

**The Global Best Practice in STP Development:  
- Case Study Research for Developing the Next Generation Innovation Hubs**

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***Executive Summary:***

Finnish researchers have conducted extensive best practice studies in leading Asian, American and European innovation environments in 2009-2010 and developed proprietary evaluation/management frameworks for practical ecosystem analysis. The case studies were conducted in seven (7) best practice locations (Asia: Daejeon, Shanghai and Kawasaki; USA: Silicon Valley and North Carolina; Europe: Côte d'Azur and Cambridge) to analyze and evaluate the key characteristics and competitiveness of leading STPs in practice. Each case study includes visualization of a comprehensive ecosystem profile and related analysis of ecosystem's abilities to operate as a global innovation hub. It is argued that the presented results prepare and guide the regional decision makers to address the innovation ecosystem planning and development challenge in more comprehensive, regional settings. The more detailed analysis of each presented case can be found in business publication called: Hubconcepts™ - the Global Best Practice for Managing the Innovation Ecosystems and Hubs.

***1. Research Setting, Framework and Models***

***Case Study Setting***

It is argued that studying and analyzing the competing innovation ecosystems can reveal some common characteristics and universal nominators to explain their success and/or demise. The scholars and practitioners alike believe that benchmarking and analytical reconstruction of local success models can help them to identify the critical success factors for developing effective, functional and attractive environments for shared innovation creation. It is possible to study the key building blocks and core management processes of the chosen best practice environments and, then, interpret their qualities in given local contexts. If and when done properly, the analysis could reveal a formula for replication and speed up the development of the next generation environments - not necessarily directly copying and transferring the results *as is* to distant cultural contexts, but rather like imitating the proven functional behavior as a common baseline action for quality results. Consequently, the studies go on and quality evaluations are always in high demand.

There is a rising, explicit need to understand the regional innovation ecosystems as complete interconnected systems, which could and should be managed for 'optimized' socio-economic outcomes in '*glocal*' context. These generic notions for mutual complementarities, systemic interconnections and cross-domain management challenge call for comprehensive ecosystem-level analysis and further development of related models, frameworks and practical tools for analyses. Unfortunately, the research tradition and conduct with such complex settings are rather thin in the field of management studies and published material on comprehensive analyses is quite rare (due to various financial, accessibility and confidentiality reasons). Consequently, it was seen important to initiate this study and start filling in the identified gaps in ecosystem-level research tradition.

Over the last 10 years, the authors have visited over 200 STPs, incubation centers and innovation clusters all over the world, consulted foreign governments and park management in over 20 countries, and engaged in practice in numerous planning, development and implementation processes of STPs and innovation centers both in Europe and Asia. Based on these benchmark visits and business engagements, the authors were able to identify gradually emerging, common patterns of behavior, discover critical sub-sets of core structural elements for enhanced, joint innovation outcomes, and unveil the systemic nature of interconnections between actors, actions and collaborative processes. As the work progressed, the authors began to develop and refine an original framework for innovation ecosystem development and a related, analytical approach to the practice of the innovation hub management. These frameworks, models and analytical approach were tested in the field, finally, in 2009-2010, on seven (7), globally recognized best practice sites.

The best practice case studies presented here include a comprehensive local innovation hub/ecosystem analysis (boundaries, scale, local conditions, operations and management) based on extensive written material analysis and in-depth interviews with core actors in each location. The practical research conduct was operationalized through three key research questions, which were articulated as follows:

1. What are the identifiable key ecosystem elements (actors/structures, in history/now) describing the present configuration of a particular regional innovation ecosystem?
  2. How well this configuration meets the systemic collaboration criteria (of the Innovation Hub Framework) and local needs for the continuous, orchestrated ecosystem development?
  3. Based on the answers above: How can we best characterize each case as an advanced innovation ecosystem with respect to its potential and ability to participate in global collaboration?
- The collected data was set in comparative analysis framework to benchmark and position the pilot cases in broader global development context.

#### *The Innovation Hub Framework*

The study was operationalized using the Hubconcepts™ Innovation Hub Framework, which illustrates the key regional innovation ecosystem elements that are necessary for building up a successful regional innovation hub (see figure 1 below). It is noted that each element (layer or driver) represents a significant development task of its own, but only in combination can they produce the true ecosystem which can rise to the globalization challenge and take its place in the value network context. Accordingly, the core management organizations should be able to plan, organize, manage and develop further the regional ecosystem as a complete set of interconnected elements where interplay and complementarities between the layers gives the ecosystem its soul and strength.

It is argued that the developed Innovation Hub Framework (with its firm theoretical foundations and advanced extensions) is an appropriate tool to analyze regional innovation ecosystems. The framework describes thoroughly the core elements (layers) needed for systemic ecosystem development and defines their key characteristics in advancing the globalization of ecosystems. It is considered useful in guiding and framing the related discussions of regional innovation policies, collaborative actions for joint IP creation and coordination of the local management processes.

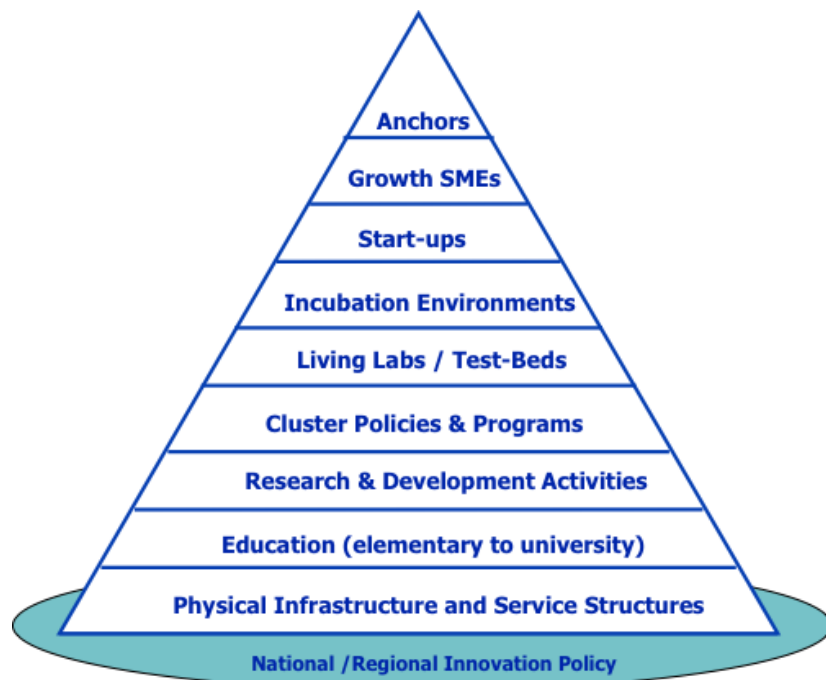


Figure 1. The Innovation Hub Framework as basis for the ecosystem profile

The case studies, presented, analyze the overall maturity and key characteristics of the leading innovation environments against the Innovation Hub Framework, resulting in an overall ecosystem profile. In practice the study was conducted as follows. The individual outcomes were recorded and then, compared against an ideal, fully-developed, best practice layer - case-by-case, layer-by-layer, - and given a numerical value (percentage 0-100), which would indicate its level of maturity in global ecosystem comparisons (the higher the numerical value would be, the more advanced the individual layer would appear to be). The use of numerical values was chosen to give each layer a concrete measure to illustrate its present state and potential, and to make it easier to summarize the findings in a powerful and concrete way.

The individual layer analyses were, finally, matched against the whole Innovation Hub Framework to draw a comprehensive ecosystem profile (case-by-case), which would approximate to the overall ecosystem maturity and highlight the key gaps in the present state of the ecosystem in question. The profile summarizes the systemic analysis and portrays a graphic representation of ecosystems' current state of development against global benchmarks. In some cases, these profiles can even reveal the underlying characteristics of local development strategies and guide the next generation ecosystem planners in their efforts to identify the right path to the future. It is argued, therefore, that the ecosystem profiles can be used effectively in comparing the best practice environments and identifying the local development needs for systemic actions.

#### *The globalization ability model*

Each case study was summarized also, in the end, using a combination of three parallel continuums, which collectively quantify each ecosystem's capacity and readiness for meeting the globalization challenge (see figure 2 below). It is argued that the future success of regional ecosystems is strongly related to their ability to link local strengths to emerging global opportunities and to their readiness to engage in truly global value network collaboration with other first-class environments. The best ecosystems could serve as interconnected innovation creation and market-entry hubs providing a platform for market specific product and service localizations as well as a route to local markets. Accordingly, it was of utmost importance to estimate and assess ecosystems' capabilities in related terms.

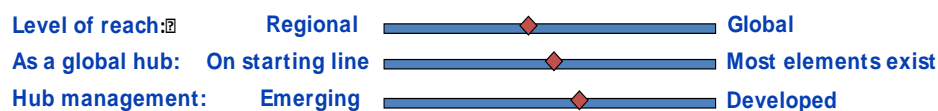


Figure 2. Ecosystem development continuums

It is argued that the presented results could be used as practical guidelines for charting and evaluating the local ecosystem development elements and practices, especially in new, emerging ecosystems which look for effective ways to transfer the global best practices into immediate local use. The authors are confident that readers can identify and analyze the key success factors from individual case presentations and, consequently, position themselves appropriately on ecosystem development continuums to meet the future, global challenge.

The case analysis and results could, then, be used as basis for generating the practical guidelines for each case location and help them in choosing their individual management approach for future development - in generating a practical roadmap and implementation plan for the next steps. These guidelines are combinations of comprehensive analysis of the present local conditions in varying locations and modifications of applicable best practice management approach for the desired impact. They include the necessary conceptual models, know-how and process management support to the future development and guide the implementation in practice (training, coaching and management support).

## **2. The Selected Case Studies**

The selected case studies present ecosystem-level analyses of seven (7) globally renowned innovation hubs from the three major innovation continents of Asia, Northern America and Europe, profiling their overall maturity and key characteristics as leading innovation environments. The Asian cases include innovation ecosystems from South Korea (Daedeok Innopolis/Daejeon), China (Zhangjiang Hi-Tech Park/Shanghai) and Japan (Kanagawa Science Park/Kawasaki), while the American cases are selected from both West (Silicon Valley/California) and East Coasts (Research Triangle Park/North Carolina) of the USA. The European case sites come from France (Sophia Antipolis/Côte d'Azur) and the UK (Cambridge).

Each case is built on thorough analysis of: key actors, service structures, mechanisms for horizontal collaboration and their interplay in breeding innovation. These generic data and outlines are then combined in a comprehensive analysis of the co-existence of the ecosystem elements, and summarized in a graphic ecosystem profile, approximating to the overall ecosystem maturity and highlighting the key gaps in the present state of the ecosystem in question (see figure 3 next page). It is argued that in most cases, these profiles can even reveal the underlying characteristics of local development strategies and guide the next generation ecosystem planners in their efforts to identify the right path to the future.

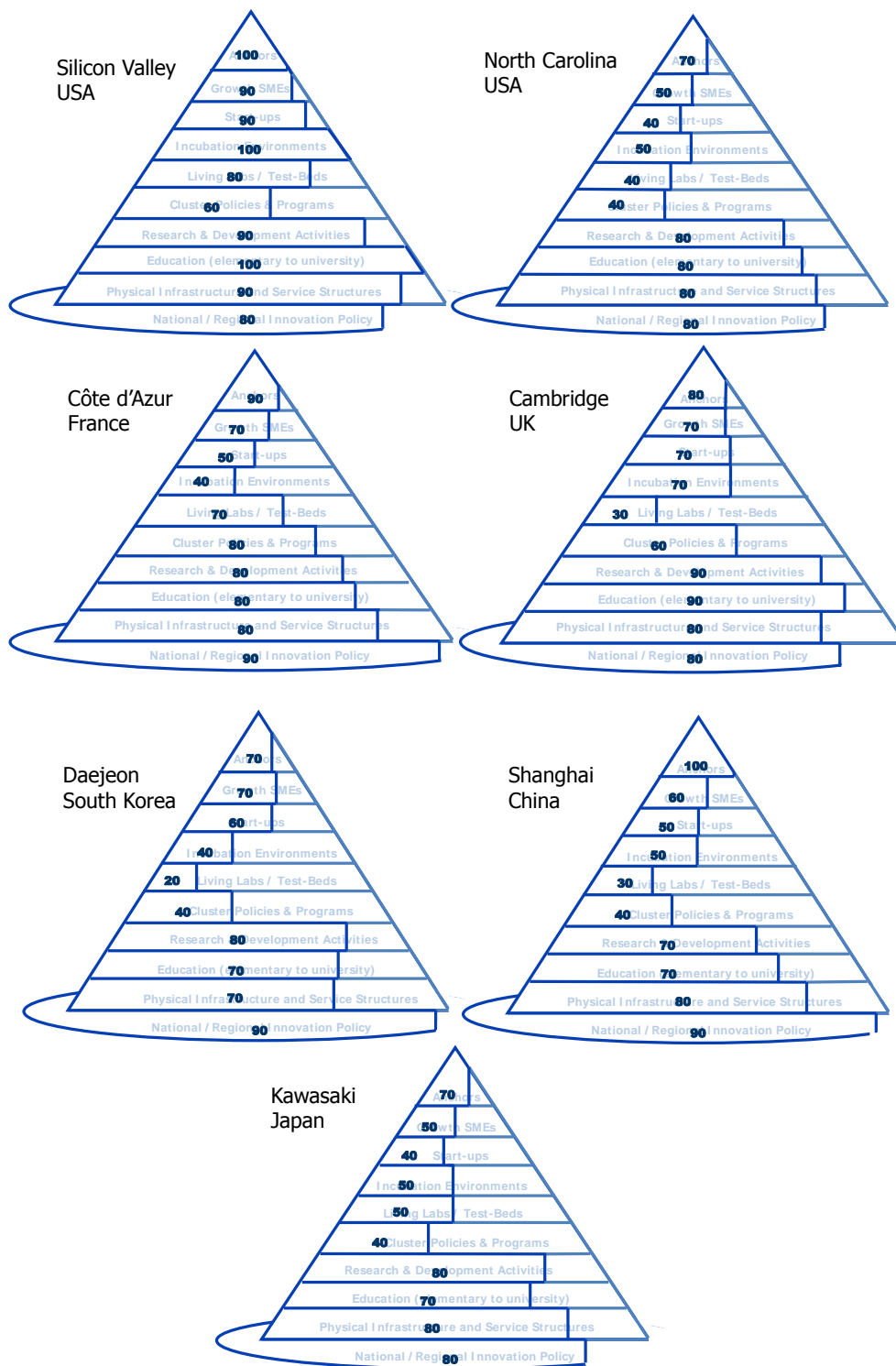


Figure 3. The selected ecosystem profiles

As can be seen, the selected ecosystem profiles vary notably even in these most advanced cases, which indicates that successful innovation processes can be built on various alternative strategies and approaches. In most cases, the foundations are in good order: right policies are in place, infra- and service structures well-developed and public policy-driven education/R&D systems in good order. Similarly, anchor companies are identified and aligned to the overall ecosystem targets, and some basic structures have emerged for supporting collaboration in the middle-layers. However, most environments seem to struggle with practical SME support (excluding Silicon Valley) and development of the more advanced mechanisms for truly interconnected public-private partnerships (most developed in European context).

It is argued that the most ecosystems need more advanced structures for active orchestration of the cross-sectorial collaboration and matching the parallel public-private interests in more dynamic way. Many ecosystems have a compelling profile and good conceptual strategy, but remain rather modest in their true abilities to combine the necessary collaborative structures to support practical implementation. Many have been able to take the first steps based on ample pools of local resources, actors and talent, but lack the ability to follow through the whole process and achieve the ultimate, practical results.

The case sites also vary a lot in their preparedness for truly global engagements. As can be seen in the following ecosystem development continuums (see figure 4 below), all the selected ecosystems are regionally and nationally important, but only some of them have been able to rise to meet the truly global relevance (Silicon Valley, Sophia Antipolis, Cambridge and Shanghai). The variance is even more significant in their ability to actively engage in global collaboration and serve the global markets (research, business and societies) as dynamos of growth and innovation (Silicon Valley and Sophia Antipolis).

There are some common characteristics and factors (e.g. maturity, culture, language, geo-global position and others) that explain these outcomes in part, but it is argued that there is one common denominator, which explains the majority of the differentiating outcomes: the management know-how and approach. After all, designing future success is highly contingent on qualities of joint coordinated efforts and clear, shared focus on win-win, collaborative arrangements for inter-connected innovation processes. In this arena, the human factors, and especially the role of the chosen management approach, builds the foundation for all shared communication, processes and actions.

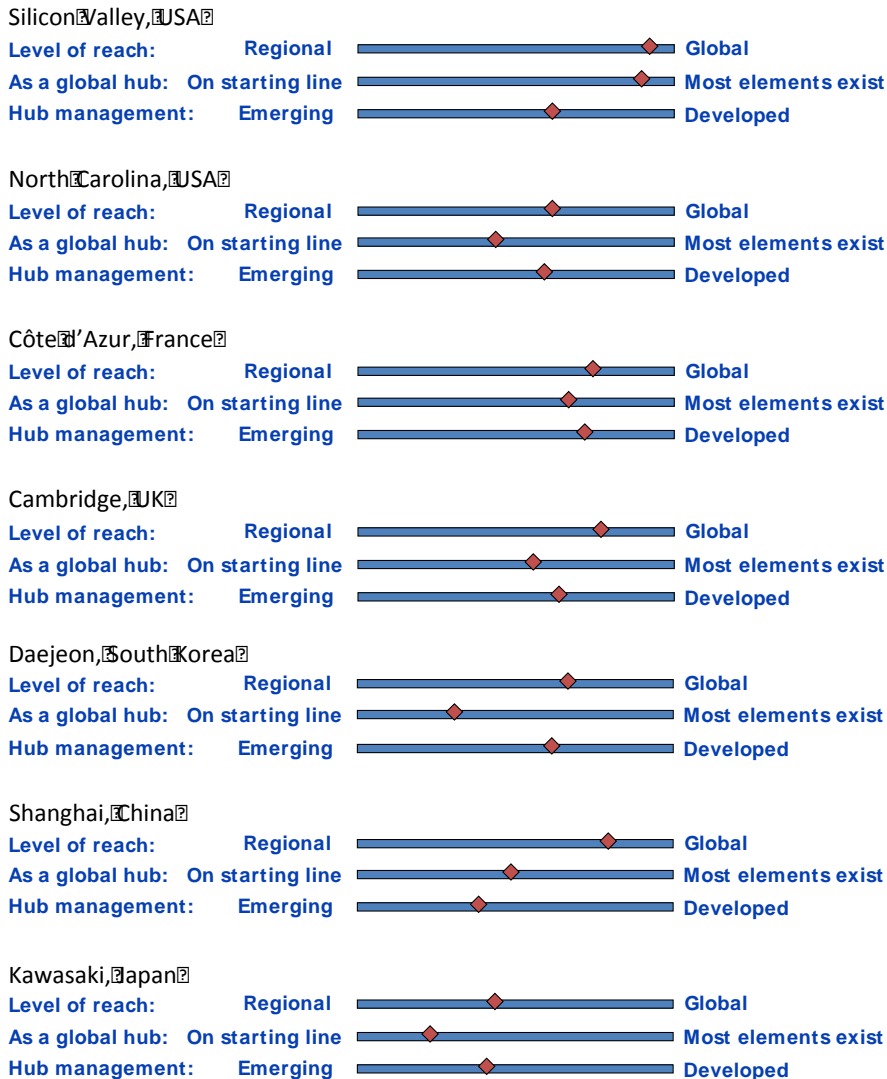


Figure 4. The selected ecosystem development continuums

### **3. Analysis and Conclusions**

Based on extensive studies and analyses on regional innovation environments, a preferred development path for the progressive growth of an innovation ecosystem goes as follows. First, the regional developers identify some common elements for innovation activities within their region and decide to launch a process to formalize the necessary relationships between the key stakeholder groups for a shared innovation future. The basic municipal, research and techno-park infrastructure decisions are made and the key institutions for coordinating the common development processes are established. Then, the ecosystem starts to attract its first lead-users to engage in joint development programs and relocate their home bases into the key premises to build up the momentum for mutual innovation activities. Finally, the anchor companies follow suit and integrate the common ecosystem elements into their core R&D and innovation processes (and vice versa), boosting the dynamic co-creation capacity of the ecosystem and linking the local actors to broader value systems and networks. This creates a natural foundation for mutually beneficial sub-contracting relationships, which, in turn, begins to attract SMEs and ventures to participate in the joint innovation and business activities. Gradually, the ecosystem reaches its natural, self-sustaining critical mass for accelerated expansion, and the rest is history.

However, in reality, this process is hardly ever this straightforward, as it is extremely difficult to align all the necessary building blocks (framework elements and related processes) to support the unified ecosystem development. Many ecosystems have a compelling profile and drafted conceptual strategy for all the above to take place, but remain rather modest in their true abilities to combine the necessary collaborative structures to support practical implementation. Many have been able to take the first steps based on ample pools of local resources, actors and talent, but lack the ability to follow through the whole process and achieve the ultimate, practical results. After all, designing future success is highly contingent on qualities of joint coordinated efforts and clear, shared focus on win-win, collaborative arrangements for interconnected innovation processes.

As the conceptual best practice plans and their translation into common, functional practices seem to remain rather far apart, the authors have begun to advocate for deliberate adoption of a comprehensive ecosystem development approach to boost real life regional innovation creation capacity. This approach is built on four principal elements: adoption of systemic ecosystem-level master plans, use of empowered core hub organizations, management of advanced public-private partnerships and extensions of strategic alliances, all of which are addressed in brief below.

#### *Adoption of systemic ecosystem-level master plans*

First, it is strongly advocated that regional decision makers should begin to address the innovation ecosystem development challenge in a more holistic manner and start systematic ecosystem-level development processes in close collaboration with key private sector actors. It is recommended that regional actors start a systemic regional master planning process, where all related ecosystem elements are addressed concurrently. This process should embrace an extensive dialogue between the key parties to identify real potential for mutually beneficial practices and their interpretation in practice for setting up an attractive environment for accomplishing long-term innovation creation targets. The master plans should include guidelines and criteria for developing the basic municipal infrastructure (connectivity, transportation, energy, zoning, sewerage etc.), the institutional structures (educational facilities, research facilities, incubation centers, joint development platforms, living labs, co-creation environments etc.) and solutions for true virtual connectivity (Internet/ broadband access, telecommunication networks, information systems platforms etc.). It should be noted that these plans must also include the 'softer' ecosystem elements (comprehensive service structures, facilitating mechanisms, coordination functions etc.) to address the parallel ease of use and functionality concerns, which have a direct impact on potential, shared, ecosystem-level activities and ultimate results.

The practical innovation ecosystem planning and management challenge is in combining the parallel interests of the company driven, the public sector driven and the public-private partnership driven innovation processes. All key decision makers in both the public and private sectors must be brought together to design a shared future vision for regional development in a wider global context. These key parties should, then, agree on their reciprocal roles and responsibilities in implementing that shared vision and the related, joint policy and targets for necessary investments. It is argued that Case Shanghai (Zhangjiang Hi-Tech Park, Pudong) and Case East Coast USA (The Research Triangle Park, North Carolina) are the most representative cases applying this approach in practice, and consequently, have been able to accelerate their respective ecosystem development processes to meet the tough globalization challenge and create complete, locally optimized value systems for swiftly globalizing industry clusters.

### *Use of empowered core hub organizations*

Second, it is highly recommended that a separate regional management organization (a hub core) would be established to take over the key responsibilities to facilitate, direct and manage the local collaborative processes. It is advocated that the core hub organization should be given overall responsibility for the key management functions in ecosystem-level coordination, program planning and management, value network development and maintenance, and securing and upgrading the required human resource (HR) pool for global engagements. In doing so, the hub management team could support the other members of the ecosystem in their drive for joint innovation activities and extensive, mutually reciprocal collaboration. It is argued that the core hub organization is needed for channeling the inter-organizational information and resource flows and patching up the possible, systemic gaps in related innovation creation processes.

It is argued that Case France (Sophia Antipolis), Case United Kingdom (Cambridge) and Case South-Korea (Daedeok Innopolis, Daejeon City) are the most representative cases applying this approach in practice, and consequently, have been able to bring the majority of local actors within a common institutional framework/setting for a truly functional, shared innovation creation process. This is especially true in the case of Côte d'Azur, France, where the local collaborative mechanisms and organizational structures were totally reorganized in 2008, and seem to be working for everyone's benefit, improving the dynamism of the overall Sophia Antipolis/Côte d'Azur ecosystem in an unprecedented way.

### *Management of advanced public-private partnerships*

Third, it is argued that, in most ecosystems, the toughest development challenges seem to be related to the orchestrated, mutually beneficial matching of varying stakeholder interests around the middle layers of the framework. The public investments and services are put in place to induce and advance regional collaboration for the common good and to improve the effective use of specific, combinatory talent and resources throughout the ecosystem (for IPR generation and commercialization), while private interests seek for proprietary competitive advantages and better odds for improved business profitability. On the other hand, it is common that both parties openly acknowledge the potential benefits of coordinated actions and, consequently, seek for partnerships across domains. These practical realities call for a concerted approach in managing the public-private partnerships.

Subsequently, it is highly recommended that ecosystem developers put extra effort into planning and implementing advanced mechanisms for regional networking, communication and joint activities. This translates into setting up open forums for facilitated meetings, planning for flexible service structures for first-class intermediary support (KIBS providers, transfer offices, incubators etc.) and launching open platforms for coordinated actions (co-creation environments, living labs, business labs etc.). These common sites bring together local actors to learn from each other, to exchange specialized information on particular topics, and to set up mutually complementing value systems for practical business endeavor. It should be noted that the authors also advocate coordinated efforts for joint business platform creation as they provide the right set up and incentives for private business participation. These platforms can be especially beneficial for SMEs, which have limited resources to engage in broader, value system level development processes on their own.

In most advanced cases, these partnerships can lead to a completely new system integration business model, where resident anchor companies (or similarly active lead actors) and their networking partners decide to reorganize the entire value system from within and build an intra-ecosystem, integrated business model. In this case, specialized actors will integrate their core competencies on common platforms for aggregated product/service/solution provision, and cluster for credibility, impact and reach. The partnership can offer all involved maximized intra-ecosystem added value and, if managed properly, higher return on investments (public or private).

It is argued that Case West Coast USA (Silicon Valley, California), Case France (Sophia Antipolis) and Case United Kingdom (Cambridge) are the most representative cases applying this approach in practice. In the USA, these advanced partnerships are often managed by private venture capitalists who specialize in orchestrating value system efficiencies - for the highest possible added value and maximized profits. As a result, Silicon Valley has become world-renowned for its ability to create world-class business platforms (especially in the ICT sector), which often determine the status and success of complete industrial clusters. In case of France and the UK, the focus has been more on orchestrated coordination of multi-disciplinary collaboration and advanced technology partnerships, which have led to better optimized, industry-specific support schemes and improved collaborative processes.

### *Extensions of strategic alliances*

Fourth, it is argued that inter-ecosystem collaboration has huge potential in leveraging specialized regional advantages across broader national or global settings. The resident technology and industry portfolios can be complemented across allying networks to improve commercialization options and to build up comprehensive service provision for broader markets. This helps minimize the impact of associated specialization and diversification trade-offs that each ecosystem has to face in determining its focal development areas and key promotional sales points. Moreover, ecosystems can complement each other's competence areas improving prospects for productive knowledge combinations. They can expand outwards, rotating human resources with partnering ecosystems, and support the national and global operations of growth companies through strategic alliances.

At the same time, independent ecosystems can aim at filling in their own competence gaps through alliances, introducing external talent to the local system. This can be done with direct knowledge acquisition, hiring global experts to the key roles within the system, and/or engaging in the active outsourcing of product, process and service know-how. In either case, the local innovation ecosystem will grow stronger and improve its attractiveness to external parties as an active network developer in broader contexts.

It is also rather self-evident that some ecosystems cannot reach global benchmark levels on their own. Therefore, it is advisable to connect the internationally recognized, front-runner ecosystems to the up-and-coming challengers and plan joint programs to embrace both the ecosystem-to-ecosystem linkages and intense global collaboration. In this way, aspiring regions could capitalize on their proprietary resources and talent while developing virtuous global relationships. Later on, these gradually emerging networks could be transformed into global alliances of like-minded ecosystems with shared vision, joint practices and complementing service structures. The future collaboration could include development of open co-creation environments, reciprocal incubation platforms and/or associated programs (adjusted to particular cultural contexts).

It is argued that Case West Coast USA (Silicon Valley, California), Case Shanghai (Zhangjiang Hi-Tech Park, Pudong) and Case France (Sophia Antipolis) are the most representative cases applying this approach in practice, and consequently, enjoy the gradually aggregating benefits of complementing ecosystem dynamism. Strong strategic alliances with multiple overseas actors work for their benefit in improving regional capacities for knowledge transfer and providing access to expanding global markets.

### **4. Final thoughts**

The authors of this paper have published also a book (Hubconcepts™ - the Global Best Practice for Managing the Innovation Ecosystems and Hubs) for describing and interpreting in detail the systemic interplay of the common characteristics of successful innovation ecosystems and hubs around the world. It is boldly argued that the frameworks, case studies and ultimate results presented here (and in the book) render, in combination, a fully integrated framework that defines a novel, holistic approach to developing future innovation ecosystems, as well as the related organizational processes necessary to achieve the best possible innovation outcomes. In this way, the presented material guides the decision makers to approach the task of innovation ecosystem development in the most comprehensive development context possible.

Finally, it is argued that the presented analyses and conclusions demonstrate that although the task of building and maintaining a truly global innovation network requires skilled and thoughtful planning, and competent and visionary management of a sizeable number of moving pieces, the task is not hopeless; on the contrary, the meticulous research, analyses and results show that this task can in fact be broken down into a definite and manageable framework. With foresight, careful planning and a professional management approach, each and every individual regional hub has the potential to succeed and excel in the modern day world.

Now, it is time to "roll up our sleeves", start putting shared brilliant ideas into practice and engage in a truly open-minded transformation process. We believe that the new beginnings of the next generation ecosystem development are at hand.