

RADICAL INNOVATION THROUGH CORPORATE ENTREPRENEURSHIP FROM A COMPETENCE-BASED STRATEGIC MANAGEMENT PERSPECTIVE

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Abstract

There is a tightening race for developing new innovative businesses between global corporations in the world's high tech industries. Technology-oriented global corporations have therefore to react as fast as possible in order to be able to create new customer value in due time with innovative offers and to survive in increasingly hypercompetitive global markets. In many cases they try to match this challenge by dynamising their business development through corporate entrepreneurship activities, e.g. internal and external corporate venturing activities. Departing from a Competence-Based Strategic Management Perspective (CBSM), the author analyses alternative forms of innovation management arising from corporate entrepreneurship activities. On the basis of this analysis the author proposes ways of putting this new form of corporate innovation management to the best possible use in order to match a tightening innovation race. Based on those results the author tries to answer the question how to maximize radical innovations, because the ability to create systematically radical innovations is maximizing the survival capabilities of high-tech corporations in hypercompetitive markets.

Keywords: Corporate entrepreneurship, hypercompetition, radical innovations, corporate ventures, corporate venture portfolios.

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Radical Innovation through Corporate Entrepreneurship from a Competence-Based Strategic Management Perspective

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Abstract:

There is a tightening race for developing new innovative businesses between global corporations in the world's high tech industries. Technology-oriented global corporations have therefore to react as fast as possible in order to be able to create new customer value in due time with innovative offers and to survive in increasingly hypercompetitive global markets. In many cases they try to match this challenge by dynamising their business development through corporate entrepreneurship activities, e.g. internal and external corporate venturing activities. Departing from a Competence-Based Strategic Management Perspective (CBSM), the author analyses alternative forms of innovation management arising from corporate entrepreneurship activities. On the basis of this analysis the author proposes ways of putting this new form of corporate innovation management to the best possible use in order to match a tightening innovation race. Based on those results the author tries to answer the question how to maximize radical innovations, because the ability to create systematically radical innovations is maximizing the survival capabilities of high-tech corporations in hypercompetitive markets.

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1 Business Development, Innovation and Corporate Entrepreneurship

There is a tightening race for developing new innovative businesses between global companies. This can especially be observed in the information and communication technology industries as well as in the electrotechnical industries, which constitute at present the core sector of the world's high tech industries. This paper is therefore focussing on technology-oriented global corporations, which are active in these high tech industries. Such corporations are increasingly forced to make their business development and innovation management more competitive and to integrate it more into their corporate level competitive strategies and value management procedures. While it is unquestionable that these changes constitute new market opportunities, technology-oriented global companies have to react promptly in order to be able to create new customer value in due time with innovative offers and to survive in hypercompetitive global markets.¹

In many cases they try to match this challenge by dynamising their business development departments and/or in-house R&D departments through intrapreneurship, various forms of corporate development as well as internal and external corporate venturing activities and systematic acquisitions of new ventures and start-ups or, in other words, by creating a "corporate entrepreneurship" function within the company.

¹ Cf. D'Aveni (1999), p. 127; Bruhn (1997), p. 339

By applying the Competence-Based Strategic Management (CBSM) framework, initiated by Sanchez and Heene², the author will try to find out, which governance type of corporate entrepreneurship is most likely to be best suited for the challenge of hypercompetition and how to develop ways of putting this form to the best possible use, e.g. finding the relevant success factors.

Competence-Based Strategic Management³ is seen here as an approach to strategic management, which is based on the Competence-Based View of the firm (CBV).⁴ The CBV in turn is to a large extent derived from the Resource-Based View of the firm (RBV) as well as complementary to it.⁵ The author is using due to this a combined RBV/CBV perspective of the firm in this paper, applying both theoretical concepts from the RBV and the CBV as well as a strategic model of the CBSM.⁶ Competences are seen here as specific forms of resources.⁷

Regarding the challenge of accelerating innovation rates and increasingly forceful global competition, innovation is more and more the central corporate success factor. From a RBV/CBV perspective unique resource and competence positions do not only represent a superior adaptation to a given competitive situation in a specific market they can also actively influence the ruling competitive paradigm of that specific market.⁸ This can be observed especially within global high tech markets. The reason is that due to very high innovation rates, new markets and market segments are emerging on a continuous basis. In such a market environment different new combinations of technologies, business models and technological standards - and the new resources and competences they are based on - are fiercely competing for a dominant market position.

Corporate entrepreneurship is more and more regarded as an attractive alternative to sort out the possible market success of competing technologies and business models as well as the corresponding and new resources and competences. In this way technologies and business models can be tested faster and in a more flexible way than within the framework of traditional R&D and business development departments.

² Cf. Sanchez et al. (1996); Sanchez/Heene (1997)

³ Cf. Sanchez et al. (1996); Sanchez/Heene (1997)

⁴ Cf. Prahalad/Hamel (1990), p. 81; Freiling (2002), p. 18

⁵ Cf. Freiling (2002), p. 8

⁶ Cf. Sanchez et al. (1996), p. 13

⁷ Cf. Rasche (1994), p. 143

⁸ Cf. Freiling (2000), p. 183; Hinterhuber/Friedrich (1999), p. 990; Macharzina (1999), p. 55

2 Corporate Entrepreneurship and Corporate Venturing

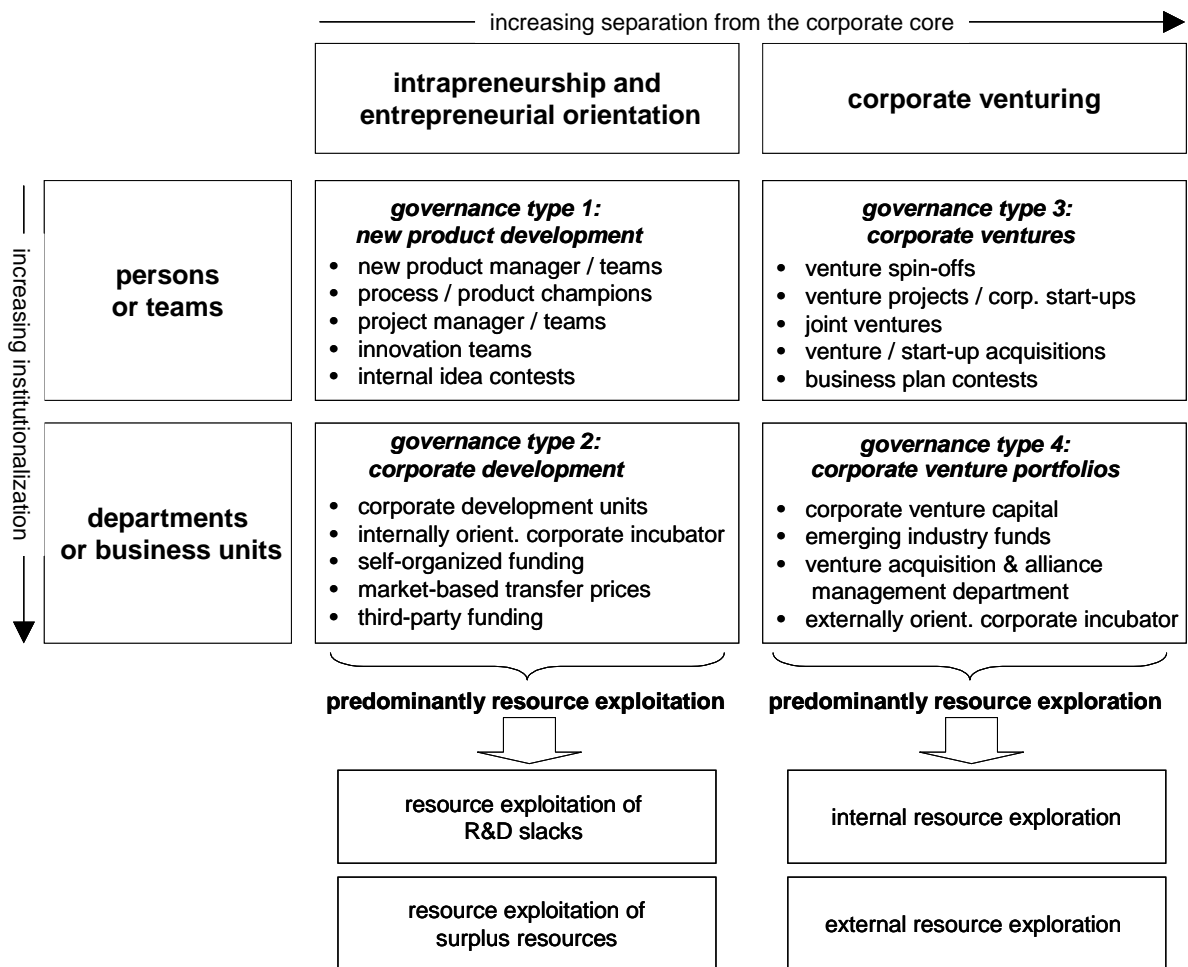
The task of the “corporate entrepreneur“, who - depending on the specific circumstances and size of the company - can take on the form of either a single person, a team or a business unit is to systematically generate innovations in the shape of successful new products, services, technologies or businesses within an already well-established company. That can be performed by an intrapreneurial attitude and behavior of single persons or teams, by an entrepreneurial orientation of a whole division or business unit, or by corporate venturing activities, e.g. by the creation of innovative, independent and mostly small-sized new business units, so-called corporate ventures (CV).

From the a RBV/CBV perspective, corporate entrepreneurship (CE) pursues an exploitation of resource potentials, meaning that CE is “activating” latently existing - and in the course of time accumulating - knowledge about the specific conditions and prerequisites as well as the resources and competences necessary for an innovation success within the market and technology environment the company is operating in or wants to operate in (resource exploitation). CE within a company can also try to participate in the creation and evolution of new internal or external resources (resource exploration). In practice CE typically consists out of a “mixture“ of resource exploitation and resource exploration.

The different types of CE can be differentiated into two dimensions. One dimension is the degree up to which the CE function of the corporation is organizationally separated from the core business of the corporation. The other dimension is the degree up to which the CE function of the corporation is institutionalised. Consequently, the CE function can be categorized into four main governance types.

The CE governance type 1 („development of new products and services“) and the CE governance type 2 (“corporate development“) are mainly serving for resource exploitation, whereas the CE governance type 3 (“single corporate ventures“) and the CE governance type 4 (“corporate venture portfolios“) mainly serve for resource exploration (see Fig. 1).⁹

⁹ Cf. Michalski (2002b), pp. 311



potentials Fig. 1: governance types of corporate entrepreneurship from a RBV/CBV perspective

Thus, there are two options for the improvement of the corporation's existing innovation management in case a corporation is adopting a CE function. On the one hand there is the option of an intensified resource exploitation of innovative resources that already exist latently within the company, and on the other hand there is the option of an intensified resource exploration of newly created innovative resources. Possible frictions (generated by conflicts of interest) within the corporation, which arise from the implementation of a CE function will also be discussed.

Resource exploitation is probably most fertile, firstly, if R&D employees or other innovation-oriented employees ("intrapreneurs") are not only enabled to develop latently existing innovative resources into new products, services or success-relevant business processes without being subtly inhibited to do so by line management and department boundaries and, secondly, if such intrapreneurs can exploit such resources with the help of process or product innovation teams or through corporate venturing

activities. This will only be the case, if top management establishes incentive systems, for example in the form of idea competitions, internal business plan competitions or job promotion programs for declared intrapreneurs.

Furthermore, it is possible to offer support for developing intrapreneurs into entrepreneurs, e.g. through spin-offs.¹⁰ Such a incentive system and the resulting emergence of intrapreneurs within the company, however, is often accompanied by a permanent subtle conflict of interest with line managers and department heads. In many cases this fact strongly reduces the intrapreneurs' motivation and scope of work. It therefore fosters incremental innovations instead of radical innovations.

Another possibility to intensify resource exploitation is the entrepreneurial "activation" of the whole R&D department or other departments, activities and processes of the company. This entrepreneurial activation can be achieved through self-financing, market-oriented accounting and the acquisition of third-party's funds ("third-party funding"). In this case the emphasis is not on a more individually oriented intrapreneurship, but on a collectively oriented entrepreneurship.

Resource exploration has recently become more and more important in both theory and practice. It represents a stronger expression of the guiding principle of corporate entrepreneurship. From the RBV/CBV perspective, it offers a promising opportunity to create new and successful resources and competences as potentially great and manifold opportunities to learn are provided for the corporation. That in turn makes significant innovation successes more likely.

Resource exploration becomes most effective, if possible opportunities to learn are indeed taken advantage of by the exploring corporation through internal and/or external corporate ventures or acquired corporate ventures. It enables the corporation in the best possible case to permanently learn and, in that way, to systematically generate innovative resources and competences. However, the chances of an optimised innovation management, which is based on corporate venturing, could be diminished by internal organizational barriers and fields of conflict, which impede an optimized learning process.¹¹

Nowadays a business development and innovation management that is based on the guiding principle of corporate entrepreneurship can rely on a growing number of newly developed organizational forms, management instruments and incentive mechanisms, which are available for resource exploration and exploitation.¹²

¹⁰ Cf. Stringer (2000), p. 76; Dodt et al. (1999), p. 6

¹¹ Cf. Chesbrough (2000), p. 32; Brody/Ehrlich (1998), p. 50; Harned et al. (1996), p. 155

¹² Cf. Michalski (2002^o), pp. 364; Michalski (2002b), pp. 311

In the following the author will concentrate on resource exploration, which is seen as especially promising to achieve significant innovation leaps. Furthermore, corporate venturing as a form of corporate entrepreneurship with increasing importance for corporations will be analysed in greater depth regarding its success factors.

3 Success Factors of Corporate Venturing

Since technology companies increasingly have to face hypercompetition¹³, the innovation race for new technologies and administrative forms of business transactions (business models) and a best possible combination of these is tightening and accelerating.¹⁴ Corporate entrepreneurship under hypercompetitive conditions should therefore correspond to an investment and innovation regime, which is characterized mainly by real option analysis and a search for opportunities as well as by engaging in reversible and opportunistic networks and alliances in order to implement and to capitalize on potentially short-lived and fast changing competitive advantages and innovation successes.¹⁵ Under these conditions, the CE governance type “corporate venture portfolios” (CE governance type 4) is of particular importance, as this CE governance type is raising the possible number of real options, opportunities and network and alliance accesses. It also allows for as many experiments as possible with new technologies and business models.¹⁶

From a RBV/CBV perspective, the CE governance type 4 at the same time helps to maximize the possible internal and external resource exploration. This leads to the essential question of how to increase the innovation success of a corporate venture or a corporate venture portfolio. In other words, it leads to the question of what are the decisive success factors of innovation success by means of the CE governance type 4. This question is now examined from the RBV/CBV perspective using a strategic model of the CBSM, which is the model of Sanchez/Heene¹⁷ (see Fig. 2). The model of Sanchez/Heene will serve as a reference frame and is considered to be dynamic, systematic, cognitive and holistic. It furthermore regards the corporation as an open system.¹⁸ On the basis of this reference frame, successful corporate venturing can be interpreted as a problem of resource and competence management and success factors for the CE governance typ 4 can be deduced.

¹³ Cf. Bruhn (1997), p. 339; D’Aveni (1999), p. 127

¹⁴ Cf. Michalski (1997), p. 358

¹⁵ Cf. Michalski/Rasche (2000), p. 22

¹⁶ Cf. Sawhney/Prandelli (2000), p. 24; Stringer (2000), p. 70

¹⁷ Cf. Sanchez et al. (1996); Sanchez/Heene (1997)

¹⁸ Cf. Freiling (2000), p. 194

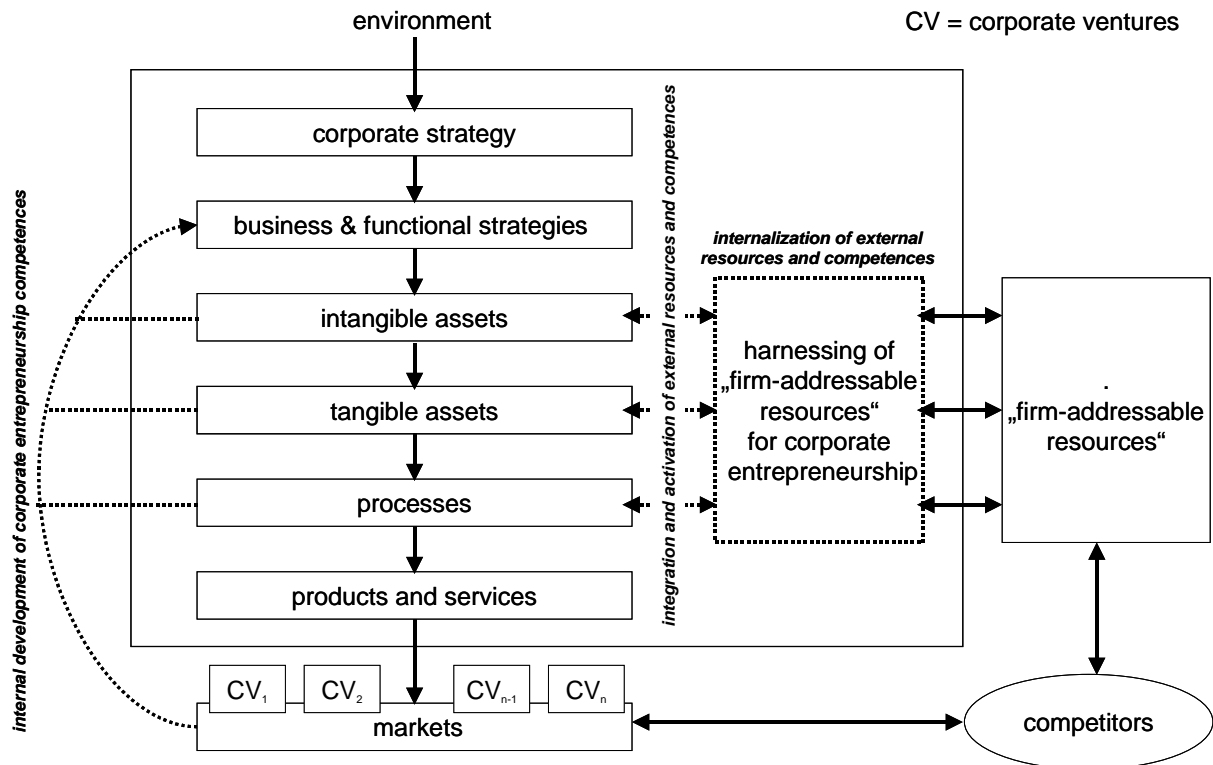


Fig. 2: the model of Sanchez/Heene and corporate venturing
(Source: According to Sanchez/Heene (1997), p.17)

It can clearly be stated that successful corporate entrepreneurship of the CE governance type 4 (“corporate venture portfolios”) can be regarded as equivalent to the increase in the innovation success of existing or recently added corporate ventures of a CV portfolio CV₁ – CV_n.

According to the model of Sanchez/Heene, companies’ top managements have to provide the resources and competences for a successful corporate venturing. Assuming that the required resources and competences for successful corporate venturing do not - or only to an insufficient extent - exist within the company, they have to be obtained by resource exploration, i.e. by closing company-specific resource gaps and by providing “firm-addressable resources” to the company¹⁹ (precondition 1).

Apart from closing company-specific resource gaps, a successful corporate entrepreneurship function of a company also has to deal with the integration as well as the activation of external resources and competences in order to increase the competitiveness of existing or new CVs in its CV portfolio CV₁ – CV_n (precondition 2).

¹⁹ Cf. Sanchez et al. (1996), p. 8; Sanchez/Heene (1997), p. 17

Competences develop in the course of time from managing the existing CV portfolio $CV_1 - CV_n$ and from internal or externally acquired resource pools in the form of experience and knowledge about corporate venture activities or - more generally - corporate entrepreneurship activities in the context of a specific company. This happens in the form of a learning curve. These resource pools of experience and knowledge mainly comprise (a) the specific success factors and know how of corporate ventures operating in markets, in which the company itself currently also operates albeit with another business model or in which it wants to operate in the future and (b) the best possible organization of corporate entrepreneurship activities per se in the context of a specific company (precondition 3).

Three preconditions can thus be identified in order to achieve a successful corporate entrepreneurship of the corporate governance type 4 (see Fig. 2).

Considering various RBV/CBV-based scientific investigations, specific success factors for the CE function of a corporation can be deduced from these three general preconditions of success of CE functions of corporations. The preconditions 1 and 2 ("providing, integrating and activating external resources and competences for the CV portfolio $CV_1 - CV_n$ of a given company") are also referred to as the so-called "absorption capacity"²⁰ in the RBV/CBV view. It can be defined as the ability to absorb "firm-addressable resources" or - in other words - the ability to absorb external resources and competences, which are accessible to the corporation. It can be considered as a success factor.

The assimilation and application of external resources, however, often requires a significant degree of resource adaptations²¹. They can, thus, be regarded as another success factor. These resource adaptations are actually resource-related adaptation processes, which necessarily have to take place due to an (initial) misfit between internal and external resources and competences. These resource misfits between internal and external resources can be either technological, social or cultural in nature.

Precondition 3 ("development of competences from the resource pool of experience and knowledge created by managing the existing CV portfolio $CV_1 - CV_n$ of the company in the course of time") can be met by the fact that from an RBV/CBV perspective, routines - and based on that organizational competences - can systematically be created from the internal or externally acquired resource pool of experience and knowledge of a company in the course of time. In RBV/CBV terms, routines are reproduceable business operation sequences, which are based on the use

²⁰ Cf. Cohen/Levinthal (1990), p. 128

²¹ Cf. Hakansson/Gadde (1997), p. 407

of an existing resource pool of experience and knowledge of a company and which contribute to a purposeful structure and utilization of available resources.²² The basis for the emergence of routines is the experience employees gain through the use of these company resources. The creation of routines is an important preliminary stage of the development of competences. Competences can be regarded as the capacity of making repetitive and structured use of the company resources in a way that enables the company to provide a solution to market demand and to implement a competitive edge.²³ Competences therefore involve the capability of employees to act successfully on a collective basis. Competences are regarded as a quintessential success factor in the RBV/CBV.

The competences, which develop from the resource pool of experience and knowledge created by managing an existing CV portfolio $CV_1 - CV_n$, can be transferred within the corporation. This transfer can take place between the corporate core, the CV-portfolio $CV_1 - CV_n$, newly acquired CVs or started-up CVs of the CV-Portfolio $CV_1 - CV_n$. This results in a “leverage” of competences and the chances of innovation success are increasing. Consequently, the transfer and “leverage” of existing competences can also be considered to be a success factor.

From the RBV/CBV perspective, the following success factors for innovations through governance type 4 can consequently be derived:

- *Absorption capacity*: identification, assimilation and application of external, CE-relevant resources and competences in order to increase the innovation success of an existing CV portfolio $CV_1 - CV_n$.
- *Adaptation of resources*: resource-specific adaptation processes of external, CE-relevant resources and competences in order to increase the innovation success of the existing CV portfolio $CV_1 - CV_n$.
- *Development of competences*: development of routines and based on that competences from the pool of experience and knowledge, which serve for the purpose of raising the innovation success of an existing CV portfolio $CV_1 - CV_n$.
- *Transfer of competences*: mutual transfer of existing competences within the corporation. This transfer can take place between the corporate core, the CV-portfolio $CV_1 - CV_n$, newly acquired CVs or started-up CVs of the CV-Portfolio $CV_1 - CV_n$.

²² Cf. Grant (1991), pp. 114; Winter (1995), p. 147

²³ Cf. Prahalad/Hamel (1990), p. 79; Krogh/Roos (1992), p. 1

It can be concluded from the point of view of the model of Sanchez/Heene that increasing the innovation success of corporate ventures depends on four success factors, which have to be developed to a high degree in order to raise the innovation success of any single given CV or any given CV portfolio: absorption capacity, resource adaptation, development of competences and the transfer and leveraging of competences. In order to achieve an increase in the innovation success of corporate ventures, the top management of a company consequently has four “adjusting levers”: the increase in the absorption capacity, the improvement of resource adaptation, the systematic development of competences and the highest possible degree of transfer of its competences within the corporation.

4 Competence development and radical innovations from the perspective of RBV/CBV

In hypercompetitive market situations resources and competencies play a much greater role as sources of sustainable competitive advantages. A high degree of “efficiency” concerning the development and safeguarding of sustainable competitive advantages in hypercompetitive market situations can be achieved, if radical innovations can be generated more quickly. That implies that totally new resources and competences have to be generated in short time and that existing resources and competences have to be “interrupted” in equally short time. This can be achieved by using a portfolio of corporate ventures (corporate governance type 4).

Corporate ventures typically operate in emerging market environments, where totally new resources and competencies are necessary and decisive for business success. Being independent of established corporate routines enables them to acquire and/or build up new resources and competencies much faster in such environments. Furthermore resource and competency “traps” can be avoided more effectively. Non-tradable, external and innovation-related resources and competencies, sometimes also referred to as “implicit knowledge”, can - with the possible exception of M&A activities - only be adopted by the corporation through time-consuming “learning by doing” and “trial and error” processes.²⁴ These processes are bound to resource and competency development trajectories. Corporate venture start-ups, acquired corporate ventures and New style joint ventures may in this context serve to absorb implicit knowledge and new resource and competency development trajectories more quickly.

²⁴ Cf. Rasche (1994), pp. 143; Sanchez/Heene (1997); pp. 3; Michalski (2002b), pp. 311.

Radical innovations can also be generated through the mutual transfer of already existing new resources and competencies between different units within the corporation, e.g. mutual competency transfers between strategic business units, divisions, subsidiaries and corporate ventures. That way new resources and competencies, which already exist in some part of the corporation, for example a corporate venture, can be transferred to other corporate ventures or newly added corporate ventures or business units and divisions of the core corporation.

From the perspective of the RBV/CBV two facts are decisive for a successful radical innovation management:

- *Development of new competencies*: systematic development of new routines, which are independent of the existing routines of the core corporation, and thereupon based new competences in order to improve the radical innovation capacity of the corporation. This can be achieved through the accumulation of new experience and knowledge, which is generated through the operation of a CV-portfolio $CV_1 - CV_n$.
- *Transfer of new competencies*: fostering the (mutual) transfer of existing and/or lately acquired new competencies. This transfer can take place within the corporate core or between the corporate core, the CV-portfolio $CV_1 - CV_n$, newly acquired CVs or started-up CVs of the CV-Portfolio $CV_1 - CV_n$.

For a radical innovation management the success factors development and mutual transfer of new competencies are of paramount importance, even if the success factors absorption capacity and resource adaption also play an important auxiliary role. Radical innovation management from the point of view of the RBV/CBV also has to take into consideration that (core) competencies tend to have an ambiguous effect on the innovation capacity of an enterprise. Core competencies exercise on the one hand an innovation-promoting effect and on the other hand an innovation-inhibiting effect. As long as the innovation process takes place on the basis of existing core competencies of the corporation, in other words, as long as the innovation process follows the established innovation trajectory of the corporation, it creates only gradual and evolutionary innovation and a corresponding gradual and evolutionary competency development (incremental innovation). In this case the existing core competencies play an innovation-promoting role. As soon as the innovation process needs to circumvent existing core competencies of the corporation, possibly because of some type of discontinuous market or technology development, which in turn creates the urgent

necessity to create radical innovations and a radical departure from existing core competencies, the existing core competencies begin to play an innovation-inhibiting role. Sometimes core competencies tend to become in such a context of rapid and discontinuous change a serious burden. This is then called a “core rigidity”.²⁵ The ambiguous effect of core competencies is reflected by a fundamental dilemma, which is the dilemma of innovation and routine.²⁶

The innovation-inhibiting effect of core competencies in the case of radical innovation processes was discovered and discussed by the very protagonists of the core competency research stream themselves.

Because of their independence of established corporate routines, new capabilities can be developed faster and the danger of core rigidities can be minimized. Therefore the independence of corporate ventures is decisive for the development of new competencies and the nourishing of a radical innovation management from the perspective of the RBV/CBV. If core competencies are not available internally or can not be adapted fast enough in a hyperdynamic environment, an alternative would be the internalization of external competencies through the acquisition of companies, ventures and start-ups and the transfer of their competencies into the corporation (internalization of external competencies). In the case of the organizational integration of corporate ventures in the core corporation, the independence of the corporate venture plays a significant role in order to achieve radical innovation. In the case of mutual competency transfers between the corporate core and corporate ventures two dimensions play a significant role for the organizational integration of corporate ventures, which is the degree of competency leverage achievable (“competency leverage”) and the degree of friction that is likely to happen between the corporate core and corporate ventures (“friction potential”).

If a newly acquired or founded corporate venture serves the purpose of generating radical innovations during a time span of two to three years for an established business unit of the core corporation and if, indeed, radical innovations have been created throughout that time span, then the corporate venture has to stay autonomous throughout that time span. Once the desired radical new competency has been created it can be considered as a “competency island” within the corporation. It has then to be decided anew about the organizational form of integration of the corporate venture using the above-mentioned dimensions “competency leverage” and “friction potential”.

²⁵ Cf. Leonard-Barton (1992), pp. 111

²⁶ Cf. Hümmel (1997), pp. 230

If there is a high level of competence leverage between the core business and the corporate venture and little friction between the core business and the corporate venture the best solution for the corporate venture is a tight organizational integration. Because such a development pattern of corporate ventures is very common, it can be regarded as one form of a typical corporate venture life cycle.

This very typical form of the corporate venture life cycle starts with highly autonomous corporate ventures, which are focussed on radical innovations and which will be integrated in the corporate core organization after some years. This would mean fusing the corporate venture with the corporate core to the point of being undistinguishable, for example with an existing corporate core business unit. In case the friction between the core business and the corporate is high, the corporate venture should not be integrated in that way but rather be loosely coordinated with the corporate core organization for an indefinite time span. This could mean different forms of strategic and operational management coordination as well as mutual resource and competency transfers with the core, while the corporate venture stays autonomous and continues to have a venture-type management style, e.g. will not migrate to a corporation-type management style.

Other forms of the corporate venture life cycles are possible. The corporate venture can, after a successful radical innovation took place, be kept in a different sort of autonomous state by transforming the corporate venture into a new corporate subsidiary, which forms part of the corporate core organization and reporting system, but keeps a certain degree of management and decision autonomy. This would be the case, if the competency leverage is evaluated as low and the friction potential is evaluated as high. The corporate venture can, after a successful radical innovation took place, also be transformed in a new division of the corporate core organisation. This would be the case, if the competency leverage is evaluated as low and the friction potential is equally evaluated as low.²⁷

Finally, if the corporate venture fails to create successful radical innovations throughout its initial years of existence, the question of the organizational integration of the corporate venture doesn't arise and the different exit options for the corporate venture have to be discussed like closing it down or selling it to a third party, if possible.

It can be concluded that building and transferring new competencies with the help of corporate ventures in order to generate radical innovation is typically a step-by-step process that requires a specific amount of time and follows five different possible forms of corporate venture life cycles that are basically determined by the chosen integration

²⁷ Cf. Michalski (2002b), pp. 311

strategies of the corporate venture into the corporate core organization. Those decisions in turn depend on the degree of possible competency leverage and the degree of possible friction. Four integration decisions can be derived and therefore four different forms of corporate venture life cycles. This includes also a possible non-integration decision (exit decision), which creates a fifth form of venture life cycle.

By starting-up or acquiring a certain quantity of corporate ventures and by combining different of those possible corporate venture life cycles a balanced portfolio of corporate ventures can be created, which through the build-up of new competencies and the mutual transfer of new competencies can nourish a large amount of success-critical new competencies and thereupon based radical innovations for a corporation. The corporate governance type 4 of corporate entrepreneurship serves from the point of view of the RBV/CBV not only as a booster for innovation processes per se (incremental and radical innovations), but in particular for the generation of radical innovations. From the four success factors for innovation success derived from the RBV/CBV and especially from the Sanchez/Heene model with regard to innovation processes the success factor “development of new competences” and the success factor “transfer of new competencies” have the highest importance for the generation of radical innovations with the help of governance type 4. The success factors “absorption capacity” and “resource adaption” play an auxiliary role and are more important in terms of the “frictionless” transfer of new competences into the corporate core.

5 Competence development and radical innovations from the perspective of innovation management

From the perspective of innovation management theory the generation of radical innovations and business models within established corporations requires an innovation-promoting organizational framework. The inherent riskiness of radical innovation activities has to be minimized, while making the most out of the thereby generated unique opportunities. In order to create this innovation-promoting organizational framework, three specific management principles²⁸ are necessary (see Fig. 3).²⁹

- *Emergence principle (Emergenz-Prinzip)*: an all-encompassing activation and promotion of radical innovation ability at the periphery, at the basis and outside the corporation through emergent strategies.

²⁸ In this context the wording „principle“ is used, as they are not entire strategies, but show strategic characteristics.

²⁹ Cf. Linz (2001), p. 91

- *Autonomy principle (Autonomie-Prinzip)*: creation of organisational autonomy (autonomy through freedom of decision, autonomy through different forms of separation) in order to increase the radical innovation ability.
- *Options principle (Optionen-Prinzip)*: creation of as many options as possible for radical innovation, which can be executed according to the changing market environment as well as the creation of maneuvering space on the process and portfolio level.

Emergence principle: the emergence principle serves to ensure that radical innovations at the periphery of the corporation, at the corporate basis or outside the corporation should be nourished through the implementation of emergent strategies. Emergent strategies are characterized by the fact that they automatically emerge from the every-day work and customer interactions of the employees without being explicitly intended by top management.³⁰ This way a corporation develops - besides the intended strategies of top management - further emergent strategies which lie outside the top management's perception. Top management perceives at best only parts of those emergent strategies and typically with considerable delay. The strategies which are at the end implemented within the corporation are a mixture of top management's intended strategies and emergent strategies. The dynamism of hypercompetitive markets leads to an increasing divergence between intended and emerging strategies. In other words emergent strategies achieve significant importance in hypercompetitive markets. Therefore an answer to the increase in hypercompetitive dynamism can be the explicit promotion of emergent strategies which allows the corporation to react faster and more flexible to trends in hypercompetitive markets.³¹

The question arises whether a corporation can create an organizational framework that promotes emergent strategies. In this context a disadvantage for the creation of radical innovations is the emphasis on top-down processes in strategy development.³² To weaken this emphasis, many established corporations use today a combined top-down/bottom-up process for deciding on intended strategies. This is aimed to equilibrate the interests of top management and the corporate basis (middle management, lower management, staff). For the nourishing of emergent strategies, this procedure is similar unless as the unilateral top-down process because leadership is still responsible for the overall strategy, the co-ordination processes remains time

³⁰ Cf. Mintzberg (1994), p. 24

³¹ Cf. Mintzberg (1994), p. 26

³² Cf. Müller-Stewens/Lechner (2000), p. 55.; Hamel (2000), pp. 250

consuming and - similar to the unilateral top-down process – problems with implementation often arise due to insufficient acceptance by the corporate basis.³³ Consequently, in order to generate radical innovations through emergent strategies, a bottom-up strategic process has to be implemented instead of a top-down or a combined top-down/bottom-up processes. The advantage of the bottom-up strategic process is that the development and implementation of innovations can be carried out in an emergent way. That means innovations are not planned top-down. Instead, “innovative impulses” are collected at the periphery of the corporation through interactions with customers, suppliers and competitors and are systematically converted into radical innovations.^{34,35}

In this context Hamel proposes that beside top managers especially younger employees, newcomers from other markets and industries and in particular employees at the periphery of the corporation and from basis of the corporation should participate in strategy development. Especially new employees do not yet suffer from a narrowed field of view and routinized behaviour. This group of persons also provides information which gets usually lost in the top-down strategy process. Therefore every employee should, independently of his or her position, have the opportunity to submit ideas. The corporate’s “strategic radar” is widened that way and the perception of early warning signals of discontinuities will be improved. In addition, the corporation should create an open market for ideas, capital and personnel resources to generate an continuous flow of ideas and to ensure their implementation.³⁶ Furthermore also external innovation potential should be exploited. They can be seen as an additional source of emergent strategies. The demand for bottom-up strategic processes in order to install a radical innovation management should, however, not lead to the conclusion that the same is valid for every top-management strategy. Top-down strategies can prove appropriate, if innovations are to be implemented on a level that includes the whole corporation and where it is necessary to integrate the innovation activities of several business units.³⁷ Beside the implementation of a bottom-up strategic process for the generation of radical innovations, an attractive incentive system should also be installed within the corporation to promote the emergence of new ideas.³⁸

In conclusion it can be said that in a corporation intended and emergent strategies co-exist. Because emergent strategies are crucial for radical innovation in a

³³ Cf. Hamel (2000), p. 252

³⁴ Cf. Bitzer (1991), p. 43

³⁵ Cf. Mintzberg (1990), p. 26

³⁶ Cf. Hamel (2000), p. 253.

³⁷ Cf. Day (1994), p. 168

³⁸ Cf. Dodt et al. (1999), pp. 61

hypercompetitive market, their development should be especially promoted. This can be realized with bottom-up strategic processes and appropriate incentive systems.

The autonomy principle is based on two assumptions: the first one is that the established structures of big corporations impede innovation processes.³⁹ And secondly that established corporate routines and cultures obstruct the development of new innovative units (“cultural lock-in”).⁴⁰ Existing benefit systems, personnel policies, profit and growth policies, strategies and budgeting rules for established innovation processes in corporations have likely a negative influence on the development of radical innovations. Cultural barriers are for example a risk-averse mentality, the “petrification” of routines and processes and a low tolerance for mistakes.⁴¹ Due to such barriers, scientific literature prefers an organisational division between new innovation projects and the corporate’s core business. When for example an established old economy corporation aims to create a new sales channels via internet, the autonomy of this new venture can be achieved in two ways: by ensuring decision autonomy for the venture management team or by separating the venture from the established core business units from the very beginning.⁴² Decision autonomy for venture managers is especially important in hypercompetitive markets.⁴³ Autonomy through separation is also regarded as a decisive success factor for the implementation of radical innovations. Different kinds of separation and therefore different levels of autonomy are possible.

Typically the following separation levels can be distinguished: internal separation, external separation and a combination of both types of separation. The internal separation, which is fulfilled by the development of partly-independent project groups or new business units, is the most conservative model with the lowest level of autonomy. The managers of the partly-independent units receive decision-making power, while resources are rendered by the corporation. What may cause problems is that the corporate leadership has still the possibility to decide on mayor planning and development processes. Therefore, it is essential for this model of separation to explicitly define interaction rules and to clearly delimitate responsibilities and management tasks between the partly-independent units and the corporate core. External separation can be achieved by spin-offs, corporate start-ups, joint ventures or corporate venture portfolios. Within the framework of a radical innovation management

³⁹ Cf. Drucker (1986), pp. 236; Day et al. (2001), pp. 21; Tushman/O’Reilly (1998), p. 171

⁴⁰ Cf. Foster/Kaplan (2001), p. 43; Brody/Ehrlich (1998), p. 58; Day/Schoemaker (2000), pp. 27

⁴¹ Cf. Michalski (2002b), pp. 323

⁴² Cf. Linz (2001), p. 102

⁴³ Cf. Rosenstiel (1999), pp. 42

approach, this alternative is regarded to be the most successful in producing radical innovations, because the possibilities to intervene are limited for the core corporation and the management of the independent units is directly confronted with the incentives of the capital market. Both leads to a strengthening of the entrepreneurial behaviour of a venture. Success and failure become more transparent as strict financial reports for the investors community replace the internal management reports and the internal valuation methods are replaced by those of the capital market. The presented models of separation do not exclude each other. In fact they complement each other and can easily be combined according to the specific situation.⁴⁴ In conclusion, the following can be stated: the higher the degree of autonomy of the venturing units the more likely is the creation of radical innovations.

Options principle: corporations that invest in radical innovations are faced with the dilemma that although their success potential rises, they are faced with higher risks. On the one hand they have the opportunity to temporarily reach a monopoly and to absorb surplus profits as well as dominate attractive markets. Furthermore they establish market entry barriers for competitors (“early mover advantage”). On the other hand, risks like high cost of market entry, exaggerated market volume evaluations or a serious blow to brand image due to bad product or service quality can also arise. This dilemma is reinforced by hypercompetitive markets as innovations projects have to face a particularly high uncertainty and market dynamism. A radical innovation management should therefore include a systematic chances and risk management in order to perceive market chances in time while minimizing the market risks. To create such a chances and risk management, sufficient room for strategic maneuvering has to be given to ensure the creation of future options for radical innovations. Like this, the ventures become more flexible.⁴⁵ Corporations which act in hypercompetitive markets are usually unable to predict emerging technologies and corresponding technology standards that will dominate the market. Investments in emerging technologies should therefore be regarded as the creation of real option portfolios, where additional resources are invested only under the condition of accomplished milestones.⁴⁶

Real options create room for strategic maneuvers on two levels.⁴⁷ The first level is process flexibility which opens the possibility to differently decide on the further course of action due to improved information. With the help of process flexibility the innovation process can be changed by reversing decisions made or by continuing it with a

⁴⁴ Cf. Linz (2001), p. 105

⁴⁵ Cf. Schmitt (2000), p. 27

⁴⁶ Cf. Day/Schoemaker (2000), p. 24

⁴⁷ Cf. Schmitt (2000), pp. 47 ff.

modified strategy. Process flexibility therefore considers the time dimension of a project. During its development more information leads to sequential emergence of new real options as an exercised option can create further options. For example, exercising the option on the production of a prototype product can open up a new option on introducing this prototype product on a test market. The second level for the enlargement of strategic maneuver space can be gained through portfolio flexibility. In this case decisions regarding project selection can be made based on additionally gained information concerning the entire portfolio. That regards the number of pursued options at a certain time. An example for that would be if several alternative technologies are pursued at the same time by investing in respective corporate start-ups. After additional information has been gained, it can be decided, which start-up will be continued and which not. As innovation processes usually contain several real options, possibly emerging interdependencies have to be considered.⁴⁸ Radical innovation management should contribute to the creation of new opportunities through the continuous creation of new real options. Radical innovation management fulfills also the demands of risk management through the provision of defensive room for maneuvering, e.g. danger-averting real options such as early product tests. The danger of new product failure can this way be significantly reduced as mistakes can be discovered and corrected in time. The danger that radiates from the dynamism and uncertainty of hypercompetitive markets can be met by providing a sufficient number of possible strategic maneuvers. It can usually be assumed that with a raising number of real options provided the amount and flexibility of possible strategic maneuvers increases.⁴⁹

It can therefore be concluded that the option principle in the framework of a radical innovation management approach can contribute to the corporation's future success by providing real options according to the changing market environment and depending on the emerging market trends. Only in this way can strategic flexibility be guaranteed for hypercompetitive markets.

⁴⁸ Cf. Day/Schoemaker (2000), p. 25

⁴⁹ Cf. Linz (2001), pp. 114 ff.

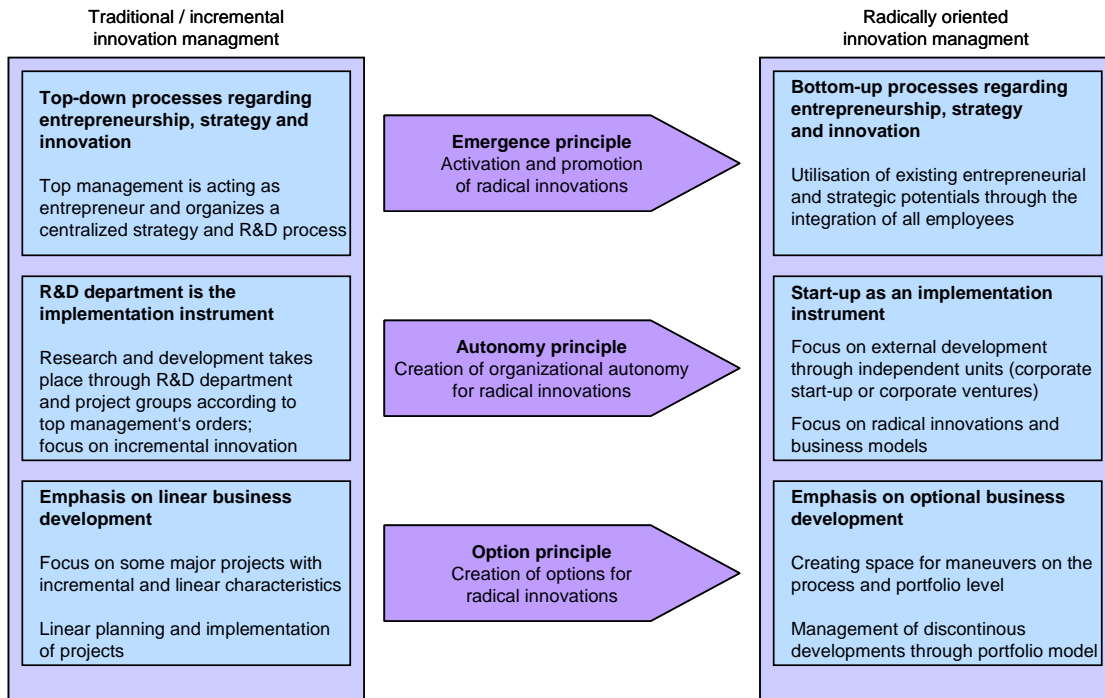


Fig. 3: transition from traditional/incremental toward radical innovation management through emergence, autonomy and option principle
(Source: According to Linz (2001), p. 119)

Regarding employment of corporate entrepreneurship principles for radical innovations, the following points can be postulated from the perspective of innovation management theory: as innovation management uses corporate start-ups (ventures) as implementation instruments for radical innovation (autonomy principle), and as it strives for emergent strategies and innovations patterns at the corporate boundaries or outside the corporate boundaries (emergence principle), the CE governance models 3 and 4 should be preferred from the perspective of innovation management theory. Radical innovation management strives in addition for an emphasis on optional business development (option principle). This makes corporate venture portfolios (governance type 4) an especially suitable instrument for the creation of radical innovations. Exactly the same has been concluded by applying the RBV/CBV view to the problem of increasing the radical innovation capacities of a innovation. Innovation management theory provides furthermore additional valuable hints for the design and optimization for the creation of successful corporate venture portfolios of governance type 4 in the form of the autonomy, the emergence and the options principle.

6 Recommendations for the creation of radical innovations through corporate venture portfolios

From the perspective of RBV/CBV and of innovation management theory, seven success factors can be identified for the creation of radical innovations through corporate venture portfolios. They are summarized in the following in the form of design principles for corporate venture portfolios:

- *Absorption capacity principle*: improvement of the identification, the assimilation and the usability of external, innovation-relevant resources and competences in order to increase the radical innovation ability of the existing CV-portfolio $CV_1 - CV_n$
- *Resources/competence adaption principle*: improvement of resource- and competence-related adaption efforts of external innovation-relevant resources and competences in order to increase the radical innovation ability of the existing CV-portfolio $CV_1 - CV_n$
- *Competence transfer principle*: fostering the mutual transfer of existing and/or new competences within the corporation. This transfer can take place within the corporate core or between the corporate core, the CV-portfolio $CV_1 - CV_n$, newly acquired CVs or started-up CVs of the CV-Portfolio $CV_1 - CV_n$.
- *Competences development principle*: systematic development of new routines, which are independent of the existing routines of the core corporation, and thereupon based new competences in order to improve the radical innovation capacity of the corporation. This can be achieved through the accumulation of new experience and knowledge, which is generated through the operation of a CV-portfolio $CV_1 - CV_n$.
- *Emergence principle*: all-encompassing activation and promotion of the radical innovation ability at the periphery, at the basis and outside the corporation through the nourishing of emergent strategies with the help of a CV-portfolio $CV_1 - CV_n$
- *Autonomy principle*: creation of organisational autonomy (autonomy through freedom of decision, autonomy through different forms of separation) in order to increase the radical innovation ability with the help of corporate ventures or CV-portfolios $CV_1 - CV_n$
- *Options principle*: creation of as many options as possible for radical innovation, which can be executed according to the changing market environment, as well as the creation of maneuvering space on the process and portfolio level with the help of a CV portfolio $CV_1 - CV_n$

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