

ALIGNING GLOBAL BUSINESS STRATEGY PLANNING MODELS WITH ACCELERATING CHANGE

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ABSTRACT

This paper develops concepts for the alignment of two established strategic management tools, Product Life Cycle analysis and SWOT analysis, with the demands of a global, internet speed business environment.

Because changes in global business activities are frequent, profound and accelerating, the established strategic planning tools, Product Life Cycle analysis and SWOT analysis, need to be reengineered in order for them to continue to be effective instruments for achieving sustainable competitive advantage.

The global strategy planning models proposed here restore the effectiveness of SWOT analysis by adding "Change" as a new dimension: Internal Change (Ch_i) and External Change (Ch_e) which identify and quantify the impacts of major new business developments and form the bases for designing innovative strategies. Next the paper proposes a method for performing the new SWOTCh_{i/e} analysis in a global business setting.

The paper also models the impacts of globalization on the Product Life Cycle stages for a global business. It then proposes the addition of a new life stage called "Recycle for Life". When grafted onto the original PLC model, the new stage turns the PLC analysis into an effective strategic tool for maintaining sustainable growth by incorporating "Change" into the analytic framework and turning a vicious life cycle with a finite end into a virtuous life cycle that is regenerative.

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ACCELERATING CHANGE

Traditional Product Life Cycle and SWOT Analyses

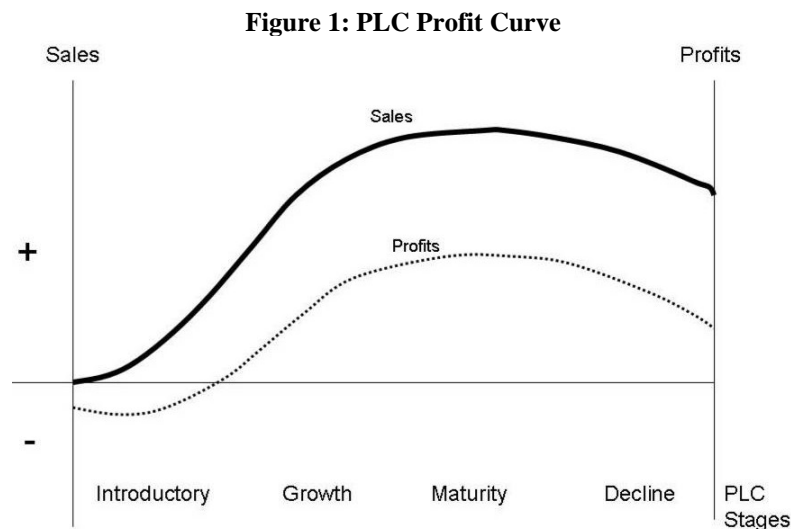
The PLC concept is based on the assumption of a single market and presumes that product life is finite and has a beginning and an end. This finite life can be divided into four stages:

- Introductory stage – in which the new product or service is entered into the market place with sales gaining momentum and sales volumes becoming meaningful.
- Growth stage – characterized by further sales growth which eventually slows down and starts to plateau.
- Mature stage – which manifests a relatively constant sales volume until it embarks on a path of continuous decline.
- Decline stage – in which the sales decline continues until the product or service offering is discontinued.

It should be noted that only the starting and the end points of the PLC stages are clearly defined. The starting and ending points of the internal stages are subject to judgment and are management defined (e.g. Golder et al 2004). Nevertheless, these points are significant, because they involve important strategy changes which impact on resource utilization and business performance. They determine the way the business is managed.

During *Introduction* the product is in an investment mode and the focus is on maximizing sales potential. The *Growth* stage is usually characterized by expanding sales and profitability. During *Maturity* the focus is on further improving profitability without negatively impacting sales. Finally, during the *Decline*, the focus is on maximizing the profit margin, while accepting that absolute sales and profits will be decreasing.

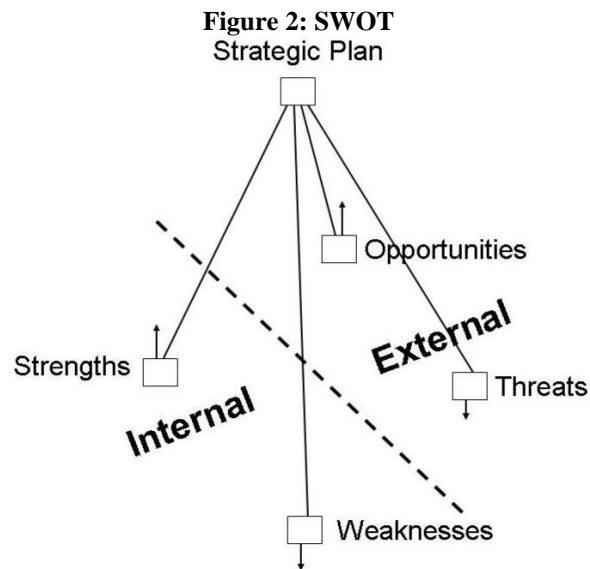
Figure 1 visualizes the profitability pattern of a product or business associated with the corresponding sales throughout the PLC stages.



Understanding the strategic implications associated with the traditional PLC model is important, because the revisions recommended to this model later in the paper will require significant changes in strategy.

It is also important to note that the actual shapes of the PLC Sales and Profit curves are generic and in practice vary greatly by industry, product, company and environmental factors. The variations can be in the length of the PLC stages and in the growth to decline trends. Another important characteristic of the traditional PLC analysis is that it has been tailored for single market analysis. Its application to global businesses has been an iterative approach on a market by market basis. In a rapidly changing global environment the PLC analysis must also be “globalized” in order to maintain its relevance as an effective strategic tool.

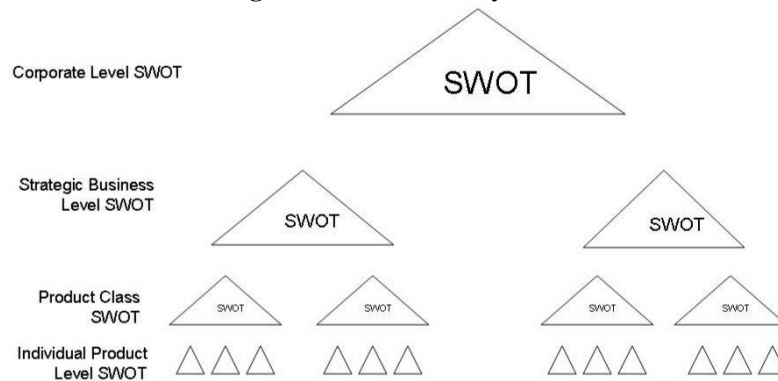
SWOT analysis (strengths, weaknesses, opportunities, threats) is an extensively used strategic planning tool. It undertakes to identify and describe a company's or business' internal strengths and weaknesses in relation to those of the competition. It also endeavors to identify and describe factors outside the firm: environmental factors within the same market and industry as well as broader economic and political factors which would have positive or negative impact on the company's business. (Valentin, 2001; Kotter, 2000, 1980). See Figure 2.



The objective of a strategic plan for a company/business/product/service is to identify the optimal business model which, in light of the opportunities and threats presented by the external environment and given the business entity's strengths and weaknesses, maximizes competitive advantage.

An effective approach to developing a strategic plan with the utilization of SWOT analysis would be a "pyramidization" of SWOT's. In practice, this approach would require performing a SWOT analysis on individual product level, product group (or family) level, then on an SBU level and finally on a corporate level. The way this works is that each SWOT analysis is performed by synthesizing the outcomes of the lower level SWOT's. Therefore, a company must start performing SWOT analysis at the lowest possible level (for example at the product level) and the “moves up” until a corporate SWOT can be developed based on which the strategic plan is formulated. See Figure 3.

Figure 3: The SWOT Pyramid



In fact, one of the great advantages of SWOT analysis as a strategic management tool is its easy applicability to every aspect of a business. It may also be used as a building block of strategies. Moreover, SWOT is flexible in terms of the level of detail and depth of analysis that it requires.

For example, it is possible to perform a single SWOT analysis on GE as a large, powerful, financially strong, global conglomerate. At the same time, within GE an almost endless number of business/product/operation specific SWOT's can also be performed which could then form the basis for higher level or more broadly based SWOT analyses.

LITERATURE REVIEW

Both PLC and SWOT are strategic management tools which have been reviewed in numerous articles identifying some of their weaknesses and suggesting revisions which could enhance their effectiveness. Some of the weaknesses identified are inherent limitations of these strategic tools while others have emerged as a result of changes in the business environment – globalization and the frequency and magnitude of changes.

Golder and Tellis (2004) look to expand the theory of PLC by incorporating informational cascades. One of the key issues associated with the PLC concept is the correct identification of the length of each stage. In their study, Golder and Tellis find that different products have different life cycle patterns which can be identified and which can improve the management decision making process. This can be accomplished with the incorporation of informational cascades.

The ability to identify with greater accuracy and certainty the time when a product life stage starts changing, addresses one of the key problems associated with the use of PLC as a managerial tool. A basic concern that arose relatively early, is that there isn't an "inherent" PLC associated with products and services and that it is the product management strategies based on the assumption of the existence of life stages which will actually cause them (Dhalla and Yuspech, 1976). The applications of PLC are deterministic (Tellis and Crawford, 1981) and its use as a strategic management tool could harm a business by making it a self-fulfilling prophecy. The concern is that product design and marketing strategies developed as most suitable for a particular product life stage, when implemented, would actually reinforce and lengthen that stage. Assuming that most managers make reasonable decisions, products would tend to get "stuck" in their growth stage because, being the most desirable from a management standpoint, they would receive the most support which, in turn, would lengthen the duration of the stage.

Massey (1999) provides a very useful overview of the PLC models and of the commentaries. He places them into three categories:

1. Those accepting the concept without reservations.

2. Those accepting the overall validity and usefulness of the concept but identify weaknesses and limitations and suggest improvements.
3. Those with very serious reservations to the point of completely rejecting PLC as a valid analytical and managerial tool.

As described by Massey, the PEC concept (product evolutionary process) was proposed by Tellis and Crawford in place of PLC, which they felt was unacceptably deterministic. According to Massey, the problem with PEC is that it is based on Darwinian evolutionary theory. Accordingly, the key problem arises from the principle of the random generation of variants which is the mechanism leading to evolutionary changes. This is contrary to observed business dynamics. Instead, Massey suggests that PEC is guided by Lamarkian principles. This is an evolutionary concept and attributes changes to responses to the environment. The implication for management is that changes in the marketplace can open up new opportunities. In other words, PLC is a reflection of PEC and is not deterministic in or of itself. A product or service does not necessarily have to reach decline and death. There is an opportunity to make product changes in response to environmental changes.

By labeling PLC as Darwinian and rejecting it in favor of Lamarkian evolution, Massey seems to "force" a choice between two naturally exclusive concepts: Darwinian versus Lamarkian. This approach denies the possibility that, in real life, both concepts could be operative depending on strategy. Some strategies will "allow" or even accentuate by coincidence or by design different PLC stages while other strategic actions could significantly alter the classical PLC pattern. Conversely, without conscious and effective strategic intervention, some events are likely to happen unless management does something to change them in response to changes in the environment. This represents part of the basis for the recommendations made in our study.

Wilhelm et al. (2003) approach the problem of the declining stages of the PLC by focusing on the "content and timing of product upgrades" as they apply to high tech products and, more specifically, to computers. They feel that high tech products need special attention, because of their relatively shorter life cycles. Therefore, there is a much greater need to develop a quantitative method to determine the optimal content and timing of the necessary product upgrades to prevent a quick product decline and death. The authors recognize the importance of integrating marketing, product development, process design and supply chain management in order to make timely, profitable upgrades.

Unlike Massey, Wilhelm et al., are not concerned with conceptual comparative modeling. The authors have a clear but very narrow focus on identifying a precise mathematical model to determine and guide product upgrade activity.

Suomala also recognizes the importance of new product development (NPD) in a rapidly changing environment. He applies the PLC concept to NPD performance measurement. According to Suomala (2004), the application of PLC to NPD could result in a process of "continuous improvement" leading to successive product life cycles or "product family life cycles." The primary focus of the author is, however, not on the broader question of the role and effectiveness of PLC in a more rapidly changing environment but rather on the effectiveness of NPD process.

Moon (2005) is one of the critics of PLC because of what he feels is its deterministic or "self-fulfilling prophecy" nature. That is, PLC can lead to a management style which "follows" the business into decline and death. Moon feels that this is avoidable: "companies can reserve products . . . and return them to the growth phase." He then provides very useful direction by outlining three positioning strategies "... to force consumers mental shift." - to induce consumers to re-think and revalue a product they know in a new, more favorable and advantageous light relative to competitors.

The significance of Moon's paper is due to the strong argument it makes to dispel the "myth" of an unbreakable life cycle and to the guidelines it provides as to how this could be accomplished through repositioning. Though it is not explicitly stated, it is clear that his solution to "break free from product life cycle" has potentially broad applicability across industries as well as different size companies.

While Moon's challenge of the PLC "myth" is broad based, he recommends only "repositioning" as the solution thus implying that product repositioning is "always" sufficient and may be the only way to "escape" the doom awaiting all products going through the PLC stages.

Moon does not address the fact that many of the PLC stages are technology driven which repositioning alone cannot change. Moreover, Moon does not address the desirability of some of the PLC stages from a business profitability standpoint. It is not sufficient to be able to successfully "break free from product life cycle" in order to insure the continued success of a business. It needs to be done in light of its impact on the long term sales and profit growth of the business.

Swan and Rink (2001) identify eleven different life cycles of which the classical shape, as illustrated in Figure 1, is only one. They conclude that the life cycle of a product "is determined by demand conditions that are generally beyond the control of business firms, and partially by the firms' marketing efforts". The authors refer to three of the eleven different life cycles as "recovery cycles" and point out that "methods of halting the decline could involve any combination of the four basic marketing tools".

Halting the decline would extend the PLC (or using Swan and Rink's terminology, would result in a "different type of PLC"). According to the authors, the decision "whether or not to attempt to extend the PLC" should be based on a financial analysis.

This approach represents a significant step towards addressing the limitations of Moon's proposed challenge of what he refers to as the PLC "myth". However, as pointed out above, Swan and Rink consider the extension of the PLC as a marketing decision based on financial considerations. As we see it, in today's Accelerated Change Environment, to survive and thrive, a company is not in a position to decide on a case by case basis whether to extend the PLC cycle of a particular product or service, because it is more likely to lead to missed threats or opportunities. For example, such an approach has led to the permanent or temporary (and costly) decline of many formerly highly successful companies in a wide variety of industries such as Kodak, Polaroid, Xerox, American Express, Dell, AT&T, Schering Plough, TWA, etc. Companies must have a strategic tool that creates a system of continuous recycling of their products/services, and integrates them in the modus operandi in order to remain successful in the long term.

Like PLC, SWOT also enjoyed extensive use and has been the subject of numerous studies with the intent of expanding its applicability and seeking to identify complimentary strategic management tools in response to an ever more competitive, faster changing environment. In addition, SWOT also needs to be adapted to more directly address the specific needs of global businesses.

Houben et al (1999) recognized the importance and usefulness of SWOT as a tool to achieve "correct interaction of business management with its internal and external environment" and aimed to develop a "knowledge-based system...(to) assist managers of small and medium sized companies in performing a SWOT analysis." The authors then offer a method for developing a knowledge-based SWOT analysis system based on what they refer to as "expert system technology." While this approach is somewhat more complex than the "conventional" SWOT analysis and requires the utilization of functional experts, it is also more precise and sophisticated and can handle complex situations. It is worth noting that once a knowledge-based SWOT analysis system is set up, subsequent uses become significantly easier to implement and less resource consuming.

Valentine (2001) recognizes the important role SWOT plays in strategic management. He is, however, troubled by the "query" or non-specific nature of the "procedural guidelines" which he feels can "produce shallow misleading results" in a SWOT analysis. To address this shortcoming, Valentine recommends a "resource-based" SWOT analysis in place of the conventional approach. He recommends the identification of resources and capabilities ("R&C's") at lower levels and then "summing" them to develop higher level R&C's. Another important refinement (clarification) made by Valentine relates to the "contextual" or "interactive" performance of SWOT analysis. This involves the inclusion of customer value and "defensive and offensive analysis of a company's competitive posture." The point is that SWOT depends, in part, on what competitive strategy the company is pursuing and, vice-versa, a company's competitive

strategy should be identified based on its SWOT analysis. This is why Valentine emphasizes the importance of switching from the “conventional” SWOT analysis which is static to a dynamic, interactive approach.

Morris identifies a problem with the use of SWOT: the potential confusion in properly identifying and recognizing the “O” - Opportunities in the SWOT. One common error arises when corporate strategists identify *options* and, at times, even problems and refer to them as opportunities. Options are simply alternatives available to a business.

Another source of error is the confusion between catalysts and options. Catalysts, as defined by Morris (2005), “are external changes that prompt us to recognize new options, re-evaluate existing options or revisit previously discarded options”. Opportunity, according to Morris, “is a confluence of circumstances leading to the choice of options” and a “valuable occasion to improve organizational performance in seeking its goals”. “True” opportunities can be identified within a context and contain several elements. Options and catalysts are part of the context and elements of opportunity.

Morris is not making an argument against the usefulness of SWOT as a strategic tool. He simply points out that the traditional SWOT model can miss-identify opportunities. To correct the problem, he proposes the application of an “opportunity model” to insure the correct recognition of opportunities.

M.B. Lippitt (2003) identifies the weakness of the traditional SWOT analysis with which we concur: it is too static in a changing environment. She identifies six priorities and recommends their utilization “...to generate balanced decisions, manage risk, and build a communication plan.” According to her, these “priorities are objective and dynamic, reflecting information, alternatives and consequences as events shift and erupt. Knowing the priorities enhances flexibility, commitment, focus and success”. To put it another way, Lippitt argues that because SWOT is too static, it tends to lead to single solutions. Using her “six priorities” model overcomes this problem and enables a company to maintain its competitive advantage by helping it to “interpret trends, judge events, predict opportunities and persuade an organization” to meet and respond to change successfully.

Lippitt is concerned that the traditional SWOT is too static in today’s business environment. The six priorities proposed by Lippitt are potentially useful tools in strategy development. We do not, however, see how the use of these six priorities might replace SWOT as important part of a strategist’s tool kit. Furthermore, the description of the six priorities does not clarify how they are specifically tailored to be responsive to change.

Many studies of the two widely utilized strategic tools, PLC and SWOT analysis, identify weaknesses associated with and recommend solutions to problems due to the increased frequency, unpredictability and scope of changes in the business environment. Beinhocker (1999) concludes that “developing strategies based on narrow predictions about the future is entirely the wrong mind-set for an uncertain world”. He finds that today’s business environments present complex systems which “exhibit punctuated equilibrium and path dependence”. Scientists, as Beinhocker explains, found that “punctuated equilibrium occurs when a system’s behavior is characterized by periods of relative quiescence interspersed with episodes of dramatic change”. And “path dependence means that small, random changes at one point in time can lead to radically different outcomes down the road...”. He feels that strategy development “requires good predictions” in a world which is increasingly more unpredictable. In response, Beinhocker (1999) recommends “relying less on our ability to make accurate predictions and more on the power of evolution.” Consequently, “businesses should not have singular focused strategies, but instead cultivate and manage *populations of multiple strategies that evolve over time.*”

Several studies addressed the subject of change from a couple of different directions. One approach involved a critical look at strategic tools and their changing relevance and usefulness in a changing business environment. This often included recommendations to revise existing strategic tools such as SWOT and PLC and to add new strategic tools to compliment or replace existing ones. For PLC, examples include the “turning point” concept to complement PLC analysis, replacing a Darwinian with a Lamarkian approach to how PLC should be viewed, superimposing the concept of “continuous improvement” over life cycle stages or the challenge to break the “myth” of an unbreakable life cycle. Studies of SWOT analysis include the application

of a “knowledge based” approach to improve its effectiveness especially when it comes to SME’s or, the use of the “six priorities” to enhance SWOT’s ability to reflect change.

The other approach focused directly on the subject of change and the way it impacted on strategy development. Beinhocker’s “multiple strategy” approach is a good example of how to deal with change in the context of strategy development. Oelkers et al (2004) also address change but rather than viewing it as a potential problem which needs addressing like Beinhocker (2004), they see it positively as a “prevalent characteristic in today’s world” and as a potential source of new opportunities. The authors then identify the need for and describe a new strategic tool, the “strategic magnifier” aimed to help “optimize” the change driven emerging opportunities. The “strategic magnifier” is a conceptual tool for helping to identify those changes that have an impact on “strategic variables.” Whenever an internal or external development results in a change in a strategic variable, and ultimately in the overall strategy, it is identified as a “change driver”.

An important aspect of change is not only its impact on strategy development but also on the organization as a whole (structure, culture, communications, etc.). While this aspect of change is outside the scope of our study, it is important to recognize its impact on successful strategy development. Atkinson (2005) summarizes and underscores this issue by pointing out that “...change will not go away... organizations need to develop an attitude and a methodology to master and drive change”.

This study focuses on the impact of change and globalization on SWOT and PLC and how they should be revitalized to meet the needs of the current change driven global business environment. It would however, be useful for those addressing the challenges and harnessing the forces of change, to reflect on Gosling’s (2003) views on change in his article *The Five Minds of a Manager*: “businesses are judged by the products they sell and the services they render, not the changes they make”. He cautions that because “we are told...change or else...we tend to focus on what is changing and conclude that everything is” and that “the trick ... is to mobilize energy around those things that need changing, while being careful to maintain the rest.”

From "traditional" SWOT to a global SWOTCH_{i/e}

We mentioned Gosling’s admonition about *change* because at the same time it is both sound and, potentially, misleading. It all depends on how *change* is defined. Gosling’s discussion of *change* implies a departure from how things are. This is only a partial definition of *change*.

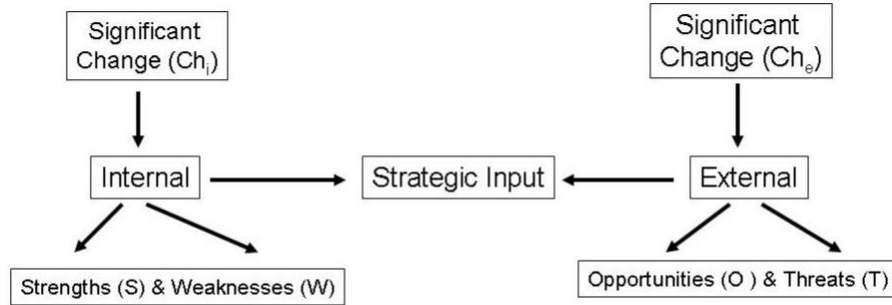
A SWOT analysis, traditional or revised, such as Houben’s and Vanhoof’s (1999) knowledge-based approach or Lippitt’s (2003) dynamic SWOT analysis is all assumptive or predictive. SWOT analysis, regardless of the approach, entails one set of assumptions or predictions about the company and the future business environment in terms of the company’s internal strengths and weaknesses and the external opportunities and threats which could impact on the company’s business over the planning horizon. Some of the variables included in a SWOT analysis may be projected to remain the same.

We, however, tend to agree with Beinhocker (1999) that the world is becoming more and more “inherently unpredictable.” We, therefore, define *change* more broadly than Gosling. We view *change* as any significant departure from what is being projected about a company’s strengths, weaknesses, opportunities and threats over the planning horizon. Regardless of whether a particular SWOT variable is assumed to remain the same or change from what it has been, we consider it a *change* possibility if it could be significantly different from what it was projected to be. Moreover, we consider a *change* to be significant if its impact on a firm’s SWOT would lead to a *change* in its competitive posture and therefore its strategic plan.

What we recommend is to start with a SWOT analysis. As described above, the process will incorporate one, the most likely, set of assumptions and expectations regarding a company’s strengths, weaknesses, opportunities and threats based on which the strategic plan is developed. However, in an environment of continuous change, it is not sufficient, in our opinion, as Oelkers et al recommend, to use a “strategic magnifier” to identify potentially “useful” changes. In such an environment it is necessary to identify

possible significant internal (Ch_i) or external (Ch_e) changes which could have a significant impact on a company's SWOT as illustrated in Figure 4.

Figure 4: SWOT Ch_i/e analysis



As a result, a company may end up having instead of a single strategic plan (the traditional approach), “multiple” strategic plans. The “main” strategic plan should be based on the already developed initial or primary SWOT analysis. Its viability should then be tested based on the SWOT Ch_i/e analysis to be performed. This would entail the testing of the “main” strategic plan by factoring-in the possible significant internal changes (Ch_i) and the possible significant external changes (Ch_e). Whenever the initial strategic plan is no longer judged to be viable (or optimal) based on the results of the SWOT Ch_i/e analysis, an alternative strategic plan should be developed. This could lead to a “population of multiple strategies” as recommended by Beinhocker.

However, having and pursuing several alternative strategies could be just as risky as having only one. To deal with this issue, a company must also perform a “switch” analysis to identify the resource requirements of changing from the “main” strategy to an alternative strategy and to identify the associated business implications. The implications include internal operational, managerial, fiscal and resource issues, external considerations such as legal, regulatory, governmental and public relations, as well as stock price and time requirements.

Figure 5 endeavors to illustrate a situation in which the potential internal (Ch_i) and/or external changes (Ch_e) which were shown to have a significant impacts on a company's primary SWOT, resulted in two possible alternate strategies (A and B). Both alternatives must undergo a switch analysis which would enable a company's Management to first, have an understanding of what it would take to switch from the primary strategy to either of the two alternatives and second, to prepare to make the switch if it turns out to be desirable or necessary. For this to be an actionable strategic exercise, the number of strategic alternatives to be developed for consideration should be limited to one or two.

Figure 5: SWOT Ch_i/e and Strategic Alternatives



A case in point is the pharmaceutical industry in which the large firms have been very successful for many years in developing alternative R&D strategies. This gave them the flexibility to switch from one strategy to another as some R&D or market SWOT factors changed. Lately, however, many of these companies (e.g., Pfizer, Schering Plough, Novartis) failed to have the right alternative strategy in response to changes. Other companies (e.g., Allergan, Johnson & Johnson) continued to have the alternative strategies needed to respond to change and to maintain their competitive advantages where success is measured in terms of sales and profit growth as well as stock price performance.

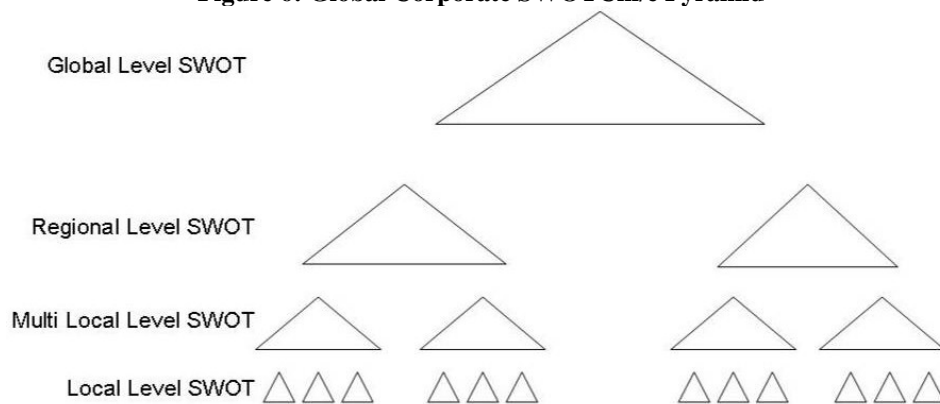
Many R&D focused biotechnology firms have come and gone because their resources were too limited to be able to switch to alternative strategies. Some of them, however, such as Genentech, were able to allocate their resources so that they could switch to alternative R&D strategies as changes impacted on them.

Several of the large, “traditional”, as opposed to low fare airlines also serve as good examples of the risk associated with a single strategy approach built on SWOT instead of SWOTCh_{i/e} analysis. They simply lacked viable alternative strategies they could switch to in case of significant changes to the SWOT’s on which their respective strategic plans were built.

The longer the lead time and the greater the resource requirement to develop and implement an alternative strategy the more important it is to conduct a thorough SWOTCh_{i/e} analysis. Many of the problems experienced by several major airline and telecommunication companies could have been avoided if they had performed SWOTCh_{i/e} analysis followed by the development of alternative strategies subjected to switch analysis. In general, the larger the investments and the longer the response time required to switch from one strategic plan and course of action to another, the more important it is to develop alternative strategies, subjected to a switch analysis based on SWOTCh_{i/e}.

To effectively globalize the SWOTCh_{i/e} model, we suggest adapting a "pyramidization" approach. This approach was applied to corporate SWOT analysis as illustrated in figure 3. A similar approach can be applied to a global company. In this case, the analysis should first be performed on a market by market basis and then synthesized into a regional and finally, a global analysis as shown in figure 6. The development of a single, global, corporate strategic plan requires a matrix approach to align and synthesize the two SWOTCh_{i/e} pyramids – one analyzing the businesses/operations vertically (by functional area and business unit) and the other horizontally (by location). Such a matrix approach to SWOTCh_{i/e} analysis is well aligned with the matrix organizational structure of global companies.

Figure 6: Global Corporate SWOTCh_{i/e} Pyramid



SWOTCh_{i/e} analysis is performed on local, multi-local, regional and global levels for individual business units and/or functions and operations. The results of the pyramidal SWOTCh_{i/e} analysis, performed along regional lines, is then aligned with the pyramidal SWOTCh_{i/e} analysis performed along operational/business lines. The approach for the coordination or alignment between these two pyramidal SWOTCh_{i/e} analysis is conceptually and procedurally similar to the way matrix organizations work together to align strategy development, corporate decision making process and implementation.

From PLC to PRCL or, Changing Product Cycles From “Cradle to Grave” to “Cradle to Cradle”

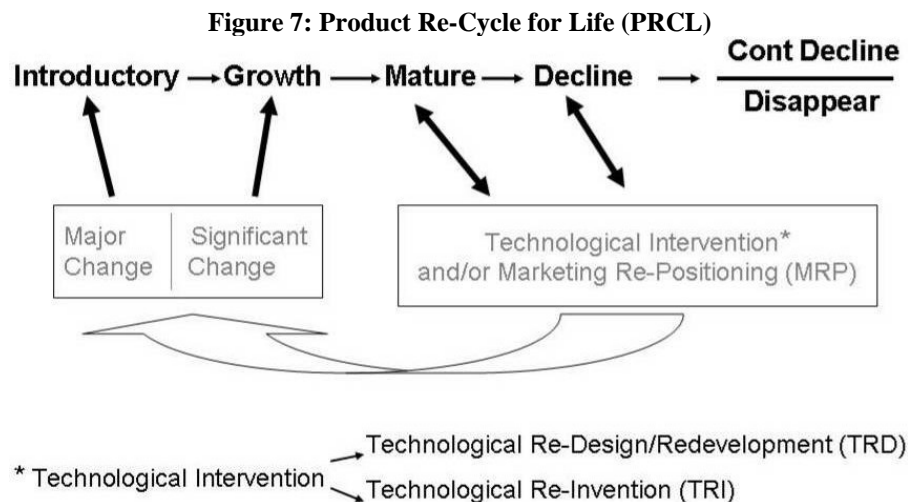
One of the more recent and more fundamental criticisms of PLC, as discussed earlier in this paper, is that it is deterministic. In other words, it leads to a self-fulfilling prophecy (Moon, 2005). This, however, is only part of the problem with PLC and, therefore, the remedy proposed by Moon is also only a partial solution to a broader problem.

The broader issue is that PLC is also based on change – technological change, change in the competitive environment and change in consumer needs and preferences. As the rate of change accelerates, changes become more profound and, as Beinhocker (1999) points out, also more unpredictable. Consequently, businesses need a strategic management tool suited to serve their strategic needs. We propose a new approach, the product re-cycle for life (PRCL) model as such a strategic management tool.

This new strategic tool is intended to not only anticipate change but also to create change that aims to break into the PLC, preferably at some point in the Mature stage of PLC and re-cycle it into the Growth and possibly, the Introduction stage. This can be accomplished through technological intervention and/or marketing re-positioning (MRP).

Technological intervention can be far-reaching or revolutionary – Technological Re-Invention (TRI). It can also be limited in scope or evolutionary – Technological Re-Design/Re-Development (TRD). Depending on the magnitude or scope of the change, the product or service would be re-cycled into the Introduction or Growth stage.

Figure 7 illustrates the PRCL process by visualizing how Technological Intervention (and/or Marketing Re-Positioning) is intended to impact (or “disrupt”) the traditional PLC when a product (or service) reaches the Mature or Decline stage and recycles it back into the Introductory or Growth stage. The stage into which a product (or service) is recycled into depends on the magnitude (innovativeness, “disruptiveness”) of the change. The more profound (or major) the change, the more likely it is that the product will be recycled into the Introductory stage.



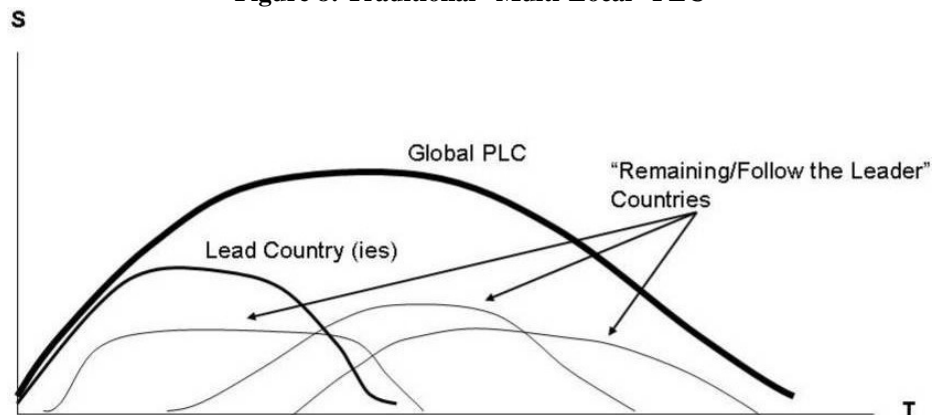
The Need to Globalize the PRCL model

The "traditional" approach to a PLC approach for a global company has been to apply the analysis on a country by country basis (as a particular product or service was being introduced in new countries) with the assumption that the cycle will "repeat itself" following a similar pattern as that in the lead country(s). However, as even the most sophisticated global companies such as Kodak and Sonny found out with some of their products, in an internet based global business environment, this is no longer true.

When it comes to a company's major brands two opposite outcomes may be associated with failure or success at achieving product recycle for life PRCL. Lack of success in extending the life cycle of a company's major brand(s) may lead to exiting from major markets or businesses. Conversely, success in extending the brand's life through regenerative product life cycles may make possible the profitable divestment or sale of not only the branded product but the entire corporation as well (Decker and Mellewig 2007).

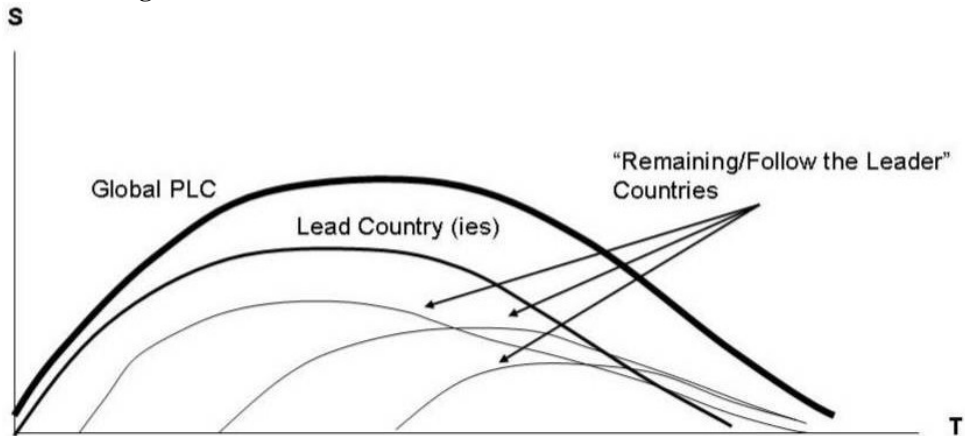
While the life cycle of a product or service may have different starting times in different countries or regions, because company resource availabilities, priorities or differences in market conditions, the (potential) end of the life cycle, unless the company succeeds to recycle as we have recommended, will occur approximately at the same time globally. Internet educated consumers become aware of the existence of new products or services and they do not want to be "left behind" by purchasing products which are considered "outdated" by consumers in economically more advanced countries. Though some of them may only be able to afford a less expensive, "striped down" model of a product, they still desire or demand the same new technology, design or look. As a result, while the life cycle of a product may start at different times in different markets, they are likely to end at about the same time. This is likely to significantly shorten the "traditional" global life cycle of a product and must, therefore, be reflected in global sales/marketing/business plans. This, in turn, further underscores the vital importance of a successful PRCL model for a global company

Figure 8: Traditional "Multi-Local" PLC



Country PLC's have different start (introduction) and end/decline dates. The shape of each curve is dependent primarily on local conditions. The Global PLC curve has a significantly extended PLC as compared to the lead country PLC.

Figure 9: Global PLC in an Internet Based Business Environment



While start (introduction) timings differ, the decline/end timings are close to being the same as consumers are broadly aware of new product developments and availabilities in other countries and “refuse” to buy “old or outdated” products. Global PLC is only marginally extended compared to the lead country PLC.

In order to be viable and successful, the strategy driving PRCL resulting in competitive advantage should be based on a SWOTCh_{i/e} analysis. The process has to also factor in the resource requirements. Figure 10 is an illustration of the “generic” resource requirements needed to achieve competitive advantage within a PLC model. Figure 11 illustrates the same within the PRCL model. While these vary by industry, product, company and competitive environment, the side by side comparison shows the differences in the intensity of resource requirements between the two models. It is important to note that the PRCL model is more resource intensive than the PLC model.

Figure 10: Resource Requirements for Competitive Advantage (PLC Model)

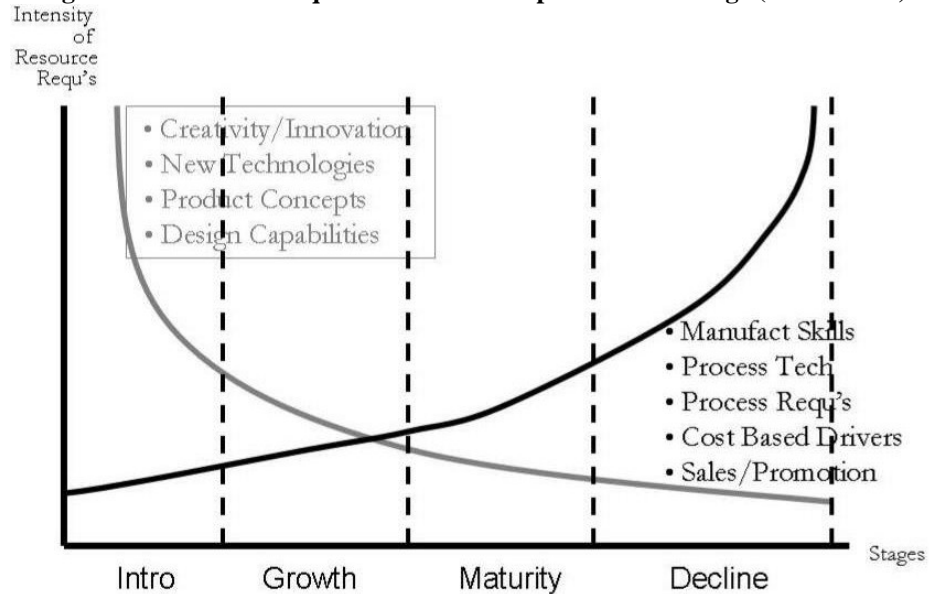
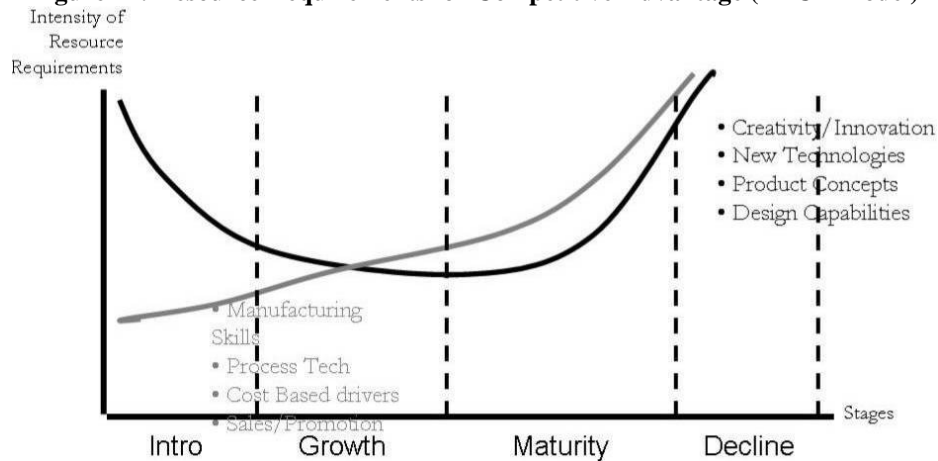


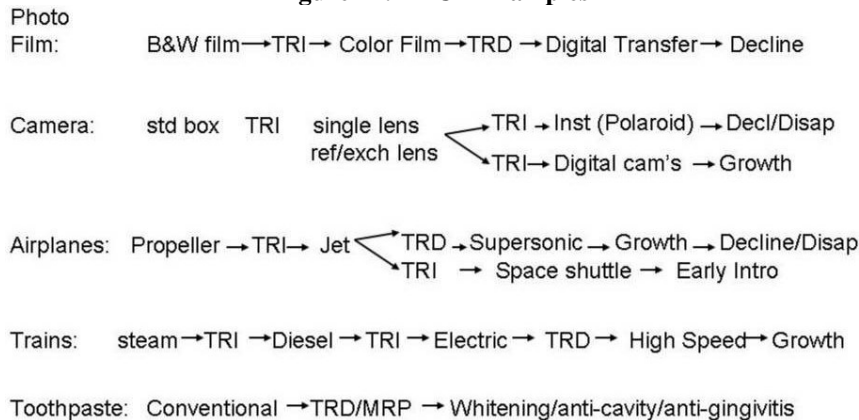
Figure 11: Resource Requirements for Competitive Advantage (PRCL Model)



On the one hand, resources associated with the development and commercialization of a product decreases for a relatively short period of time and then it starts increasing again in preparation for and anticipation of the re-cycling process. At the same time, the resources needed to increase the efficiency of manufacturing and logistical activities (higher quantities, lower costs) and the effectiveness of sales and promotional efforts also need to kick in at a much earlier stage. The latter resources are aimed at increasing sales and profits which are needed to compensate for the incremental costs associated with the development and commercialization of the new improved products or services.

Figure 12 provides examples of products and businesses which have been successful in following a PRCL strategic model.

Figure 12: PRCL Examples



There are many products and businesses which suffered because they were not able to follow the PRCL model. The reason for their demise was that they either failed to develop and use Technological Intervention (TI) or Marketing Re-Positioning (MRP) to break out of their PLC or that the IT or MRP they adopted was not based on the business' SWOTCh_{i/e}. That is, they did not leverage the business' strengths or did not take advantage of their opportunities nor were they responsive to significant changes. Some recent examples of such businesses include: 1) Kodak Inc.- which suffered because of its unsuccessful attempt to break out of the film business; 2) Polaroid Inc.- which went bankrupt as it failed to break out of the instant camera business; 3) Wang Inc.- which also went bankrupt as it failed to break out of the mainframe computer business and 4) several "traditional airlines" some of which declined and others are already bankrupt as they failed to break out of a service system suited for a highly regulated industry environment.

EXECUTIVE SUMMARY

Starting from an analytical review of the PLC (product life cycle) model and the SWOT (strengths, weaknesses, opportunities and threats) model as strategic planning tools, and from a critical review of the literature on their evolutionary applications, this paper creates two new models for use in an accelerating change, global, internet speed business environment.

The two developments delivered in the paper are (1) the transformation of the product life cycle, PLC, model into the product recycle for life, PRCL, model and (2) the transformation of the SWOT model into the SWOT with internal and external change, identified as SWOTCHi/e.

Applications of the product recycle for life PRCL model and of the SWOTCHi/e model are offered by recent strategy restaging at the British Petroleum Company (BP) and at the General Electric Company (GE). BP recognized worldwide developments in the needs to continue to produce and consume vast quantities of crude oil, natural gas, and products refined from these two natural resources while inventing, developing, and bringing to market new as well as alternative sources of energy. Because for BP the product life cycles may be decades long, with assets and capital investment that are in the tens of billions of dollars, it is essential to assure not only the short term and intermediate term but also the long term viability of BP's strategic businesses and products.

While continuing its pursuit for additional crude oil and natural gas reserves, BP significantly expanded its endeavors in research, development, production oriented investments and activities related to various alternative energy sources. In response to external challenges, BP is restructuring its corporate strategies toward a product portfolio mix that will assure it virtuous product life cycles that are regenerative. In order to motivate its entire internal organization and to communicate these changing developments to the external world and in order to retain and grow customer support, BP has restaged its image and role from being an oil company with British origins to becoming an energy company, BEYOND PETROLEUM.

BP avoids overstating its completed accomplishments and emphasizes the long term nature of its product life cycles when after listing the Company's many alternative energy development activities and specifying the associated huge capital investments, BP states: "It's a start."

A more rapidly evolving strategic change is being implemented at the General Electric Company (GE) which is a United States based global corporation and one of the world's largest conglomerates.

In examining the external challenges to its strengths, weaknesses, opportunities, and threats, among other crucial issues, it found that many of its strategic business units were examining, developing, producing or marketing goods and services that contained or focused on energy production and use efficiencies, and on goods and services that contributed to global environmental improvement and protection.

A principal *raison d'être* for GE to be organized and operated as a conglomerate is derived from the potentials and abilities of its various divisions to coordinate and complement their efforts synergistically so that their combined or total value creations become superior in quality and greater in quantity than the sum of what the many individual divisions could achieve if operating separately or independently.

In effect GE recognized that in the energy, environment, greenery, and efficiency enhancement areas it has a series of separate strategies (which may be depicted by the small SWOT pyramids in Figures 3 and 6) on which it could, should and must develop, not only the company/business SWOT pyramid at the apex of Figure 3 but also the global SWOTCHi/e pyramid at the apex of Figure 6.

The implementation of these tasks resulted in new global strategies and beyond the strategies a new global mission. "ECOMAGINATION" became the forward looking responsibility, objective and purpose of GE with the expectation that approximately twenty five percent of GE's gross income will be derived from "ECOMAGINATION" based products and services.

In a business environment of accelerated global change (AGC), Management has to be able to respond as rapidly as the changes take place in order to remain competitive. SWOT and PLC have been effective strategy tools but as pointed out in the Literature Review section, a common criticism of both strategic tools has been related to being too rigid, static and deterministic (Tellis and Crawford, 1981 and Lipitt, 2003). As a result, the use of classical SWOT and PLC strategic management tools can no longer achieve a sustainable competitive advantage, because they do not incorporate a mechanism which can identify and respond to global change. AGC therefore, can represent a potentially significant threat to a business because Management no longer has effective strategy tools.

However, as the numerous successful businesses demonstrate, AGC (Accelerated Global Change) can also represent opportunities which can be greater than ever before. Consequently, Management has an ever greater need for strategic management tools which can help it overcome the challenges AGC can pose to existing businesses and enable it to leverage the opportunities.

A global SWOTCh_{i/e} and PRCL, when used in concert, are forward looking strategic management tools which can enable companies to survive and thrive in an AGC business environment. SWOTCh_{i/e} not only allows companies to identify their competitive advantages based on the assessment of their strengths and weaknesses within the framework of the opportunities and threats arising from the outside environment but, by performing SWOTCh_{i/e} analysis, it also enables them to identify viable strategic alternatives in response to potentially significant internal or external changes on a global level.

PRCL is designed to enable companies to avoid the threat of shortened product life cycles and to benefit from change. The important advantage of these strategic management tools is that they represent extensions, revitalizations and adaptations of SWOT and PLC which are widely known and have been extensively used by managers all over the world across industries and firms of all types.

Managers should combine the use of both SWOTCh_{i/e} and PRCL. Therefore:

1. On a yearly basis, during strategic planning, a SWOTCh_{i/e} analysis should be performed. This tool should identify potentially significant changes from the assumptions incorporated in the company's "basic" SWOT based on which the strategic plan has been developed.
2. Develop one or two alternative strategies based on an alternative SWOT which incorporates the major potential changes which have been identified, based on the outcome of the SWOTCh_{i/e} analysis.
3. Perform a Switch Analysis to identify the timing and resource requirements implications of changing to an alternative strategy. The objective is to insure that the business would be capable of switching to one of the alternative strategies as needed.
4. As new products or services are introduced, actively start a program of seeking to identify changes: either those which the outside world could impose on the business or those that the company could impose on the outside world. Then, seek to develop new products, services or marketing strategies in responses to the changed opportunities.

The next step would be for Managers to choose between three alternative modes of utilizing the outcomes of the development process:

1. to modify/improve the existing product
2. to introduce a new product in place of the existing product
3. to introduce a new product in addition to the existing product(s)

The choice among the three alternatives should be based on a cumulative sales, profit and investment analysis which incorporates the risk factors associated with each alternative.

While many companies, especially in the current Accelerated Change Environment tend to have active R&D programs, their impacts on the existing businesses are often disappointing, as illustrated in our examples earlier in this paper. The revised strategic tools of SWOTCh_{i/e} and PRCL systematically used by

Managers, as outlined, would enable the company to deal with change as a source of regenerative competitive advantage (RGCA) rather than a source of competitive threat and, therefore, the company could remain continuously successful.

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