

A Roadmap towards Significant Customer Value in a Complex Product Environment

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Abstract

Three fundamental processes of an enterprise are development, operations and marketing. When a product or service (Knowledge Item) is introduced to a customer, a specific series of success events are triggered. These events are modelled by using a roadmap underpinned by environmental influences, key (specific) decisions as well as human interaction between different role players' involved in the life cycle of the product or service. Consequential phases of the engineering lifecycle drive an increasing maturity level of knowledge associated with the development item. A three-dimensional space is utilised to describe the knowledge attributes of the development item under discussion. This approach improves the success rate of a complex project by conceptualising premeditated (road mapped) tacit and explicit knowledge exchanges with the customers within the associated success events. A holistic roadmap towards realising customer value, and consequently the improved enterprise success, is discussed. The enabling contribution of human interaction factors towards the success are categorised and evaluated. Our understanding of the roadmap towards true customer value was augmented with applied studies in the areas of knowledge management, innovation, leadership, and other elements of the model. Project based case studies were conducted using a structured questionnaire sent to all knowledge workers with specific identified experience on the selected case studies. This resulted in a better understanding of dynamic, interdependent processes within the roadmap. This roadmap can be used to improve the probability of success of an enterprise by understanding the specific elements and their sensitivities towards the success event's outcome. These events can be manipulated to benefit the enterprise. It will enhance its competitive position as well as the success related with a specific project, thereby realizing a significant value proposition for the customer.

Keywords

Knowledge Management, Human aspects, Decision making.

1 THE CHALLENGE

This article presents some insights to address the following problem statement: Understanding the dominant combination of factors contributing to the success of a complex project (Lu [1]) throughout the different life cycle phases of the product, the enterprise and the market.

2 THE BROAD OUTLINE

These factors and their interrelationships are presented in the following Success Event Framework.

2.1 The Success Event Framework

A success event is defined as a series of premeditated (road mapped) tacit and explicit knowledge exchanges [2]. These contributes towards the ultimate success of a project and thus also that of the business. Examples of success events are:

- A **communication interaction** like a meeting, a letter, e-mail, or other interaction during work or social sessions with the customer.

- A **formal presentation** of a bid, a product description, contract negotiations as part of the acquisition life cycle
- A **formal design, program and contract reviews** with the customer, i.e. milestones in the Acquisition Lifecycle
- A sincere, honest and speedy reaction towards **mitigation of a problem** or a perceived problem.
- An informal and formal presentation of in-process (**stage buy-off**) and the final product.
- The **interactions during the delivery of a service**.
- The **actual performance** of the deployed product against the expected performance.

Success is defined as the culmination of a series of such success events throughout the acquisition life cycle of the product that results in the best possible financial and strategic positioning of the project and the enterprise Exploiting:

- Various knowledge management models.

- Technology, product and enterprise life cycle models.
- Customer belief and value systems.
- Factors within the enterprise that the supplier can control or partially influence contributing towards competitiveness and innovation.
- **Human Interaction** consisting of leadership, relationships, wisdom (knowledgeable decision making) and corporate culture.

These factors and their interrelationships are presented in the following Success Event Framework.

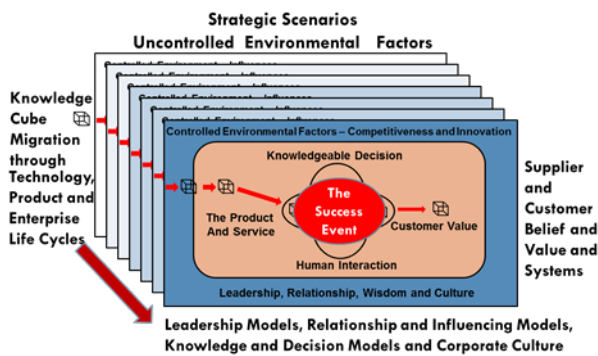


Figure 1 - Success Event Framework [2]

2.2 The Knowledge

Product knowledge attributes are adequately described using a three-dimensional space consisting of a structure, a functional description as well as the current and future level of potential design maturity. This three-dimensional space was previously described by Pretorius [3] as the Knowledge Cube Framework. In the same manner, the customer specifies required performance levels, as well as the time when the mature product design is required.

2.3 Related Life Cycles

Life Cycle Management is an imperative in successful enterprise engineering, Duflou [4]. The Success event life cycle management environment is guided by three life cycles i.e. Technology, Product, and Enterprise. The Technology Life Cycle starts with an Idea that develops into a qualified useable technology followed by exploitation, decline, as well as the termination or run-out of the specific technology. Exploitation of such technology is almost always performed by multiple competing enterprises [5]. The Product Life Cycle follows a similar start-up, growth, maturity and decline phased process. This feeds the enterprise life cycle with a many to one relationship. Most enterprises exploit more than a single product, often or even multiple product range [6].

The Enterprise Life Cycle starts out with moderate growth in financial performance. After the initial success, it exhibits increased growth as subsequent successes are realised. In the operating phase where focus is on optimal return, the curve begins to level out. If renewal (innovation) is not appropriately induced at this point, decline will follow with subsequent demise of the enterprise [7]. The ability to recreate and innovate in the mature period is indeed a fundamental requirement for a sustainable enterprise.

2.4 The Market requirements and evaluation

The customer normally defines mandatory attributes as well as a weighted scale for the rest of the required functional performance for a specific project. Typically in an engineer-to-order project [8], the customer also contracts a future commitment of the product performance. This is normally defined in a performance matrix, against stated requirements and specified timeline. Alignment of the offered product's attributes is based on subjective and objective elements combined in the three-dimensional space against the customer requirement set. Competitive product analysis is also performed within this framework.

2.5 Competitiveness and Innovation

Innovation increasingly dominates the competitiveness arena. Transparent innovation management enables economic growth and sustainability of the enterprise and forms an inherent ingredient of success event management as defined by Seliger [9].

3 A ROADMAP TO PROJECT SIGNIFICANCE

In the compilation of the roadmap for success the following two domains were considered:

3.1 The Executables

This domain represents all the essential business processes starting with an idea and culminating in a successful customer value realisation. The executable business processes are analysed by considering their contribution within the areas of product, enterprise and market that in essence are the three focus areas of any enterprise introducing a new product to the market. Operational, tactical and strategic planning and executing horizons are exploited to add an element of order towards the roadmap for success.

The differentiation between enterprises is defined by the appropriate quality levels of the execution of these business areas in the nine-point matrix making up the executable domain. The executable factors of the roadmap to success are depicted in Figure 2 below:

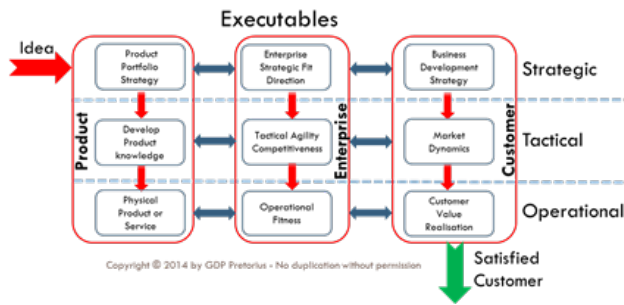


Figure 2 - The Executable Roadmap to Success.

3.1.1 The Executable Processes

By combining the business areas in a specific way the following six executable processes are defined in the roadmap to success.

Process 1: Strategic Planning

The process entails aligning and extending the company's product portfolio and the capabilities within the company and its strategic partners with the future market demand to obtain maximum significant value for the shareholders.

Process 2: Competitiveness Review

The process of understanding the competitor's products, their competitiveness and their tactical plan and comparing it to the company and its partners own products and competitiveness positions in order to define its own tactical (campaign) plans as related to specific opportunities or regions.

Process 3: Operational Management

The process of effectively and efficiently executing the operational tasks to deliver the expected customer value realization within the cost constraints of the contract.

Process 4: Project Management

The process of managing resources (internally and externally) to address the requirements during the execution of the current contract taking into account the continued change in the needs of the customers.

Process 5: Product Development

The process of acquiring and validating the knowledge attributes of a product.

Process 6: Business Development

The process of understanding the market trends, influencing the strategic plan, developing the customer relationships, managing the company's tactical response and keeping the order book filled.

3.2 The Enablers - The Human Interaction

In many instances, success or failure of the identified processes is significantly influenced by human interaction. Figure 3 presents key areas of important human interaction within the success event roadmap.

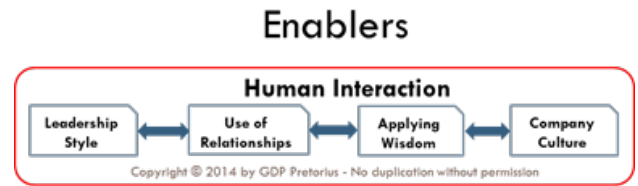


Figure 3 - The Enabler Roadmap to Success

3.2.1 Leadership

Ward [10], through the study of companies at different stages of the organization's lifecycle, concluded that there are unique challenges facing organizations and its leadership at each transition between the different stages. Consequently, it requires a significantly different changes in managerial and leadership skills to lead an organization at these different transitional periods. Hence, the Leadership Lifecycle with the Creator, Accelerator, Sustainer, Transformer and Terminator roles required for success.

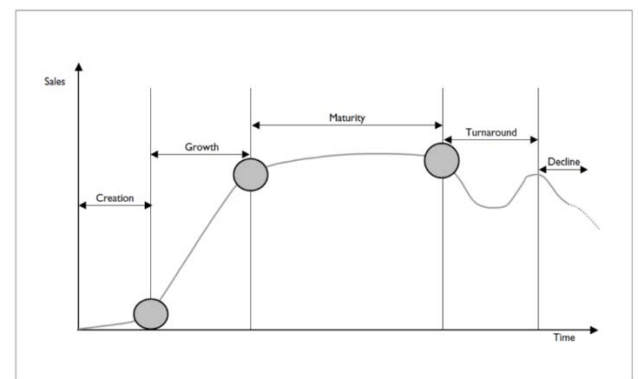


Figure 4 - Leadership Styles vs. Enterprise Phases[10]

3.2.2 Relationships

The human interaction is depicted by a relationship model by the, as yet to be published, work of Stiglingh [11].

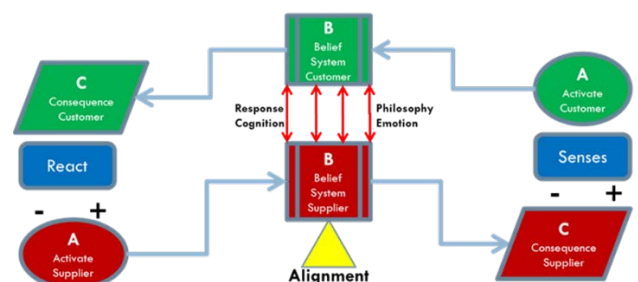


Figure 5 - The Influencing Framework

To obtain the best results from this model, it will be advantageous if the supplier and the customer's belief systems are closely aligned. The belief system is the actual set of precepts from which you live your daily life, those which govern your thoughts, words, and actions [12]. As no complete alignments between the belief systems of the customer as well as the supplier, at all levels, are realistically possible, one needs to focus on areas of

miss-alignment that have the potential to turn a success event into a failure. From this model, it seems that a positive consequence must be sought through careful planning of the success event actions.

3.2.3 Wisdom

Management is defined as a series of decisions combined with supportive actions. Knowledge, on the other hand, exists as tacit knowledge within the people as well as explicit knowledge within the enterprise [13]. Knowledge Management is one of the key factors that drive competitiveness within an enterprise [14]. The making of enlightened decisions by combining good insight based on experience and one's own belief system, augmented by appropriate knowledge levels, gives rise to the concept of wisdom [15].

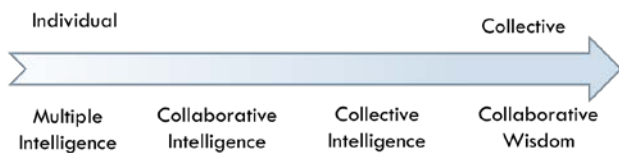


Figure 6 - Collective Wisdom Continuum[24]

3.2.4 Organizational culture

Organizational culture is the behaviour of humans within an organization and the meaning that people attach to those behaviours. Culture includes the organization's vision, values, norms, systems, symbols, language, assumptions, beliefs, and habits [16]. According to the literature, the business belief system comprises of the following four elements [17]:

1. Behavioural Performance, Action, Inaction – How people respond to what is happening.
2. Cognitions, Mind-sets, Clarity, Perceptions – How people think of what is happening.
3. Philosophy, Core Beliefs, Personal Values – The meaning people attach to what is happening.
4. Emotional Climate, Relationship Management, Emotional Information – How people feel about what is happening.



Figure 7 - The Cognitive Behavioural Theory Flower for Business

This industrial belief system manifests itself in different corporate culture forms like:

- **An Innovation Culture** stemming from the need for urgent renewal at the forefront of technologically based competition [18].
- **A learning-based culture** with the underlying premise of natural growth for an enterprise [19].
- **An empowerment culture** fuelled by requirement to expand and move from one phase into the next enterprise life cycle phase [20].
- **A prescribed, self-developed, corporate culture** as is evident in most of the big military multinational corporations required to establish their identity [21].

Although this breakdown compartmentalise specific cultures, the reality on the ground actually consists of a combination of the above with one or more taking the dominant role.

3.3 The Roadmap to Success

Interaction between Executable and Enabler Factors:

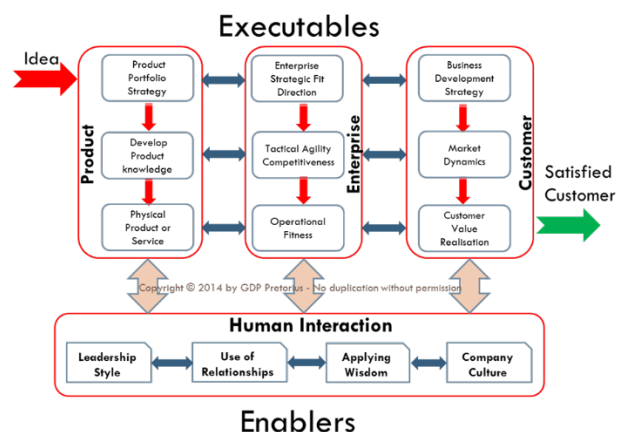


Figure 8 - The Roadmap to Success

The Success Event Roadmap will not be complete without the consideration of the different life cycles defined earlier and introduced into the roadmap as depicted in Figure 9.

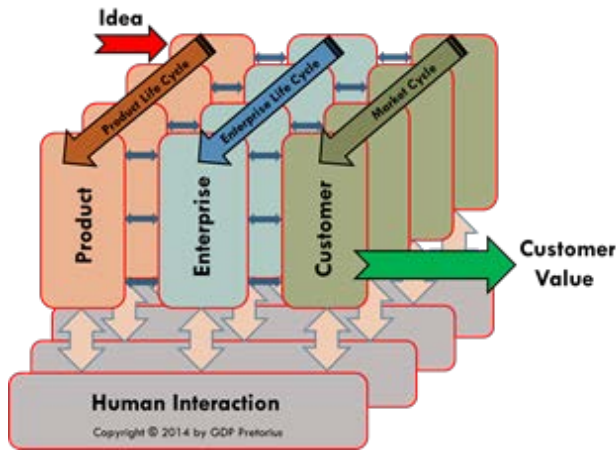


Figure 9 - The Roadmap to Success with Life Cycles

4 SUMMARY OF RESULTS

4.1 Introduction into the Case Studies

4.1.1 Case 1:

The supply of Light Protected Patrol Vehicles to the Swedish Defence Force. This case represents the creation, growth, mature and turn-around enterprise life cycle phases. Case 1 is a marginally successful project.

4.1.2 Case 2:

The support of the South African National Defence Force's fleet of logistic trucks in service. The mature phase is represented by this case. Case 2 is a stable but low contributing project.

4.1.3 Case 3:

The supply and upgrade of MRAP vehicles to the USA Department of Defence were conducted during the growth, mature and turn-around phases. Case 3 is an extremely successful project that realised high value for all stakeholders.

4.2 Comparative Analysis

The relative contribution towards the success of the enterprise (project) of the Enabling Factor's interaction with the Executable Factors was interrogated using a structured questionnaire. A total of 120 respondent's returns were received which represents 83% hit rate on the preselected list of potential respondents. Triangulation of the case studies' results as defined by Yin [22] was achieved by means of a work session with the company's executive team as well as the author's direct involvement in all of the cases during his 33 year career in the company.

4.3 Summary Results

4.3.1 Leadership

The confirmation of leadership style prevalent during the different enterprise phases, as defined by Ward [9], resulted in a close correlation overall. A remarkable close correlation in Case 1 was also prevalent where a lot of leadership focus was expanded in order to achieve success as defined in Figure 10 below.

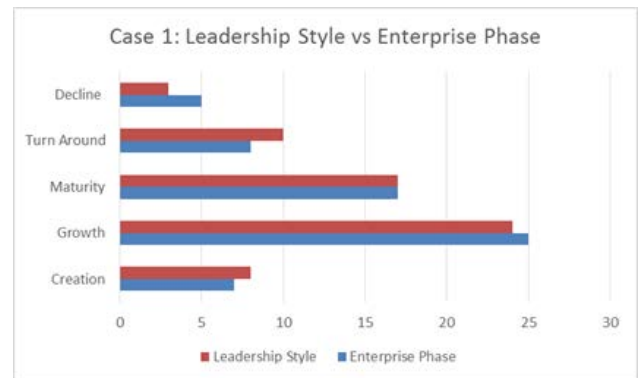


Figure 10 - Case 1 Leadership Style vs. Enterprise Phase

4.3.2 Relationship

A 5 point Likert scale [23] was used to obtain the opinion of the respondents in a series of questions regarding the contribution of the relationship factor. The summary results are shown in Figure 11 below. The results indicate most dominant agreement in case 3 where the relationship with the intermediary company, through which the sale was done, as well as the relationship with the US MoD was always on a very sound footing.

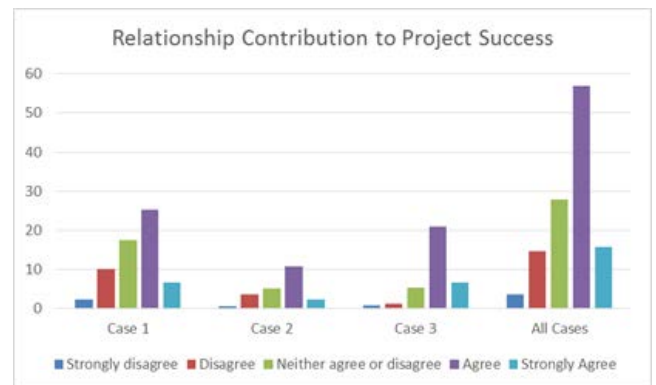


Figure 11 - Relationship Contribution

4.3.3 Wisdom

As depicted in figure 12 below the respondents agree that informed decision making in all cases were a major contributor towards their success.

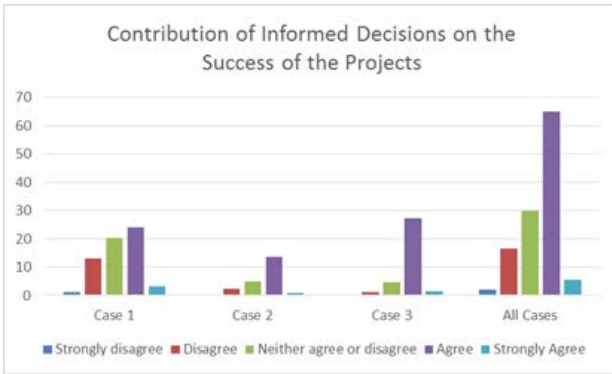


Figure 12 - Informed Decisions

In the case 2 and 3 results very little negative opinion regarding bad decisions are shown, however, as expected, the case 1 results do indicate a significant amount of respondents confirming that good decision making was not always prevalent in this marginally successful project.

4.3.4 Culture

The contribution of the different types of culture in the success of the projects results are shown in Figure 8. In the early development of the company, a significant focus was placed on developing the individual which is prevalent in the results shown where the learning-based culture is still dominant in its contribution to the success of the cases. Interesting to note is that the enforced corporate culture only had a neutral effect on the results of the company.

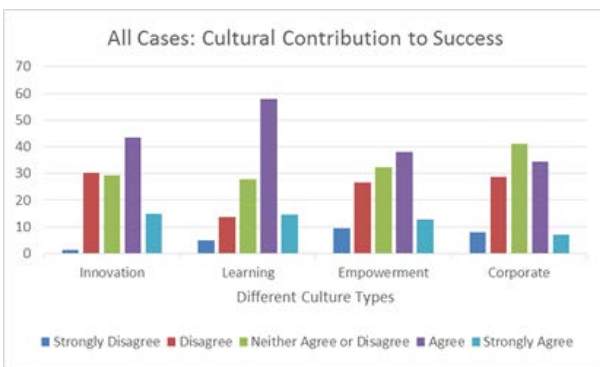


Figure 13 - Culture Contribution.

5 CONCLUSIONS

5.1 Interpretation of the Summary Results

It is concluded that four Enabler Areas do have a significant contribution towards the corporate success. However, the perceived contribution varies between the cases. The following detail observations are presented:

- The more leadership focus is required, the more defined correlation is demonstrated with the theoretical leadership style.
- In all cases, quality relationships are a prerequisite for success associated with a

marked increase of the relationship contribution in the most successful project (case 3).

- The prevalence of bad decision-making results in a less successful project.
- Enforcing a corporate culture from the top does not necessarily contribute to the success of the company.

The Success Event Roadmap can be used to establish the potential contribution of any of the defined factors within the various processes. It also facilitates understanding of the contribution of the most appropriate factors in a specific scenario.

5.2 Additional research

Additional research should be considered in other phases of the Success Events Framework namely:

- The contribution and influence of the executable factors within their defined processes.
- The definition, grouping and contribution of the other controllable factors that drives competitiveness.
- The application of the Success Event Framework and Roadmap as an Enterprise Health Check Tool.

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7 BIOGRAPHY



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