

**ADVANCEMENT OF INTERNATIONAL BUSINESS IDEATION AS THREE
RECURSIVE, MULTI-COMPETENCE-ENABLED SYSTEMS**

ABSTRACT

Business ideation is seen as the future-in-making part of international business (IB) management. The aim of this paper is to advance applied theoretical knowledge on IB ideation by designing the managing of such ideation as three recursive, multi-competence-enabled systems. The IB idea consists of an IB unit (a) targeting needs and clients, (b) designing its offerings, and (c) organizing connecting operations. The IB ideation multi-competence encompasses management, staff, processes, resources, and information. Aligning with Beer's (1985) Viable System Model, it is assumed that it is possible to manage the IB ideation when it is designed at three levels of hierarchy. The focal, 2nd-order system involves IB ideas crafting. One level of recursion down, the 1st-order system contains IB ideas realization. One level of recursion up, the 3rd-order system accommodates IB ideation foresights generation. The cross-order Function 1 involves the balancing management. Function 2 involves the renewal of IB ideation outcomes. Function 3 involves the recreation of IB ideation elements and multi-competences themselves based on the leveraging of the creation, transformation, upgrading, enhancement, and production competences. It is envisioned that the three systems enable competence-based scholars to advance IB ideation. The three templates will facilitate firms to enhance IB ideation practices.

INTRODUCTION

In the mid-1990s, Porter (1994) proposed that to explain competitive success, we need a theory of strategy that links environmental circumstances and firm behavior to market outcomes. The unit of analysis must be a strategically distinct business. Later, Franklin (2004) posited that there was very little formal management theory that managers can unthinkingly rely on when running a business. Greiner and Cummings (2009) emphasized that managers were searching for ways to make strategies more dynamic and action oriented. They were shunning strategic planning methods and looking for new approaches to strategy making. In turn, I assume that such theory building positions and practices enhancing claims are valid still today. Moreover, my insight is that the *(un)successful management of a single business* is the most fundamental area of strategic management.

The advancement of *generic or universal or context-free theoretical knowledge* is considered fundamental (e.g. Tallman & Pedersen, 2011). Within business management (BM), such generic knowledge is underlying other knowledge. In turn, *applied theoretical BM knowledge* includes also knowledge on international business (IB) management. Typically, Doz (2011) perceives that IB management research is multidisciplinary, benefiting from generic knowledge. I herein posit that IB management is the primary applied, contextual sub-field of generic BM. IB scholars do not need to take this coinciding as another attack vis-à-vis the legitimacy of the IB field. This is so because the relation between BM and IB management is axiomatic. Similarly, more distinctive, open IB research paradigms are being advocated among IB scholars (e.g. Brannen & Doz, 2010).

Further, I perceive that *business ideation* forms the core of future-in-making BM, including IB management. Thus, the *main aim* of my paper is to advance applied theoretical knowledge on IB ideation by designing the management of such ideation as the three recursive, multi-

competence-enabled systems within firms and by their IB units (that may be responsible for domestic businesses, too). The *seven sub-aims and sections* of my paper are as follows:

- To adopt the basic definition of business ideation, introduce a typology of five generic approaches to business ideation, elaborate each of them in the case of IB ideation, and put forth some ideas for advancement in the future
- To rationalize the dual challenges of wickedness and infinite regress that are awaiting all system designers as well as this author's consequent choices in this regard and concerning the adoption of the selected principles of Beer's (1985) Viable System Model and the selected concepts of the competence-based management
- To design three viable systems for advancing recursive, multi-competence-enabled IB ideation as a whole as the 3rd-order IB ideation foresights generation system, the 2nd-order IB ideas crafting system, and the 1st-order IB ideas realization as well as to define five systems level assumptions, four core elements, five competences, and three recursive functions
- To define balancing management (Function 1) as three assumptions and 15 temporal, pairwise dependency types between the four core elements
- To define IB ideation outcomes renewal (Function 2) as three assumptions and to design a 3-step template forward and backward for the 3rd-order IB ideation foresights re-generation, the 2nd-order sub-system of IB ideas re-crafting, and the 1st-order sub-system of IB ideas re-realization
- To define IB ideation multi-competences recreation (Function 3) as three assumptions and to design (i) a 3-step template forward and backward for the 3rd-order IB ideation foresights generation multi-competence rebuilding, the 2nd-order IB ideas crafting multi-competence refreshment, and the 1st-order IB ideas realization multi-competence re-

vitalization and (ii) a complementary 3-step template forward and backward for the multi-order recreation of creation, transformation, upgrading, enhancement, and outcomes production competences

- To draw conclusions on the recursive, multi-competence, 3-system concept for advancing IB ideation, to suggest implications for enhancing IB ideation management practices, and to foresee competence-based IB scholars (including this author, too) to engage themselves with further advancements of IB ideation knowledge.

As the major limitation, I have left the *detailed design and specification* of each of the three recursive, multi-competence-enabled IB ideation systems outside the scope of this paper.

THE ADVANCEMENT OF IB IDEATION ACCORDING TO FIVE

APPROACHES

In general, OED (2012) defines that “*to idea* is to give a particular form or character to...”. In turn, *ideation* encompasses “the formation of ideas or mental images of things not present to the senses” or simply “*the creation of new ideas*”. Aligning with Normann’s (2001) root principle of fit, I hereby define an *IB idea* to consist of (i) an external environment with targeted needs among potential foreign clients as well as (ii) an IB unit’s offerings that satisfy such needs, and (iii) its international operations, enabled by multi-competences.

How is business ideation being approached within strategic management literature? So far, I have identified *five generic approaches* to business ideation. I posit that this *typology* captures the broad scope of business ideation and differentiates between the fitting, value-creating, profit-generating, systemizing, and commercializing approaches, based on their respective dimensions and rationales (Huovinen, 2013). Next, I am elaborating each approach from the point of view of an IB management team which is relying on a founding or exemplary business ideation concept.

According to the *fitting IB ideation (Approach 1)*, an IB management team aims to excel along the three sub-dimensions that accommodate (i) targeted needs coupled with clients, (ii) an IB unit's offerings to satisfy these needs, and (iii) an IB unit's operations enabled by resources. In 1970s, the pioneering consultants of SIAR (of Sweden) defined a *business idea* to be a unique, historically evolved set of factors related to each other. The overall principle is one of *consonance or fit*. At the most abstract level, Normann (2001) distinguishes an external environment with needs and values as well as a unit's offerings and internal factors. Similarly, Drucker's (1994) theory of business or assumptions cover the international environment (what a firm is paid for), a specific mission (how a firm is making a difference across the globe), and the core competencies (where a firm must excel). Many fitting concepts have been designed as part of corporate planning concepts. For example, Tregoe and Zimmerman's (1980) strategic framework includes an internationalizing mission statement, a future product scope, a future international market scope, and required key capabilities.

According to the *value-creating IB ideation (Approach 2)*, an IB management team aims to create value through business ideation, specify high-value propositions, and actually produce such value to foreign clients. Typically, international market segments are selected, *value propositions* are created to establish positions of competitive advantage, necessary capabilities are developed for understanding foreign customer needs, and promised value is delivered, by applying Slater's (1997) customer value-based strategy. Likewise, value can be defined (sources and quantification), created, delivered for international customers (flow and outside in -based processes), and captured (shares of profit, wallet and market) through Kothari and Lackner's (2006) value creation cycle, where the value that foreign customers receive from each offering is being determined by product, access, experience, and cost attributes. Increasingly, IB units and their customers could co-invent, combine, and reconcile values where interactions

(offerings) are units of analysis and the roles of customers have been perceived as new factors of production, by relying on Ramirez' (1999) value co-production framework.

According to the *profit-generating IB ideation (Approach 3)*, an IB management team aims to achieve high-profit levels and also sustain them. Typically, the rules of game can be redefined and a *new profitable IB design* be recreated, by adopting the approach of Slywotzky, Morrison, Moser, Mundt, & Quealla (1999), i.e. high customer relevance, a consistent scope (products and value chain activities), a terrific profit model, a powerful source of differentiation and control across targeted international markets as well as a supportive and reinforcing organizational system. All this is enabled by the early, continuous recognition of evolving international profit patterns such as mega patterns, value chain patterns, customer patterns, channel patterns, product patterns, knowledge patterns, and organizational patterns. In turn, the recognition, identification, and analysis of patterns are based on paying attention to story-telling, mapping an IB landscape, measuring mindshare among IB designs as well as deciphering conditions and triggers for next patterns.

According to the *systemizing IB ideation (Approach 4)*, an IB management team aims to succeed with the modeling of an IB or the design of an IB as a system *around a core business idea*. Typically, rationales can be described, i.e. how their IB units create, deliver, and capture value as well as cover the four main areas of an IB (customers, offers, infrastructure, and financial viability), by applying Osterwalder and Pigneur's (2010) business model. The logic of how to make money across the globe is shown by the nine corresponding building blocks as (i) international customer segments, (ii) value propositions, (iii) communication, distribution, and sales channels for global deliveries, (iv) international customer relationships, (v) revenue streams, (vi) required, enabling key resources, (vii) offering and delivery performance, (viii) international partnerships for outsourced activities and resource acquisitions, and (ix) a cost structure. IB models are like blueprints for units' strategies to be implemented through global

and local organizational structures, processes, and systems. Consequently, IB model innovations result from one of four objectives, i.e. (a) to satisfy existing but unanswered international market needs, (b) to bring new technologies, products, or services to market, (c) to improve, disrupt, or transform an existing market with a better IB model, or (d) to create an entirely new market.

According to the *commercializing IB ideation (Approach 5)*, an IB management team aims to succeed in the case of *coupling IB ideas with new legal and organizational entities*, i.e. through international entrepreneurship, innovation, business development, born globals, business venturing, or spin-offing. *Traditionally*, convincing, innovative business ideas can be identified, developed, and rolled out by applying Looser and Schläpfer's (2001) 8-part business plan in order to start up innovative, high-growth IBs (units) and to take advantage of financing in the form of venture capital or investment funds. This innovating may result in new products/services, new IB systems (for developing, manufacturing, and marketing), or both of them, i.e. inventing new IBs. *More radically*, Hamel and Breen's (2007) management innovations are anything that substantially alters the ways in which the work of IB management teams is carried out, or significantly modifies customary organizational forms, and by so doing, advances organizational goals. The principles, processes, and practices of IB management teams are being reinvented. Global management innovations could have unique capacities to create long-term advantages when one or more of three conditions are met, i.e. (a) innovations are based on novel cross-border management principles, (b) they are systemic, encompassing a range of processes and methods, and (c) they are part of on-going programs of rapid-fire innovation. Within a 4-tier innovation stack or hierarchy of IB units, where higher tiers denote higher levels of global value creation and competitive defensibility, the 4th tier of management innovations comes out above the 3rd tier of strategy innovations, the 2nd tier of product/service innovations, and the 1st tier of operational innovations.

How to advance IB ideation according to the five generic approaches? The need to properly account for cross-border contexts and their effects is receiving greater attention among scholars studying strategic management and organizational behavior (e.g. Johns, 2006; Whetten, 2009). Context has been neglected in IB research, too (Welch, Piekkari, Plakoyiannaki, & Paavilainen-Mäntymäki, 2011). Thus, IB ideation could become one of the preferred sub-fields of *context sensitive IB research*, i.e. advancing conceptual, highly applicable IB ideation knowledge by both contextualizing existing models and propositionally theorizing about and across relevant contexts in the case of focal global and international(izing) businesses (adopting Whetten, 2009). Therein, qualitative research methods such as the pluralist theorizing from case studies and deep contextualization help make progress and assist in providing the IB ideation field with its own theoretical grounding (aligning with Doz, 2011; Welch et al., 2011; Michailova, 2011).

CHALLENGES, VIABLE SYSTEM MODEL, AND COMPETENCE-BASED MANAGEMENT VIS-À-VIS THE SYSTEM DESIGN TASK

Wicked and infinite challenges

What dual challenges have been rationalized as part of this system design task? I perceive that wickedness and infinite regress are behind multiple critical challenges, respectively. Rittel and Webber's (1974) have emphasized wicked planning problems primarily in the societal context. They use the term wicked in a meaning akin to that of malignant (in contrast to benign), or vicious (like a circle) or tricky or aggressive. In the same vein, I argue that *IB ideation managers face frequently such wicked problems*. At minimum, the following eight severe problems can be distinguished, i.e. (i) IB ideation processes have no stopping rule, (ii) many IB ideation processes are essentially unique, (iii) IB ideas can be neither crafted, nor realized definitely, (iv) IB ideas are not testable with potentially viable settings immediately or ultimately, (v) radical IB ideas

allow only one-shot-realizations (no opportunity to learn by trial-and-error because every attempt counts significantly), (vi) many crafted IB ideas allow neither an enumerable (or exhaustingly describable) set of potential novel offerings, nor a well-described set of permissible operations that may be incorporated into IB plans, (vii) crafted IB ideas may be realized in numerous ways and, thus, the choices of realization strategies determine likelihoods of success, and (viii) major investments-based IB ideas provide IB (ideation) managers with no right to be wrong (managers are liable for the consequences of the crafting decisions they make and those of the required realization actions the crafted IB ideas generate).

Concerning the *strategic management field*, Collis (1994) has pointed out to a problem of infinite regress in the prediction of, and in the explanation for, sustainable competitive advantage. Applying Collis (1994), I herein state that (i) *infinite regress implies in the forward-looking prediction* that the IB idea that wins tomorrow is the current IB idea that will be improved to the next+1 IB idea that will be modified the next+2 IB idea that will be extended to the next+3 IB idea that will be recovered to the next+4 IB idea that will be multiplied to the next+5 IB idea that is better and is also being realized in the better ways, and so on ad infinitum. This regress forward is illustrated in Figure 1. Under changing conditions within targeted markets, a firm always advances the next IB idea which is perceived as the most robust one at a point in time.

 Insert Figure 1 about here

(ii) Similarly, I state that *infinite regress implies in the backward-looking explanation* from where the current successful IB idea originated and what the original source of a given organizational IB ideation competence was. Iterating backwards, the current IB idea is explained by the possession of the IB ideation competence and the logically prior explanation of where this

competence came from is the competence to transform it and, step-wise, the transformation competence is explained by the competence to upgrade it and the upgrading competence is explained by the competence to enhance it and the enhancement competence is explained by the competence to nurture it, and so on. This regress backward is illustrated in Figure 2.

Insert Figure 2 about here

Applying Collis (1994), there is no acceptable stopping place to the assessment of the source of an IB ideation insight since there is always a prior explanation (higher-order competence) for the origin of any competence that an IB unit possesses. More broadly, Collis (1994) has justified a limited interpretation of valuable competences (however defined), i.e. that they are certainly not the ultimate source. Positions of competitive advantage based on competences are vulnerable to competitive actions on a number of dimensions, particularly to being superseded by a ‘better’, higher-order competence.

Thus, *my rationale as the system designer* involves the setting of the boundaries for infinite regress in dual terms of forward crafting and realization of future IB ideas as well as backward explanation of (un)success of current and past IB ideas. Thus, I assume that it is satisfactory to handle 3-step regress both forward and backward as part of the design of a viable trio of IB ideation systems.

The adoption of the core principles of Beer’s (1985) Viable System Model

Why did I adopt the core principles of Beer’s (1985) Viable System Model for this system design task? Ex ante, I sought for an *independent point of departure* primarily from among the literature on systems thinking, design, and theory. I rely on *Beer’s (1985) Viable System Model* because it consists of five interacting subsystems that can support a viable IB unit. The model is

concerned with what defines an IB unit and enables it to maintain its viability. The model lays down a minimum set of necessary relations that must be obtained if a unit is to continue managing its dynamic IB ideation successfully (aligning with Leonard, 2000). Self-sustaining IB ideation sub-units are autonomous within limits that are defined in terms of their own systemic structures and IB ideation teams should be managed in real-time. IB ideation managers should deal only with the information that changes IB crafting and realization processes and jointly build selective and immediate responses (applying Beer, 2002).

In addition, I prefer Beer's (1975) *recursive systems view* for trying to capture much of complexity of managing IB ideation processes in the short and longer term vis-à-vis often highly evolving targeted markets. Accordingly, it is possible to define a viable system, a designated set of IB ideation sub-units, which is capable of sustaining a separate existence *at only three levels of hierarchy*, as part of an IB unit. At each level, there is one viable system that consists of many sub-systems. The viability of the 1st-order system is enabled by the 2nd-order system and the viability of the 2nd-order system is, in turn, sustained by the 3rd-order system. This is a way of designing sub-units and their IB ideation processes like a series of "Chinese boxes". I perceive that the *seven principles* inherent in Beer's (1985) Viable System Model are necessary for the design task at hand, i.e. (i) both the separate existence of IB ideation sub-units and their integrated role as part of a focal IB unit, (ii) interaction between IB ideation sub-units and their targeted markets, (iii) enabling attenuators and amplifiers, (iv) real-time management actions, (v) the coupling of organizational entities and necessary sub-systems, (vi) embedded autonomy, and (vii) managing of complexity with Ashbyan requisite varieties.

In wickedness-focused words, the managers of open IB ideation systems are caught in the *ambiguity of causal webs*, i.e. such webs defy efforts to delineate boundaries and identify likely causes of most problems inherent in IB ideas crafting and realization and, thus, to expose their wicked nature. Moreover, many IB ideation processes remain ineffective because they are

planned in such ways that prevent from relying on any viable strategies. Thus, many IB ideation teams go on trying the crafting strategies that have always failed to produce highly realizable IB ideas in the past. In this respect, *my rationale of as the system designer* involves the very adoption of Beer's (1985) Viable System Model. In particular, I consider *recursivity* to be axiomatic vis-à-vis looking at wicked IB problems in different, foreseeing ways and highly likely solving them, too.

The selection of the concepts of competence-based management

What key concepts did I select from within the pool of accumulated competence-based management knowledge for this system design task? The *corresponding, competence-based, theoretical bases* include a holistic view of firms as goal seeking, open systems, goals, the closing of strategic gaps, managerial cognitions, organizational competences, and competence leveraging (Sanchez, Heene, & Thomas, 1996b; Sanchez & Heene, 1996), five competence modes (Sanchez, 2004), the virtuous circle of value creation and distribution with higher-order and lower-order control loops (Sanchez & Heene, 2004) as well as cognitive flexibility and management processes (Sanchez, 2008).

I have also adopted one of the most recent pieces of such competence-based knowledge, i.e. Sanchez' (2012) *concept of organization architecture* is applicable in the case of designing aligned organizations for the realization of IB ideas. The essential features of the concept enable the design of a focal unit and its IB ideation sub-units so that effective strategic alignment with competitive and/or cooperative environments is achieved. It is assumed that the effective, even radical realization of IB ideas can be in part accommodated by the adoption of the strategic flexibilities and organization architectures that support the management of the four basic types of change, characterized as convergence, reconfiguration, absorptive integration, and architectural transformation.

SYSTEMS LEVEL ASSUMPTIONS, THE IB IDEATION PROBLEM, AND ITS SOLUTION PERCEIVED ALONG TWO RECURSIVE DIMENSIONS

Herein, I am unfolding my systemic approach by defining five systems level assumptions, three problems and their principal solutions, by designing three systems along the two recursive dimensions of IB ideation and system design, and by defining four core elements for systems design, five competence types for elements management, and three recursive cross-order functions as follows.

Five systems level assumptions on three IB ideation systems as a whole

I define the *five assumptions on the three systems and their viability as a whole* as follows:

1. IB ideation is being managed as a viable system (e.g. wickedness) when there are only three causally related levels of hierarchy in terms of Beer's (1975, 1985) concept of recursivity.
2. More and more challenging goals are being attached to IB ideation and these goals are also becoming attained when the three systems are designed along the recursive IB ideation dimension as foreseeing, crafting, and realization.
3. The viability of the three IB ideation systems is being ensured when organizational complexity is accommodated by designing the three recursive, cross-order functions of balancing management (Function 1), IB ideation outcomes renewal (Function 2), and IB ideation multi-competences recreation (Function 3).
4. The viability of the three IB ideation systems is being ensured when the management of dynamic complexity of each sub-system is simplified by choosing only the same core elements and specifying each of them with the same sub-element types, respectively.

5. The viability of three IB ideation systems is being satisfactorily protected against infinite regress when each sub-system is designed to accommodate regress forward and backward by the 3-step stopping rules.

Later, these systems level assumptions are complemented with the three sets of the cross-order function specific assumptions.

IB ideation problem as three recursive problems

I approach the *total IB ideation problem* facing IB managers by dividing into and re-defining it as *three recursive IB ideation problems*, illustrated in the left side of Figure 3, as well as by coupling them with necessary solutions, illustrated in the right side, along the recursive temporal dimension as follows:

- How can the *existence* of an IB unit be sustained? The existential goals attainment is being enabled by the 3rd-order system of managing the generation of foresights on IB ideation and the inherent multi-competence.
- How can the *long-term competitiveness* of an IB unit be ensured? The IB goals attainment and the superior international competitiveness are being enabled by the 2nd-order system of managing the crafting of IB ideas and the inherent multi-competence.
- How can the *short-term success* of an IB unit be managed? The aims attainment and the high operational performance are being enabled by the 1st-order system of managing the realization of IB ideas and the inherent multi-competence.

 Insert Figure 3 about here

The choice of three recursive IB ideation systems

I propose that the management of an IB unit can comprehend and organize its IB ideation as the three recursive, multi-competence systems that produce those outcomes that are necessary to repeatedly successfully manage the focal IB as a whole along the temporal dimension. Thus, I conceptualize the unit's IB ideation as the *three particular recursive systems* as follows. The *crafting of IB ideas* is chosen as the *2nd-order, focal system* which produces the core of an IB unit's competitiveness in the long-term. One level of recursion down, the *1st-order system* contains the actual realization of IB ideas. One level of recursion up, the *3rd-order system* accommodates the generation of foresights on IB ideation. Recursivity is implanted into each (sub-)system via the four core elements of IB ideation, i.e. offering markets, outcomes, multi-competences, and resource markets. The three recursive IB ideation systems are illustrated in Figure 4.

 Insert Figure 4 about here

The selected seven principles of Beer's (1985) Viable System Model cover the necessary aspects of recursive, viable systems. In turn, the elements of competence-based management allow for high systemic performance. Thus, I define the *five dynamic features* of a recursive, 3-system IB ideation as follows. Within an IB unit of a multi- or single-business firm, (1) a set of *IB ideation sub-units* is a coherent whole that is capable of maintaining existence independently even outside the focal IB unit (and firm). (2) *IB ideation unit-market interaction* takes place, i.e. IB ideation sub-units, offering markets, and resource markets are interdependent and evolving through interactions, influences, and adjustments. (3) *Real-time managing* takes place through the processes of the IB ideation sub-units that link internally the three systems and the cross-order Functions 1-3 as well as externally the sub-units and their teams with related stakeholders

in offering markets and resource markets. (4) *Organizationally*, each IB ideation system, Function, and internal core element is coupled, respectively, with a corresponding multi-competence internally or the IB ideation sub-unit in question can have access to such multi-competence via subcontracting, partnerships, or networking. (5) *Autonomy* is nurtured so that each IB ideation sub-unit can cope with market dynamism and fluctuations truthfully and based on its own perception. Each system, Function, and internal core element takes responsibility for co-evolving with an external core element (or sub-market) that is being coupled with. Each internal element is empowered for goals/aims attainment. In turn, an inherent multi-competence enables an element to self-reflect, alter and improve its states, or even recreate its characteristics pro-/reactively according to anticipated and real changes. Renewal needs and recreation needs are mapped onto each internal element, too.

Four interrelated systemic core elements

In analogy with Huovinen's (2008) systemic inference, I capture the satisfactory scope of an IB ideation unit as the three recursive, multi-competence-enabled systems by specifying and pairing *four systemic core elements*. The specification takes place via the six sub-systems. The specified core elements are summarized in Figure 5. I specify the *first causally interrelated pair* between an external needs-embedding market element and an IB ideation unit's internal outcome element. (i) A *core offering market scope* consists of six sub-elements that are embedded within the demand-side environment:

1. Need types and specific needs with their integration and related needs-solving processes
2. Client groups and specific clients with their needs and needs-solutions delivery processes
3. Offering types and specific offerings with their bundling and related logical producing processes

4. Competing offering seller groups and specific sellers with their development, clients-focused, competitive, and delivery processes
5. Other stakeholder groups and specific stakeholders with their influential processes within offering and resource markets
6. Political (e.g. public procurement), economic (e.g. financing), social (e.g. media), technological (e.g. ICT), and environmental (e.g. zero carbon print) sectors with respective stakeholder groups and specific stakeholders with their influential processes.

(ii) A *core outcome content scope* consists of six sub-elements that are being produced by the three IB ideation systems:

1. Alternative and targeted need types and specific needs with their integration degrees and related, logical needs-solving processes
2. Alternative and preferred client groups and specific clients with their needs and needs-solving processes
3. Alternative and selected offering types and specific offerings with their bundling degrees and related, logical offerings-producing processes
4. Alternative and required enabling multi-competences that include an IB unit's internal value-adding production, renewal, and recreation processes as well as interactive clients-driven, competitive, collaborative, and leveraging processes focused on targeted offering markets, and interactive resource providers-driven, competitive, collaborative, and acquiring processes focused on selected resource markets
5. An IB unit's competence-enabled, interactive processes with alternative and likely other stakeholders as well as their influential processes within offering and resource markets
6. An IB unit's competence-enabled, mutually influential interaction with political, economic, social, technological, and environmental sectors and, respectively, therein alternative and likely embedded stakeholders with their influential processes.

I specify the *second causally interrelated pair* as an IB ideation unit's core outcome content scope that is causally being produced by another internal competence element that enables IB ideation sub-units to perform and interact with offering markets, resource markets, and five surrounding sectors over time. Thus, (iii) a *core multi-competence scope* consists of six dual sub-competences:

 Insert Figure 5 about here

1. A needs-focused sub-competence to ideate need types, specific needs, and their needs-solving processes, coupled with a sub-competence to recreate such a needs-focused sub-competence over its life-cycle.
2. A clients-focused sub-competence to ideate client types, specific clients, and their needs-solving processes, coupled with a sub-competence to recreate such a clients-focused sub-competence over its life-cycle.
3. An offerings-focused sub-competence to ideate offering types, specific offerings, and related logical delivery processes, coupled with a sub-competence to recreate such an offerings-focused sub-competence over its life-cycle.
4. A management-focused sub-competence to set and attain IB ideation goals/aims across sub-systems and elements as well as to balance internal and external IB ideation varieties across sub-systems and elements, coupled with a sub-competence to recreate such a management-focused sub-competence over its life-cycle.
5. A stakeholders-focused sub-competence to ideate stakeholder types, specific stakeholders (e.g. financiers) with their value-adding and otherwise influential processes in the demand side and the supply side, coupled with a sub-competence to recreate such a stakeholders-focused sub-competence over its life-cycle.

6. A sectors-focused sub-competence to ideate political, economic, social, technological, and environmental issue categories, specific issues (e.g. legislation), and sectoral stakeholders with their value-adding and otherwise influential processes, coupled with a sub-competence to recreate such a sectors-focused sub-competence over its life-cycle.

I specify the *third causally interrelated pair* between an IB ideation unit's core multi-competence scope and an external resources-embedding market. Thus, (iv) a *core resource market scope* consists of six sub-elements that are embedded within the supply-side environment:

1. Resource need types and specific resource needs with their integration and related logical resource needs-fulfilling supply processes.
2. Resource user groups and specific users with their resource needs as well as resource-needs-fulfilling supply processes.
3. Resource types and specific resources exploited as part of offering types and specific offerings with related resource bundling and logical supply processes.
4. Competing resource provider groups and specific resource providers with their resource development, user-driven, competitive, and supply processes.
5. Other stakeholder groups and specific stakeholders with their resource-related influential processes.
6. Political (e.g. labor legislation), economic (e.g. financing), social (e.g. education), technological (e.g. ICT), and environmental (e.g. energy-savings) sectors with respective resource-related stakeholders and their influential processes.

Based on these four core elements, I will implant *recursivity* via the further specification of the 1st-order, 2nd-order, and 3rd-order elements, respectively, as part of each the three IB ideation systems. This implanting is illustrated in Figure 6.

Insert Figure 6 about here

Core IB ideation multi-competence scope as five competence types

Along the complementary recursive life-cycle dimension, I hereby design the core IB ideation multi-competence scope to consist of five competence types, too, that together define the life-cycles-encompassing scope of the three multi-competence-enabled IB ideation systems. At the same time, this scope depicts the core boundaries of such a multi-competence.

First, I define an *elements creation (Crea) competence scope* of IB ideation sub-units to consist of six dual sub-competences:

- A needs-focused sub-competence (Crea 1a) to create new need types, specific needs, and their solving processes, coupled with a sub-competence (Crea 1b) to create new needs-related competence types, specific competences, and their recreation processes.
- A clients-focused sub-competence (Crea 2a) to create new client types, specific clients, and their needs-solving processes, coupled with a sub-competence (Crea 2b) to create new clients-related competence types, specific competences, and their recreation processes.
- An offerings-focused sub-competence (Crea 3a) to create new offering types, specific offerings, and related delivery processes, coupled with a sub-competence (Crea 3b) to create new offerings-related competence types, specific competences, and their recreation processes.
- A management-focused sub-competence (Crea 4a) to set and attain IB ideation elements creation goals/aims as well as to balance internal and external creation varieties, coupled with a sub-competence (Crea 4b) to create new management-related competence types, specific competences, and their recreation processes.

- A stakeholders-focused sub-competence (Crea 5a) to create new stakeholder types, specific stakeholders, and their processes within the demand side and the supply side, coupled with a sub-competence (Crea 5b) to create new stakeholders-related competence types, specific competences, and their recreation processes.
- A sectors-focused sub-competence (Crea 6e) to create new political, economic, social, technological, and environmental issue categories, specific issues, sectoral stakeholder types, specific stakeholders, and their processes, coupled with a sub-competence (Crea 6b) to create new sectors-related competence types, specific competences, and their recreation processes.

Second, I define an *elements transformation (Tran) competence scope* of IB ideation sub-units to consist of six dual sub-competences:

- A needs-focused sub-competence (Tran 1a) to transform current need types, specific needs, and related solving processes, coupled with a sub-competence (Tran 1b) to transform current needs-related competence types, specific competences, and their recreation processes.
- A clients-focused sub-competence (Tran 2a) to transform current client types, specific clients, and their needs-solving processes, coupled with a sub-competence (Tran 2b) to transform current clients-related competence types, specific competences, and their recreation processes.
- An offerings-focused sub-competence (Tran 3a) to transform current offering types, specific offerings, and related producing processes, coupled with a sub-competence (Tran 3b) to transform current offerings-related competence types, specific competences, and their recreation processes.

- A management-focused sub-competence (Tran 4a) to set and attain IB ideation elements transformation goals/aims as well as to balance internal and external transformation varieties, coupled with a sub-competence (Tran 4b) to transform current management-related competence types, specific competences, and their recreation processes.
- A stakeholders-focused sub-competence (Tran 5a) to transform current stakeholder types, specific stakeholders, and their processes within the demand side and the supply side, coupled with a sub-competence (Tran 5b) to transform current stakeholders-related competence types, specific competences, and their recreation processes.
- A sectors-focused sub-competence (Tran 6a) to transform current political, economic, social, technological, and environmental issue categories, specific issues, sectoral stakeholder types, specific stakeholders, and their processes, coupled with a sub-competence (Tran 6b) to transform current sectors-related competence types, specific competences, and their recreation processes.

Third, I define an *elements upgrading (Upgr) competence scope* of IB ideation sub-units to consist of six dual sub-competences:

- A needs-focused sub-competence (Upgr 1a) to upgrade current need types, specific needs, and related solving processes, coupled with a sub-competence (Upgr 1b) to upgrade current needs-related competence types, specific competences, and their recreation processes.
- A clients-focused sub-competence (Upgr 2a) to upgrade current client types, specific clients, and their needs-solving processes, coupled with a sub-competence (Upgr 2b) to upgrade current clients-related competence types, specific competences, and their recreation processes.
- An offerings-focused sub-competence (Upgr 3a) to upgrade current offering types, specific offerings, and related delivery processes, coupled with a sub-competence (Upgr 3b) to

upgrade current offerings-related competence types, specific competences, and their recreation processes.

- A management-focused sub-competence (Upgr 4a) to set and attain IB ideation elements upgrading goals/aims as well as to balance internal and external upgrading varieties, coupled with a sub-competence (Upgr 4b) to upgrade current management-related competence types, specific competences, and their recreation processes.
- A stakeholders-focused sub-competence (Upgr 5a) to upgrade current stakeholder types, specific stakeholders, and their processes within the demand side and the supply side, coupled with a sub-competence (Upgr 5b) to upgrade current stakeholders-related competence types, specific competences, and their recreation processes.
- A sectors-focused sub-competence (Upgr 6a) to upgrade current political, economic, social, technological, and environmental issue categories, specific issues, sectoral stakeholder types, specific stakeholders, and their processes, coupled with a sub-competence (Upgr 6b) to upgrade current sectors-related competence types, specific competences, and their recreation processes.

Fourth, I define an *elements enhancement (Enha) competence scope* of IB ideation sub-units to consist of six dual sub-competences:

- A needs-focused sub-competence (Enha 1) to enhance current need types, specific needs, and related solving processes, coupled with a sub-competence (Enha 1b) to enhance current needs-related competence types, specific competences, and their recreation processes.
- A clients-focused sub-competence (Enha 2a) to enhance current client types, specific clients, and their needs-solving processes, coupled with a sub-competence (Enha 2b) to

enhance clients-related competence types, specific competences, and their recreation processes.

- An offerings-focused sub-competence (Enha 3a) to enhance current offering types, specific offerings, and related delivery processes, coupled with a sub-competence (Enha 3b) to enhance offerings-related competence types, specific competences, and their recreation processes.
- A management-focused sub-competence (Enha 4a) to set and attain IB ideation elements enhancement goals/aims as well as to balance internal and external enhancement varieties, coupled with a sub-competence (Enha 4b) to enhance current management-related competence types, specific competences, and their recreation processes.
- A stakeholders-focused sub-competence (Enha 5a) to enhance current stakeholder types, specific stakeholders, and their processes within the demand side and the supply side, coupled with a sub-competence (Enha 5b) to enhance current stakeholders-related competence types, specific competences, and their recreation processes.
- A sectors-focused sub-competence (Enha 6a) to enhance current political, economic, social, technological, and environmental issue categories, specific issues, and sectoral stakeholder types, specific stakeholders, and their processes, coupled with a sub-competence (Enha 6b) to enhance current sectors-related competence types, specific competences, and their recreation processes.

Fifth, I define an *outcomes production (Prod) competence scope* of IB ideation sub-units to consist of six dual sub-competences:

- A needs-focused sub-competence (Prod 1a) to produce outcomes related to needs, coupled with a sub-competence (Prod 1b) to exploit current needs-related competence types, specific competences, and their recreation processes.

- A clients-focused sub-competence (Prod 2a) to interact with and produce outcomes related to clients, coupled with a sub-competence (Prod 2b) to exploit current clients-related competence types, specific competences, and their recreation processes.
- An offerings-focused sub-competence (Prod 3a) to produce outcomes related to offerings, coupled with a sub-competence (Prod 3b) to exploit current offerings-related competence types, specific competences, and their recreation processes.
- A management-focused sub-competence (Prod 4a) to produce outcomes related to IB ideation management, coupled with a sub-competence (Prod 4b) to exploit current management-related competence types, specific competences, and their recreation processes.
- A stakeholders-focused sub-competence (Prod 5a) to interact with and produce outcomes related to stakeholders in the demand side and the supply side, coupled with a sub-competence (Prod 5b) to exploit current stakeholders-related competence types, specific competences, and their recreation processes.
- A sectors-focused sub-competence (Prod 6a) to interact with and produce outcomes related to political, economic, social, technological, and environmental sectors as well as respective inherent stakeholders, coupled with a sub-competence (Prod 6b) to exploit current sectors-related competence types, specific competences, and their recreation processes.

Thus, each of the three systemic IB ideation multi-competences consists of the five competences, i.e. a creation competence, a transformation competence, an upgrading competence, an enhancement competence, and an outcomes production competence. The logical order of the five competences appears in Figure 7. Over time, particular IB ideation sub-units

may rely on all the five competences or one or more of them both as logical stage-wise sequences and concurrently.

 Insert Figure 7 about here

The choice of the three recursive, cross-order functions

The critical task of the management is to sustain the viability of IB ideation. Thus, I perceive that three recursive, cross-order functions are those necessary and satisfactory means on which IB ideation managers can rely in order to accomplish this critical task. The choice of the *IB ideation balancing management as the recursive, cross-order Function 1* is based on critical situations when the IB ideation management aims at controlling varieties between the three systems interacting with the targeted offering and resource markets as well as the five surrounding sectors, respectively. Thus, I adopt Ashby's law of requisite variety and design Function 1 so that the three systems are balancing internal and external varieties primarily through the real-time managing of pair-wise dependencies between the four core elements.

The choice of the *IB ideation outcomes renewal as the recursive, cross-order Function2* is based on critical interactions between the three systems interacting with the offering and resource markets as well as the five sectors, respectively, when the management aims at changing current IB ideation outcomes for better. Thus, I design Function 2 so that the three systems are accommodating changes among past, current, and future IB ideation outcomes, changes within three other core elements, and changes inherent in their mutual dependencies primarily through the real-time managing of regress via the 3-step stopping rules forward and backward.

The choice of the *IB ideation competences recreation as the recursive, cross-order Function 3* is based on critical competences-outcome dependencies and related situations when the management aims at exploiting better, more effective (multi-)competences. Thus, I design Function 3 so that the three systems are recreating both the three IB ideation multi-competences and their five constituents primarily through the real-time managing of regress via the 3-step stopping rules forward and backward.

THE DESIGN OF THE BALANCING MANAGEMENT OF IB IDEATION (THE RECURSIVE, CROSS-ORDER FUNCTION 1)

Herein, I design the recursive, cross-order Function 1 by defining five assumptions on the IB ideation balancing management and 15 temporal, pair-wise dependency types between the four core elements as the units of balancing as follows.

Five assumptions on the recursive balancing management (Function 1)

I define the *five assumptions on the IB ideation balancing management (Function 1) and its viability* as follows:

1. Along the balancing management dimension, I adopt Beer's (1985) notion and use variety as a measure of complexity, because it counts a number of possible, comparable states of each of the three recursive systems. A variety of an offering market and that of a resource market greatly exceed that of the multi-competences of IB ideation sub-units, which in turn greatly exceed a variety of the management sub-competences of these sub-units. Thus, IB ideation sub-units seek balance through **Ashby's law of requisite variety**, i.e. only variety can absorb variety. Based on the continuous loops of variety involvement, IB ideation sub-units look for assurances that the counter-balanced varieties of two markets, its IB ideation

systems, and balancing management sub-systems are roughly equal. Each sub-system and sub-competence is overcoming obstacles as close as possible to points where they occur. In turn, each sub-competence enables to carry out a mix of adjustments, i.e. attenuators and amplifiers, in order to equate embedded dynamism.

2. The internal varieties of IB ideation are being balanced by specifying only two causally interrelated elements, i.e. multi-competences and outcomes (the 2nd pair).
3. The external varieties of IB ideation are being balanced by dividing the 1st-tier environment of the three IB ideation systems only into the two parts, i.e. offering markets and resource markets. One internal element is causally coupled with one external element, i.e. offering markets including clients and competitors with an IB ideation unit's outcomes (1st pair) as well as IB ideation multi-competences with resource markets including resource providers (3rd pair).
4. Other stakeholders and five sectors are taken into account to satisfactory extents via the respective sub-elements of an IB ideation unit's outcomes and multi-competences.
5. Against infinite regress, the viability of the three IB ideation balancing sub-functions is satisfactorily ensured when each sub-function accommodates such regress both forward and backward by the 3-step stopping rules, respectively. This balancing takes place via the real-time managing of **15 temporal mutual dependency types** between any two sub-systems and two elements within the sub-system and across the sub-systems.

Designing fifteen temporal, pair-wise dependency types

The 15 temporal, pair-wise dependency types between the four core elements are integrated in Figure 8. First, I design Function 1 in part as the *five temporal dependency types (D1-D5) between offering markets and an IB ideation unit's outcomes* as follows. D1 When an IB ideation unit perceives, selects, and targets highly attractive needs, coupled with client groups and

competing solutions sellers that are embedded within offering markets segments, only then this unit can purposefully renew its current IB ideas. D2 When an IB ideation unit has set goals for IB ideas renewal, only then this unit can purposefully search for, identify, and select highly attractive needs, coupled with client groups and solutions sellers that are embedded within offering market segments. D3 Cumulative past and current success degrees of an IB ideation unit with the solving of the targeted needs, coupled with the client groups that were embedded within the offering market segments, and the consequent degrees to which this unit has attained its IB ideation goals limit the levels up to which this unit can set future goals for IB ideas renewal. D4 Real-time, the renewal of the current IB ideas of a unit is having impacts on targeted attractive needs, coupled with client groups and competing solutions sellers that are embedded within offering market segments. D5 Real-time, the dynamic solving of targeted attractive needs by an IB ideation unit, coupled with clients groups and competing solutions sellers, is having impacts on this unit's IB ideas renewal.

Next, I design Function 1 in part as the *five temporal, internal dependency types (D6-D10) within IB ideation and between the two internal elements* as follows (Figure 8). D6 When a required multi-competence exists, only then an IB ideation unit is enabled to renew its current IB ideas. D7 When an IB ideation unit has set goals for IB ideas renewal, only then this unit can ensure the existence of required IB ideation multi-competences. D8 Cumulative past and current degrees to which an IB ideation unit has realized its IB ideas and attained its goals limit the levels up to which this unit can set future goals for the recreation of IB ideation multi-competences. D9 Real-time, the renewal of a unit's IB ideas is having impacts on its multi-competences and their recreation. D 10 Real-time, the recreation of an IB ideation unit's multi-competences is having impacts on its IB ideas and their renewal.

Finally, I design Function 1 in part as the *five temporal dependency types (D11-D15) between IB ideation unit's multi-competences and resource markets* as follows (Figure 9). D11 When an

IB ideation unit has set goals for its multi-competences recreation, only then this unit can purposefully search for, identify, and select available, valuable resources, coupled with alternative, competing provider groups that are embedded within resource market segments. D12 When an IB ideation unit perceives, selects, and targets available, valuable resources, coupled with alternative, competing provider groups that are embedded within resource markets segments, only then this unit can purposefully acquire such resources. D13 Cumulative past and current success degrees of an IB ideation unit with the acquisitions of the valuable resources, coupled with the provider groups that were embedded within the resource market segments, and the consequent degrees to which this unit has attained its goals for the IB ideation multi-competences recreation limit the levels up to which this unit can set future goals for multi-competences recreation. D14 Real-time, the recreation of an IB ideation unit's multi-competences is having impacts on available valuable resources, coupled with alternative competing provider groups that are embedded within resource market segments. D15 Real-time, the dynamic acquisition of available, valuable resources by an IB ideation unit, coupled with alternative, competing provider groups, is having impacts on this unit's multi-competences recreation.

 Insert Figure 8 about here

Designing the 3rd-, 2nd-, and 1st-order sub-functions 1 of balancing management

The critical task of management is to balance the setting and attainment of long-term goals of IB ideation with respective dependencies between an IB ideation unit, offering markets, and resource markets. Typically, management may have to reset these goals many times during the time span in question, e.g. the years 2013-2019. Namely, the 15 dependencies imply that a

major change in any of the four elements will unbalance the states of the related elements. Herein, the 3rd-order multi-competence recreation farsightedness seems to be the most critical competence.

Moreover, the management of an IB ideation unit needs to anticipate future developments not only within targeted offering markets (with clients and competitors) and resource markets (with resource providers and competing acquirers), but also within the five surrounding sectors and therein among other related stakeholders with the help of the 3rd-, 2nd-, and 1st-order balancing management sub-functions 1, respectively.

However, the detailed design of each of these three balancing management sub-functions 1 - the 3rd-order IB ideation foresights generation balancing, the 2nd-order IB ideas crafting balancing, and the 1st-order IB ideas realization balancing – is left outside the scope of this paper.

THE DESIGN OF THE RENEWAL OF THE OUTCOMES OF IB IDEATION (THE RECURSIVE, CROSS-ORDER FUNCTION 2)

Herein, I design the recursive, cross-order Function 2 by defining three assumptions on IB ideation outcomes renewal and designing a 3-step template forward and backward for those IB ideation sub-units that are planning the 3rd-order IB ideation foresights re-generation, the 2nd-order sub-system of IB ideas re-crafting, and the 1st-order sub-system of IB ideas re-realization as the units of renewal, respectively.

Three assumptions on the recursive IB ideation outcomes renewal (Function 2)

I define the *three assumptions on the IB ideation outcomes renewal (Function 2) and its viability* as follows:

1. Along the IB ideation dimension, the viability of the three IB ideation outcomes renewal sub-functions 2 is being ensured by their four core elements and six sub-element types, respectively.
2. Along the outcomes renewal dimension, the viability of the three IB ideation outcomes renewal sub-functions 2 is being ensured when each current 3rd-order foresight is being re-generated, each current 2nd-order IB idea is being re-crafted, and each current 1st-order IB idea is being re-realized real-time when the management of an IB ideation unit foresees or becomes aware of attractive or threatening justification to take such renewal actions.
3. Against infinite regress, the viability of the three IB ideation outcomes renewal sub-functions 2 is being satisfactorily protected when each sub-function 2 accommodates regress forward and backward by the 3-step stopping rules, respectively.

Planning the renewal of the 3rd-, 2nd-, and 1st-order outcomes of IB ideation

I design **Function 2** for the planning of the renewal of the 3rd-, 2nd-, and 1st-order IB ideation outcomes in a form of a process template. The management of an IB ideation unit is *planning the renewal of a critical outcome* through the renewal decisions 1-6, the 3-step, 4-element explanations backward, and the 3-step, 4-element renewal plans forward as follows.

Renewal decision 1. The management decides upon that the planning of the renewal of the current IB ideation outcome will be carried out, triggered by a factor x (that is given).

Renewal decision 2. The management sets the aims and specifies the guidelines for the conduct of the 3-step, 4-element backward explanations, i.e. (i) to explain the development of the offering markets through the past three different states to the current one, including the respective dependencies between the offering markets and the focal IB ideation outcomes, (ii) to explain the degrees of un-/success of a unit's focal IB ideation outcomes through the past three different states to the current one, including the respective dependencies between the outcomes

and the multi-competence, (iii) to explain the levels of a unit's IB ideation multi-competence through the past three different states to the current one, including the respective dependencies between the multi-competence and the resource markets, and (iv) to explain the development of the resource markets through the past three different states to the current one.

Renewal decision 3. The management accepts and the renewal team synthesizes the (i-iv) explanations into the current bases for the focal IB ideation outcomes renewal.

Renewal decision 4. The management sets the aims and specifies the guidelines for the making of the 3-step, 4-element forward renewal plans, i.e. (i) to anticipate the development of the targeted offering markets from the current state through the three different future ones, including the respective dependencies between the offering markets and the focal IB ideation outcomes, (ii) to plan the targeted contents of a unit's focal IB ideation outcomes from the current state through the three different future ones, including the respective dependencies between the focal outcomes and the IB ideation multi-competence, (iii) to plan the required levels of a unit's IB ideation multi-competence from the current state through the three different future ones, including the respective dependencies between the multi-competence and the resource markets, and (iv) to anticipate the development of the resource markets from the current state through the three different future ones.

Renewal decision 5. The management evaluates the (i-iv) plans and the renewal team integrates them into the focal IB ideation outcomes renewal program.

Renewal decision 6. The management approves the focal outcomes renewal program and specifies the guidelines for the re-explaining and the re-planning (or the management disapproves the renewal program and the renewal team re-plans it, or the management may abandon the program altogether).

For example, the management of an IB ideation unit may perceive the critical resource markets-driven change that triggers *the re-generation of the current 3rd-order foresight on IB*

ideation (as of 2013). The respective lengths of the three past steps (-6 => -4 => -2) and the key results of each of the (i-iv) explanations as well as those of the three future steps (e.g. +2 => +4 => +6) and the key contents of the (i-iv) plans are illustrated by mapping them onto a template in Figure 9.

 Insert Figure 9 about here

When aligning with the *fitting* IB ideation (Approach 1), the management of a focal IB ideation unit guides the renewal teams to explain fits and misfits inside and between the (i-iv) elements, gain insights, learn deeper lessons as well as anticipate the extents to which similar states will be faced when the teams will be planning a renewal program and actually renewing focal IB ideation outcomes.

THE DESIGN OF THE RECREATION OF IB IDEATION MULTI-COMPETENCES (THE RECURSIVE, CROSS-ORDER FUNCTION 3)

Herein, I design the recursive, cross-order Function 3 by the definition of three assumptions on IB ideation multi-competences recreation, followed by the design of a 3-step template forward and backward for those IB ideation sub-units that are planning the 3rd-order IB ideation foresights generation multi-competence rebuilding, the 2nd-order IB ideas crafting multi-competence refreshment, and the 1st-order IB ideas realization multi-competence re-vitalization as well as by the design of a 3-step template forward and backward for those IB ideation sub-units that are planning the total or partial recreation of the five cross-order competences for

creation, transformation, upgrading, enhancement, and outcomes production as the respective units of recreation.

Three assumptions on IB ideation multi-competences recreation (Function 3)

I define the *three assumptions on the IB ideation multi-competences recreation (Function 3)* and its viability as follows:

1. Along the IB ideation dimension, the viability of the three IB ideation multi-competences recreation sub-functions 3 is being ensured by the four core elements and the same six sub-element types, respectively.
2. Along the recreation dimension, the viability of the three IB ideation multi-competences recreation sub-functions 3 is being ensured by the five recreation elements as the cross-order competences and the same six sub-element types, respectively.
3. Against infinite regress, the viability of the three IB ideation multi-competences recreation sub-functions 3 is being satisfactorily protected when each sub-function accommodates regress forward and backward by the 3-step stopping rules.

Planning the recreation of the 3rd-, 2nd-, and 1st-order IB ideation multi-competences

I design Function 3 for the planning of the recreation of the 3rd-, 2nd-, and 1st-order IB ideation multi-competences as a whole in a form of a second process template. The management of an IB ideation unit is *planning the recreation of the critical multi-competence* through the recreation decisions 1-6, the 3-step, 4-element explanations, and the 3-step, 4-element plans as follows.

Multi-competence recreation decision 1. The management decides upon that the planning of the recreation of the current IB ideation multi-competence will be carried out, triggered by a factor x (that is given).

Multi-competence recreation decision 2. The management sets the aims and specifies the guidelines for the conduct of the 3-step, 4-element backward explanations, i.e. (i) to explain the development of the offering markets through the three different past states to the current one, including the respective dependencies between the offering markets and the IB ideation outcomes, (ii) to explain the degrees of un-/success of a unit's IB ideation outcomes through the three different past states to the current one, including the respective dependencies between the outcomes and the focal IB ideation multi-competence, (iii) to explain the levels of a unit's focal IB ideation multi-competence through the three different past states to the current one, including the respective dependencies between the focal multi-competence and the resource markets, and (iv) to explain the development of the resource markets through the three different past states to the current one.

Multi-competence recreation decision 3. The management accepts and the recreation team synthesizes the (i-iv) explanations into the current bases for the focal multi-competence recreation.

Multi-competence recreation decision 4. The management sets the aims and specifies the guidelines for the making of the 3-step, 4-element forward recreation plans, i.e. (i) to anticipate the development of the targeted offering markets from the current state through the three different future ones, including the respective dependencies between the offering markets and the IB ideation outcomes, (ii) to plan the targeted contents of a unit's IB ideation outcomes from the current state through the three different future ones, including the respective dependencies between the outcomes and the focal IB ideation multi-competence, (iii) to plan the required levels of a unit's focal IB ideation multi-competence from the current state through the three different future ones, including the respective dependencies between the focal multi-competence and the resource markets, and (iv) to anticipate the development of the resource markets from the current state through the three different future ones.

Multi-competence recreation decision 5. The management evaluates the (i-iv) plans and the recreation team integrates them into the focal multi-competence recreation program.

Multi-competence recreation decision 6. The management approves the focal multi-competence recreation program and specifies the guidelines for the re-explaining and the re-planning (or the management disapproves the program and the recreation team re-plans it, or the management abandons the program altogether).

For example, the management of an IB (ideation) unit may perceive the critical outcomes-driven change that triggers *the refreshment of the 2nd-order IB ideas crafting multi-competence* (as of 2013). The guided, 3-step, 4-element explanations may inform the management that, after the successful creation (Step -6), the focal multi-competence had enabled the crafting of the first set of the IB ideas that had been realized profitably (Step -4), but thereafter the two concurrent changes in the offering markets had caused a need to renew of the past IB idea and, consequently, a push to upgrade the related crafting multi-competence (Step -2). Nevertheless, the management realizes that the upgraded multi-competence is not compatible enough with a need to craft such extended IB ideas that primary clients would value highly within the current and future offering markets (as of 2013). Thus, the management launched the transformation program of the focal crafting multi-competence including the three highly differentiating levels of the multi-competence (Steps +2 => +4 => +6). The phases of this transformation program are illustrated in Figure 10.

 Insert Figure 10 about here

When aligning with the *systemizing IB* ideation (Approach 4), the management of a focal IB ideation unit guides the recreation teams to explain the states inside each of the (i-iv) elements and the pair-wise dependencies, in order to thoroughly understand both the drivers behind the

high effectiveness and the hindrances causing the major interruptions and malfunctions as well as to anticipate the extents to which similar factors will be faced when planning the recreation program and actually recreating the focal IB ideation multi-competence.

Planning the recreation of the five cross-order IB ideation competences

Internally, the IB ideation multi-competence consists of the five recursive, cross-order competences for the creation, transformation, upgrading, enhancement, and outcomes production. I design Function 3 for the planning of the recreation of the 3rd-, 2nd-, and 1st-order IB ideation competences in a form of a third process template. The management of an IB ideation unit is *planning the recreation of a critical competence* through the recreation decisions 1-6, the 3-step, 4-element explanations, and the 3-step, 4-element plans as follows.

Critical competence recreation decision 1. The management decides upon that the planning of the recreation of the current IB ideation competence will be carried out, triggered by a factor x (that is given).

Critical competence recreation decision 2. The management sets the aims and specifies the guidelines for the conduct of the 3-step, 4-element backward explanations, i.e. (i) to explain the development of the offering markets through the three different past states to the current one, including the respective dependencies between the offering markets and the IB ideation outcomes, (ii) to explain the degrees of un-/success of a unit's IB ideation outcomes through the three different past states to the current one, including the respective dependencies between the outcomes and the critical IB ideation competence, (iii) to explain the levels of a unit's critical IB ideation competence through the three different past states to the current one, including the respective dependencies between the critical competence and the resource markets, and (iv) to explain the development of the resource markets through the three different past states to the current one.

Critical competence recreation decision 3. The management accepts and the recreation team synthesizes the (i-iv) explanations into the current bases for the critical competence recreation.

Critical competence recreation decision 4. The management sets the aims and specifies the guidelines for the making of the 3-step, 4-element forward recreation plans, i.e. to anticipate the development of the targeted offering markets from the current state through the three different future ones, including the respective dependencies between the offering markets and the IB ideation outcomes, (ii) to plan the targeted contents of a unit's IB ideation outcomes from the current state through the three different future states, including the respective dependencies between the outcomes and the critical IB ideation competence, (iii) to plan the required levels of a unit's critical IB ideation competence from the current state through the three different future ones, including the respective dependencies between the critical competence and the resource markets, and (iv) to anticipate the development of the resource markets from the current state through the three different future ones.

Critical competence recreation decision 5. The management evaluates the (i-iv) plans and the recreation team integrates them into the critical competence recreation program.

Critical competence recreation decision 6. The management approves the critical competence recreation program and specifies the guidelines for the re-explaining and the re-planning (or the management disapproves the program and the recreation team re-plans it, or the management abandons the program altogether).

For example, the management of an IB (ideation) unit may perceive the resource markets-driven change that triggers *the recreation of the cross-order transformation competence* (as of 2013). The guided, 3-step, 4-element explanations inform the management about the performance, i.e. after the successful creation (Steps -6 -4), the critical competence had been effectively exploited to transform one of the IB ideas realization competences (Step -2), followed by the consequent transformation of the dependent IB ideas crafting competence (as of 2013). At

the same time, the management foresaw that it is highly likely that a breakthrough innovation of one of the leading resource providers will have its radical impacts through all the four elements (by Step +6). Thus, the management chose to kick off the upgrading program of the critical transformation competence (during Steps +2 +4) in order to transform its IB on time (e.g. starting during Step +6). Moreover, the management is preparing a real option that the upgraded transformation competence will be transformed, too, or completely recreated (during the same Step + 6). The phases of this recreation program are illustrated in Figure 11.

 Insert Figure 11 about here

When aligning with the *profit-generating* IB ideation (Approach 3), the management of a focal IB ideation unit guides the critical competence recreation teams to explain both the gained and lost profits, migrated cumulatively (through the three past steps to the current one), to understand the underlying profit patterns embedded within the (i-iv) elements as well as to anticipate the extents to which similar profit patterns will dominate and how this unit itself will successfully exploit one of them. All this will be taken into account while planning the program and actually recreating the critical IB ideation competence in question.

CONCLUSIONS

Herein, I argue that the *contribution* of this design of the three recursive, multi-competence-enabled systems will turn out to be those *three novel pieces* of the applied theoretical knowledge about recursivity and competences that advance the management of IB unit as a whole and in particular that of IB ideation. The three pieces include (i) the four core elements (offering markets, IB ideation outcomes, IB ideation multi-competence, resource markets) and the six sub-

elements, (ii) the multi-competence's five constituents (creation, transformation, upgrading, enhancement, and outcomes production), and (iii) the recursive, cross-order Functions 1-3. Admittedly, the three IB ideation systems fall inside the original scope of Beer's (1985) viability system model.

For future research, I initially *propose* that the IB ideation (unit) is being managed the more successfully within its focal contexts, the more extents the IB ideation is designed as a set of three recursive systems enabled by respective multi-competences. Moreover, the 3-system design may serve as the *frame of reference* for those compatible theorization initiatives vis-à-vis viable IB ideation management that interested competence-based management scholars will conduct in the future.

I put forth the *three templates* (coupled with Functions 2-3) to facilitate the enhancement of the IB ideation practices among leading, innovative firms and especially by the pioneering management of IB (ideation) units.

I will myself continue this on-going system design endeavor by involving the *detailed design and specification* of each of the three systems, i.e. the 3rd-order IB ideation foresights generation system, the 2nd-order IB ideas crafting systems, and the 1st-order IB ideas realization system. I will specify the IB ideation balancing management (Function 1) more completely. I will complement the templates with those decisions and phases that facilitate the management of the realization of IB ideas, too.

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FIGURE 1
Current IB Ideas and a 5-Step Idea-Renewing Forward Regress towards Infinity (an Example)

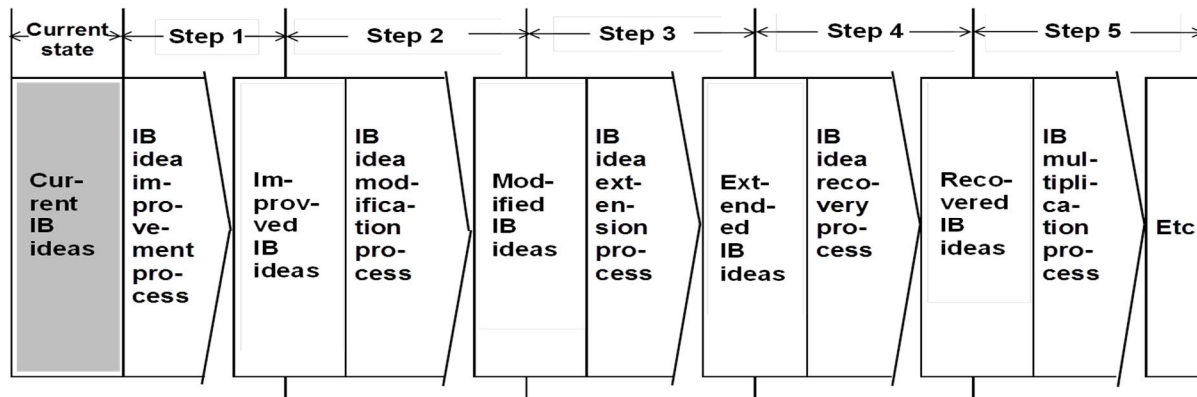


FIGURE 2
Current IB Ideas and a 4-Step Ideation Competence-Assessing Backward
Regress towards Infinity (An Example)

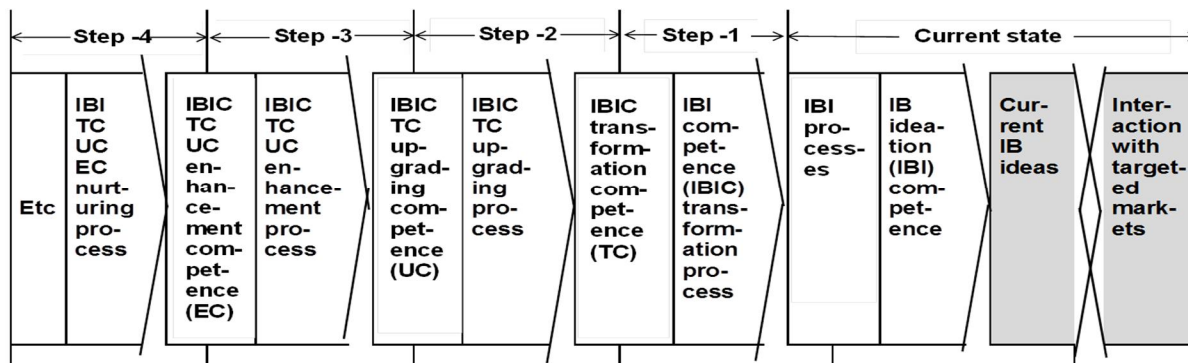


FIGURE 3
Total IB Ideation Problem Defined as Three Recursive Problems (the Left Side)
Coupled Causally with Their Necessary Solutions or Systems (the Right Side)

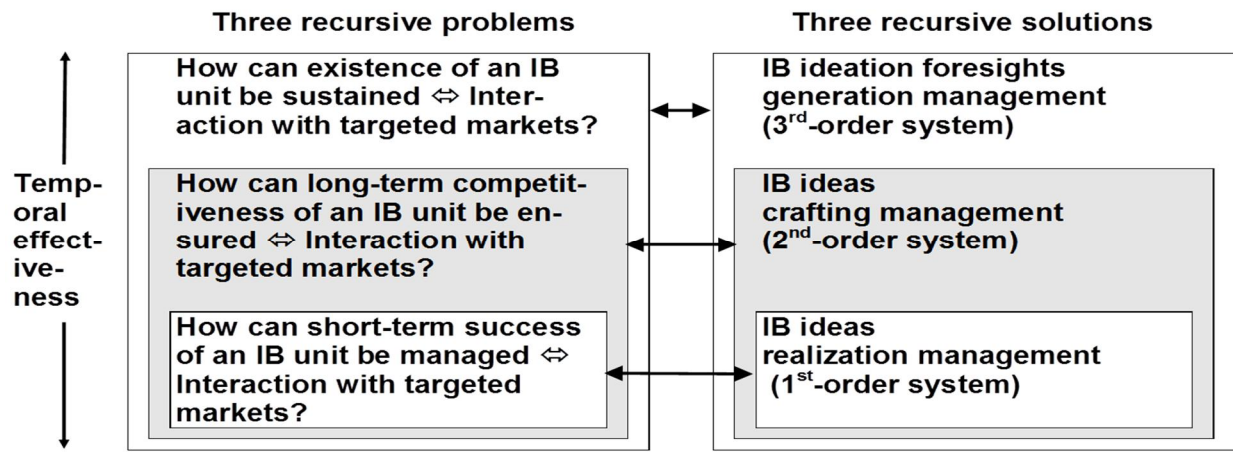


FIGURE 4
Management of IB Ideation of a Unit Conceptualized as Three Recursive, Interrelated Systems along a Temporal Dimension

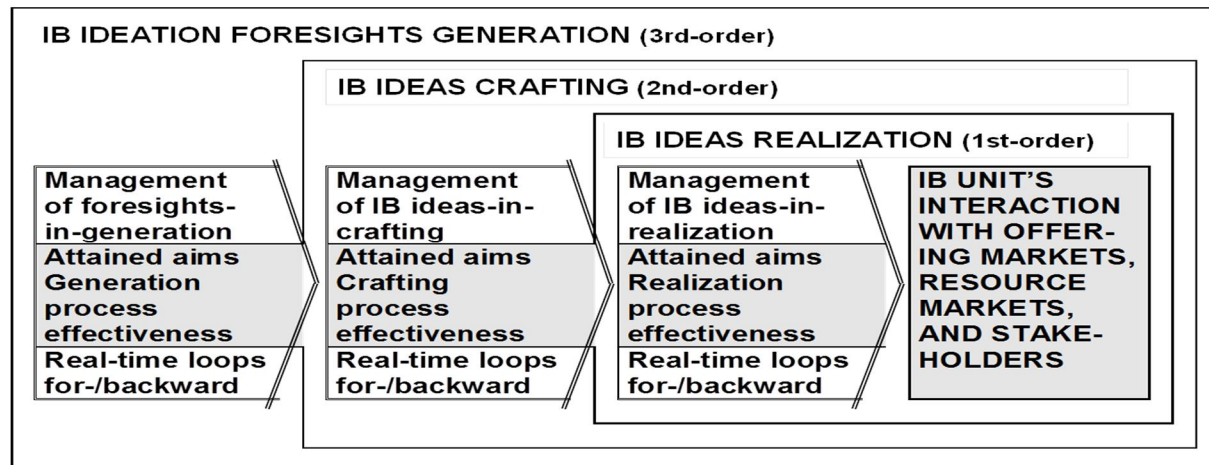


FIGURE 5
Four Systemic Core Elements for Design of Three IB Ideation Systems

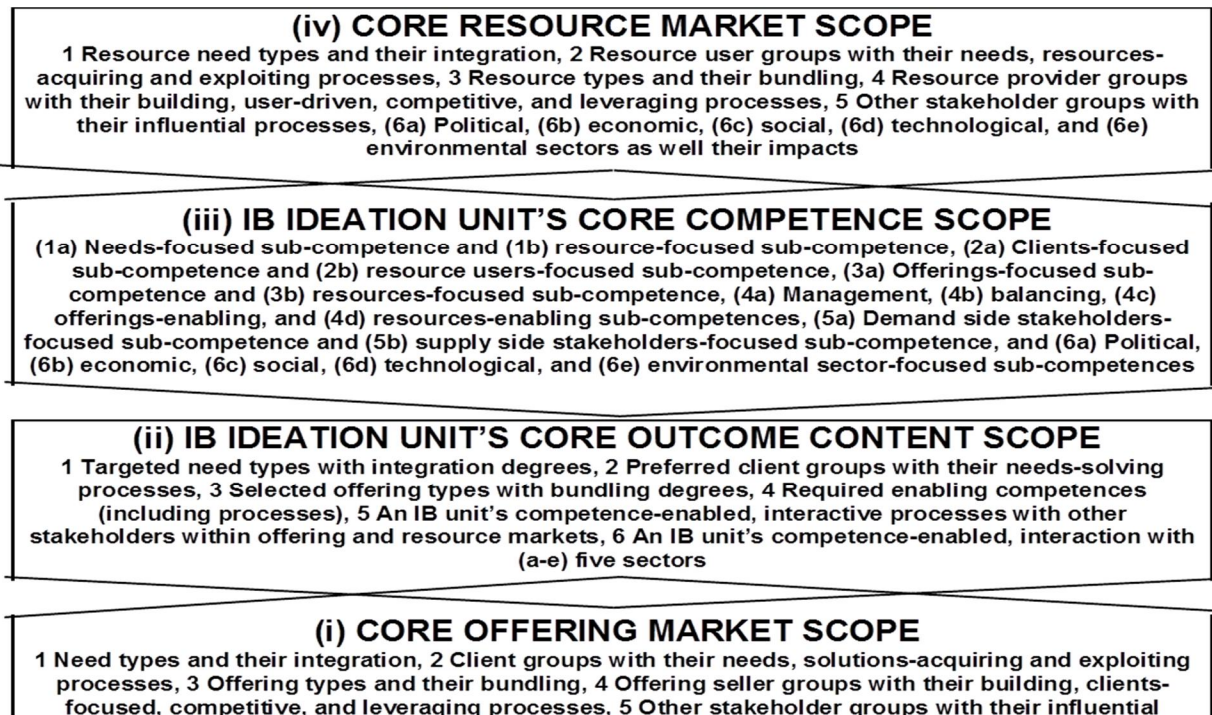


FIGURE 6
Implanting of Recursivity into Four Elements as Part of Designing 3rd-Order, 2nd-Order, and 1st-Order IB Ideation Systems

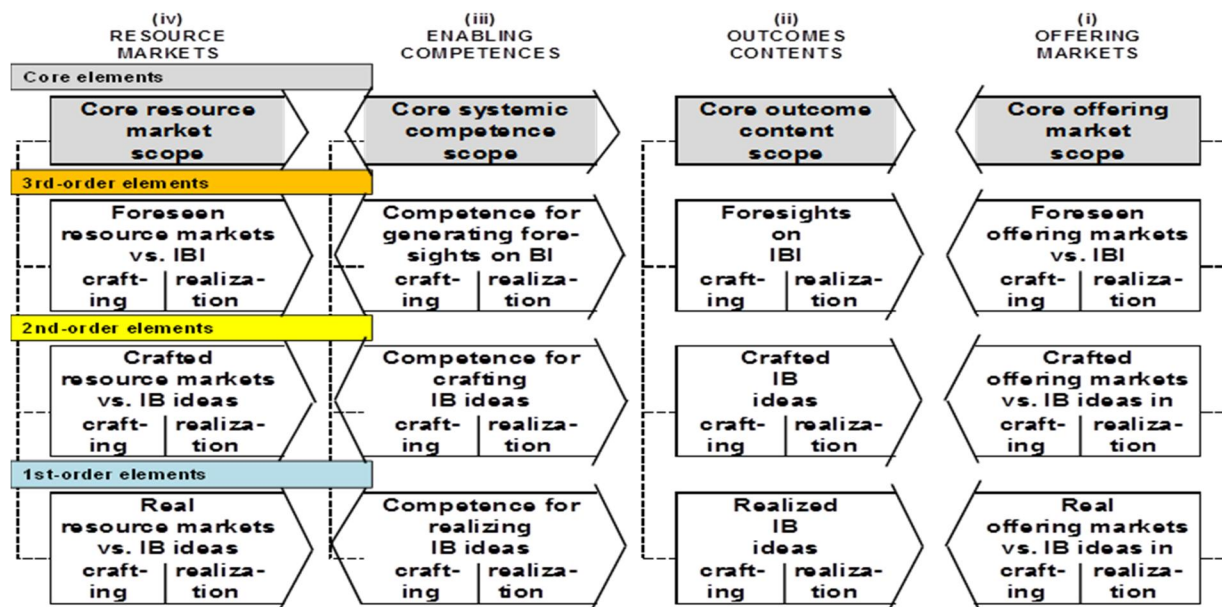


FIGURE 7
Five Competences Fused into a Systemic IB Ideation Multi-Competence



FIGURE 8
Fifteen Temporal Pair-Wise Dependency Types between Four Core IB Ideation Elements
(Key: Arrows Point Out to the Earliest Possible Points in Time When a Dependent Balancing Management Action Can Be Started)

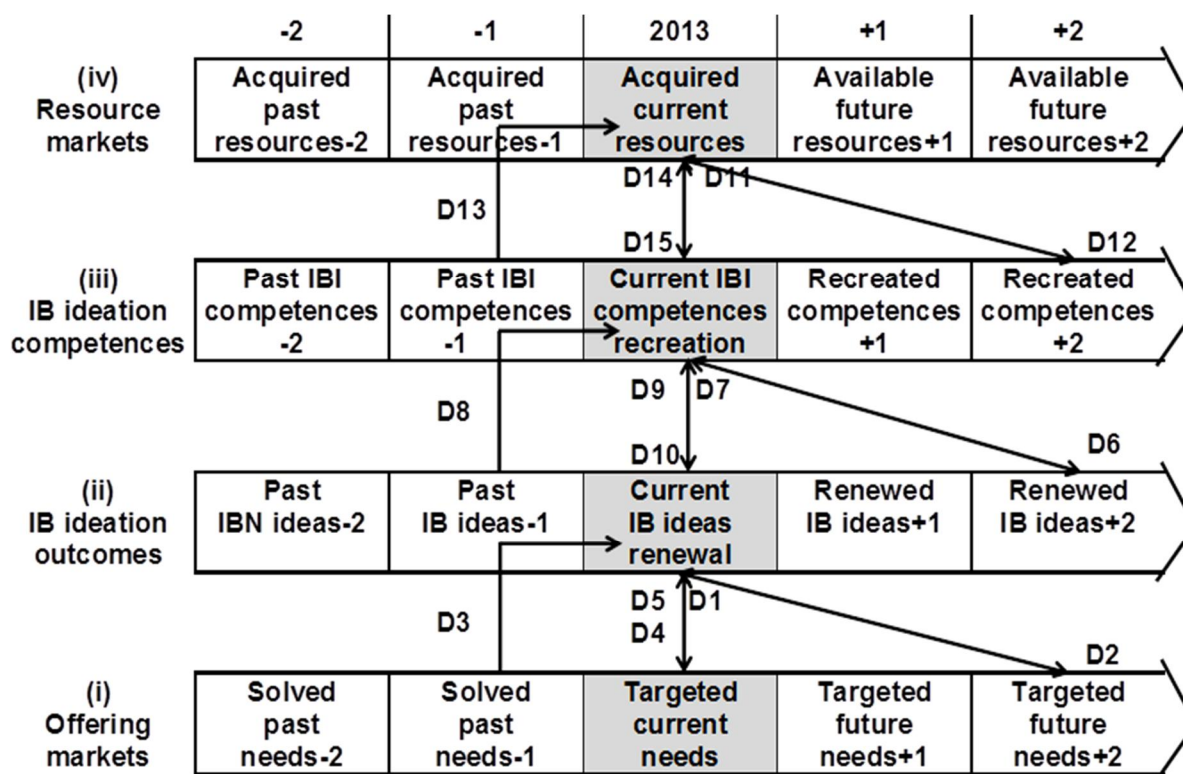


FIGURE 9
First Template for Planning of Renewal of 3rd-, 2nd-, and 1st-Order Outcomes of IB Ideation (Function 2), with an Example of Management Focusing on 3rd-Order Re-Generation of Current Foresight on IB Ideation

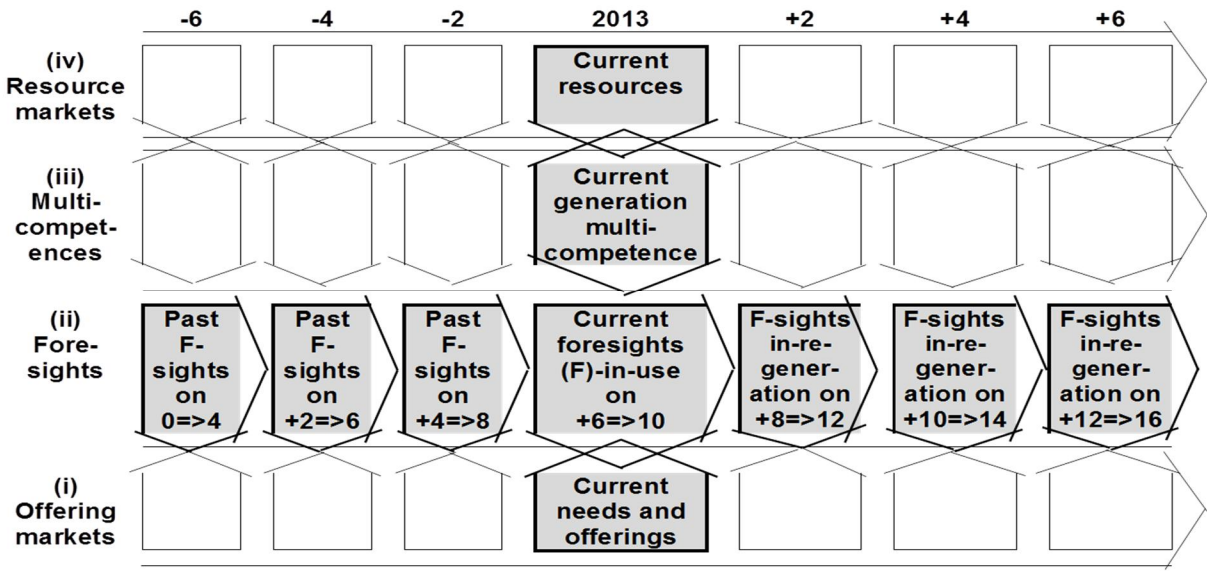


FIGURE 10
Second Template for Planning of Recreation of 3rd-, 2nd-, and 1st-Order IB
Ideation Multi-Competences (Sub-Function 3), with an Example of
Refreshing of 2nd-Order IB Ideas Crafting Multi-Competence

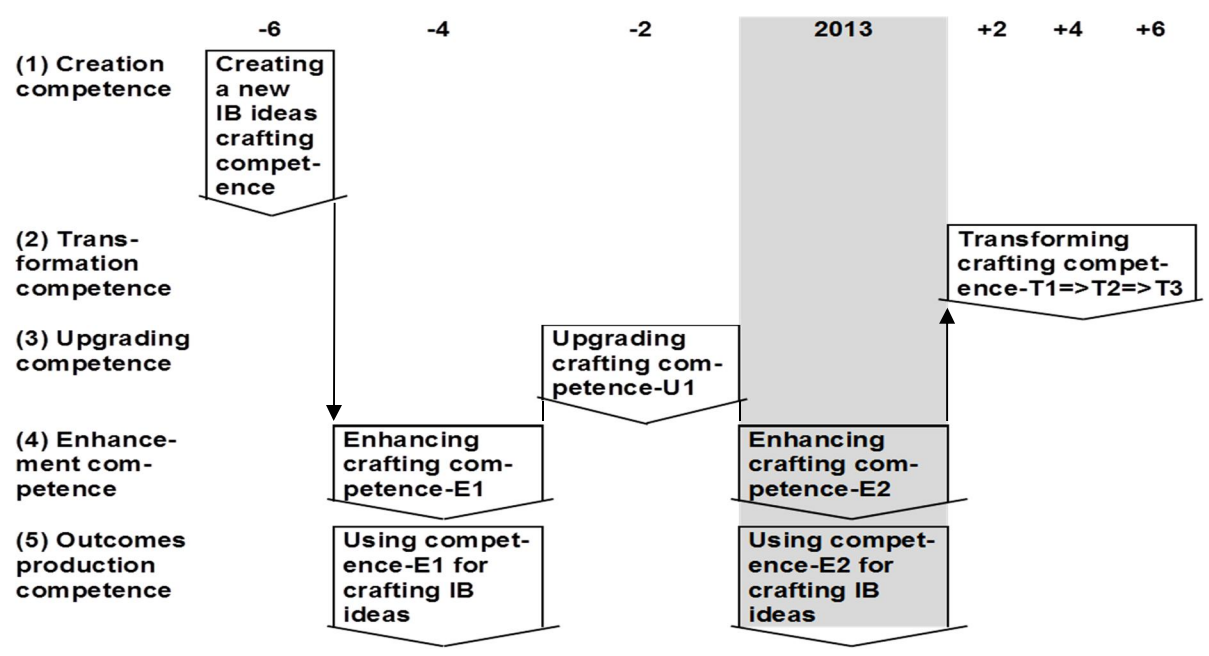


FIGURE 11
Third Template for Planning of Recreation of Five Cross-Order IB Ideation
Competences (Sub-Function 3), with an Example of Recreation of Cross-
Order Transformation Competence

