

Scrum As Community of Practice to Small and Medium-Sized High Technology Enterprises Realize the Strategic Plan

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Abstract

This paper proposes a dynamic strategic planning methodology using Scrum Agile Methodology to help small and medium-sized high technology enterprises (SMET) to strategizing. This paper provides a brief review of the issues involved in the strategizing perspective into the Scrum Agile methodology, while analyzing 13 SMET companies and how they do strategies into the community of practice. The proposed model allows the SMET innovative managers to scale up their business models swiftly and then to protect themselves from competitive attacks, in these cases happen to the advice is a quick adaptation of strategies and also evolving Technological advances rapidly, uncertainties of the environment and deliver real value to customers in a cost-efficient and a profitable way. The strategic planning model proposed is based on agile development methodologies, in which, each step is divided into a cycle, which removes the necessity to finalize a particular stage of planning before starting another one, and it seeks a SMET to minimize the risk of elaborating a plan. This paper is valuable to a SMET manager, by developing actions for the long term and disseminating relevant information to the company employees in a dynamic way.

Keywords: Small and Medium Business, Strategic Planning, Community of practice, Agile development

Resumo

Este artigo propõe uma metodologia de planejamento estratégico dinâmico utilizando metodologia ágil, Scrum, para ajudar as pequenas e médias empresas de alta tecnologia (SMET) para realizar o planejamento estratégico. O artigo fornece uma breve revisão das questões envolvidas na perspectiva de elaboração de estratégias para a metodologia Scrum, ao analisar 13 empresas SMET e como elas fazem estratégias na ótica da comunidade de prática. O modelo proposto permite que os gestores aumentem seus negócios e, consigam se proteger de ataques competitivos, nestes casos acontecerá com o conselho é uma adaptação rápida de estratégias e avanços tecnológicos também evoluem rapidamente, as incertezas do ambiente e entregar valor real aos clientes em uma relação custo-eficiente e de forma rentável. No modelo de planejamento estratégico proposto, cada passo é dividido em ciclos, o que elimina a necessidade de finalizar um determinado estágio de planejamento antes de iniciar um outro ciclo, e procura um SMET para minimizar o risco de elaborar um plano. Este trabalho é importante para um gerente de SMET, através do desenvolvimento de ações para o longo prazo e divulgação de informações relevantes para os funcionários da empresa de forma dinâmica.

Palavras-chave: Pequenas e Médias Empresas, Planejamento Estratégico, Comunidade de prática, Desenvolvimento Ágil.

Introduction

Small and medium-sized high technology enterprises (SMET) have high technological content in their processes, which are rare or exclusive and commercially viable (Schumpeter, 1942). Balkin *et al.* (2000), classifies organizations as high-tech when they invest more than 5% of their profits in research and development (R&D). They employ a labor force, which is highly specialized and systematically adopt technological innovation; there are flexibility and have short lines of communication; close relationships with clients; creative products or services; less bureaucracy; little filtering of proposals; and a strong interest in developing technological change. They develop co-operative business and partnerships similar to the concept of a network, it require a technical assistance to develop and to establish strategies.

SMETs face several difficulties that lead their strategic planning: the fear of learning about the weaknesses and problems of their company, their lack of knowledge of the process and the managers' personal feeling that future changes may not be planned, limited resources in order to produce benefits in the short time.

Thus, this paper proposes a dynamic strategy model based on SCRUM agile methodology to SMETs, aiming at helping and guiding their managers.

The model rests on agile development, in which each step is divided into a cycle, which removes the necessity to complete a particular stage of planning before starting another. This promotes the strategizing perspective of doing the strategies at a multiple social levels (Jarzabkowski, 2005). And it also minimizes the risk of a SMET elaborating a plan, by monitoring or controlling only reaching the results (Wickham, 2008). It was developed our approach in a dynamic of strategy as practice to focus on human activity to disseminate relevant information to other employees of the organization (Johnson *et al.*, 2003).

The model is based on empirical research; the cross-sectional qualitative study is based on a group of 13 SMET Brazilian companies during the years of 2009-2012. Specific information on these ones was collected through direct contact with the managers involved with the investigated phenomenon to lead a study of community of practice (Lave and Wenger, 1991).

SMET Planning Practices

"In practice, the planning role are variable across time and space" (Lave and Wenger, 1991, p. 91), aiming at doing. It is the reason of this paper to analyze 13 managers of small and medium high-tech companies as parameters to lead this study of a community of Scrum practice to strategize. The sample has heterogeneous cognitive skills and different leadership backgrounds. The members' average of the group is 32 years, 15.38% occupy the position of IT manager and 84.62% are Directors. The average age of the companies operated by them is 13.1 years, and the time that these managers are working in these companies ranged from 1 to 22 months.

The current number of employees is between 5 to 200 individuals, with an average of 38 people per SMET. And the number of employees under direct command from this sample of managers is 5.53 on average. The daily routine activities attributed to each manager are focused on commercial, human resources, and financial areas. SMET managers have to investigate opportunities to establish partnerships with other companies, as well to identify prospective clients. It was observed that the activities such as: supervising teams, managing people and teams, audit, quality management and technical assistance are not attributed to these managers. A negative highlight is the neglect of quality management of rendering information technology (IT) services. None of the companies monitors these services or have technical assistance.

According to the SMET sample, 69.2% do strategic planning: the managers, themselves, conducts internally 53.8% of this and 15.4% are out-sourced to consultants. These SMET review the planning annually or quarterly. The others, 30.8%, which do not develop strategic planning: 37% are unfamiliar with the technique, 25% reports lack of time and the priority to their customers; 13% reported that are into internal structuring process.

The main activities to developing strategic planning are: SWOT analysis 15.38%, 23.08% the drawing up of the mission and vision and 61.54% controlling, monitoring or implementing the strategy.

About 76.92% of SMETs analyze the market as following: 29.4% examining the contact through correspondence with the directors, 29.4% SMET search on web sites, 5.88% elaborate a marketing survey and 35.29% do it during the contact with clients. And the competitors’ analysis is performed by 69.3% of these companies: 33% studies market changes and the rest 20.83% are from clients or competitor managers at events and meetings.

The suppliers analysis is conducted by 53.8% of the companies and 46.15% of SMETs do not do, because they are satisfied with the present suppliers. However, in companies which do suppliers analysis, 36.84% ask third-parties for recommendations, 5.26% experiment for a period, 5.26% consult a member of staff, 21.05% carry out searches by phone (data such as price, delivery fee, payment terms, etc.).

However, to compose the strategic planning, the stakeholders’ information is partly neglected. About 53.8% consider their clients’ the views, 30.77% their competitors and 23.08% their suppliers and the market. Employees are not involved in strategic planning; three of the companies consider this involvement fundamental; six of them consider it is relatively important, while 4 do not consider it all. The proposed model, described in the next section, rises from the gaps in the sample, as shown in Table 1.

Table 1 - Gaps on the strategic planning in the sample

<i>Gaps</i>	<i>Respect to</i>	<i>Problems related</i>
Employees are not involved in strategic planning	Heterogeneous cognitive skills and different backgrounds	Feeling of frustration at being in a company that does not recognize the value of employee; Failure to use the cognitive creativity and the stock of employee’s knowledge to develop strategies.
Less time to manager leads	Leader concentrates on commercial, human resources, and financial areas.	Failure to trust in their employees; Routine activities are more prioritized than the managerial and strategic; Emotional and physical distress in activities that do not add value to SMET in long term.
Disregard the information as a strategic resource	None of the companies scheduled monitor their services; The information from stakeholders is partly neglected.	Do not observation an information to add value through a strategic planning; Do not have knowledge of what customers really want; Not analyze factors generating an sale order; No targeting effort to SMET real and potential customers.

Proposed Methodology for SMET Strategic Planning

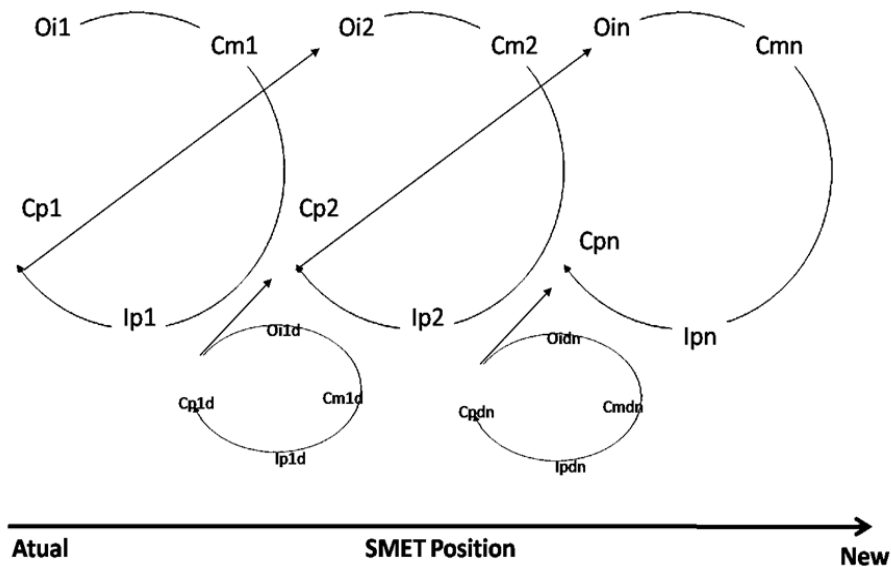
The SCRUM Agile Methodology has dynamics and flexibility to respond efficiently to changes in the market in accordance to clients’ necessity (Prahalad and Hamel, 1994). Focused on people to explore their skills and providing freedom for each one develops his/her own working methods. It emphasizes the availability of information through real-time communication in iterative cycles, in which the work is seen as a primary measure of progress (Beck, 2001), to prototype better strategic results.

However, SMETs need organization culture to support the negotiation and an environment that facilitates rapid communication among its members; people should be outstanding and have mutual trust (Ghoshal and Bartlet, 1994).

The proposed strategic planning is based on SCRUM, each step is divided into cycles of short duration, since managers have claimed lack of time. The lack of resources and future vision are obstacles to start the practice of developing strategic planning.

The first process consists on gather internal and external environment information (Oi) by the evaluating the SWOT matrix. After that, the SMET should change this information in aspects such as drafting the mission of company, vision and macro-strategies (Cm). Aiming at elaborating the strategic planning summary concerned in previous phases. Thus, there is no necessity to finish a stage given of a macro-process to start another stage (Figure 1).

Figure 1 - The proposed Model for SMET planning



Where:

Oi – Obtain information

Cp – Compare Position

Cm – Company mission, vision and other macro strategies

Ip – implementing the planning

n – Sprint number

Oidn – Obtain information deviation

Cp dn – Compare Position deviation

Cmdn – Company mission, vision and other macro strategies deviation

Ipdn – implementing the planning to control the deviation

The next step is to put the plan into practice (Ip), then meetings should be held with other individuals who work in the company to present the macro-strategies, goals, mission and vision of the company, and to deliver the strategic planning summary to the direct managers and employees who will implement the actions in the SMETs.

In each sector, the highest-ranking staff member present at the meeting should establish a plan of action or specific job to achieve the macro-strategies concerning the activities of his/her office, and to pass this information to their subordinates, this way, the organization will run under the same strategic direction. The controlling and assessment should occur in every phase, once it is needed (Thompson Jr. & Strickland III, 1999). If some actions deviate from the original strategy, shorter cycles occur to guide and support into the original strategy, it was denominated as Oidn, Cp dn, Cmdn and Ipdn. Cycles with shorter time sprints, makes the strategic planning more iterative, because the work is divided into interactions that have specific time to be done.

The necessity to implement the strategy is listed at the beginning of each sprint. A meeting is held with the manager (who should not be the owner, but the manager of a strategic department, whose functions are: to manage the business items in order to achieve the strategic objective, with the highest efficiency level and lowest costs and risks), prioritizing the components listed and selecting the team to implement the strategies in the cycle that is beginning. The tasks allocated in a sprint are transferred in the form of a document available to anyone in the company.

In each sprint, the team holds a brief meeting to disseminate knowledge about what was done previously, to identify deviations from the main goal and to prioritize strategic actions that are starting (new ones or to correct an action that has deflected of the original objectives). These meetings are scheduled by a facilitator. This person knows Scrum, the SMET practices and the managerial levels of the company. And she/he encourages verbal communication between all team members and across all disciplines which are involved in strategic actions.

Each step influences on the other in the internal environment and all of them influences on the company's external environment analysis, and then the tasks cause a qualitative higher level, where at the end of each cycle, named sprints, there is the specific assessment of each strategic activity then aiming at correcting deviations from the targets formerly set.

At the end of a sprint, the team presents the results at a meeting to monitor the strategies implementation, which provides feedback to the employees involved (multidisciplinary team, usually consisting from 5 to 9 employees), with the purpose to refine strategic actions and to correct performance and market deflections. All team members must participate in the meeting, other SMET people may participate as observers. Questions should be dealt with outside the meeting and reviewed by a smaller group of people who have something directly to do with the problem or can contribute to solving it.

This ensures results that satisfy strategies in accordance to the environmental conditions changes (internal and external) according to the opportunities. In this sense, the practices are tools that people use while are doing the work strategy (Whittington, 2003), these are: budgets, forecasts, control systems, performance indicators, targets and the provision of feedback on developing actions in documents and meetings should also be carried out then that the SMET results of the strategic planning are successful (Chia, 2004). However, all actions will depend on the cooperation and involvement of the SMET's managers and employees and on decision making information processing agility.

The method develops strategic planning with the highest quality according to the management and employees reflective thinking to their stock of knowledge (Jarvis, 1987), since the market changes will be part of the strategies emerging, and ought to be introduced at the moment that managers' judgement that is needed, as set out Thompson Jr. & Strickland III (1999). This is a feature emphasized in the agile method, in which the availability of information through real-time communication in iterative cycles is seen as a primary measure of progress from strategic planning.

Principles for implementing the proposed planning model

The poles of implementing the proposed strategic planning model are support, trust, discipline, stretch (Ghosshal and Bartlet, 1994) and communication. It is important to make the use of formal and informal sources of information, but only the relevant information should be passed to the decision maker, while the rest of the information should be stored and readily retrievable at any time by the SMET, if necessary. Except in cases where the emergence of a new technology has potential to cause a strategic repositioning.

To be successful, SMET must be able to generate knowledge by converting implicit knowledge into explicit one and they place the emphasis on the importance of the relationship between internal and external sources of information (Nonaka and Takeuchi, 1997). These principles presented below, must focus on it:

- Having a human capital based on the company's business focus, linking the domain of their expertise within the organization (Bamberger and Feigenbaum, 1996) and developing processes to promote the capacity and human skills to guiding the company into new fields of knowledge;
- Having a structure to analyze the measurable and non-measurable costs and benefits of the risks of innovation (Pratali, 2003);
- Encouraging continuous, dynamic learning and with respect to the evolution of internal and external changes, by placing human capital as an agent of competitiveness and as talent multiplier (James and Benton, 2007);
- Developing an organizational culture of learning and innovation and making the transfer of knowledge viable (Garavan, 1997);
- Establishing the leaders as agents of influence and guidance to their employees (Slater and Narver, 1995), decentralizing strategic planning processes;

- Changing the human capital commitment and involvement into an innovative process, in which it will use a combination of their different perspectives to solve problems creatively (Whittington, 2003).

These can be used to respond the related problems in the data sample in Table1. First change is the efficient use of employee’s stock of knowledge to develop strategies and the heterogeneous cognitive skills to implement and to discuss the already targeted strategies and those who deviated from real objectives into the Scrum cycles; to promote mutual trust and using interaction synergy between manager and employee (Wenger *et al.*, 2002) to prompt communication with full participation, without fear of expressing thoughts and new ideas.

Taking information delivered from several sources as input to manage their stakeholders and SMET’s market image and reputation. Aiming at doing that, managers need to devote their time in that management activity.

Differential of the proposed model

The agile methodology in development of strategic planning was designed with a methodological differential of incorporating corrections and changes generated by the managers. Aiming at doing the strategic planning, addresses to the different skills and knowledge of the practitioners (Whittington, 2003). Each step of the proposed model is formed in accordance to the life cycle strategy interaction. It is essential to capture, to understand and to develop preferences and the strategy new requirements and communication derived from consumers’ needs (Mintzberg, 1994).

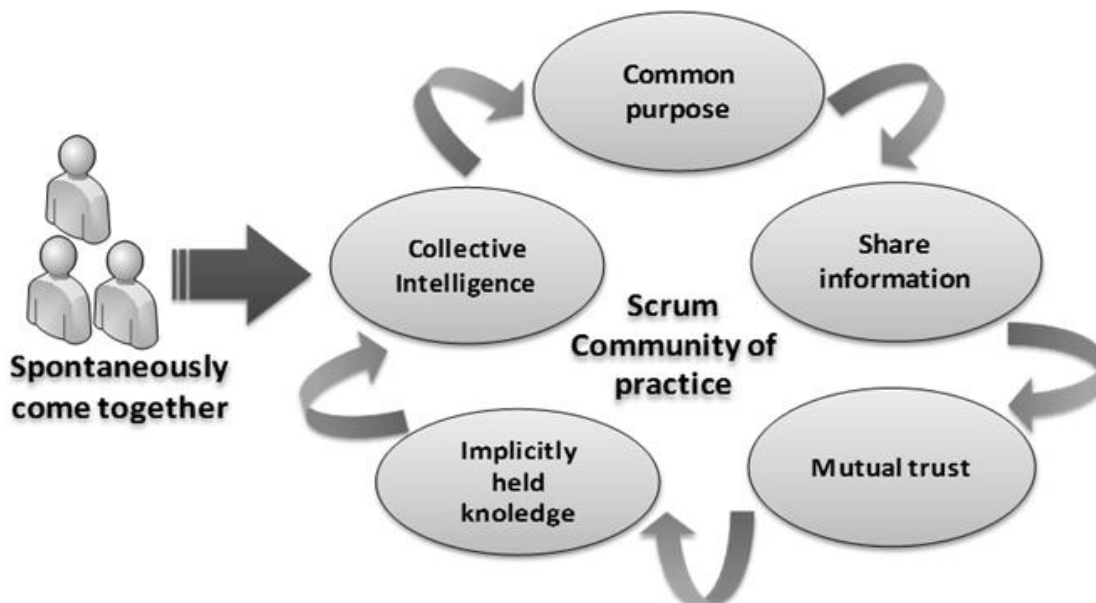
The objective of this feature is to reduce the obstacles and threats when SMETs managers elaborate strategies. The best possible alternative in this situation is to adopt a process, which is flexible enough to accommodate the necessary changes required by SMETs, such as the Scrum agile development methodology, which promotes the comparison of results in short cycles to refine strategies. Aiming at doing it, the top management and SMET employees need to be committed to it, once they will guide the knowledge and efforts to organizational factors.

Thus, the proposed strategic planning enables the development of a culture focused on innovation and discovery of new technologies by using the SMETs’ competitive advantage in the long term. This contributes to managers’ and employees’ mutual understanding as a community of practice to positioning companies in the marketplace.

Scrum as Community of practice

The SMET’s structure of organizational relationships and shorter cycles of Scrum methodology invite a kind of closer and organic interaction among managers and other members. Communities also need to contribute to organizational goals, for that, they need internal direction, character, and energy (Figure 2).

Figure 2 - Scrum Community of practice to SMET



Meetings occurred into Scrum cycles promote discussion of new ideas and relationship building. The community of practice may make SMET managers begin to see their employees, customers, suppliers as a basis to exchange knowledge for strategic change and to support strategizing these strategies. Expanding richly the routine activities attributed to each manager. For its development, these communities are usually built on preexisting personal networks (Lave and Wenger, 1991).

A Scrum community became critical as the SMET discovered the potential of a few business; changes in their core competences lead a reshape of a community for introducing technological advances that may change their way of working.

The facilitator has a particular importance to introduce those ideas into the community as a whole. Aiming at doing it has to open a dialogue inside and outside into SMET's different levels to socialize experience and knowledge, the challenges their field faces and the latent potential in emerging ideas and techniques (McDermot, 1999). Attending workshops and meetings should train strategic Practitioners (Dandira, 2012).

But, it can be noted in a sample, that a large portion of community members are peripheral and rarely participate. Scrum has a differential, drift into the center of individual interests, form teams to bring these people to an active position. Active members may be deeply engaged for a month or two, then disengage. After 3 or 4 cycles they turn back aging as activity members re-energizing the cycles of planning and providing a sense of common challenge. But, not aiming at diverting the energy knowledge flows, it is important to assign routine activities, it provides the stability for relationship-building connections at the same organizational rhythm as a "Profit Culture" (Wagner, 2012).

To Wenger *et al.* (2002), rhythm of the community is the strongest indicator of its aliveness, and there are many rhythms in a community: vibrant, slow, strong and rhythmic, interrupting the regular rhythm. Finding the right rhythm at each stage of planning is the key to a Scrum community's development.

Conclusions

The proposed model consists in short cycles, and these may change as soon as managers feel motivated to modify them in line with the changes and uncertainties of the market environment. It is known that adjustments are normal and necessary in the strategic process of any organization. And the strategy is, in fact, deeply embedded in situated approach.

Strategizing promotes learning by doing and involves a process of experimentation, experience and reflection at SMET's winning strategy (Hamel, 2002). In this sense, it was incorporated the concept of communities of practice as members who share a concern or a passion for something they do and learn to do it better as a result of their ongoing interactions (Wenger, 2004).

It crucially involves participation of SMET's members as a way to strategize. However, it is important to emphasize the need for managers to be aware and engage other members in the planning process. For that, it was verified that there is a centralization of information inherent in the internal actions around the figure of the manager.

Thus, the staff views have influence on the stage of elaborating to plan, because they have a closer relationship with market and clients. Sometimes there is an underestimated outlook to analyze SMETS' core competences.

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