The Seybold Report

ISSN 1533-9211

DOI 10.5281/zenodo.6731108

DEVELOPMENT AND TESTING OF A FRAMEWORK FOR INTEGRATING STRATEGIC PLANNING WITH RISK MANAGEMENTIN INDIAN MANUFACTURING INDUSTRY

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Abstract

With a nominal GDP at current prices of US$ 3.12 Trillion, India has emerged as the fastest growing major economy in the world, and is poised to become one of the global top three economic powers in another decade. Sustenance and growth of its Manufacturing Sector is vital for this development trajectory. Effective and efficient Strategic planning is the key to engender competitive edge and enhanced bottom line for any organisation. The Kaplan-Norton strategic planning framework(David P Norton & Robert S Kaplan, 2008) links strategy with operations which can be applied in the manufacturing industry scenario also. But this model is not capableto deal with the unanticipated threats, the Risks that may visit the organisations at any time. This calls for deploying a full-fledged Risk management function withinthe organisation. Literature points to the necessity of integrating the Risk management and Strategic Planning functions so as to avoid selection of mistaken strategies, to manage strategic risks etc. The recent among Risk Management standards, ISO 31000, which gifted us a well-defined model for implementation of Risk Management, strongly advocates that Risk management is to be an integral part of Strategic planning in any organisation, and provides for a generic Risk management framework, that links Risk management with operational activities. This paper is an attempt to develop a conceptual framework that integrates Strategic planning with Risk management by synthesising the most acclaimed Strategic management (Strategic planning) framework and the latest Risk management framework through a functional amalgamation, and to test that framework dynamically in a medium type manufacturing organisation . The trial runof the model resulted in not only setting the right strategy, but also in ensuring the compliance of performance with the mission and objectives of the organisation, despite the many risks identified. This model can be refined further by future works, field trials etc and can be extended to other industries as well.

Tags: Integration of Strategic planning with risk management, Indian manufacturing organisations, Risk management, Strategic planning.

Introduction

Indian Manufacturing Industry

Manufacturing is one of the fast growing sectors of India. The sector's GVA at currentprices was estimated at US$ 397.14 billion in FY20. It currently contributes 16-17% to GDP and gives employment to around 12% of the country's workforce. This makes this sector a critical one to achieve inclusive growth. As more than 65% of thepopulation is under the age of 35, the middle class is driving massive domestic demand, and urbanisation is on a steep uphill drive, now India has all the right conditions to witness this growth. Various studies have estimated that every job created in manufacturing has a multiplier effect in creating 2–3 jobs

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ISSN 1533-9211
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in the services sector. So the growth in manufacturing will generate an enormous amount of overallemployment. It will also offer great captive local demand to the manufacturers. Hence sustenance and growth of this sector is vital for India's development. Each manufacturing organisation should focus on own sustenance and growth, policy makers should focus on creating policy climates that nurture such growth and the government should facilitate and handhold the growth, in harmony with other sectors.

"Towards survival and growth, the manufacturing organisations should strengthen their production capabilities and develop viable strategies" as observed by (Pun, 2003). Another 2021 study by (Arasa & K'Obonyo, 2012) which examined the relationship between strategic planning and firm performance giving attention to the strategic planning steps, indicate the existence of a strong relationship betweenstrategic planning and firm performance. (Omolade & Tony, 2014) also states that their study can "rightly assert that strategic planning is a panacea to the profitability and sustenance of emerging firms, the researcher can say that strategic planning has been the success factor and antidote used by emerging firms to engender competitive edge and enhanced bottom line." While quoting the idea " Strategic planning", all the authors had agreed with the definition given by (Hax & Majluf, 1996)to it as "Strategic planning is concerned with setting of corporate goals, the making of strategic decisions, and the development of plans required to achieve them". Strategy in the context of such strategic planning is defined as "Leveraging opportunities, challenges and vulnerabilities for greatest impact in meeting the organization's mission." by (Boyne, 2010). The classic book "Strategic Planning" (Steiner, 2010), at its outset itself declares that there is no such thing in the world as a Strategic planning system which every organisation should adopt. Strategic planning systems should be designed to fit the unique characteristics of each organisation. Nevertheless, all organisations with different characteristics have common characteristics among their planning systems. So it surmises that, there can be a framework for strategic planning, that is common for all organisations falling in the same industry, which is to be followed to execute the strategic planning process specific to that organisation, in consideration of all unique features surrounding the organisation.

The unanticipated threats that can encounter the normal flow of business at any time, can play havoc with the corporate goals, strategic decisions and all other strategically planned aspects. In their online course "Disruptive Strategy", Harvard Business School Professor Clayton Christensen notes that "When we run into unanticipated opportunities and threats, we have to respond. Sometimes we respond successfully; sometimes we don't. But most strategies develop through thisprocess. More often than not, the strategy that leads to success emerges through aprocess that's at work 24/7 in almost every industry." The "uncertainty of outcome, whether positive opportunity or negative threat, of actions and events" is the definition given for 'Risk' by the Orange Book, UK (HM Government, 2020). This implies that Risks also are to be factored in, while conducting the ongoing process of Strategic planning.

So it appears that Strategic planning of Indian manufacturing industry, is to be integrated with Risk management for the successful performance of any organisation, with respect to the

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ISSN 1533-9211
DOI 10.5281/zenodo.6731108

avowed vision mission and objectives, and thereby for their survival and growth. The objectives of this paper are to (1) verify from literature the above assumption is correct or not and if correct , (2) attempt to develop a framework that integrates the best strategic planning model with the best risk management model, as well as to (3) put to test the framework so developed for gauging its utility.

Methodology

Literature will be surveyed to understand what strategic planning is, how it is important for organisational growth, familiarise with the most proven framework for linking strategy with operations, understand the influence of risks on strategy, know the scholarly opinion on integrating risk management with strategic planning, familiarise with the latest risk management standard, seek for a framework for integrating risk management with strategic planning, that is appropriate for the Indian manufacturing industry and to learn the ways and means to test the framework. With the learnings from the literature the attempts mentioned as the objective of this paper shall be performed.

Literature survey

Strategic Planning

According to the literature of 'Corporate finance institute', the leading, accredited provider of online courses for finance professionals, strategic planning is the " art of formulating business strategies , implementing them, and evaluating their results of executing the plan, in regard to a company's overall long-term goals or desires "

.Thus it is a systematic process that helps to set an ambition for the organisations future and determine how best to achieve it. The primary purpose of strategic planning is to connect the three key areas, Vision, Mission and Objectives. Mission defines the purpose of the business, Vision is the Big picture of what the organisation wants to achieve, Mission is the stated way to achieve it, and the Objectives are the milestones with a specific timeline for achieving a goal. Each cycle of Strategic planning starts with a fresh visit to the MVO, armed with a set of learnings from the. Current and past cycles of planning.

Drawing on extensive research and detailed case studies from a broad array of industries, the Execution Premium model, proposed by Kaplan and Norton, (David P Norton & Robert S Kaplan, 2008) presents a systematic and proven framework for achieving the financial results promised by the strategy of any organisation. Figure-1 , unveils the Kaplan Norton Execution Premium schematic for linking strategy with operations, along 6 major steps viz Strategy development, Strategy Planning, Aligning the Organisation, Operations planning, Monitoring and learning, Testing and Corrections. This model is executed at 3 or more levels of hierarchy, the top management doing the strategic planning, middle management doing the Operation planning and the front liners doing the tactical planning.

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DOI 10.5281/zenodo.6731108

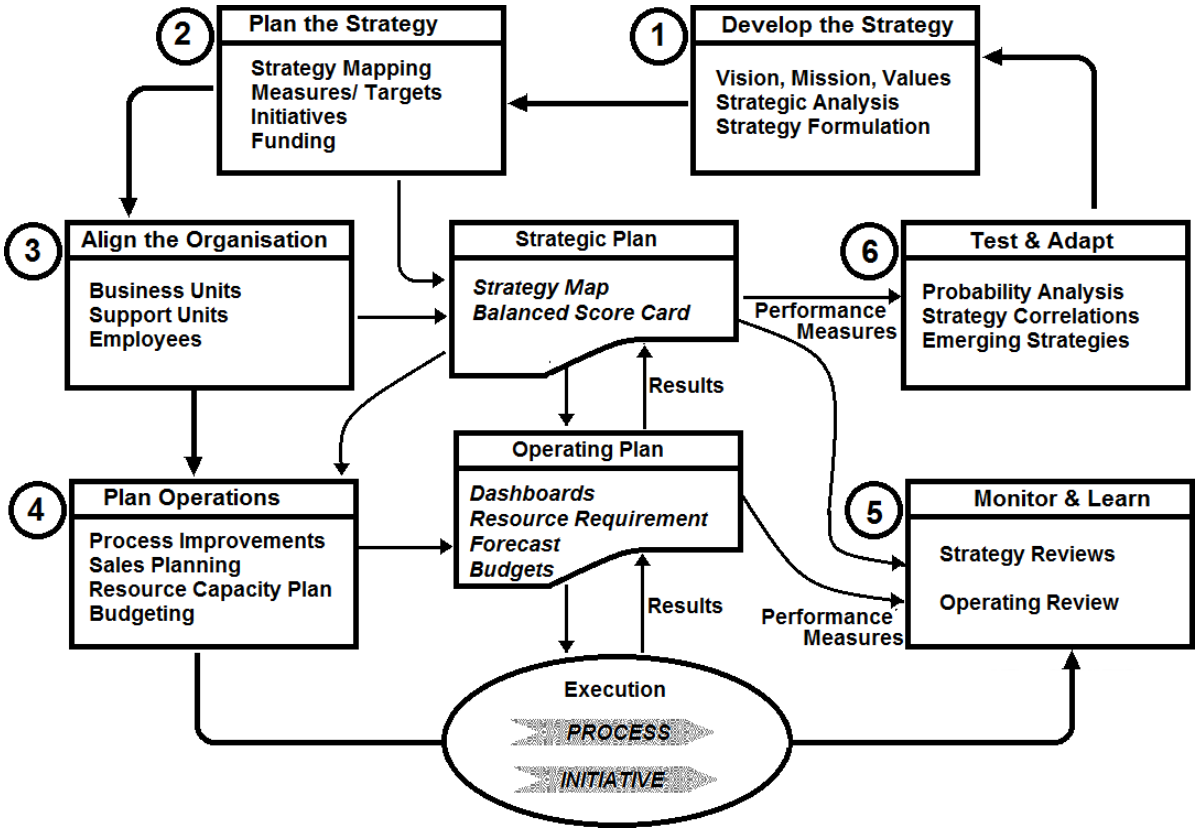

Figure-1, The Kaplan Norton Execution Premium schematic

In the first step of Strategy development , various strategic inputs are considered like the PESTEL analysis to assess the overall conduciveness of external climate, SWOT analysis to assess the health status internal to the organisation, Specific drivers to the organizational direction that exist currently, Current expectations of all stake holder groups, and the body learning drawn from the strategic experiences so far to modify the VMO, and to define the strategic priorities that support the survival and growth of the organisation , in the face of current realities. They form the top level goals of the organisation.

In the second step 'Strategy Planning', the strategic priorities are to be translated into strategic business goals, the rationale behind selecting those goals are to be described, and the pairs of leading and lagging metrics are to be defined. The high level action plans called initiatives, are to be defined, that will guide action. The budgets are to be defined that will guide resource allocation.

Aligning the organisation with the strategy, the third step, involves the linking of the individual objectives and incentives of all organizational components like business units, support units, departments, and employees to the strategic objectives. Once this is done, Strategy planning process is completed. Further translation of the plans to reality will be taken care at operational levels.

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The fourth step 'Operations planning' is the process of linking the long-term strategywith day-to-day operations. Operating plans and operation budgeting, that are in alignment with strategy are to be made. Process improvements that are most critical to the strategy are to be focused. Operation plan is linked totally to strategicplan and the strategic plan gets tweaked by the adjustments initiated by the operations plan. The equilibrium between the two plans is dynamic in nature, enveloped only by the overall bounds defined by strategic priorities. Operation planning is set into action by the execution team at frontline, after breaking down each operation plan into several tactical plans that are in mutual alignment as well as in alignment with the strategic plan at large.

Monitoring and learning is the fifth step. Once the strategy is developed, planned, and implemented, the performance results of the Operation plans, are to be monitored to determine if the strategy is apt (Strategy review) , and if it is being executed properly (Operating review) .

Based on the results derived from the above step, as well as the performance measurement results of the strategic planning, various analyses are to be done to test those fundamental strategic assumptions to determine if they have certainly found the right strategy. This process constitutes the sixth and final step. Based on the results a new cycle of integrated strategy planning and operational execution will commence by revisiting the VMO once again. Thus strategic planning is an ongoing process Figure -2 below, explains the flow of the strategic management process in a simple manner, classifying its components into different zones of a 3 x2 matrix of strategic functions.

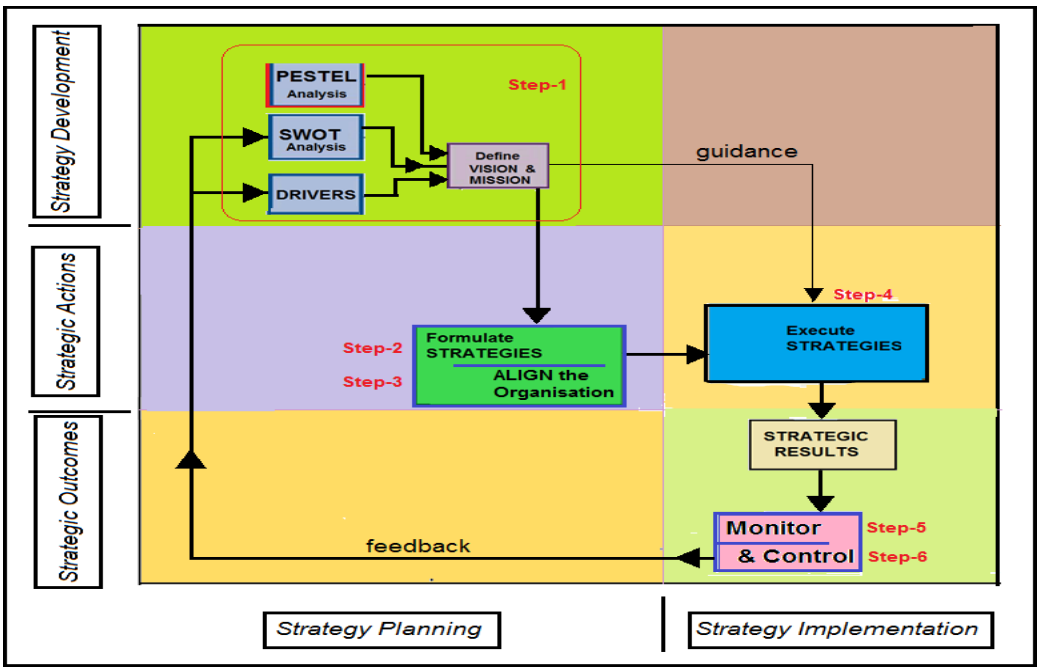

Figure -2: The simplified strategic management process.

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ISSN 1533-9211
DOI 10.5281/zenodo.6731108

Strategy formulation phase defines action plans to execute the mission, like what is to be changed, who will do the change and by when to make the changes happen. For achieving each mission multiple strategies may have to be made. Each strategy shall have associated set of objectives.

The executives of the organisation are responsible to translate the strategies into action, to yield results. The actual results are monitored by continual measurement and are then compared with the envisaged ones in the evaluation phase to verify that the results achieved are in agreement with the expected ones. Evaluation results are fed back as strategic inputs to the VM process wherein the deviations are considered to modify the Vision and Mission accordingly. The loop continues with continuous feed backs from evaluation as well as the ever changing inputs from PESTEL.

Role of Risk in the prospects of organisations.

The very reason for adopting strategic planning by organizations, is that it is the best way to ensure success in the endeavours made by the organisation to sustain and grow. Strategic planning process is used to prioritize efforts, effectively allocateresources, align shareholders and employees on the organization's goals, and ensure those goals are backed by data and sound reasoning. As we had seen earlier, Strategic planning process is an ongoing process, getting modified cyclically, and based on the performance measurements testing and corrections. The cycle time assumedhere is just large enough for the strategic plan elements to show measurable results. Definitely one cannot imagine this cycle time, as a weak or even a fortnight.

A relook at the inputs considered during the step one of the strategic planning process, reveals that they don't contain a set of risk information that is relevant forthe decision makers to reduce the possibility of selecting a mistaken strategy or overlooking an important one. Even there is no space in the Norton Kaplan Model for considering even the strategic risks which can leverage, hinder or prevent the fulfilment of strategic objectives.

The book (Frigo, 2009) , had thrown light on how to understand the organization's strategic risks and the related risk management processes; and also how risk is to be considered and embedded in the organization's strategy setting and performance measurement processes. The author stated that "These two areas not only deservethe attention of boards, but also fit closely with one of the primary responsibilities of the board — risk oversight". In literature, this book was the first that called upon organisations to integrate strategic risk management into their existing strategy setting and performance measurement processes. Subsequently several studies were conducted in this area.

A 2016 study (Chaves & Machado, 2016) highlighted the importance of not only having Risk management function within organisation, but also the need to integrate it into strategic planning of organisations. The reason established was thatthe, "Risk management may also support the development of institutional actions so as to increase the likelihood of reaching

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expected results. Furthermore, strategicrisks should be monitored through key risk indicators to allow the identification of conditions that could lead to a risk event". A 2018 article featured by the magazine FM published by the Association of International Certified Professional accountants, (Skorupski, 2018)explained how a business's value can be preserved, or even enhanced, by incorporating and examining risks right from the strategy formulationstage. It also warned that "The outcome of maintaining the status quo — that is, not connecting Risk management with strategy and performance and not changing

Any business processes accordingly — could be to cause a critical failure that proves

Too costly for any company to bear, even on the most remote basis".

From the above discussion it is clear that, an effective Risk management system is a necessity for any organisation, as well as it should be well integrated with the strategic management (read Strategic planning) . So when an Organisation is craftingits strategy to achieve its vision, it should also consider the risks that are a threat tothe achievement of objectives, and likewise the opportunities that need to be exploited or optimised. (Frigo, 2009) adds that the cycles of Strategic planning and Risk management are to be appropriately interlinked so that each process gets valueadded by the other without stripping it off the efficacy of its own purpose, as well as the combination of both shall add value to the organisation by ensuring the achievement of organizational goals and continual improvement. Literature strongly vouches for the correctness of the assumption, that strategic planning is to be integrated with Risk management for the successful performance of organisations. Before going ahead towards attempting to develop a framework for such an integration, a literature review on the Risk management systems in vogue is to be done. This is to select the best among the available RM Systems as well as to knowin depth the processes associated with that system.

Risk Management in Manufacturing Organisations

(Merma & Al-Thani, 2008) opines that Risk management is important for "identification of key business risks in a timely manner, consideration of the likelihood of risks crystallising and the significance of the consequent financial impact on the business establishment of priorities for the allocation of resources available for control, and the setting and communicating of clear control objectives". Risks cannot be avoided altogether. Greater risk is to be taken to perform better than the rest, in this highly competitive business scenario of today, but only calculated risks can be afforded. (Diaries, 2020) mentions that Calculated risk-taking, involves a fair amount of research which gives a fair idea of what's in store ahead and the chances of succeeding or failing. Calculated risks are those risks which are known as accepted, their likelihoods and impacts also being known with maximum possible precision. Thus taking calculated risks has become an inevitability and calls for organisations to (1) undertake certain appropriate activities to ensure that the most favourable outcomes only emerge, and also to (2)ensure that the variability of such outcomes is always minimised. 'Risk management' denotes the set of such activities, but is not confined to them. It operates on a broader set of principles. Since 1995, there was a major surge of interest in improving the ability of organisations to deal with the negative impact of uncertainties which resulted in the

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DOI 10.5281/zenodo.6731108

development of different tools, techniques, processes, and methodologies classified under different standards of Risk management. IEEE1540-2001, IEC 62198, JIS Q2001, AS/NZS 4360, BS 6079-3:2000,

CAN/CS Q850-97, IRM/ALRM/AIRMIC, PRAM, and PMBoK, were such standards. (Raz & Hillson, 2005) compared the major standards of risk management in terms of their scope , and had drawn conclusions for future standards work in risk management area and had identified several shortfalls associated with all of them in encompassing all aspects of risk management. It was at this backdrop that the International organisation for standardisation, had codified a family of standards relating to risk management as ISO 31000, which included the detailed list of the suggested principles of Risk management. These principles help describe the necessary characteristics of risk management and the ideal deliverables of risk management.

Risk management Standard ISO 31000

Any Risk management standard should be capable of supporting all such activities at all levels of the organisation, that have uncertainties associated with them. It should also provide everyone in the organisation with clear understanding on what the organisation would like to achieve as well as the knowhow on various tools for considering risks that can work against those goals. By following such a standard the risk related activities gain the ability to support decision making by proper identification and assessment of risks and thereby achieve the strategic objectives. ISO 31000 is a standard for risk management, which is highly effective in this role. (Alexandra Horobet & Belascu, 2015)

ISO 31000 provided a new definition of risk as 'the effect of uncertainty on the possibility of achieving the organisations objectives', thus highlighting the importance of defining objectives before attempting to control risks and stressing the role of uncertainty. It introduced the notion of "Risk appetite" which is the level of risk an organisation can accept to take on, in return for a certain expectation. It also defined a "Risk management framework" constituting of different organisational procedures, roles and responsibilities in the management of risk. Finally it emphasised that risk management is an integral part of strategic decision making. Figure-3 below, depicts the Framework and process as detailed in the standard.

ISSN 1533-9211

DOI 10.5281/zenodo.6731108

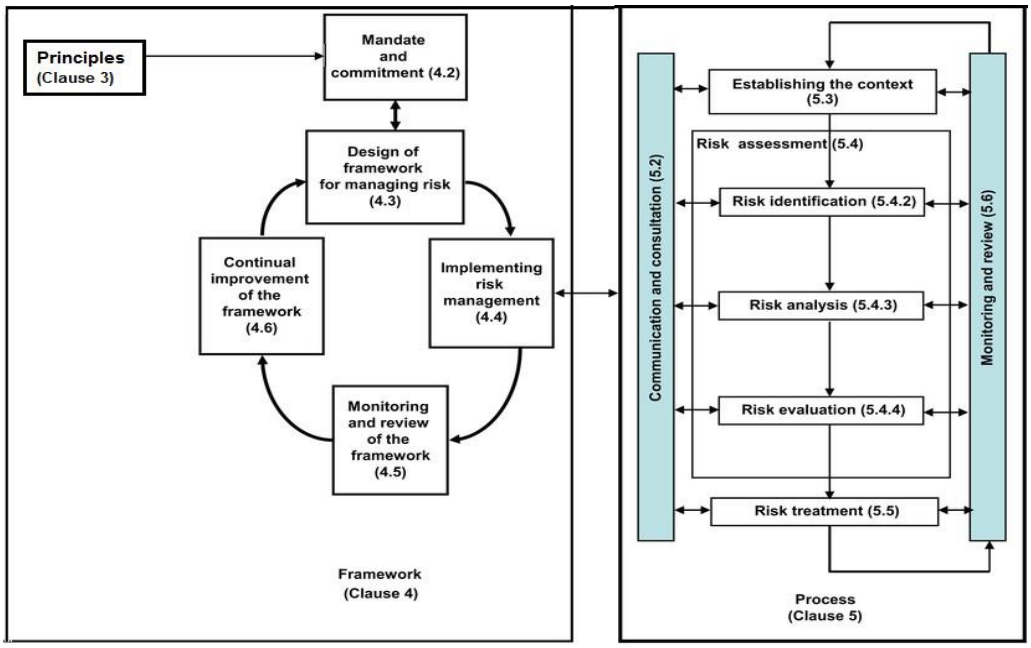

Figure-3: ISO 31000 Risk management Framework

The standard stated that the purpose of a framework was to assist the organisation in integrating risk management into significant activities and functions. Thus the said framework links Risk management with Operations. Once made, the framework was to be monitored for effectiveness and reviewed periodically for appropriateness, so as to continually improve it. It said that the components of the framework and the way in which they work together should be customized to the needs of each organisation. But for implementation of risk management, which is just one component of the framework, a universal procedure was stipulated by the standard. Implementation process itself was to be subjected to reviews that enable continual modification of the established context. A clear mapping of the environments external and internal to the organisation , so as to reflect the specific attributes of the activity to which the risk management process gets applied was meant by the phrase 'Establishing context'

Section 3.b of the standard specified that, in order to enable risk management to Deliver Compliance to all mandatory obligations, Assure management of all significant risks, Assure all decisions pay full regard to risk considerations, and Assure effectiveness and efficiency in core process performance, the Risk management should be an integral part of Strategic planning itself in any organisation. But the ISO 31000 standard did not specify the methods to be used for assessing risks during strategic planning. Conventional Strategic planning never uses

The construct of Risk as consequence- likelihood, nor prioritisation by risk magnitude. This situation calls for development of a new framework that integrates Risk management and Strategic planning, of Indian Manufacturing organisations.

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Indian Manufacturing organisations can be broadly classified into 3 types depending on the nature of production continuity. First one is continuous production type, like Razors, or bicycles. The second type being batch production industries like wagon making, or fasteners. The third one is jobbing type ranging from small lathe shops to huge Boilers, Turbines etc. The set of strategic risks that plague these different types have much in common, but many more are specific to the types. This article tries to develop a framework to integrate risk management and strategic planning in batch type of manufacturing industries, in which the author is currently serving. Before venturing towards developing such a framework, an overview of the general Strategic risks prevalent among the Indian Manufacturing organisations is necessary.

Strategic risks in Indian Manufacturing industry

The strategic risk horizon includes both of internal and external origin. Risks with External origin have their root causes embedded within the PESTEL factors (Political, Economic, Social, Technological, and Legal and Environmental factors). These include (1) volatility in, prices, employee benefits, interest rates, exchange rates, taxes and duties, raw material availability, climatic favorability, trade relations, political situations, law and order conditions etc, (2) changes in competition, IT generations, stake holder expectations, market scenario, Technology, product preference, business models, etc, (3) increase in compliances and obligations, importance of rights, importance of reputation , pressures from regulations, dependency on supply chain, competition etc, (4) Improvement in, transport, communication, automation level, package and delivery, customer services, globalisation, supply chain complexities, and finally (5) pandemics, terrorism, and calamities. Risks with internal origin have their root causes lying in aspects internal to the organisation like talent attrition, employee unrest, Third party vendors, Multi-employer workforce, facility security, cyber security, production disruptions, utility providers, service providers, access and approach issues, Trade receivable collection, Safety , Health, maintenance , equipment adequacy and equipment obsolescence. Many of these internally originated risks may be of lower levels, but sometimes their root causes may be of strategic importance.

Integrating Risk Management with Strategic Management

The following points may be recalled from the previous discussion made so far.

- Risk management is inevitable for Organisational prosperity
- Risk management is to be an integral part of Strategic Management (ISO31000) in any organisation.
- Every organisation should define the level of risk it can accept to take on, as its 'Risk appetite'. (ISO 31000)
- ISO 31000 calls for a framework for any Risk Management , the components and their interrelationships of which are to be customised to the needs of the organisation. But it proposes a well defined model for implementation of Risk Management.
- The traditional Strategic Management Models do not consider Risk as a construct.

ISSN 1533-9211

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It is with the above learning derived through literature study, that the developmentof a frame work to integrate Risk management with Strategic Planning is attempted. Such a framework should enable organisations to subject every strategic consideration to appropriate Risk management actions, modify the strategic decisions with inputs from Risk management, measure and monitor the strategy results and risk results separately and to use the learnings and feedbacks to tune up VMO itself so as to generate more effective strategies. The most popularframework for strategic planning and the ISO 31000 model for Risk management canbe tried to be fused together to develop a conceptual model for integrating Strategic planning with risk management.

Development of a Conceptual Framework

The Norton Kaplan Model links strategy with operations and the ISO 31000 framework links Risk management with Operations. An attempt was made by the author to synthesize both frameworks together through a functional amalgamation, and thus to produce a cross linkage between Risk management, Strategy management and Operational activities. The result of the said attempt is a framework as shown in Figure 4, an integration of Risk management into Strategic Planning.

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DOI 10.5281/zenodo.6731108

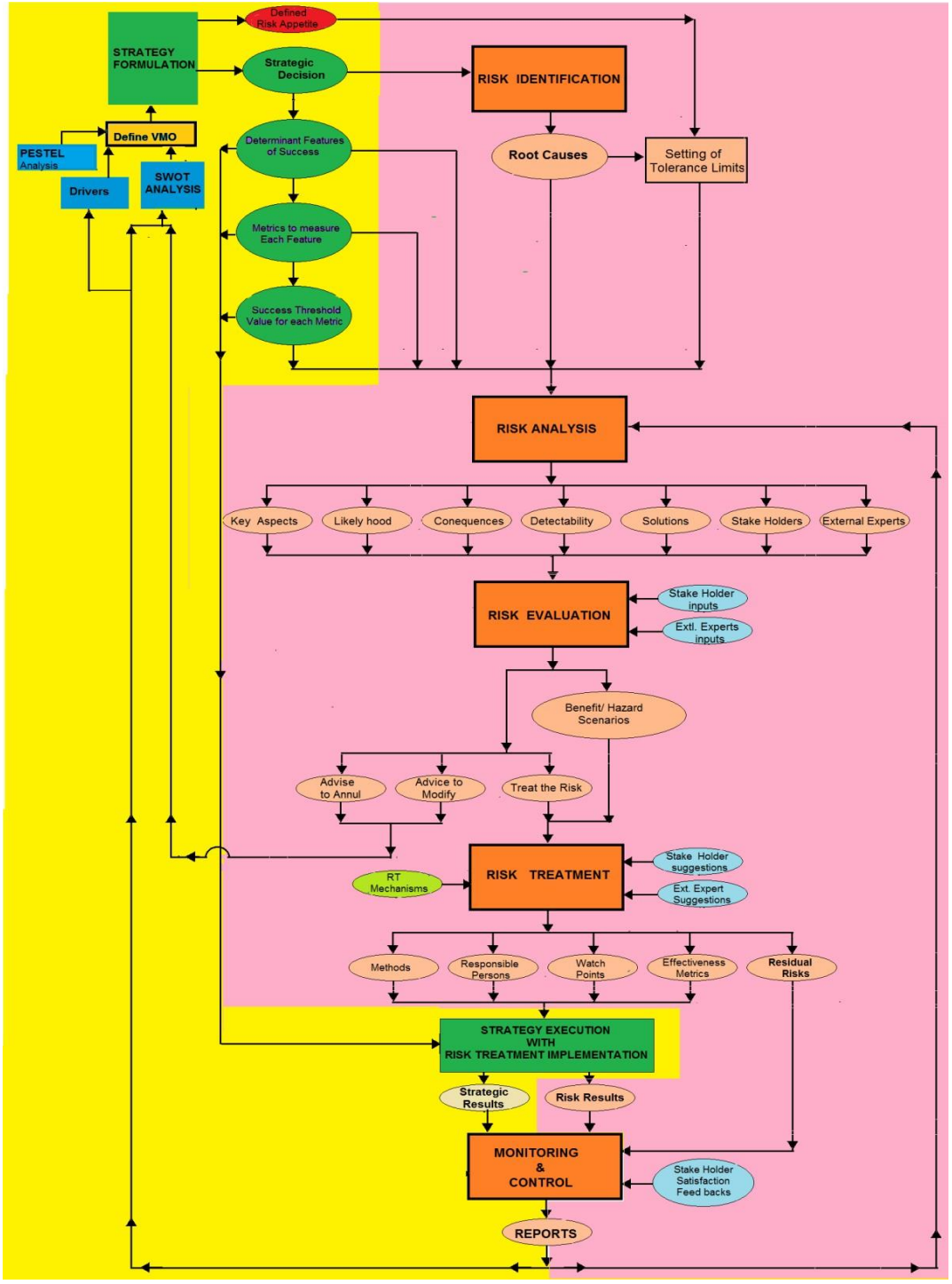

Figure- 4: Conceptual Framework Integrating Strategic Management with Risk Management

ISSN 1533-9211

DOI 10.5281/zenodo.6731108

The background of the Flowchart is divided in to two vertical portions. The left portion roughly pertains to the strategic management component whereas the right portion pertains to management of Risks.

With an integrated system of Strategy cum Strategic Risk management, the Strategy implementation by executive will start only after the strategic action plans are passed through the Risk management process. Strategic Risk management process will be performed at apex level, need not necessarily by the full board but a risk committee of the board can be delegated. Enlisting the association of domain experts, invitees from the executive collective, stake holders, gathering required information from all available sources have to be resorted to . An intimate knowledge of the company, including the company's operating market, and legal, social, political, and cultural environment, and a deep understanding of the company's strategic objectives are the basic requirements to venture upon Risk management , and hence the strategic risk management function will have to be under the portfolio of the strategic decision making body. The detailed functioning of this framework is as detailed in following sections.

Strategy Formulation

Strategy is always formulated by the board. In this integrated framework, Strategy formulation has to perform more functions than what were enlisted in section 3.0. One of those additional functions is to define the Risk appetite of the organisation

Risk appetite is to be arrived at in phase with the VMO , considering the various inputs related to it from PESTEL, SWOT and Drivers . Also while formulating every strategic action, not only the set of associated objectives, but also the associated critical factors which shall ascertain whether the objectives are met as desired (Success), the metrics to quantify such factors objectively, and the threshold values of such metrics to demarcate success and failure objectively are also to be spelt out . So in short , far from handing over a statement of the proposed action to the executives, several packages, each consisting of one strategy, its critical success factors with metrics for each, as well as the determinant threshold values for success are to be delivered towards attaining every strategic objective. Contents of the package will be used by the executives later during various stages of implementation.

Strategy Implementation

As soon as every strategy is rolled out by the board in a package of associated information, the strategy is subjected to Risk management along the lines of ISO 31000.

Risk Identification

Each strategic decision is first subjected to a rigorous risk identification procedure which identifies all strategic risks entailed. The process of identifying strategic risk culminates in specifying a series of risks that make up the company's risk profile.

Root cause analysis of all such identified risks are to be done in order to finally negotiate the risks. Once the root causes are identified, Confirming to the pre-defined risk appetite of the organisation the tolerable limits of risk associated with each root cause is also identified. The

ISSN 1533-9211

DOI 10.5281/zenodo.6731108

set of root causes of risks and their tolerable limits are passed on to the next stage of risk management.

Risk Analysis

Risk Analysis helps determine how much risk is faced, and describe the risk in all dimensions of interest for the organisation. The amplification or attenuation of the already existing risks , because of the new risks identified also will be analysed. Possibility of creation of corollary risks will be examined. Based on the inputs from risk identification process, and also in consideration of the critical success factors ofthe strategy to which the risk is associated with, their metrics, and threshold values, the Risk analysis process arrives at a set of outputs.

The 'key aspects' cover the entire gamut of characteristics affected by the risk of the strategy to which the very risk is pegged, like its probable influence over (1) thestrategic objectives, (2) Strategy maps, (3) strategy themes,(4) measures, (5) criticalsuccess factors , (6) short term benefits, (7) long term hazards etc. In line with the suggestions of (David P Norton & Robert S Kaplan, 2008)

'Likely hood' of the occurrence of the risk, 'Consequences of the risk' implying the quantified impact of the risk in various key performance indicators of organisational performance, 'Detect ability' meaning the relative easiness or difficulty in detecting the imminence of the risk, Stock 'Solutions' gathered from the lessons learned earlier, or from the knowledge base gathered from elsewhere in the past, are part of the deliverables of this process.

Apart from this, as ISO 31000 stresses on inclusivity, stake holder inputs are to be considered for setting risk criteria, identification of all stake holders associated with the risk, is an important function to be done by Risk analysis .Also if required some external experts are also identified whose valuable suggestions may be sought in the subsequent processes of Risk management.

Risk Evaluation

Risk Evaluation process takes all deliverables from its previous step as inputs, apartfrom the suggestions and opinions of all stake holders involved, and occasionally those from external experts as per need.

This process evaluates all pros and cons related to the risk in detail, using state of the art computation at times, elaborate consideration of available data, and decide on whether the strategic action planned is worth carrying forward with or without risk treatment. If the risk is found to be negligible, the strategic action is forwarded for implementation without any specific treatment.

If the action is no way forward able due to any lack of viable treatment, the board isadvised to annul the action. In certain other cases the board is advised to modify the actions to permit forwarding for implementation. In either case board reconsiders its earlier decision and makes suitable decisions.

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In cases where the risk is found to be economically treatable, the strategic action will be allowed to be implemented , but along with the execution of treatment actions . Towards determining such treatment actions, the next step of risk management is invoked, to which a set of scenarios comprising the cost /benefit

/hazard inputs evaluated already, and the list of affected stake holders, suitable external experts etc also will be passed on.

Risk Treatment

Treatment Actions are the measures adopted to manage the risks, including initiatives, programs, policies, specific actions, procedures or control objectives. They are determined based on the consideration of various known Risk Treatment mechanisms. There are basically four mechanisms. (1) 'Avoidance ' indicating avoiding specific activities that invites the risk, and executing the actions in an alternate manner, (2) 'Reduction' by which impact of risk is minimised by mitigatingactions, (3) 'Transfer' the risks to a third party by insurance or outsourcing, and (4)'Retention' when it is inevitable to accept risks.

Candidate solutions from various mechanisms are considered along with all available inputs, as well as with suggestions from stake holders and external experts, until the most feasible solution is arrived at. The treatment solution thus determined are methodised by forming procedure, fixing responsible persons to

Execute the various activities of the procedure, highlighting the landmark points, defining the metrics for measuring the activities. However well treated, at times therisk cannot be treated completely, thus leaving behind a small fraction untreated called residual risk. The Risk treatment process, also estimates the residual risk after treatment.

It is with this additional set of instructions and guide points that the strategy is ultimately released for implementation.

Risk Monitoring and Control

During implementation of the strategy, the identified metrics for Critical success factors and Risk treatment are continuously measured and monitored for deviationsfrom expected values. All the while stake holder satisfaction levels are also monitored from Risk performance as well as strategic performance. The monitoringreports on Risk treatment are fed back to Risk analysis Process which eventually ends up in path corrections or new decisions affecting the fate of the strategic action itself.

The feedback given to the strategic level body is not only a review feedback for the risk management status but a feedback of the effectiveness of the risk managementframework even. Based on the feed backs new components can be added to the process depicted in Figure-4, in order to improve the overall effectiveness of the framework. The risk results feedback to the board shall help redefine the risk appetite and risk attitude of the organisation, as well as to improve the current strategies. Strength and weakness of the various internal facets may

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undergo changes due to the risk management actions taken, which in turn should modify the VMO accordingly for achieving a better fit in the business environment.

Testing the Framework – A Case study

A medium type manufacturing organisation , a private Limited company, with around $90 Million Turnover, positive net worth, and with an average of $6.0 Million PAT average during the last 3 years , and in which a few of the board members were personally approachable by the author was selected for testing thenew framework.

About the Organisation

The subject manufacturing primarily make different types of stator and rotor parts for electric motors, out of special Steel in batch production against orders from various LT Motor &transformer manufacturers and Gear box manufacturers. Facilities include 3 production units with various machine tools installed in their

production lines, with one of them having an automated steel foundry housed with an induction furnace and an arc furnace.

The vision of the company is to "Become a national presence of reckoning among the components manufacturers for electrical machines industry to support the Make in India Movement".

The Mission of the organisation are expressed through the statements:

- To supply high quality intermediaries for the industry, through stringent compliance to customer needs, and thorough understanding of the performance requirements of the end products.
- To develop cost leadership through lean production techniques and value engineering.
- To excel in delivery terms through agility in operation and enabling a conducive supply chain proactively.
- To continually expand the customer base , foraying into new regions , and penetrating in active spaces.

The current objectives of the organisation are summarised as:

- By 2021 to get registered as preferred vendor in 50 industries including 20 PSUs
- By 2022 to eliminate Warranty claims altogether by implementing 6 sigma
- By 2022 implement JIT
- Capture business in 5 new locations every year, which are far off fromcurrently operating locations every year.
- Capture business from 2 new customers / for 2 new products in the currentlyoperating locations, every year.
- Reduce cost by 3% wrt to past year through innovations/ AMR/ or any othermeans.

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- Every year Convert 10 % of work force as multiskilled with operating skills in2 new trades.
- Improve worker satisfaction levels by 10% every year by focussing on working conditions welfare, and fairness in governance.
- Reduce receivable collection delays by 10% every year
- Improve credit rating by 1 step in 2021.
- Add Service providing associates by 10% through LTA.
- Reduce overheads /Turnover ratio by 10% every year.

A PESTEL review conducted by the board in September 2020 had taken cognisance of the following inputs.

Leaning on the incentives and patronage being provided by the union government, for start up initiatives, many MSME are getting big markets opened up, which includes railway sector also. (Political)

Easy credit facilities, interest rates, tax holidays etc for MSME ventures providing adequacy of working capital for them. (Economic)

Adequacy of skilled labour in semi urban and rural areas due to return of migrants from urban centres due to covid pandemic , thus ensuring labour availability at cheaper rates for MSMEs. (Social)

End customer organisations (Like Railways) provide detailed drawing and specifications to contract awardees for manufacturing items like brushless alternators, and Indigenously manufactured machinery and Technology are available at hands length (Technology) .

Computerisation of Procedures for seeking environmental clearances like “Permit to operate” as a result of the ‘Ease of doing business ‘ drives by governments have brought in transparency and eliminated red tapism , thus making it easier for obtaining licences (Environmental)

Statutes are becoming more and more supportive for entrepreneurs, providing sufficient protection for their rights, assuring equity and fairness, and promoting business (Legal)

These factors pointed to an increase in demand for many manufacturing items, one of which was identified as the rotor for alternators, which will be required for several MSMEs all over India. A strategic decision was to be made by the board regarding consideration or otherwise of new business in this upcoming field, witha new product that was never made earlier.

A strategic decision on this proposal had to be deployed. It was at this juncture that the management was consulted to apply integration of risk management in strategic planning through the new framework. As the management had agreed, to subject their forthcoming strategic actions to strategic risk management, in line with the integration framework proposed by the author, as a test case.

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DOI 10.5281/zenodo.6731108

Pilot Run of the integrated Framework

Once the board had accepted in principle, the proposal for a trial of the integrationof Strategic planning with risk management, a professional body for conducting therisk management was needed. The in house knowhow with the board in this regard was prima facie adjudged as inadequate. So it was decided to constitute a Risk committee comprising of a few of the board members, a few senior executives from management level, and two hired external experts in Risk management. The senior executives were nominated by the board, and through a market hunt aided by the HR consultant, a Risk manager who had recently retired from a financial institution of repute, and another Risk manager who is currently serving in an EPCcompany were hired.

To start with, the risk committee defined the risk appetite for the organisation, by going through the SWOT, PESTEL analysis reports, sifting through the available historical information, and by conducting discussions with major stake holders like employees, and vendors with whom LTAs are in force. In consultation with the full board, the Risk appetite was frozen, and 27 major categories of Risks were identified which are meaningful for the subject organisation, under political, economical, ESG, Technological, Commercial, Marketing, Operational, Sales, and Financial heads. A heat map for the risk appetite was made, as in Figure-5 divided into 5 zones depending on the combination of the ‘ impact’ and ‘Likely hood’ of risks.

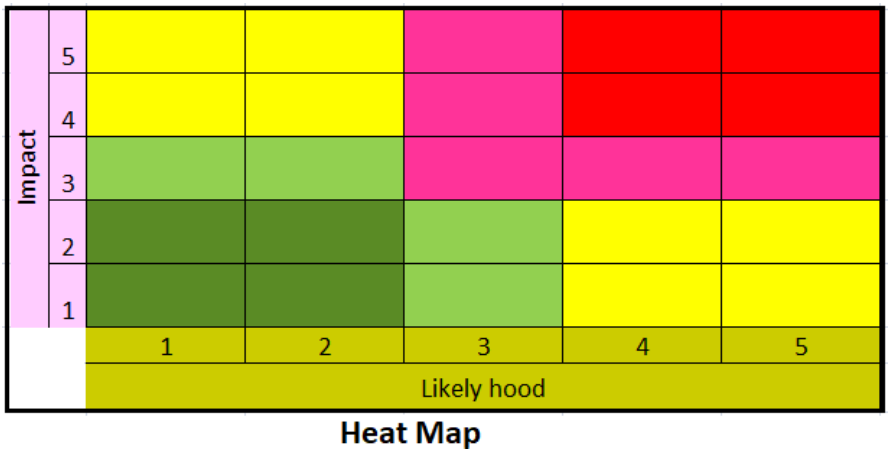

Figure- 5: The Heat map made

A close examination of the heat map suggests that the organisation chose to be onthe risk aversion side in appetite. Zone 1 in red represents highly likely risks with considerable consequences, whereas Zone 5 in green represents less likely ones with minor impacts. This appetite was in line with the status of the organisation, its financial capabilities, market opportunities, sustenance needs, and also in agreement with the agreed VMO of the organisation. The board accepted to have treatments for risk accepted during risk management to be mitigated to such levels as shown below in Figure-6, according to the

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DOI 10.5281/zenodo.6731108

assessed level of such risks .

Risk Level	Treatment Aim
Very High	Mitigate to Zone 1
High	Mitigate to Zone 2
Medium	Mitigate to Zone 3
Low	Mitigate to Zone 4
Very Low	Mitigate to Zone 5

Figure -6: Risk Treatment Directive

The Risk committee was given authority by the board to function along the lines of the integrated framework, and was supplied with the draft of the strategic decisionfor subjecting to subsequent actions.

Strategic Decision Draft

The draft decision was made as:

"Venture to open a new product line , the product being "Bare Rotor shaft with V grooved Pulleys at ends" for Brushless alternators of 3 variants 20KW 30KW and 40 KW- Utilising the resources rendered surplus by the discontinuation of the product " Gear couplings", and with necessary additional supplementations in the production, supply chain, marketing , sales lines.

-with a market share of 2% to start within 2 months

-Expand market share to 4 % in 6 months, 8 % by 12 months and to remain inbusiness with no less than 10 % market share for next 5 years

-Establish a profit of 8% of Sales Value by first year. Improve as allowed by market thereafter.

-New line's NSR contribution to exceed 15% of total NSR after first year and remain so for next 4 years.

Determinants of success, Metrics to measure each factor, and Success threshold values for this decision in different phases on implementation , at Business level, Functional level and tactical levels were identified and approved by the board, and distributed to all concerned.

6.0 Trial Run of Framework

This decision was subjected to Risk Analysis by the committee, by following the new framework proposed. The said Risk analysis could identify many possible risks, each of which was analyzed and evaluated. In this particular case the inclusionof 20KW variant was

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DOI 10.5281/zenodo.6731108

recommended to be dropped for risk avoidance, as the number of manufacturers are 4 times higher for this variant than each of the other types, which attracted 5 risks of very high level. Except this, all other components of the decision were decided to be treated for the risks identified.

A bunch of treatment actions were also identified which had to be executed at business, functional and tactical levels with a well-defined idea about the nature and types of residual risks. The allied set of performance indicators, metrics and the success confirmation thresholds helped the monitoring actions to do timely course corrections, mitigate risks that really occurred, and mitigate substantially the impacts of a huge number of risks that otherwise would have plagued the project. End result was the launching of the product in time, with more than breakeven orders at hand, catering to over 2% of the market volume, by November 2020 end. Initially many of the machining of WIP were got done through outsourced facilities, which called for complicated logistics. By end of January 2021 the inhouse layout could go operational fully, thus optimising the supply chain. By beginning of March 2021 , the order book had crossed the 6 month target of 4% market share , while the pricing was 0.8 % lesser than the prevailing market price , deliveries in time, attracting the delight of customers. The projections, including augmentation of the line with one more bay and a doubling of customer base, indicate that by June 2021 profit will be more than 8% of the sales value, much ahead of target. Moreover the overall performance is in agreement with the avowed Vision mission and objectives of the company. The residual risks which wereunder close watch proved as harmless though a few did try to emerge with striking fangs, but could be nipped at budding itself.

Discussion

Outcomes

A methodical novelty is created by developing a conceptual model for integration of Strategic Planning and Risk management. The important characteristics of this model is that the Framework itself gets subjected to a dynamic evolution through the processes of monitoring and review by the board, The framework operates in agreement with the Vision Mission and Objectives of the Organisation, Calls for fine finishing of the strategies planned by the board, (As every plan rolled out is to have a set of associated condiments, like KPIs, Measuring Metrics and Indicator values for success), engages all stake holders , assesses Risks in an organisational context established by using the strategic planning tools SWOT, PESTEL (in agreement with ISO 31000) , and finally subjecting the Risk management processalso to continual up-dation by monitoring and review.

Performance Feedbacks from the strategic plans Implementation sphere can influence changes in Risk management processes and vice versa, thus makingbusiness actions and risk management processes mutually enriching, and synergically working towards the achievement of organisational goals .

Apart from the time related changes in SWOT elements and PESTEL forces, the feedback information from, Risk Performance area and Strategic performance area combined also

ISSN 1533-9211

DOI 10.5281/zenodo.6731108

contribute towards the dynamic shaping up of the Strategic Planning, as well as Risk Appetite. This feature adds to the agility of the organisation.

Finally it was tested and found out that for the manufacturing sector, where strategic planning is poorly integrated with risk management, this framework provides a method to prosper by an optimal integration of both.

Limitations

It cannot be claimed that the subject framework is the only solution or the best. From the perspective taken by the author it is presumed that many such valid models exist.

The framework detailed above is for incorporating risk management in strategic planning. During the course of implementing the strategic plan, which is a coordinated effort distributed among various units at business level, functional level, and tactical levels. Localised Risk management should be associated with each activity at such units with meaningful inputs being continuously provided to the higher level risk management. Also the subsequent risk management processes can examine the issues to a finer degree and wit more accuracy thus calling for changes in the originally envisaged treatment plans. Thus the enterprise wide practice of Risk management at various levels can collectively enrich the overall risk management of the organisation. Such an intercommunicated network can offer valuable contours and terrains to the strategic level risk management actions. This aspect of networking all the subordinate risk management processes is not considered at all in the subject framework.

The work presented here is conceptual and representative, but is borne out of the perspective taken by its author, and hence subjective. The way adopted for integrating the conventional model of strategic planning with one of the current models for Risk management, ISO 31000, must have eliminated some goodies inherent in other models for both.

The technicalities, quantitative or qualitative involved in Risk evaluation were not touched upon as the paper did not purposefully aim at going to such depths. As manufacturing decisions are complex, situation and location dependent, product and process dependent, corporate mindsets etc sufficient tailoring is to be made in such technicalities, yet confirming to the framework generically.

The term Risk is treated as threat only in this paper. In the true sense, a risk can offer opportunities also. But by adopting a conservative philosophy, in response to the overwhelming fear over threats harboured by the entrepreneurs, the Risk management presented here chose to neglect the opportunities presented by risks altogether.

Implications for further research

This paper could display how the strategic decision making can be infused with risk management. To promote this work from its status as a conjecture to that of a theory, extensive validation at field level is to be done. This should involve a range of manufacturers of all sizes, located in different areas, owned by private and public bodies , and studied for periods exceeding a couple of years.

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ISSN 1533-9211
DOI 10.5281/zenodo.6731108

Further works can be done to try integrate subordinate risk management processes also by networking them all together and providing effective lines of information and feedback flows to enhance the efficiency and efficacy of the overall risk management function.

Conclusion

The paper contributes methodologically in several ways.

Firstly a theoretical model for integrating strategic planning with risk management to create a hybrid "strategic risk management". ISO 31000 has only advocated this integration by stressing on the need to have a framework but puts the onus of customising the components and their interrelationships on individual organisations. The suggested model enables not only such an integration but enables the framework itself to evolve with time in response to (2) the various factors that develop inside and outside the organisation as well as the (3) effectiveness levels of the various actions performed within the framework.

At strategic levels, much quantification of variables cannot be done, thus qualifying the whole process as a complex one. But by (1) a forceful engagement of all keystake holders, and domain experts, (2) demanding extrication of the root causes of the surface symptoms,(3) demanding the determination of measurabletolerance limits for each risk, (4) demanding the consideration of all key aspectsassociated with the risks, like their inter relationship, reproductive capacity to generate fresh risks, influence over existing risks, etc and (5) considering archivedhistorical solutions if existing, enables this framework to analyse such risks asobjectively as humanly possible. This adds relevance and value to the framework. Business actions driven by the strategic planning and Risk management actions are located in the framework in a mutually promoting tone, thus eliminating the chances of seeing them ever getting at logger heads.

A case study was conducted in a medium scale manufacturing unit, wherein the framework was tested for the first time and the results demonstrate that the framework is capable of (1) Minimising and Eliminating inherent risks in strategic plans and (2) Effectively eliminating and mitigating serious risks , which otherwise would have jeopardised the organisational goals during implementation of the strategy, (3) Provides the executives who implement the strategy with a well-defined set of KPIs with associated metrics to constantly monitor with objectivity, enabling course corrections in time. And lastly (4) A smooth percolation of risk related and performance related success criteria as well as the risk tolerance limits of the organisation, throughout the organisation which will help all people inside the organisation become aware of the confining barricades and guiding targets theyshould comply to.

The model can be further refined by successive field trials and verifications, and can be extended to several industries other than manufacturing also in response tothreats that affect their long term success goals.

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ISSN 1533-9211
DOI 10.5281/zenodo.6731108

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