

Gianita BLEOJU,
Alexandru CAPATINA,
“Dunarea de Jos” University of Galati

COLLABORATIVE INNOVATION THROUGH ADJUSTING STRATEGIC INTELLIGENCE CAPABILITIES ON THE SOFTWARE MARKET

Theoretical
article

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Abstract

The efforts focused on organizational performance differential attempt to typify the firms' portfolio of competence enables their propensity to dominate and seek continuity in the competitive environment. Seeing that modeling the knowledge resource allocation is merely necessary, not sufficient, we advance some relevant solutions to capture valuable target markets through adjusting strategic intelligence capabilities, based on the valorization of Strategic Intelligence organizational profiling. We underline that knowledge capitalization on collaborative innovation accelerates the capture of valuable target segments and the firms' capabilities to enable this performance differentiator is reliant upon adjusting strategic intelligence instruments.

The Intelligence Provider and Opportunistic Captor profiles of the Strategic Intelligence perspective, enabling the emergence of collaborative innovation networks will stimulate the foresight capability of software firms, through assessing their propensity to exploit the benefits of collaborative innovation and perform simulations in order to attenuate the profile specific competence gap.

1. General and specific background: useful insights

The organization readiness to be responsive relies upon strategic intelligence, as supporting competence to perform faster learning. The organization is facing new challenges: flattening the playing field, the transient competitive advantage, the personalization of the relationship with qualified customers and finally, in order to become accountable to the communities of prospects.

In order to fulfill the aforementioned requirements, we must observe the organizational endowment of strategic intelligence assets and reconfiguration accordingly, through the incremental or new capability to strategically recognize and absorb early warning signals, in order to both avoid and benefit from all kinds of strategic dissonance that may be foreseeable to occur.

Facing complex volatile environment locus of searching “for conditions calling for decisions” (Lesca and Lesca, 2011), the organization must be able to prove an appropriate critical capacity to identify and design the balanced equipment of strategic assets to be deployed.

This perspective directs us from market orientation towards vision oriented organization, through non-repeatable modeling or at best, very little transferable competences from previous experience. The up to date market orientation equipped the organization of appropriable marketing and business intelligence instruments, designated to insure the superior ability of effort remuneration over targeted segments. The market oriented learning cycle must evolve through rising expectations, appropriate to a visionary organization, by upgrading to a strategic intelligence deployment infrastructure, capable to enhance the foresight capability of successful management. The foresight capability will insure organizational sustainable competitiveness, through a dynamic reconfiguration process, driven by the foreseeable necessity to keep up by choosing, evolving and performing the most appropriate strategic behavior.

The visionary organization, aware enough early, of the above foreseen transformations, will generate and perform a strategic learning cycle, in order to insure the consistency of its corporate governance with its internal selection environment and to identify the strategic deployment configuration, appropriate to its official (vision focused) strategy, able to steer the organization through dynamic competitive mutable equilibria.

We denominate this organizational specific strategic learning cycle, qualified foresight capability, as Strategic Intelligence generated instrument, enacting as precursor for organizational foresight maturity level aspiration.

The strategic asset endowment audit of the organization becomes a vigilance instrument for matching management performance with its aspirations, settled through vision and mission statements and strong commitment for which the competitive environment and stakeholders are watching.

Recalling Paul Duguid (2005), we underline the Richardson challenging approach of the classical and neo institutional foundations of collaborative networks- as knowledge based institutional mechanisms – competitively appropriable by outperforming firms, based on the assertion that the suitable strategic behavior of successful management must be guided by the following assumption: intelligent actors making individual and collective plans and developing long-term relationships directed neither by market nor hierarchy alone. As pointed out on the same paper “constraints- imperfect information, imperfect competition, and collusion- can simultaneously be resources” and that the coordination of imperfect knowledge is demanding specific organizational configurations of complementary capabilities, that can strategically behave as admissible equilibria facing “limited competitive understanding”.

We consider that this type of challengeable searching of the suitable configuration as recalling an organizational competence awareness, as foresight capability, addressable by adjusting the strategic intelligence mechanism.

The Richardson approach, referring to Edit Penrose’s path dependent view of firms and developing the necessity of the coordination of complementary capabilities through control mechanisms, addresses the “complementary assets” developed by Teece, but biased over complementary capabilities (the practice, serendipity, learning, and experience that go into making capabilities).

Collaborative innovation is focused on creating innovations across firm boundaries through the sharing of ideas, knowledge, expertise and opportunities, by enabling firms to close the gap between the level of innovation they have and the level they need to have (Ketchen et al., 2007).

Trends such as outsourcing, agility and flexibility had already forced companies to reconsider their strategies and processes in other areas and to become network organizations, which integrate into their business model open innovation (Gassmann, 2006). In this context, setting up a technology intelligence process aimed at identifying, prioritizing and exploiting external high-potential technologies, facilitates strategic decision-making focused on open innovation (Veugelers et al., 2010).

The organizations that are thinking strategically about using their technologies to enhance their knowledge capabilities have a broad spread of tools that help knowledge development through collaborative innovation (Skyrme, 2007). Leading companies are deploying the new tools of collaboration and interaction – support for innovation, in the context in which their initiatives in the Enterprise 2.0 framework provide significant improvements in areas such as generating, capturing and sharing knowledge (McAfee, 2009).

Even if specialization in core competencies played a significant role on developing business model - specific capabilities in technology - intensive industries like the software business, complementary capabilities are being increasingly obtained beyond company boundaries from a network of business partners (Rajala and Westerlund, 2008). The complementary capability layer is relevant for identifying and exploiting complementary resources/capabilities among the partners because together they are a source of innovation that a partner could not build on its own efforts (Grover and Kohli, 2012). Thus, complementary competences regarding key tasks, support functions and process expertise are compulsory in the approach of collaborative innovation.

2. Critical resources for the collaborative innovation chain on software market

As a recent previous analysis shows (Capatina and Bleoju, 2014), for the foreseeable future, due to market exigencies and qualification of partners and clients, already observed as a competitiveness differentiator, software development companies will rapidly test different business models which better address the targeted markets. The diversification and dissimilarity of technological and market knowledge will demand market positioning through strategic portfolio reconfiguration. The duality and specific equilibria between technological and market competence on innovation will impose the development of the firm's absorptive capacity – assimilate and exploit relevant knowledge – an endeavor which will channel the business initiatives towards collaborative solutions that faster and more effectively fulfill the positioning requirements.

Among the critical requirements for a performance capability, to competitively deal with foreseeable trends on the software market, the most challenging that could be mentioned are: customer experience embedded, structure of revenue models, renovating core IT processes, open source innovation exploitation and new control techniques of key resources along the value chain.

Embedded customer experience

The governance of the collaborative configuration must develop the design capacity to

identify and deploy the most appropriate mechanisms to capture knowledge from customer experience. The previous and largely employed “proximity to customer” becomes irrelevant or at least reloaded as customer lifetime value.

Structure of revenue models

Adjusting business models in order to monitor and address the gaps in value propositions between conflicting XaaS solutions and a licensed enterprise software package is currently a challenge for software vendors, they are suitable to be addressed through a hybrid solution appropriate to a network collaboration approach. As an issue of technological innovation valuation, price management and marketing strategy-distinctive capabilities are appropriate to be responsibly coordinated under network governance (see leaders, laggards and mainstream practitioners of SaaS pricing, PwC ©2013 PwC).

Virtualization and interconnection across distributed service provider data centers have enabled a growing segment of service providers to expand their network offerings while taking advantage of previously unachievable economies of scale (Nisbet, 2011).

The structure of revenue models with their combination of revenue streams, often containing one or more non-monetary compensations, will be a source of competitive advantage (Popp, 2011).

Renovating core IT processes

Business analytics is a top trend to watch in the next period. Due to the growing importance of advanced analytics for descriptive, prescriptive and predictive modeling and forecasting and optimization, Business Intelligence systems, used in the past for measurement and reporting, will be focused on supporting analysis and prediction. (Sallam et al., 2014).

Open source innovation exploitation

Cost seeking and efficiency seeking through cutting IT costs stimulate the company's focus on the benefits of using *open source technologies* and methods strategically. A priority for the future is to address the needs of companies looking to apply open source style collaborative development, sharing and reuse approaches to their internal development processes (Goolsby, 2013).

Because the cloud enables greater access to customer data and the ability to directly connect to data warehouses, it may be changing the value proposition software companies must offer. According to Gartner's Top 10 Strategic Technology Trends for 2014, enterprises should design private cloud services with a hybrid future in mind and make sure future integration/interoperability is possible (Rivera, 2013). Cloud computing will be increasingly embraced by businesses of all sizes, as this represents a major shift in how organizations

optimize software, hardware and computing capacity.

For the Internet of Things vision to successfully emerge, the computing paradigm needs to go beyond traditional mobile computing scenarios that use smart phones and portables and evolve into connecting existing objects and embedding intelligence into our environment (Gubbi et al., 2013).

Social business applications will facilitate the shift from an “informing” model to a “communicating and engaging” model. Social software for business will reach a new level of adoption with applications to enhance relationships, collaboration, networking, as well as social validation (Burrus, 2014).

Not only because of previous developments, but also due to the fact that Big data and Intelligent analytics are creating new challenges for the security market, collaborative innovation could efficiently react through the development of Intelligence-aware security control instruments.

New control techniques of key resources along the value chain

In the next period, the control mechanisms of software development firms will be based on operational transparency, on-demand self-service (cloud) and service measurement capabilities. The envisaged approach to deal with the challenges of coordination in cloud environments requires control mechanisms for the specification of secured access policies, which will outline the user roles or attributes of the resources.

3. The role of Collaborative Innovation in Strategic intelligence framework

Exploring the interrelated corpus of knowledge of Strategic Intelligence and Collaborative Innovation valorizing our up-to-date benchmarking insights over the key topics on organizational alignment capabilities, we intend to focus our efforts towards exploring the potential contribution to developing the foresight capability of the firm. We try to emphasize a useful contribution of our relevant results through a pilot transition framework, enabling the identifying of a match between the profiles of software companies from both strategic intelligence and collaborative innovation perspectives. We try to answer this challenge through a pilot transition instrument, controllable by the firm- adjusting the learning framework, necessary to absorb upgradeable knowledge and forward-looking towards competitive pressures.

Value chain particularities, competitive space characteristics and envisionable trend dynamics on the software market are appropriate to validate different collaborative configurations, which could better match the foreseen challenges

of imperfect knowledge, through our strategic intelligence profiling instruments. Having increased the software firm’s awareness over the foreseen key success factors of the competitive environment, based on the current market positioning, the efficient manager observes the necessity to reexamine the suitable equilibria of technological and market innovation, in terms of preparedness. Due to the specific dynamic of technological innovation and the impossibility (due to distinctive management coordination capabilities) to successfully achieve the optimum equilibria of market and technology capabilities, firms must engage *in cooperation* as long as this kind of solutions - network innovators - are *recognizable* as market mechanisms enabling: decreasing transaction costs, rising the access to relevant knowledge and better serving the client lifecycle. The firms need complementary capabilities which are *dissimilar*, due to organizational cultural specificity, as identified through strategic profiling instruments. To coordinate dissimilar complementary capabilities (propensity to market and marketing supremacy or technological dominance for example), collaborative innovation may be an acceptable solution, through a portfolio of configurations, along a continuum between markets and hierarchies, most probably a value chain – a hybrid solution, and governance mechanisms remain to be identified.

Valorizing our previous research based on the process of modeling the dimensions of software development companies’ Competitive Intelligence (CI) cultures, by integrating them into a bi-dimensional strategic matrix, we emphasize the conceptual model-CI radar orientation (Competitor Analysis vs. Analysis of Industry Trends) and the degree of internal dissemination of CI data (Shared CI reports vs. Classified CI reports). The identification of four profiles (Intelligence Provider, Vigilant Learner, Opportunistic Captor, and Opportunistic Defender), according to specific variables taken into account, increases the capacity to predict the strategic behavior of the software companies belonging to a specific cluster.

The correlations between CI radar orientation (Competitor Analysis vs. Analysis of Industry Trends) and the degree of internal dissemination of CI data (Shared CI reports vs. Classified CI reports) lead to the design of a CI profiling tool. (Figure no. 1)

Insert Figure no. 1

The second conceptual model is based on the assessment of the cultural profiles of high-tech companies which participated in a cross-cultural research effort (Capatina et al., 2012), revealing four clusters of firms defined by different cultural

patterns regarding open innovation (Technology Isolationists, Technology Fountains, Technology Sponges and Technology Brokers). (Figure no. 2)

Insert Figure no. 2

This paper recalls the profiling tool in order to integrate both the CI profiling as well as open versus closed innovation approach into the more accurate and sustainable Strategic Intelligence perspective and its' mechanisms' role in software firms' competitive identity modeling. The assessment of each profile's distinctive innovation capabilities matching appropriate coordination configurable mechanisms will reveal that collaborative innovation, through adjusting strategic intelligence capabilities on the software market has a measurable impact on software companies' performances.

Intelligence Providers, equipped with the assets reflecting a knowledge-sharing culture, are able to spread their intelligence outcomes through collaborative innovation networks, recognizing co-opetition as a valuable source of both acquiring and sharing knowledge.

Opportunistic Captors' behavior is characterized by their engagement in providing a high level of their technologies' portability, reflecting their permanent search for the improvement of the internal innovation process by means of acquiring technology from external sources, within the framework of open innovation.

The collaborative Intelligence Providers and/or Opportunistic Captors network being settled on their common feature, propensity to share and embed knowledge will develop a partnership capability to mutually adjust processes for competence portability through Strategic intelligence instruments at a low cost. This internalization of valuable resources for innovation, as a sustainable competitiveness capability, will alter the business relationships, due to its effect of defining new bases of competition.

The competitive advantage pursued by cloud promoters start to shrink due to some vulnerability such as: lack of motivation for sharing heterogeneous levels of knowledge, difficulties with creativity effort appropriation, poor control over creativity location, process optimization highly dependent on technological environment, lack of group cohesion among the software users and poor leadership incentive to learn from outsider's experience. As a consequence cloud optimization exigencies are emerging, which, in our opinion, both Intelligence Providers and Opportunistic Captors are capable to be successfully approached as solutions to overcome the aforementioned problems.

The assertion, being consistent with the five stages model, from "reactive" to "pervasive",

(Gartner, 2011) requests a simulation framework enabling the validation of the designed conceptual model's hypothesis (Collaboration Culture & Strategic Intelligence toolset) through an appropriate organizational performance maturity assessment matrix. The endeavor will not only validate the hypothesis but can constitute a useful instrument for developing and supporting the foresight capability of the firm and will channel the IT firm's managers efforts both to capitalize upon the collaborative partnership and to capture the benefits of altering business relationships in the industry. For software firms, The Intelligence Providers' and Opportunistic Captors' propensity to collaborate will accelerate both the homogenization of technological and market innovation, through steering the followers away from disruptive behavior, while increasing managerial capabilities toward sustainable strategic behavior.

The main objective in pursuing the most appropriate collaborative innovation network configuration, through Strategic Intelligence mechanisms is consistent with the identified challenges for virtual coordination of creative work among which the location is first addressed due to the shared context of the strategic mission, task and product design, and communication (Metiu and Kogut, 2004).

The specificity of valuable knowledge chain and its appropriateness for the software market is subject of organizational reconfiguration through collaborative networks, *endowed* with coordination and control infrastructures over distributed knowledge among agents and *capable* to recognize and valorize innovation through specific Strategic Intelligence mechanisms.

The governance of these collaboration structures are calling for the organization of a network/ interlinked value chain through consulting each actor's strategies, capabilities and performance and negotiation and the best remuneration of innovational sequence specific factors, in order to approach the software market's foreseen key success factors, with better chances (collaborative innovation business model) to engage in the competition.

4. Conclusions and debate on further research

The role of Collaborative Innovation in the Strategic intelligence framework having been analyzed, a more systematic approach of software firms' propensity to collaborate will contribute to the organizational endowment on key resources in their endeavor to better serve the market. Designing a portfolio of admissible network partnerships will channel the internal resource allocation through an organizational competence assessment and rethinking the software firms' identity and reputation in terms of intelligence capabilities

profiling, emerging as systemic strategic behavior. A collaboration matching framework could be designed as a strategic intelligence instrument, enabling the organizational alignment with the value chain of software market.

This could be the preliminary step on the foresight capability development process, through equipping the firm with distinctive competence- as a source of renewing the base of a competitive advantage cycle. The Collaborative innovation perspective, once admissible as appropriate solution, deployed by setting firms' position on the network value chain and specifically absorbed-consolidation of innovational reputation- will fasten the profitable exploitation of key resources as a competitive advantage edge, based on the relative endowment differential-Strategic Intelligence domination.

Organizational readiness assessment, in terms of foresight capability equipment precedes the necessary collaborative network internal selection environment reconfiguration, as process assets endowment, and plays the role of the most challenging strategic intelligence decision support instrument.

The main managerial challenges are: to anticipate the innovative potential of the collaborative network, to set up the knowledge transfer framework, to define the degree of adaptability of each component's collaborative profile, and as such, enacting as a competitive organizational configuration to serve the future market.

This Strategic Intelligence instrument could be enacted as a balancing solution for both standardization requirements of an actionable instructional guiding instrument on the one hand, but also to reflect the appropriateness advantage of the network distinctive competence (which is difficult to replicate), on the other.

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Appendices

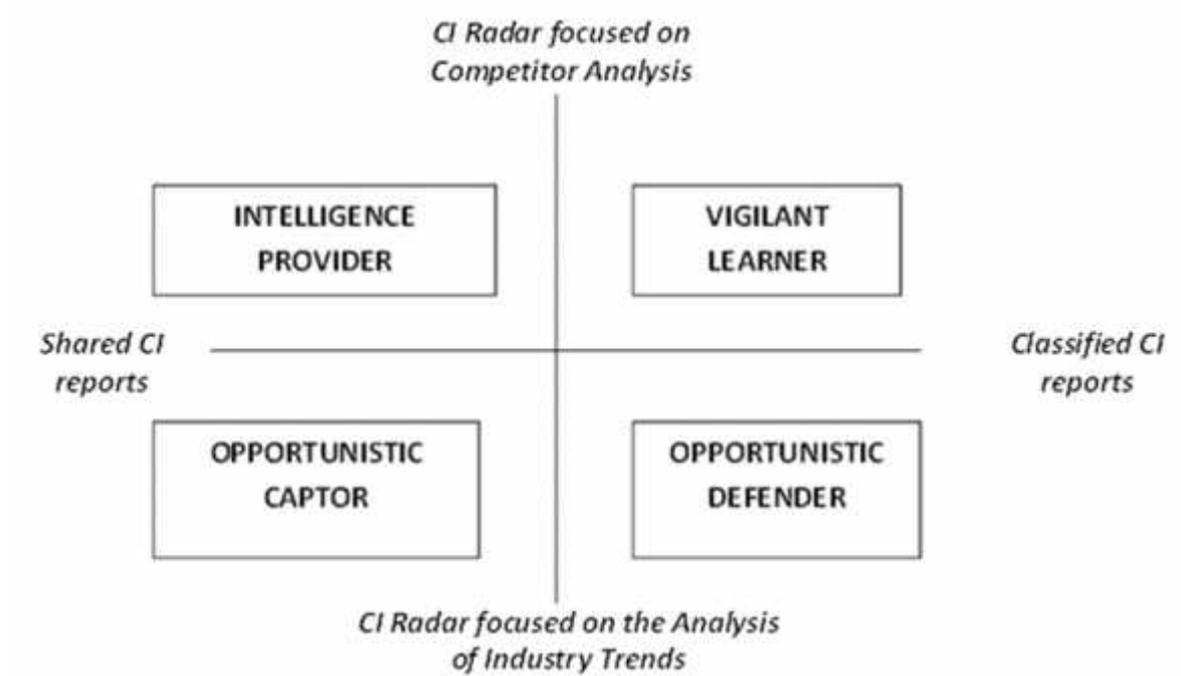


Figure no. 1 – Software development companies' CI profiles from the perspective of competitor analysis and industry trends

Source: Capatina and Bleoju, 2014

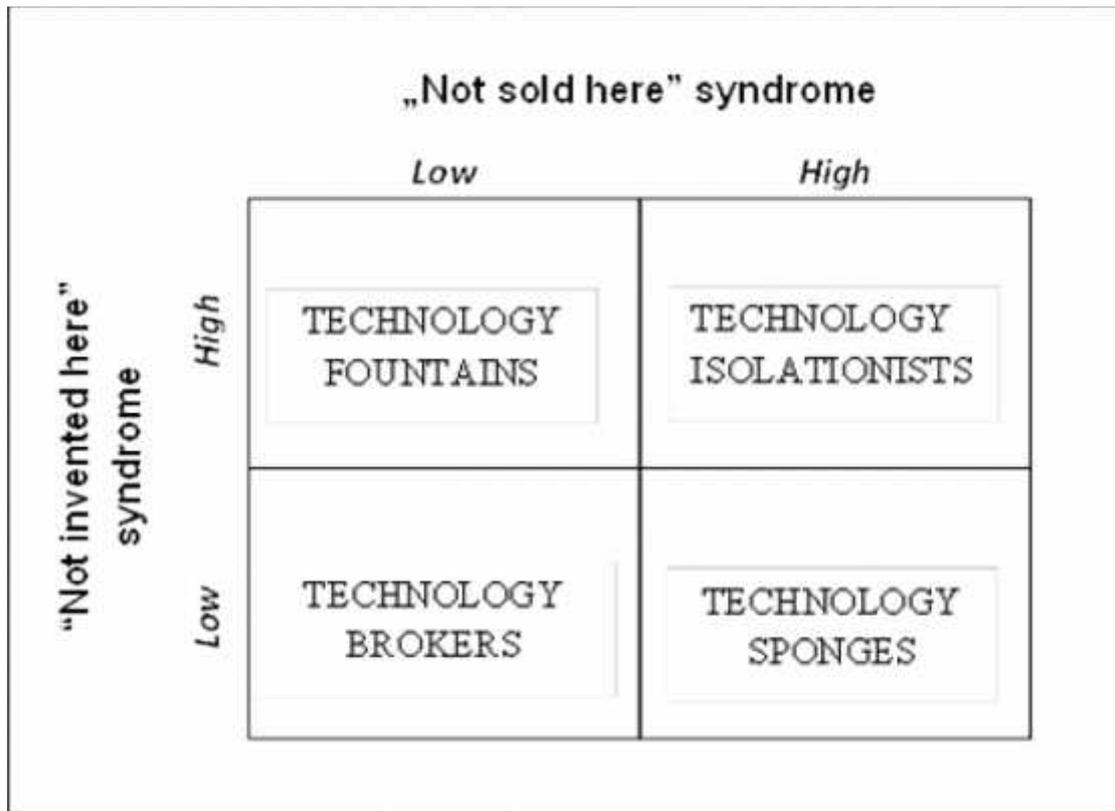


Figure no. 2 - Four clusters of open innovation cultural profiles
Source: Lichtenthaler et al., 2011

