

INNOVATIVE DOMINANTS IN THE PROCESS OF MODELLING INTERNATIONAL STRATEGIES: BUSINESS STRENGTH MATRIX

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Inovatívne dominanty v procese modelovania medzinárodných stratégií: matica konkurencie schopnosti podnikateľského subjektu

Abstract: *This paper investigates the innovative dominants in the process modelling of international strategies in the coordinates of globalization changes and European integration. The conceptual bases for the development of strategic planning programmes in international business are examined in the paper. A number of economic and mathematical models for evaluating investment processes and justifying the development of international strategies, their variability and optimality are proposed. The application of new mechanisms of innovative development of the economy and its investment support is justified. Paper represents and analyzes the business strength matrixes in today's business environment, such as: competitive strength matrix, Industry Attractiveness-Business Strength Matrix, and the Life Cycle-Competitive Strength Matrix. In the article there are the main research vectors in the process of modelling international strategies, innovative forms of investment, which are widely used: crowdfunding, crowdinvesting, and crowdsourcing. Also in the article crypto currency is researched by the author, it is the subject form of strategy and innovative dominant of monetary policy. Theoretical and methodological bases of the research consist of the research of modern economic concepts of management, informatisation, and system theory. The objective of research consists in defining programmatic and methodological basic concepts for the analysis of innovation activity, systematization of analytic indicators of industrial enterprises.*

Keywords: *factor models, business strength matrix, competitive strength matrix, crowdfunding, crowdsourcing, crowdinvesting, investment, multi-business companies, crypto currency*

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1. Identification of the problem

The development of the market environment, and a dynamic and turbulent nature of its operation require fundamental changes in the organizational forms of social economy and changes in management analysis of innovation and investment activity of domestic enterprises. Development of the market environment demands cardinal changes of forms of the public economy organisation and as well as the change in the administrative analysis of innovative and investment activities of the domestic enterprises.

Principal conditions of economic development are accumulated research and technology, industrial and investment potential, institutional impact on technological progress, and state support of innovative transformations. Economic distortions prove expediency for activating and increasing of innovation investment processes efficiency in the industry and minimization of impact of factors which slow them down. A considerable impact on innovation investment activity, market dominance, and compositeness in the industry have an innovation potential. Under these conditions, the study of theoretical principles and practical measures concerning the development of domestic production by means of implementing its innovative potential assumes significance [1].

At the current stage of development of the enterprise's foreign economic activity, the strategic planning process, its implementation on foreign markets and the policy of investment controlling in the system of financial and economic security take a significant place. The investment controlling has its own peculiarities.

Subject to the condition stabilization of economic situation investment activity comes forward, and it is one of important factors of growth and development of Ukraine's economy. However, the absence of the integral system of investment policy on many enterprises, which responds to the needs of variable market environment and directed on providing of the rational use of investment resources, exacerbates the problem of perfection and development of scientific or methodical approaches and tools of management. Application of one will be instrumental in the acceleration of socio-economic development of the Ukrainian enterprises through the investment of capital.

The high level of economic development, as shown by the experience of the industrial countries of the world, is provided by a number of conditions, of which the principal one is the accumulated scientific and technical, industrial, investment potential, institutional factors of technological progress, and state support for innovative transformations. Economic deformations form the expediency of activating and increasing the effectiveness of the investment and investment processes in the industry and minimizing the influence of

the factors that are decomposing them. There are some factors of innovative potential area, such as: the innovative and investment activity, ensuring of leading positions, competitiveness in industry. Thus, the substantiation of the theoretical foundations and practical recommendations for the development of domestic production through the formation and realization of its innovative potential on a competent basis becomes of special significance nowadays.

To survive in the modern market competitive struggle, companies should be able to quickly use any favourable business opportunities anywhere in the world, and respond promptly to changes that take place both on the domestic and foreign markets. This situation requires a clear definition of a corporate mission, a vision of the ways of achieving this mission, and a clear understanding of the methods of competition. Defining competitive positions requires careful assessment of the strengths and weaknesses of the company in comparison with its competitors, forecasting of probable political, economic and social changes among existing and potential consumers, as well as the analysis of the impact of new technologies on business methods.

2. Review of recent literature

Research of potential strategy in the foreign market, structure and methods for evaluation, innovation and investment into enterprises, development features of the strategic planning of the enterprise foreign economic activity, investment controlling in the system of financial and economic security were conducted in the studies by foreign and domestic scientists.

For example, Hilorme [4] presents innovative methods for the development of industries. Fabozzi [3] explores investment management. Authors Elton and Gruber [2] investigate the question of modern portfolio theory and investment analysis. Pearce [11], for instance, dedicated his works to strategic management, formulation, implementation, and control. Karpenko [8] has been working on the issues of strategic competitive analysis of innovative enterprises development and predictive validity. Some economists explore development issues of innovation policy of the European Union and West Africa ([12]; [9]). Analysis of the recent scientific materials indicates the results of comprehensive research into the development and implementation of the innovation and investment mechanism elements, improvement of the investment climate, economic and statistical calculations, and modelling of functioning of enterprise development strategy in the foreign markets.

However, some issues need to be more mainstream, which is necessary to develop a conceptual approach to the formulation of the administrative management at the enterprise, or “How to make the administrative work”. A number of researches are devoted to problematic issues of attracting investors at an initial stage of implementation of the project. A considerable

part of innovative projects are left without financing due to the lack of confidence of the investor in timely return of financial means.

3. The aim of this paper

The aim of the paper is to study the innovative dominants in the process of modelling international strategies in the coordinates of globalization changes and European integration; analysis and characterisation of the investment control management steps; studying the business strength matrixes in today's business environment, such as: competitive strength matrix, industry attractiveness-business strength matrix, the life cycle-competitive strength matrix. The secondary goal of this paper is to analyze main vectors in the process of modelling international strategies, widely applied innovative forms of investment: crowdfunding, crowdinvesting, and crowdsourcing. Moreover, in the article crypto currency is researched by the author; it is the subject form of strategy and innovative dominant of monetary policy.

4. Key research findings

Let's begin our research with factor models. There are three types of factor models being used today to manage equity portfolios: statistical factor models, macroeconomic factor models, and fundamental factor models. In a statistical factor model, historical and cross-sectional data on stock returns are combined in a statistical model. The statistical model used in the principal components analysis, which is a special case of a statistical technique called factor analysis. The goal of the statistical model is to best explain the observed stock returns with "factors" that are linear return combinations and uncorrected with each other. Because of the problem of interpretation, it is difficult to use the factors from a statistical factor model for valuation and risk control. Instead, practitioners prefer the two other models described below, which allow them meaningful prosperity factors and, thus, produce a more intuitive model.

In a macroeconomic factor model, the inputs to the model are historical stock returns and observable macroeconomic variables. These variables are called raw descriptors. The goal is to determine which macroeconomic variables are prevalent in the explanation of historical stock returns. Those variables that prevail in explaining the returns are then the factors that are included in the model. The responsiveness of a stock to these factors is estimated using historical time-series data. Two examples of proprietary macroeconomic factor models are the Burmeister, Ibbotson, Roll, and Ross (BIRR) model and the Salomon Smith Barney model.

Also there are multi-index models, which attempt to capture some of the nonmarket influences that cause securities to move together. The search for

nonmarket influences is a search for a set of economic factors or structural groups (industries) that account for common movement in stock prices beyond that accounted for by the market index itself. While it is easy to find a set of indexes that is associated with nonmarket effects over any period of time, as we will see, it is quite another matter to find a set that is successful in predicting covariances that are not market related.

The basis for the dividend discount model is simply the application of present value analysis, which asserts that the fair price of an asset is the present value of the expected cash flows. In the case of common stock, the cash flows are the expected dividend payouts and the expected sale price of the stock at some future date. The sale price is also called the terminal price [2].

In this article the author examines both multi-index models and averaging models. Several of the models put forth in the finance literature are discussed as well as some of the empirical evidence on their relative merits. There are other uses for multi-index models besides predicting correlation coefficients. So, we are viewing Multi-Index Models [3]. The assumption underlying the single-index model is that stock prices move together only because of common movement with the market. Many researchers have found that there are influences beyond the market that cause stocks to move together. Two different types of schemes have been put forth for handling additional influences. We have called them the general multi-index model and the industry index model.

The following part of the paper deals with General Multi-Index Models. Any additional sources of covariance among securities can be introduced into the equations for risk and return simply by adding these additional influences to the general return equation. Let us hypothesize that the return on any stock is a function of the return on the market, changes in the level of interest rates, and a set of industry indexes. If R_i is the return on stock i , then the return on stock can be related to the influences that affect its return in the following way (1):

$$R_i = a_i^* + b_{i1}^* I_1^* + b_{i2}^* I_2^* + \dots + b_{iL}^* I_L^* + C_i \quad (1)$$

In this equation I_j^* is the actual level of index j , and b_{ij}^* is a measure of the responsiveness of the return on stock i to changes in the index j . Thus, it has the same meaning as in the case of the single-index model. A b_{ij}^* would mean that if the index increased (decreased) by 1 %, the stock's return is expected to increase (decrease) by 2 %. As in the case of the single-index model, the return of the security not related to indexes is split into two parts; a_i^* , c_i is the expected value of the unique return. This is the same meaning it had in the

single-index model; c_i is the random component of the unique return. It has a mean of zero and a variance we will designate as $\sigma_{c_i}^2$ [5].

Management decisions taken at initial stages of implementing energy efficiency projects provide significant impact upon the communicative efficiency of the marketing promotion of energy efficiency technologies, duration and cost of project implementation, cost of delay and, correspondingly, economic efficiency. It has been proved that in the process of implementation of innovative energy efficiency projects, as exemplified by energy-active fencing system based on the use of alternative energy sources, with their economic efficiency evaluations according to Cronbach & Gleser [15], the standard deviation for efficiency of first-time projects in money terms constitutes minimum 40 % of expected revenue. To increase the generation of revenue from implementation of energy efficiency projects, it is essential to regulate interrelations between stakeholders, particularly owners and top company managers.

In the context of the work, the author's interest focuses on the following methodological approaches to the development and adaptation of managerial innovations: organizational design, benchmarking, reengineering and engineering of business processes, and modelling the resource structure of the enterprise budgeting process.

There are various managerial innovations, so the methods of their development and implementation differ from each other. One must agree with the opinion of Hilorme T. that managerial innovation is an artificial organizational system, a product of purposeful human activity [4]. Development and implementation of managerial innovations should be carried out on the basis of the project. Such projects can be called "organizational projects", since as a result of their implementation, organizational systems are created.

Benchmarking – analytical process of detailed comparison and evaluation of our enterprise in terms of operations with "the best companies in the classroom" in the middle and out of the industry. As a result of this process, there are actions aimed at overcoming the "gap" between our enterprise and the leader [6].

The budgeting system of the enterprise involves the use of economic and mathematical modelling of business operations, which allows managers to build economically sound strategy and tactics of behaviour in a competitive market, to make the right management decisions [7].

In order to support the project management process, it is necessary to adapt the set of project management tools appropriately, which should be adapted to account for individual project peculiarities. Adaptation of the set of project management tools according to the type of project is shown in Figure 1.

The practical side of the work is the project justification of the necessity of investing in the developing the technology of laser centring of rotors and the flowing part of the cylinders of the turbine units of the AP NPP of the NNEGC “Energo-atom”. Here are the main goals and results provided by the project:

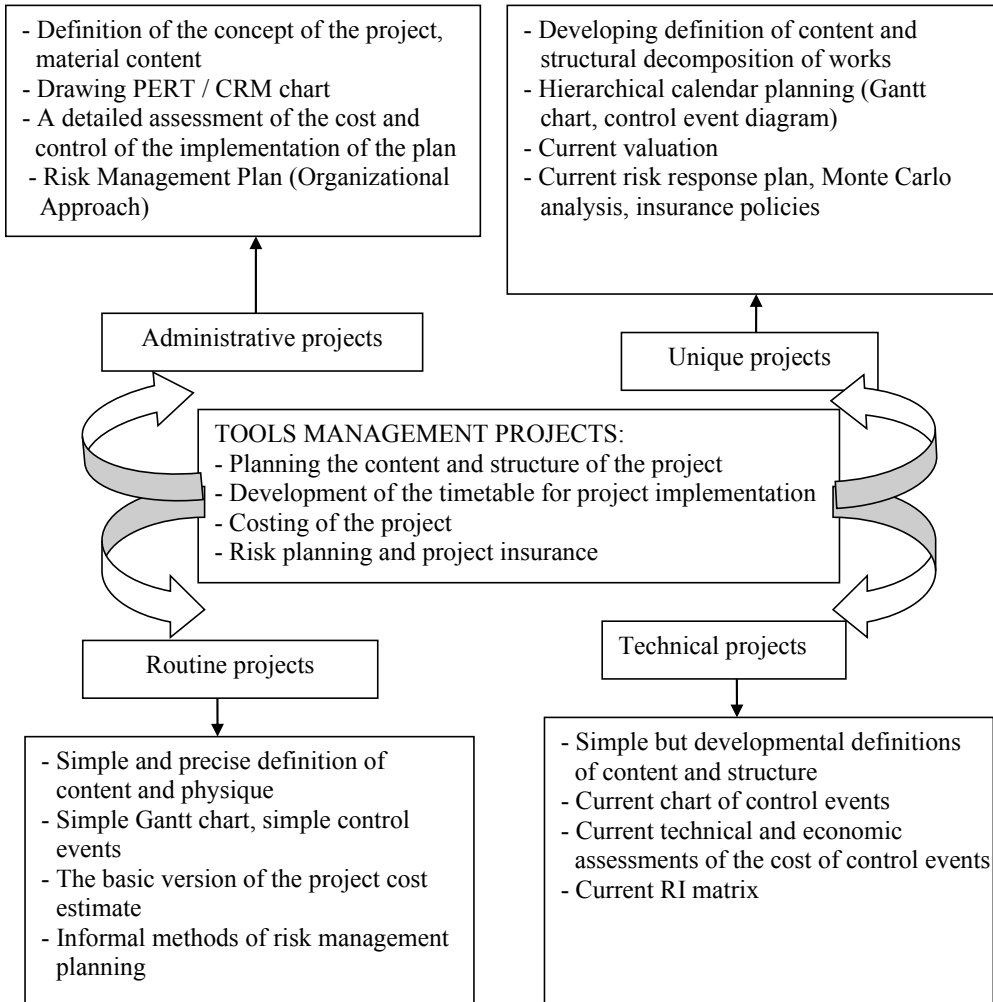
- achievement of all high requirements of centring of the flowing part of cylinders and shaftwires, which are presented by factories producing turbine units;
- exclusion of accidents and stops of turbine units associated with increased vibration of turbine units;
- focusing on the turbine units of the NPP Company on its own and taking part in the work on the thermal power plants of Ukraine and abroad.

Each innovative project at the planning stage provides a number of indicators that will allow you to evaluate the results of the project implementation and achieve its goals. The benefits of developing this direction can only be estimated by economic effect. They are due to other factors, such as:

- performance of work by own personnel, the salary of which is included in the tariff component of electricity;
- reduction of repairs owing to the use of modern equipment;
- reduction of care of financial resources from the company;
- increase in labour productivity and, as a consequence, a reduction of repairs of at least 30 %.

Figure 1

Adaptation of the set of project management tools according to the type of project (systematized by the author on the basis of [4, 5, 7, 8])



Source: Author's own processing based on [4, 5, 7, 8].

Strategic analysis and choice is more complicated for corporate-level managers; they must create a strategy to guide a company that contains numerous business. They have to examine and choose which businesses to own and which ones to forgo or divest. They must consider business managers' plans to capture competitive advantage, and then decide how to allocate resources among businesses as part of this phase.

The final topic that is important to an understanding of strategic analysis and choice in business organization is the "no business," behavioural factors

that often exert a major influence on strategic decisions. This is true in the single-product business as well as the multi-business company. What behavioural considerations often influence how managers analyze strategic options and make strategic choices? For example, J.E. Schrempp became CEO of Germany's Daimler Benz as planned, having taken over from his mentor, Edzard Reuter, with whom he had charted a steady 10-year diversification to build a \$74 billion company. Three months later, Schrempp reversed the strategy to break up the company, focus on core businesses, and reconstruct a new management team. How could such a dramatic, sudden shift take place? Answering that question requires you to consider behavioural factors as well as strategic issues at Daimler Benz.

Next part of the paper deals with *rationalizing diversification and integration* [8]. When a single or dominant-business company is transformed into a collection of numerous businesses across several industries, strategic analysis becomes more complex. Managers must deal not only with each business's strategic situation; they must set forth a corporate strategy that rationalizes the collection of businesses they have amassed. Two key audiences are listening. First, managers within the organization want to understand their role and access to resources relative to other businesses within the company. Second, and of greatest importance, stockholders deserve to understand how this collection of businesses is expected to build shareholder value over the long term more effectively than simply investing in separate businesses. In a sense the question is: "Are there compelling reasons why corporate management is better able to invest shareholder value in a variety of other businesses versus allowing shareholders to make that decision themselves?"

Stockholder value in a diversified company is ultimately determined by how well its various businesses perform and/or how compelling potential synergies and opportunities appear to be. Business-level performance is enhanced by sustained competitive advantages. Wise diversification has at its core the search for ways to build value and sustained competitive advantage across multiple business units [9]. We saw several ways opportunities for sharing and building value may be present across different businesses. The bottom line is that diversification that shares skills and core competencies across multiple businesses to strengthen value chains and build competitive advantage enhances shareholder value. And so it is that strategic analysis and choice for corporate managers overseeing multi-business companies involves determining whether their portfolio of business units is capturing the synergies they intended, how to respond accordingly, and choosing among future diversification or divestiture options [7]. Managers address the following four basic questions to do this (see Table 1).

Further, we are going to describe the *Industry Attractiveness-Business Strength Matrix*. Corporate strategists found the growth-share matrix's singular axes limiting in their ability to reflect the complexity of a business's situation. Therefore, some companies adopted a matrix with a much broader focus. This matrix, developed by McKinsey & Company at General Electric, is called the Industry Attractiveness – Business Strength Matrix. This matrix uses multiple factors to assess industry attractiveness and business strength rather than the single measures (market share and market growth, respectively) employed in the BCG matrix. It also has nine cells as opposed to four replacing the high/low axes with high/medium/low axes to make finer distinctions among business portfolio positions.

Table 1

Value Building in Multi-business Companies

Opportunities to Build Value or Sharing	Potential Competitive Advantage	Impediments to Achieving Enhanced Value
1	2	3
Market-Related Opportunities: Shared sales force activities or shared sales office, or both.	Lower selling costs. Better market coverage. Stronger technical advice to buyers. Enhanced convenience for buyers (can buy from single source). Improved access to buyers (have more products to sell).	- Buyers have different purchasing habits toward the products. - Different salespersons are more effective in representing the product. - Some products get more attention than others. - Buyers prefer to multiple-source rather than single-source their purchases.
Shared after-sale service and repair work.	Lower servicing costs. Better utilization of service personnel (less idle time). Faster servicing of customer calls.	- Different equipment or different labour skills, or both, are needed to handle repairs. - Buyers may do some in-house repairs.
Shared brand name.	Stronger brand image and company reputation. Increased buyer confidence in the brand.	- Company reputation is hurt if quality of one product is lower.
Shared advertising and promotional activities.	Lower costs. Greater clout in purchasing ads.	- Appropriate forms of messages are different. - Appropriate timing of promotions is different.
Common distribution channels.	Lower distribution costs. Enhanced bargaining power with distributors and retailers to gain shelf space, shelf positioning, stronger push and more dealer attention, and better profit margins.	- Dealers resist being dominated by a single supplier and turn to multiple sources and lines. - Heavy use of the shared channel erodes willingness of other channels to carry or push the firm's products.
Shared order processing.	Lower order processing costs. One-stop shopping for buyer enhances service and, thus, differentiation.	- Differences in ordering cycles disrupt order processing economies.
Operating Opportunities: Joint procurement of purchased inputs.	Lower input costs. Improved input quality. Improved service from suppliers.	- Input needs are different in terms of quality or other specifications. - Inputs are needed at different plant locations, and centralized purchasing is not responsive to separate needs of each plant.

Table 1 continued:

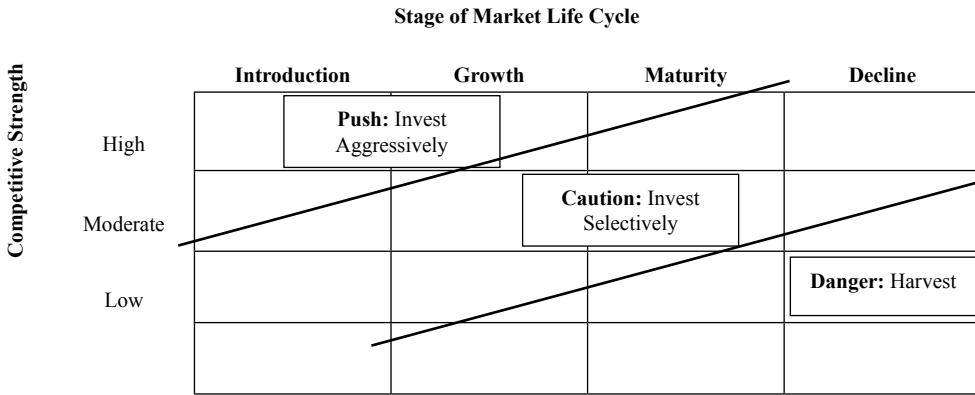
1	2	3
Shared manufacturing and assembly facilities.	Lower manufacturing/assembly costs. Better capacity utilization, because peak demand for one product correlates with valley demand for other. Bigger scale of operation improves access to better technology and results in better quality.	- Higher changeover costs in shifting from one product to another. - High-cost special tooling or equipment is required to accommodate quality differences or design differences.
Shared inbound or outbound shipping and materials handling.	Lower freight and handling costs. Better delivery reliability. More frequent deliveries, such that inventory costs are reduced.	- Input sources or plant locations, or both, are in different geographic areas. - Needs for frequency and reliability of inbound/outbound delivery differ among the business units.
Shared product and process technologies or technology development or both.	Lower product or process design costs, or both, because of shorter design times and transfers of knowledge from area to area. More innovative ability, owing to scale of effort and attraction of better R&D personnel.	- Technologies are the same, but the applications in different business units are different enough to prevent much sharing of real value.
Shared administrative support activities.	Lower administrative and operating overhead costs.	- Support activities are not a large proportion of cost, and sharing has little cost impact (and virtually no differentiation impact).
Management Opportunities: Shared management know-how, operating skills, and proprietary information.	Efficient transfer of a distinctive competence—can create cost savings or enhance differentiation. More effective management as concerns strategy formulation, strategy implementation, and understanding of key success factors.	- Actual transfer of know-how is costly or stretches the key skill personnel too thinly, or both. Increased risks that proprietary information will leak out.

Source: systematized by the author on [3, 5, 8, 11].

The company's businesses are rated on multiple strategic factors within each axis (see Figure 2). The position of a business is then calculated by "subjectively" quantifying its rating along the two dimensions of the matrix. Depending on the location of a business within the matrix, one of the following strategic approaches is suggested: (1) invest to grow, (2) invest selectively and manage for earnings, or (3) harvest or divest for resources. The resource allocation decisions remain quite similar to those of the BCG approach.

Figure 2

Stage of Market Life Cycle – Competitive Strength Matrix



Source: Author’s own processing.

Although the strategic recommendations generated by the Industry Attractiveness-Business Strength Matrix are similar to those generated by the BCG matrix, the Industry Attractiveness-Business Strength Matrix improves on the BCG matrix in three fundamental ways. First, the terminology associated with the Industry Attractiveness-Business Strength Matrix is preferable because it is less offensive and more understandable. Second, the multiple measures associated with each dimension of the business strength matrix tap many factors relevant to business strength and market attractiveness besides market share and market growth. And this, in turn, makes for broader assessment during the planning process, bringing to light considerations of importance in both strategy formulation and strategy implementation.

Further, we are going to describe *the Life Cycle-Competitive Strength Matrix*. One criticism of the first two portfolio methods was their static quality their portrayal of businesses as they exist at one point in time, rather than as they evolve over time. A third portfolio approach was introduced that attempted to overcome these deficiencies and better identify “developing winners” or potential “losers.” This approach uses the multiple-factor approach to assess competitive strength as one dimension and stage of the market life cycle as the other dimension [11].

The life cycle dimension allows users to consider multiple strategic issues associated with each life cycle stage, thereby enriching the discussion of strategic options. It also gives a “moving indication” of both issues those strategy needs to address currently and those that could arise next. Table 2 provides an illustration of this matrix. It includes basic strategic investment

parameters recommended for different positions in the matrix. While this approach seems valuable, its recommendations are virtually identical with the previous two portfolio matrices.

Table 2

Considered in Constructing an Industry Attractiveness – Business Strength Matrix

Industry Attractiveness	Business Strength
<i>Nature of Competitive Rivalry</i>	<i>Cost Position</i>
Number of competitors	Economies of scale
Size of competitors	Manufacturing costs Overhead
Strength of competitors' corporate parents	Scrap/waste/rework Experience effects Labour rates
Price wars	Proprietary processes
Competition on multiple dimensions	
<i>Bargaining Power of Suppliers/Customers</i>	<i>Level of Differentiation</i>
Relative size of typical players	Promotion effectiveness
Numbers of each	Product quality
Importance of purchases from or sales to	Company image
Ability to vertically integrate	Patented products
	Brand awareness
<i>Threat of Substitute Products/</i>	<i>Response Time</i>
<i>New Entrants</i>	Manufacturing flexibility
Technological maturity/stability	Time needed to introduce new products
Diversity of the market	Delivery times
Barriers to entry	Organizational flexibility
Flexibility of distribution system	
<i>Economic Factors</i>	<i>Financial Strength</i>
Sales volatility	Solvency
Cyclicalities of demand	Liquidity
Market growth	Break-even point Cash flows Profitability Growth in revenues
Capital intensity	
<i>Financial Norms</i>	<i>Human Assets</i>
Average profitability	Turnover Skill level
Typical leverage	Relative wage/salary Morale
Credit practices	Managerial commitment Unionization
<i>Socio-political Considerations</i>	<i>Public Approval</i>
Government regulation	Goodwill
Community support	Reputation
Ethical standards	Image

Source: Author – systematized by the author based on [5, 8, 11, 14].

Next part of the paper deals with the question whether our *Business Portfolio Achieves Appropriate Levels of Risk and Growth*. Diversification has been traditionally recommended as a way to manage, or diversify, risk. Said in another way, “not having all your eggs in one basket” allows corporate managers to potentially reduce risk to company stockholders. Balancing cyclical revenue streams to reduce earnings volatility is one way diversification may reduce risk. So managers need to ask this question as part of their strategic analysis and subsequent choice. Likewise, revenue growth can be enhanced by diversification. Many companies in the hazardous

waste industry maintained the steady growth investors had come to expect by continuously making acquisitions of other businesses to gain immediate sales growth. Indeed, *Strategy in Action*, reports that Generation X managers are much more comfortable with “M&A” diversification growth than their elderly counterparts, with the exception of GE legend Jack Welch.

Both risk and growth are assumptions or priorities corporate managers should carefully examine as they undertake strategic analysis and choice. Is growth always desirable? Can risks truly be managed most effectively by corporate management? Many companies have pursued growth to gain market share without accompanying attention to profitability. Similarly, companies have built diverse business portfolios in part to manage overall risk. In both instances, the outcome is often a later time when subsequent management must “look in the bag” of businesses and aggressively divest and downsize the company until true value-adding activities and synergies linked to sustained competitive advantages are uncovered.

In the process modelling of international strategies, innovative forms of investment are widely used: crowdfunding, crowdinvesting, and crowdsourcing. Crypto currency is the subject form of strategy and innovative dominant of monetary policy.

Crowdfunding acts as a new instrument of investment of innovative projects in the modern business environment. Advantages to the businessman from the sector of small and medium business can be defined through crowd funding which is capable to provide a unique support for businessmen’s existence at several levels. No other way of financing can provide advantage of pre-sales, a market research, or advertising through communications of sponsors without additional costs [12].

Asymmetry of information and lack of publicly available information of traditional sense, risks of investments into projects are very high. However, crowdfunding via communication with sponsors, obtaining market reviews from them and councils, unknown before, open a way of decreasing these risks. Because of the participation of sponsors in development of the project, crowdfunding is at the same time a financing source before formation of business and in the course of its functioning. It is that mechanism which gives big flexibility where other ways are powerless [13].

Now business is not considered effective without the application of Internet technologies. Modern instruments of implementation and support of projects by means of Internet technologies allow any Internet user to become the participant of financing of the specified projects. This tool carries the name «crowdfunding».

Crowdfunding (from the English words «crowd» – «group of people» and «fund» – «stock») is a practice of funding the project or the enterprise due to attraction of money by contributions from a large number of people, as a rule, on the Internet. The purpose of the finances engagement is creation of the general service, the project, a product or the general investments. This model assumes participation of three players:

- the initiator of the project who offers the idea and/or the project which will be financed;
- individuals or groups which support the idea;
- the administering group («platform») which connects all parties together to start this idea.

Crowdfunding can be defined as a collective contribution of people who use the resources for maintenance of the projects initiated by other people and the organizations. In the modern world this process happens to use of the Internet. Individual projects in business are financed in the small portions from a large number of participants, allow to realize thereby innovations, to develop business.

Crowdsourcing actively develops now as the model for the solution of any kind of the problems and tasks facing both business and before the state and society in general. Within the Crowdsourcing paradigm the solution of a task is transferred to the distributed and very numerous groups of people at the expense of what the cost and time of achievement of result considerably decrease.

In 2003 *Luis von Ahn* together with the colleagues for the first time offered a concept of «human calculations» which operates with opportunities of the person for performance of the computing tasks not subject to the computer. For a decade economists have been studying various aspects of crowdsourcing, the sphere of its application and economic efficiency.

Crowdsourcing is a mobilization of resources of people by means of information technologies for the purpose of the solution of the tasks facing business, the state and society in general. It is advisable to mark out two possible categories of crowdsourcing:

- on *the sphere of life* (business, social, political);
- as *solvable tasks* (creation of a product (content), vote, search of the decision, search of people, collection of information, collecting opinions, testing, support service, fund raising – crowdfunding).

As the industry, crowdfunding is still young. It has grown up from fundraising, having got some changes. Crowdfunding allows to organize fund

raising on any project to anyone. It does not aim to maximize public welfare, and is directed to fund raising for the individual.

In the context of this scientific work interest of the author is lit in studying of questions of *crowdinvesting* as financial base of strategic development of the enterprise. For the enterprise functioning in the competitive environment, competitive advantages can be reached on the basis of investment innovative forms of the projects forming system of its strategic development [7].

The crowdinvesting acts as a separate case of crowdfunding. At the same time, between processes of a crowdfinancing and crowdinvesting there is the same communication, as well as at usual processes of financing and investment. But, unlike crowdfunding, the crowd investing provides investing in the project of the funds raised in the form of collective financing and it is obligatory counting upon obtaining financial benefit by the investor.

Distinctive feature of a crowdinvesting are investments which are attracted by the small sums according to the simplified procedure and counting upon financial benefit. As the crowdinvesting gains steam, has considerable potential in growth of the market and becomes an alternative to traditional investment, this direction of crowdfunding is developed separately and for it special crowdinvesting platforms are created, the rules and norms are introduced [14].

Today, in modern international practice, a new innovative monetary policy tool has emerged – the crypto currency. Crypto currency is a type of digital currency whose issuance and accounting is based on asymmetric encryption and the use of various cryptographic protection methods. Crypto currency is a kind of digital money based on cryptography technology, that is, data encryption. It does not have a physical appearance, and exists only in electronic form. Its main features are anonymity, decentralization and security. Crypto currencies are functioning decentralized in a distributed computer network. They are not in the banknotes that you could touch. They exist in the digital world. Total crypto currency on our planet has already been invented and created about a thousand. The main experts allocate up to fifteen. Bitcoin (bitcoin) leads in terms of volume (and cost), ethereum, bitcoin cash, ripple, litecoin, dash and others breathe in the back of his head. This is what the “rating” cryptocurrency looks like according to the Coinmarketcap.com crypto currency aggregator from the stock exchanges as of August 28, 2017.

The next we are going to study bitcoin. This is still the most powerful crypto currency. Last year, it cost about 2 thousand dollars for 1 bitcoin (at the beginning of its history, in 2010, bitcoin cost 0.005 USD), and on August 13, 2017 it was given 4164.87 dollars. Afterwards, in just one day, the rate of this crypto currency jumped by more than 10 %. However, the cost of

a large number of crypto currencies has increased significantly since their appearance. And as a percentage, bitcoin has grown less over the last year.

Conclusions

Constructing business portfolio matrices must be undertaken with these limitations in mind. Perhaps it is best to say that they provide one form of input to corporate managers seeking to balance financial resources. They should be used merely to provide a basis for further discussion of corporate strategy and the allocation of corporate resources, and to provide a picture of the “balance” of resource generators and users to test underlying assumptions about these issues in more involved corporate planning efforts to leverage core competencies to build sustained competitive advantages. For while the portfolio approaches have serious limitations, the challenge for corporate managers overseeing the allocation of resources among a variety of business units is still to maintain a balanced use of the company’s financial resources.

As a result, we will summarize – *How Well Do Multi-Index Models Work*. At this point, it is worth examining how well these multi-index models have performed when the parameters are estimated from historical data. Remember, multi-index models lie in an intermediate position between the full historical correlation matrix itself and the single-index model in the ability to reproduce the historical correlation matrix. The more indexes are added, the more complex things become, and the more accurately the historical correlation matrix is reproduced. However, this does not imply that future correlation matrices will be forecast more accurately. Since there is an infinite number of multi-index models that can be tried, one cannot unequivocally say that multi-index models are better or worse than single-index models.

The process of planning is a very important component management, since it is the planning that is the fundamental basis for the future development of both the enterprise as a whole, and the sphere of foreign economic activity in particular. The first concern in the implementation of business strategy is to translate that strategy into action throughout the organization. Short-term objectives are derived from long-term objectives, which are then translated into current actions and targets. They differ from long-term objectives in time frame, specificity, and measurement. To be effective in strategy implementation, they must be integrated and coordinated. They also must be consistent, measurable, and prioritized. Functional tactics are derived from the business strategy. They identify the specific, immediate actions that must be taken in key functional areas to implement the business strategy. Implementation of the strategic planning process requires the availability of qualified and competent specialists who will be engaged in its implementation, that is, it is necessary: to create an appropriate management

structure; to develop rules for its functioning; to select and motivate staff; organize information support.

Our research have been concerned with how an individual or institution acting upon a set of estimates, could select an optimum portfolio, or set off portfolios. If investors act as we have prescribed, then we should be able to draw on the analysis to determine how the aggregate of investors will behave, and how prices and returns at which markets will be set.

This article has demonstrated liability funding strategies that involve designing a portfolio to produce sufficient funds to satisfy liabilities whether or not interest rates change. When only one future liability is to be funded, an immunization strategy can be used. An immunization strategy is designed so that as interest rates change, interest rate risk and reinvestment risk will offset each other in such a way that the minimum accumulated value (or minimum rate of return) becomes the target accumulated value (or target yield). An immunization strategy requires that a money manager create a bond portfolio with duration equal to the investment horizon. Because immunization theory is based on parallel shifts in the yield curve, the risk is that a portfolio will not be immunized even if the duration-matching condition is satisfied. Immunization risk can be quantified so that a portfolio that minimizes this risk can be constructed.

When multiple liabilities are to be satisfied, either multi-period immunization or cash flow matching can be used. Multi-period immunization is a duration-matching strategy that exposes the portfolio to immunization risk. The cash flow-matching strategy does not impose any duration requirement. While the only risk that the liabilities will not be satisfied is that issues will be called or will default, the dollar cost of a cash flow-matched portfolio may be higher than that of a portfolio constructed using a multi-period immunization strategy.

Liability funding strategies where the liability payments and the asset cash flows are known with certainty are deterministic models. In a stochastic model, either the liability payments or the asset cash flows, or both, are uncertain. Stochastic models require specification of a probability distribution for the process that generates interest rates.

A combination of active and immunization strategies can be pursued. Allocation of the portion of the portfolio to be actively managed is based on the immunization target rate, the minimum return acceptable to the client, and the expected worst case return from the actively managed portfolio. In a contingent immunization strategy, a money manager is either actively managing the portfolio or immunizing it. Since both strategies are not pursued

at the same time, contingent immunization is not a combination or mix of strategy.

Crowdfunding gains steam today and to become one of the most convenient and popular ways of collecting investments for a startup projects. Nevertheless, not everything is as iridescent as can seem at first sight. The main advantage – this niche is absolutely free in Ukraine and at the same time on the similar project there is a huge public inquiry. The main differentiator of specifically present project – the idea how to realize the project taking into account features of Ukraine's legislation.

Ukrainian crowdfunding platform, focused on residents of our country, the large sums necessary for implementation of the serious technological innovative project because of low welfare and insufficient trust in this sort of projects are hard to collect. Relying on experience of foreign platforms, it is possible to define, as technological projects did not begin to appear on them at once. In the lump of all successfully financed projects, this category occupies only 8.4 %.

However, researches show that technological projects take the leading position. Therefore, it is possible to speak with confidence about prospects for the development of this financial instrument in the Ukrainian market in the field of innovative projects investment.

At the end, this study provides the analytical basis of the integrated management analysis of innovative activities of domestic enterprises in a competitive environment, in order to determine the innovation potential of the industry by means of predictive validity. Results of research can be used for the acceptance of justified managerial decisions of innovative development of enterprises, administrative tracking of the organisation's functioning.

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