion of C accommodates profound implications. In order to run a sustainable business, we must pay much attention to a variety of business issues, such as resource allocation between the short term and long term, reputation, human resource planning, R&D, employees' morale, environment protection etc. Hence, for maintaining favorable corporate image, the corporations should practice ethical business operations and fulfill social responsibility to live up to the public's expectation. A good reputation definitely benefits their future incomes due to the favor, trust and respect from the public.

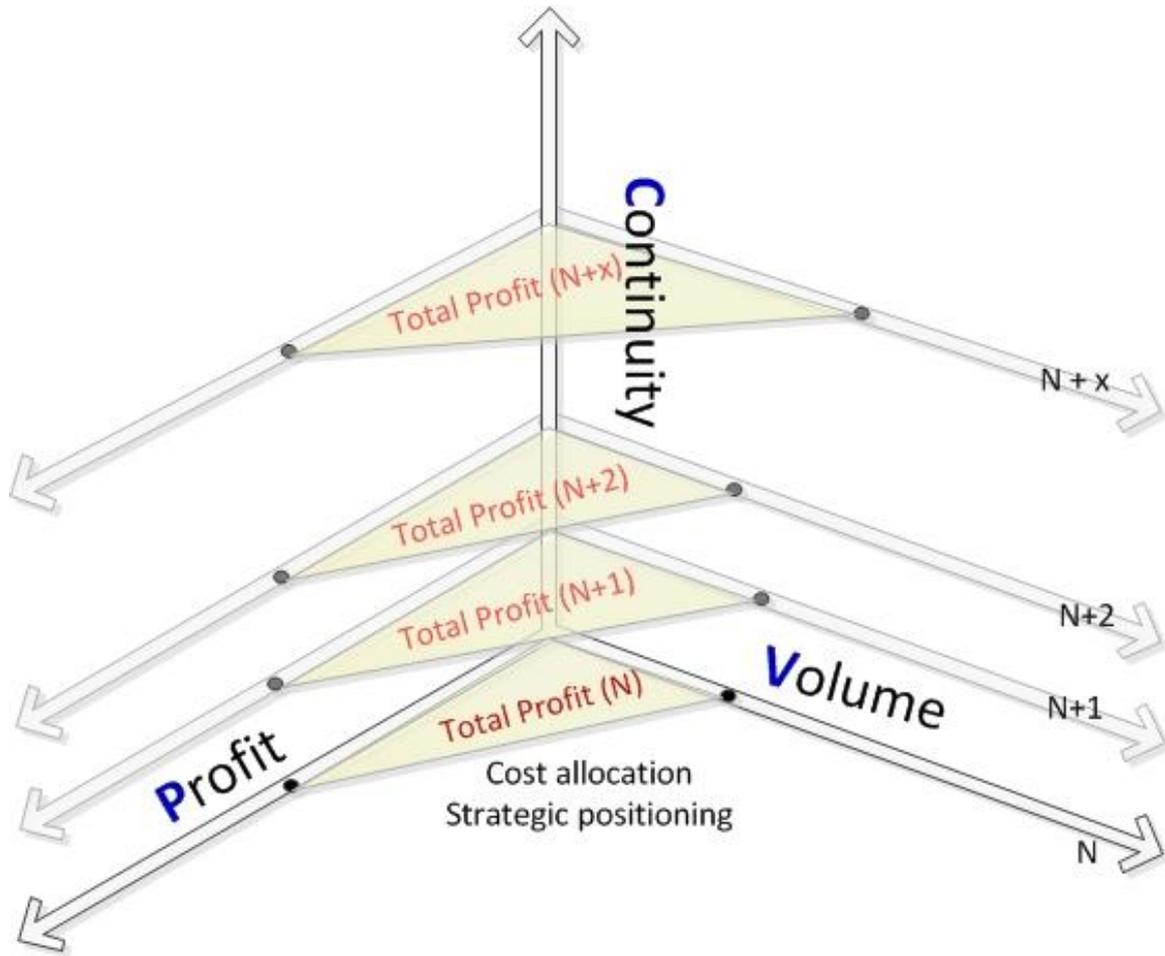


Figure 3: The illustration of the 3 competing goals - P, V and C

SEPARATION OF CONCERNS FOR P AND V

For a particular year, total profit should be considered separately into P and V, thus enhancing agility, clarity and accuracy in business analysis and planning. The following diagram concisely illustrates the relationship between P, V and External and Internal environments for a conceptual overview of an enterprise’s performance. The P is known by the price you can sell your product and the cost needed to make a sale of the product (including the costs of finance, production, marketing, delivery, management etc.), while the V is implied by the market demand under a given competition condition and your productivity to supply for the market demand. The price you can sell and the sale volume rely heavily on the competition. With the external part evaluated, the enterprise can analyze and plan for its internal part to best match with the external circumstance.

	P (unit profit)	V (Volume)
External	Macro environment	
	Price	Demand
	Competition	
Internal	Cost	Productivity / Scale

Figure 4: P, V – External and Internal environments

We aim to integrate the various parts of the business, including internal components (finance, costing, marketing, production, marketing etc.) and external components (market environment, macro environment.) The PVC concept also serves as a backbone for the integration. With the separation

of concerns, the P, V can serve as the vehicles penetrating through the corporation's internal and external environments, micro (finance) and macro level (macro environment), in actualizing the formulation and implementation of corporate strategy. This can facilitate analyzing, planning and evaluating business operations by allowing the impacts from various environmental factors and the internal capability to be translated into P, V and even C aspects of a business. All of those can be converged to the performance of enterprises. For instance, an increase of equipment and work force implies an increase of volume (V) to be produced, whereas a decrease of cost in R&D means an increase in profit (P), but potentially jeopardizes the sales in future – the C.

OVERALL STRUCTURE OF PVC ENTERPRISE MANAGEMENT SYSTEM

This system is to build a framework for representing an entire business in strategic view. The whole framework is divided into two sides, representing the internal and external environments of an enterprise respectively, which are in turn further broken down into four parts, two on each side. The four parts are *Financial status and performance*; *Business functions*; *Micro market environment*; and *Macro market environment*. The four parts, shown as below, represent the holistic model of a business in a logical structure:

Internal Environment

Our framework conceptualizes the internal environment with two parts (called *tiers or platforms* due to the shape we structure them), with one being the financial status and performance; and the other on the top being the business functions and resource allocation. Each tier represents an aggregate component in an enterprise and the two are closely linked while describing the overall capacity and capability of an enterprise.

- *The tier of Financial status and performance*

This tier reflects the enterprise's financial status quo, indicating the well-being of the enterprise by the financial data presented in balance sheet and income statement. This tier facilitates analyses of various financial ratios, indicating the various financial performances in the past year (year N-1), and the current financial status (year N). However, this tier is

often mistaken as indicative of the overall well-being of enterprises. In fact, the overall well-being should also take the enterprise's capacity and capability into consideration in order to reflect its potential for future's performance (to be discussed later).

- *The tier of Business functions and resource allocation*
According to our principle, an enterprise comprises of four core business functions that collaboratively undertake all internal processes to achieve business goals, while each of the business functions perform its distinct area of business undertakings. The four core business functions are Management, Finance, Production and Marketing. While the business functions serve as a machine to achieve the business goals, they also incur costs during their operations in the meantime. In the cost allocation aspect, one major concern is the proper allocation of resources, particularly financial resource, to all business functions with regard to the criteria of cost-effectiveness in both the perspective of individual functions and the perspective of the entire enterprise, that is, the coherency of the four business functions.

External Environment

Environmental factors, as described earlier, are excessively abundant. It is definitely advantageous to categorize them based on their macro and micro levels. In this framework, four major tiers, from micro to macro, are laid well in place in the external environmental context, which are *Micro market* tier, *Macro market* tier, *Regional economic environment* tier and *Global economic environment* tier respectively. In general, the more macro the environmental factors, the further in the future we can foresee, but the less direct they exert their influences on the enterprises. Among the four tiers, only the first two tiers are comprised in the *PVC Enterprise management system*. The latter two fall into the *PVC Macro environment analysis system*.

- *Micro market environment tier*

That is the first environment tier that the enterprises need to face. The tier comprises four environmental factors, which are *User* (customer), *Player* (rivalry), *Price* and *Cost*, which have direct and imminent impact to the enterprises. Hence, the enterprises must react to

them in timely fashion. Failure to do so can cost the enterprise losses from opportunity and risk. Besides, this tier mainly focuses on a specific product and market. In other words, the enterprises in the same market and industry share the common industrial/market environment tier.

- *Macro market environment tier*

In order to be more proactive to the external environment, enterprises must be forward-looking so as to plan ahead. This tier deals with extending the foresight on market trend with macro view of market. It is composed of four key factors: *Disposable Income*,

Population, *Competition(P)* and *Competition(V)*, representing the conditions and dynamic of the macro industrial/market environment.

Each tier is in a shape of square with four vertexes representing four *elements*, thus 16 elements in the four platforms. Besides, there are 28 lines, called *relations*, connecting the elements with significant meanings. Each relation represents activities, policies, methods, indications etc. For instance, the relation between *Capital* and *Asset* is *Investment Decision* or *Financial Health* of the enterprise.

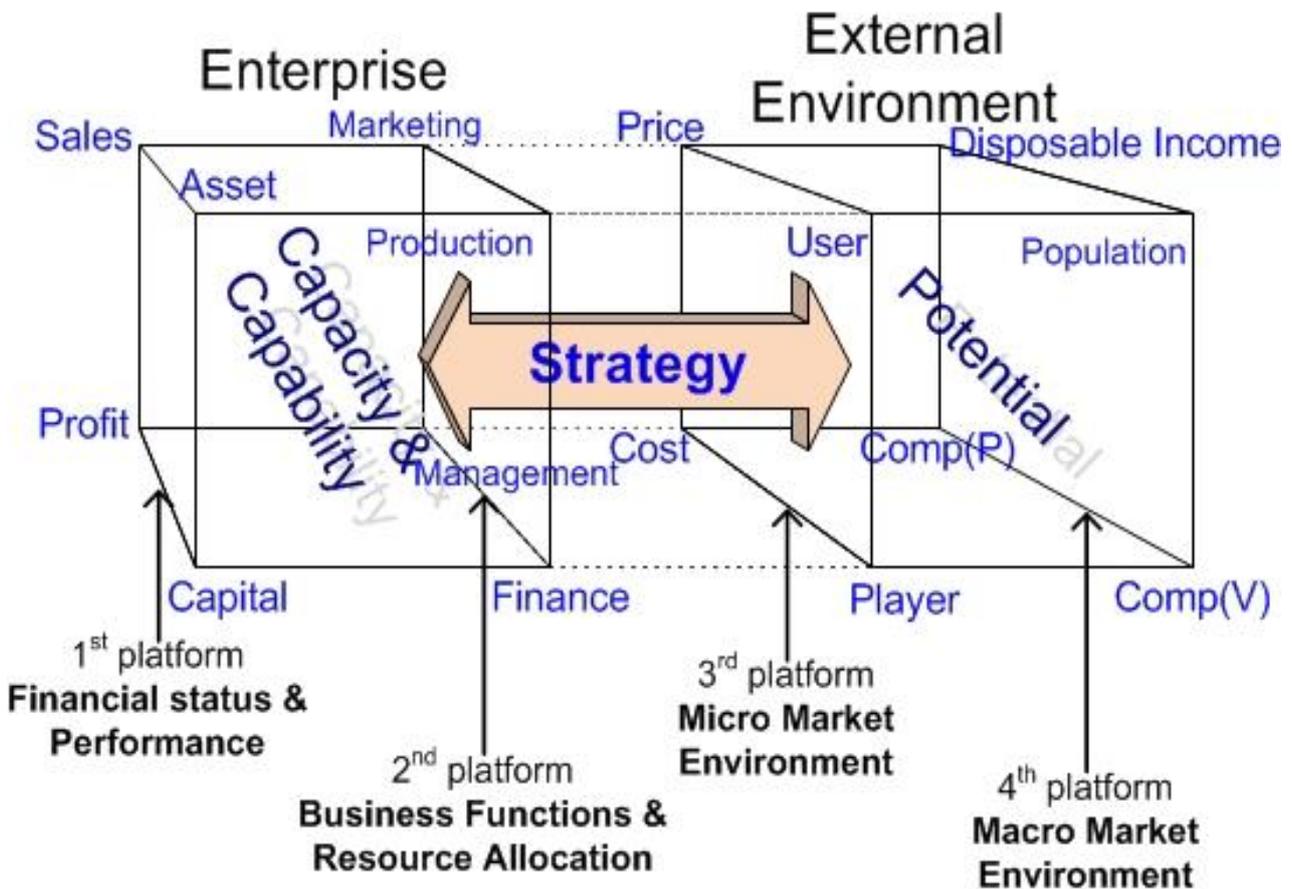


Figure 5: PVC Enterprise management system

The following is the list of 16 elements and their definitions:

Table 2: The list of the 16 elements of PVC Enterprise management system and their definitions

<i>Element</i>	<i>Description</i>	<i>Platform/Tier</i>
1	Capital	The fund from equity shareholders as working capital for the operations of business
2	Asset	Economic resources owned or controlled by enterprises to produce economic value
3	Sales	Sales turnover or income of a business entity result from the sales of goods or services; The selling process
4	Profit	The total earning retained after deducting all associated costs and expenses
5	Finance	The finance function responsible for the development of financial capacity and capability of a business to facilitate the implementation of business decision and to fuel the financial resources required from business operation
6	Production / Product	The business function to produce products/services; The features and quality of the product/service
7	Marketing	Introducing products/services to the market to meet marketing challenges and competition in hope of increasing sales revenue, building up product brand image and establishing good relationship with customers for long-term sales revenue
8	Management	The top management team of an enterprise responsible for directing and decision making in the operations and development of a business
9	Player	The quantity and quality of existing and potential competitors (direct or indirect) in a particular market
10	User	The quantity and quality of current customers who have a demand for a product/service in a particular market
11	Price	The market acceptable (or average) price of a product/service in a given market
12	Cost	The average unit cost of a kind of product in a particular industry of a region. The cost is the aggregate operating cost (the sum of all costs and expenses) required to run a business divided by the volume of products produced and delivered to the market.
13	Competition(V)	The aggregate force of competition (the quantity and quality of competitors) in the volume market, targeting to the markets of high sales volume

14	Population	Demographics of a given region that have a strong implication to the <i>User</i> element; particularly all the current and potential users regarding a product/service
15	Disposable Income	The portion of households' incomes available, after satisfying basic personal & household expenses, to the households' own discretion to spend
16	Competition(P)	The aggregate force of competition (the quantity and quality of competitors) in the profit market, targeting to markets of high profit return

FINANCIAL STATUS AND PERFORMANCE

The 1st tier of the PVC system reflects the financial status and performance of an enterprise, which are the past (we call it “N-1”) results. Hence, the 1st tier is basically employed for review and analysis of past financial performance, rather than for projection. The PVC framework accommodates the financial status and provides mechanism for conducting various financial performance analyses. The essence of the income statement and balance sheet are laid out in the 1st tier, as shown in the Figure 6 on the right.

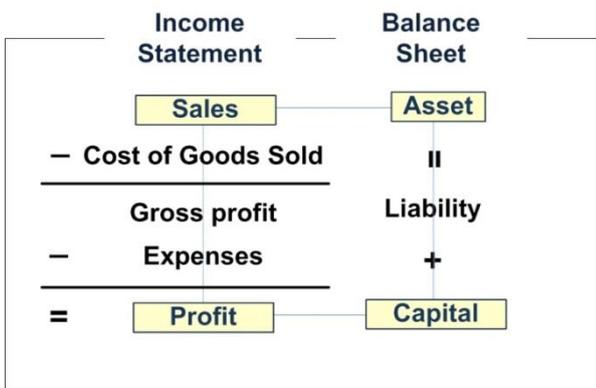


Figure 6: The representation of financial statements in the 1st tier

Apart from the financial statements, the 1st tier also carries some financial indexes, such as ROI (Return On Investment), IE (Investment Efficiency), ROC, profitability, efficiency, growth and health/leverage. Those are used to indicate the financial status quo and the past financial performance of an enterprise in various aspects. The four financial performance aspects are reflected in the four lines of the 1st tier, as shown in the Figure 7 below:

- Capital—Asset : Health (cash flow, account receivable, asset structure, debt ratio etc.)
- Asset—Sales : Efficiency (asset turnover, inventory turnover etc.)
- Sales—Profit : Profitability (sales-profit ratio, gross profit etc.)
- Profit—Capital : Growth (retained earnings, dividend policy etc.)

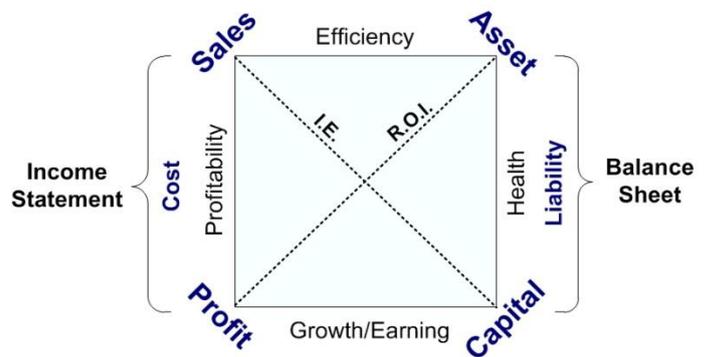


Figure 7: The representation of financial indices in the 1st Platform

BUSINESS PROCESS CHAIN

The *Business Process Chain* (or simply *Business Chain*) comprises a series of business process areas that form a general workflow of business tasks for achieving the enterprise ultimate goal (the optimal mix of P, V and C). The business process chain runs through the entire business cycle, from investment to production, marketing to return, as shown below. The process areas are carried out in a general sequence.

Each of the process areas is allocated with a specific amount of cost and time while in resource planning stage. And the efficiency of individual process is measured in terms of time and cost. The efficiency of the business process chain can elaborate the capability of an enterprise, because the capability determines how well the enterprise can drive the available resources to achieve its objectives.

Now, let us see how the business process chain is accommodated in the framework of the PVC system. The cube shown below is formed with the 1st and 2nd tiers. There is a series of directed lines running through the vertexes of the

two tiers, which represents the general workflow of business process chain. As depicted in the figure 9, the business process chain goes from *Management* to *Finance*, *Finance* to *Capital* etc. all the way down to *Profit* to *Management*, and its complete workflow represents a business cycle. Each directed line represents a stage along the business cycle, which bears some key concerns and decisional issues. In other words, top management is required to pay attention to certain critical issues and/or need to make certain key decisions at a certain stage. Please refer to the table 3 below for details.

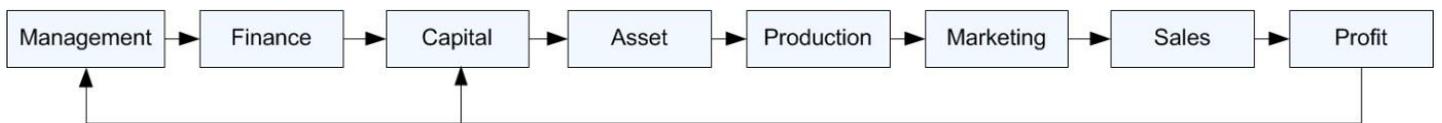


Figure 8: Business process chain

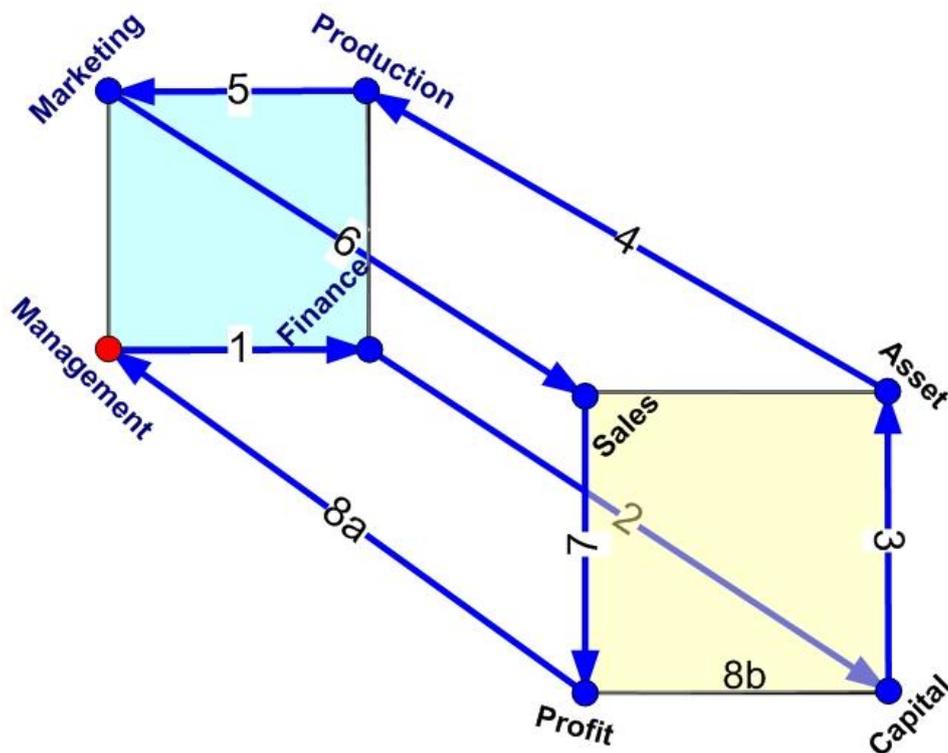


Figure 9: Business process chain in the 1st and 2nd platforms

Table 3: The 9 relations and their definitions and key concerns

<i>Relation</i>	<i>Main tasks involved</i>	<i>Key decision & concern</i>
1 Management → Finance	Getting proper size of money and raising fund from proper sources to pursue entrepreneurs' opportunity	Source & Amount
2 Finance → Capital	Making decisions about the arrangement of owners' equity and debt to attain an advantageous combination	Owners' Equity Decision
3 Capital → Asset	Making decisions about investing on assets and deciding proper asset structure	Investment Decision
4 Asset → Production	Allocating available resources for producing products and services in order to achieve good productivity	Productivity
5 Production → Marketing	Establishing marketing strategy with regard to the products and production process given	Market Development
6 Marketing → Sales	Deploying marketing strategy and developing sales capacity for generating highest sales as possible	Sales Development
7 Sales → Profit	Controlling costs to enhance profit margin for profit maximization	Cost Control & Execution Efficiency
8a Profit → Management	Reviewing the general management efficiency; Making decisions on dividend policy	Management Efficiency / Dividend decision
8b Profit → Capital	Making decisions on retained earnings or reinvestment	Growth

STRATEGIC MANAGEMENT

Among many definitions for strategy, this concept can be summarized as a set of directional plans and decisions that guide enterprises to achieve corporate goals against the firm's capability and the environment confronted. Mintzberg even generalized it as the mediating force between the organization and its surroundings (Mintzberg, Ahlstrand, et al., 1998). However, it still seems to be a vague concept and subject to various interpretations, underlying assumptions and dimensions concerned (Bhalla et al., 2009). Magretta commented that business model and strategy are among the most sloppily used terms in business, they are often stretched to mean everything – and end up meaning nothing (Magretta, 2002). In fact, our definition of strategy is quite similar. Anyhow, more importantly, we are not only defining strategy, but also making it visualized, thus making it more

understandable and usable. Referring to the figure 5 above, a corporate strategy lies between a firm's internal and external environments, which are further represented by altogether 16 elements, 8 for internal and another 8 for external, with the objectives and structure defined above.

The theories of strategic management emerged in 1950s (Ghemawat, 2002), but had not yet been coined as strategic management until 1979 (Galvin, Felix, 2014). Its study is an attempt to integrate policies, resource allocation, plans etc. together for achieving organizational objectives, involving cross-functional decision-making and managing, and trying to look at business at a senior management perspective. As Bhalla put it, Strategic management was born as a hybrid discipline, influenced by both sociology and economics (Bhalla et al., 2009). Prolific researches and studies have been contributed to strategic management ever since its emergence,

such as SWOT, PEST, generic competitive strategies, Five Forces, VRIO, BCG growth-share matrix etc. These theories together constitute the mindset of enterprise strategic management. Concretely, it involves in conducting several tasks: environmental analysis, internal capability analysis, enterprise's potential analysis on P&V, P&V strategic positioning, strategic formulating and strategic implementation.

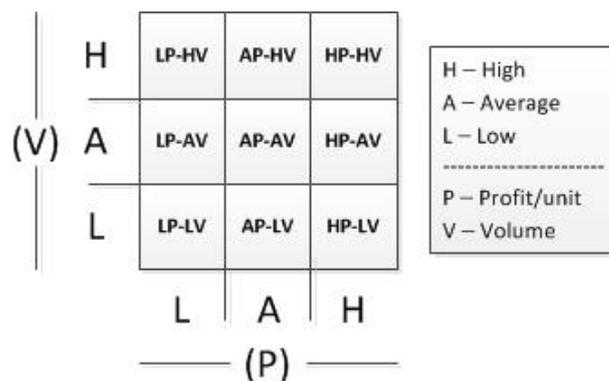


Figure 10: The chart of Strategic positioning

PV STRATEGIC POSITIONING

As PVC is defined as the ultimate goal of business, the strategy and its planning can be expressed in a more concrete manner. Conceptually, the strategy formulation is based on strategic positioning that is to match between internal environment and external environment. The external environment is represented by some essential environmental factors that form an aggregate impact to the enterprise, which implies opportunities and threats to enterprises. On the other hand, the internal environment is represented by the key capability and capacity that enable the enterprise to capture the opportunities anticipated. While in conducting a strategic positioning, the top management must come up with the P-potential (potential on unit-profit side), V-potential (potential on volume side) and even the C-potential (potential on sustainability or future profits). This is a concrete manner to interpret the impact to a business. The internal environment is the setting of the business processes and resources that constitute the capability and capacity of the enterprise. The internal environment must be allocated and deployed effectively and efficiently with respect to the external environment in hope of capturing opportunities and avoiding threats at best. The top management should assess the firm's capacity and capability in terms of P and V that can serve to capture the P-potential and V-potential respectively.

Through the analyses of the capacity & capability, environment and potential, we know where we are and what we are likely to confront now and in the future. Then, we need to decide our strategic position at where we can stand at an advantageous position for achieving PVC objective the best, which provides a direction in which we can strategically proceed. There are nine strategic positions as shown on the right.

The strategic position is characterized in terms of P and V. We need to estimate the potential change by firstly identifying where we are now, let's say, AP-AV (meaning Average Profit – Average Volume) with respect to the market we compete in. With the evaluation of the potential and our own capacity and capability, we determine where we are likely to be with our best effort. Simply speaking, strategic positioning is the suggested transition from one position to another, e.g. AP-AV → AP-HV, justified with the relevant factors. This can help management focus to capitalize on Profit (unit-profit) market or Volume market, implying some inclination while in strategic formulation. For instance, for high-profit (high unit profit) market, the profitability is achieved by taking on the marketing strategy of brand building, whereas establishing high throughput and effective sales distribution channels is likely the more appropriate approach for the high-volume market.

THE ROLE OF BUSINESS MINDFRAME IN EDUCATION

As discussed in the previous sections as to why business knowledge needed to be engineered, the same reasons are also true to the education purpose. Due to the very nature of business, dealing with business problems entails the holistic and integrative thinking for judgments and decision-makings. However, the fact is that there has not been any subject addressing the integration of the eight or nine individual business subjects. Furthermore, the situation is getting worse while the business studies have been evolving and extending to wider and wider range, such as financial innovation, government policies, ecology, political climate, artificial intelligence, big data, and many more. How could we suppose that the students can integrate a wide variety of knowledge

sensibly into a structural mental system that can effectively contribute to their strategic thinking?

From an education perspective, some high-level theories, such as SWOT and PEST, provide a comprehensive conceptual model for connecting the details in dealing with business cases, but they are too abstract that students are still suffering with the wide gap between its abstract structure and its specific practice. Now, we take a step forward with the emphasis of system view that not only helps formulate strategies as SWOT does, but also extends the reach much further down to details. In addition, the system incorporates major strategic and financial concepts, such as PEST, Five Forces, Generic strategy framework (Porter, 1980), 4Ps, BCG share-growth matrix, costing, financing etc. while in conducting strategic analysis. Accompanying the PVC concept as a backbone, the students can integrate the thoughts from strategic analysis through to financial performance and even macro-economic trend. At the very least, it provides learners with a framework for training the holistic and integrative mindset in business context.

CONCLUSION

In summary, we put forth a framework, a set of business guiding principles, concepts, evaluation criteria, tools & techniques, constituting the *Business "MindFrame"*, in which one can be aided in better modeling business contexts, reasoning the business decisions out, and charting the effective courses of actions rationally. We do not characterize our study as a radical shift from the traditional body of knowledge, but we do aim to make an endeavor in re-engineering business knowledge in which ones can truly integrate business matters in a holistic manner. Although there are many splendid strategic conceptual frameworks (e.g. TQM, Balance Scored Card, Six Sigma) available for dealing with strategic management, none of these dedicate themselves in constructing a concise model for representing an entire business either conceptually or visually, which poses a hindrance to both learning and applying business concepts.

This paper also carries the intent of exploring the feasibility of integration between strategic management and business process management and hopes to lay down a foundation for serving this purpose. Winter distinguishes the enterprise architecture into five architectural layers: Business, Process, Integration, Software and Technology (Winter, Fischer, 2007),

which formalizes the overall structure of a corporation. Among the five, the Business architecture represents the fundamental organization of the corporation from a business strategy viewpoint, which can provide guidelines of interfacing between strategy level and business process level. This, as we perceive, creates a feasible condition for the articulation between the traditional Business Engineering and ours.

ACKNOWLEDGEMENT

The Institute of Business Engineering (Hong Kong, www.ibehk.org) was established since 2005. Recently, the institute has just renamed to the Institute of Business Engineers, effective from November 11, 2016.

This research did not receive any specific grant from funding agencies in the not-for-profit sectors.

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