Regional Agenda

Collaborative Innovation
Transforming Business, Driving Growth

August 2015
This report seeks to support European competitiveness and growth by addressing the challenges that both young, dynamic firms and established businesses face when they seek to collaborate with one another to commercialize innovative products, services, processes and business models. It suggests firm-level strategies and opportunities for public-private cooperation to increase the success rate and impact of such collaborations.

This particular form of “collaborative innovation” – where a young firm and an established firm share complementary resources and combine efforts to support innovative ideas – can create significant value for both parties as well as for the economies in which such collaborations take place. Given the urgent need for economic growth in Europe and the challenges faced by innovative European entrepreneurs who seek to scale across fragmented markets characterized by limited access to venture financing, the potential of these partnerships to contribute to innovation and growth is particularly high for European firms and countries.

Based on more than 140 structured interviews and 20 multistakeholder workshops involving more than 450 participants, this report highlights the main challenges faced by young and established firms when they seek to collaborate, and discusses leading practices and strategies employed by both firms and policy-makers to improve the success rate of such collaborations. Although every partnership is unique and varies according to the specific goal, characteristics of the different firms and the market context, this research reveals a number of important challenges which are similar across geographies, sectors and industries and which can be managed by stakeholders across business and government.

These common challenges and suggested response strategies for firms can be grouped into three “layers”—Prepare, Partner and Pioneer. World Economic Forum research suggests that often the most significant challenge and the greatest positive impact springs from how well firms prepare to collaborate: having well-defined objectives, a carefully-designed business case, suitable organizational processes. A supportive culture and links to relevant networks are important predictors of success, yet are commonly underappreciated by both young and large firms.

While many of the strategies discussed here can be executed by firms themselves, policy-makers and public-sector champions can support collaborative innovation via three categories of activities that go well beyond the traditional policy levers of regulation and subsidies—Empower, Educate and Enable. For example, political leaders play important roles in empowering and even linking firms looking to collaborate; in educating firms and individuals and helping provide the capabilities required to partner well; and in directly enabling collaborations through supportive regulation and relevant infrastructure investments.

Accordingly, the first section of this report discusses the relevance and benefits of collaborative innovation, with a particular focus on its value to European economies. The second section presents a range of firm-level challenges and strategies that can be employed by both young and established enterprises and highlights a number of examples. The third section provides perspectives from European policy-makers who are championing approaches to collaborative innovation and the fourth section concludes and provides reflections on the future of collaborative innovation.

Both this research and the academic literature indicate significant benefits of increasing the number and quality of cross-firm and cross-sector collaborations aimed at novel products, processes, services and business models, as well as a range of concrete, low-cost steps that firms can take to improve their probability of success. European entrepreneurs, firms and policy-makers all have the incentive and opportunity to benefit from collaborative innovation, in turn supporting the scaling up of young firms, the innovative output of established firms, and the competitiveness of European economies.
Section 1
The Value of Collaborative Innovation
Innovation as a Driver of Growth

Innovation – defined in this report as the successful commercialization of novel ideas, including products, services, processes and business models – is a critical component of economic growth. Across Europe, the importance of innovation as a driver of growth and competitiveness has and will continue to increase, thanks to the slow rate of population growth in the region, diminishing returns on additional capital investment and increasing competition from other regions.

Innovation drives growth in two connected and complementary ways: by introducing new or improved products or services that tap into existing or latent demand in the market, thereby creating additional value for firms and consumers; and by increasing the productivity of firms employing such innovations.

In Europe’s relatively mature economies, incremental improvements to products and services – what disruptive innovation expert Clayton Christensen terms “sustaining innovations” – enable firms to maintain global relevance in existing market segments. They do not generate significantly more value or enable companies to compete with entirely new offerings or business models. Collaborative innovation can, however, foster new growth through new products and non-market considerations that enable the evolution of entire systems – what Christensen refers to as “market-creating innovations.”

Europe’s competitiveness and innovation challenges

The European Union (EU) includes six of the 10 most innovative economies in the world, but also many countries that urgently and significantly need to improve their innovation capability (see Figure 1).

Europe as a region varies greatly in terms of both competitiveness and innovation. The large differences between European countries are driven by factors such as the number and quality of linkages between firms and entrepreneurial ventures, and between the private and public sectors. This fragmentation impacts the ability of firms to turn R&D investments into intellectual property (IP) and commercialized products, and it hampers European competitiveness in comparison with other regions.

This gap is detrimental to Europe’s economic performance as a whole, especially when it comes to competing with other global economies such as the United States (see Figure 2) where scientific collaboration between the private and public sectors is almost double that in the EU and new technologies are commercialized with 17% more license and patent revenues from abroad.

Figure 1: EU Member States’ Innovation Performance

Source: European Union Innovation Scoreboard 2015

Figure 2: Comparison of Competitiveness: EU28 versus USA

Comparison EU-28 versus U.S. based on CGI 2014-2015

Source: Global Competitiveness Index 2014-2015
Indeed, the European Commission’s assessments of Europe’s own innovation capabilities illustrate that emerging economies are rapidly catching up with Europe. China’s innovation performance, for example, was measured at being 49% of the EU level in 2015, up from 35% in 2006. Even considering that China’s progress springs from a relatively low level, the country is continually entering higher value-added segments of global production and employing its enviable economies of scale to better compete with European production.

**What an increasingly competitive landscape means for Europe’s innovation approach**

The shifting external context for firms and economies and the increasingly competitive global environment create pressure on the traditional research, development and innovation models from which European firms have benefited. Firms regardless of their location report that in the past the majority of R&D spending was focused on “incremental innovations,” and only 14% on radical innovations. Furthermore, firms have traditionally focused on developing their internal R&D capabilities, rarely sharing outcomes with partners to foster mutual competitive advantage.

When asked about their investment plans for the next decade, most large multinational companies expect the focus of their innovation investments to change significantly, moving towards riskier initiatives and breakthrough or disruptive innovations. Due to a lack of internal capacity in this regard, firms are increasingly collaborating with external parties, moving to more open forms of innovation, leveraging partners’ discoveries, and commercializing innovations with other parties whose business models are better suited to bring new goods or services to market.

Such a shift towards collaborative approaches seems to make business sense – there is emerging evidence that such collaborations enable firms to accelerate innovation and create more competitive market positions, whereas firms that remain internally focused face slower time-to-market, higher development costs, and loss of competitive position. Furthermore, such a shift mirrors expectations of a change in revenue sources: a recent A.T. Kearney study on “Collaborative Innovation in Digital Europe” found that 71% of respondents expected more than a quarter of revenues to be generated through collaborative innovation by 2030 (see Figure 3).

Collaborative innovation also makes sense at the macroeconomic level when it contributes to firm growth. The Scale-up Report from the United Kingdom (UK) suggests that were a mere 1% of the country’s businesses to move into a “high growth” mode, they could create 238,000 jobs and almost £39 billion ($61 billion) in additional turnover over three years.

The clear implication is that Europe should look at collaborative innovation as a means of taking advantage of a number of otherwise threatening global trends, including the increasing innovativeness of other regions, rapid technological changes, rising demand for novel products and services, falling transaction costs, and shorter product life cycles driven by digitization.

**Figure 3: Expectation of the Revenue Generated from Collaborative Innovation, 2015 and 2030**

<table>
<thead>
<tr>
<th>Innovation Relevance</th>
<th>Collaboration with Third Parties</th>
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<tbody>
<tr>
<td></td>
<td>2015</td>
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<tr>
<td>66% expect the share of revenue resulting from collaborative product and service innovation to be at least 25% of business’ revenues in 2015</td>
<td>38%</td>
</tr>
<tr>
<td>76% expects this to be the case in near future</td>
<td>66%</td>
</tr>
</tbody>
</table>

Source: A.T. Kearney Survey

“Europe is good at transforming euros into knowledge. It is not good at transforming knowledge into euros.”

Carlos Moedas, Commissioner, Research, Science and Innovation, European Commission

“Competitive advantage doesn’t go to the nations that focus on creating companies, it goes to nations that focus on scaling companies.”

Sherry Coutu, CBE, Entrepreneur, Non-Exec Director, Investor and Advisor to Companies, Universities and Charities
Collaborative innovation as a way for young firms and incumbent players to complement one another for mutual benefit

As discussed in the Forum’s report *Fostering Innovation-Driven Entrepreneurship in Europe*,

an important and valuable strategy for young firms to scale within Europe is to collaborate with larger, established firms to access a variety of financial and organizational resources. Similarly, established firms seeking to improve their external innovation capabilities can take advantage of the different perspectives, approaches and risk outlooks of young firms. Young, dynamic firms are often structured around the development of truly novel and potentially disruptive products and services, while established firms have deep-rooted processes and value networks. Collaborative innovation partnerships can exploit these complementary capabilities.

In particular, young firms bring fresh perspectives on nascent markets, and are unencumbered by complex processes, the demands of large, influential customers, or the burden of fixed capital and human costs. Young businesses are often closer to those users and customers who represent growth-oriented markets, and can be more flexible than larger firms in experimenting with different approaches, enabling themselves to respond more nimbly to shifting needs.

Meanwhile, the size, resources and experience of large and established firms endow different, though equally important, advantages. Larger firms possess financial resources lacking in almost all young firms, as well as the networks, experience and regulatory knowledge needed to successfully commercialize new offerings, giving them a particular advantage where knowledge is cumulative (see Table 1). This capital and expertise means they are better able to afford and manage IP protection, hire the most qualified and relevant human resources, and rapidly scale successful experiments across multiple markets.

Amid a wide array of different relationships between young and established firms, five main types of partnerships can be termed “collaborative innovation”: smart procurement, collaborative innovation projects, smart direct investments, joint ventures, and strategic innovation partnerships, which are discussed in detail in the following section.

Collaborative innovation is the next big idea that needs to shape up with actionable items, allowing players across the value chains to participate in the emergence of new collaborative business models. Anchored in solid foundations of intrapreneurship, collaborative innovation is the engine of modern, agile organizations capable of creating new capacity, which can pioneer radical new ideas while testing the limits of markets. A true best friend for growth.

Mark Esposito, Professor of Business and Economics, Harvard University Extension School, Grenoble Ecole de Management

DuPont has been applying science and innovation to address the world’s most difficult challenges for over two centuries. Today, these challenges are of increasing complexity and scale. One company cannot solve these challenges alone. Our global partnerships and our collaboration with other companies, governments, universities, NGOs, and others are the key to meeting customer and consumer needs in critical areas such as food security, an improved energy mix and the protection of people and the environment.

Ellen Kullman, Chair of the Board and Chief Executive Officer, DuPont
Table 1: Challenges and Capabilities: Young, Dynamic Firms and Established Companies

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Young, dynamic firms</th>
<th>Established companies</th>
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<tbody>
<tr>
<td></td>
<td>• Scarcity of resources, few physical assets (that banks can use as collateral), and limited record of success</td>
<td>• Resources, experience and knowledge to successfully commercialize new offerings</td>
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<tr>
<td></td>
<td>• Lack of expertise outside of core offerings</td>
<td>• Spread of R&amp;D costs over an extensive and diversified sales base</td>
</tr>
<tr>
<td></td>
<td>• Lack of scale, distribution channels, and marketing know-how</td>
<td>• Sophisticated IP protection and management due to experience and resources</td>
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<tr>
<td></td>
<td>• Competition, market entry problems, and poor infrastructure</td>
<td>• Less threatened by litigation</td>
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<tr>
<td></td>
<td>• Insufficient understanding of innovation’s full applicability and potential</td>
<td>• Regulatory and compliance expertise</td>
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<tr>
<td></td>
<td></td>
<td>• Market reach</td>
</tr>
<tr>
<td>Capabilities</td>
<td>• Closer to sources of technological knowledge, such as universities and research centers</td>
<td>• Possible bureaucracy and inertia, leading to slower information flow, less flexibility and less creative thinking</td>
</tr>
<tr>
<td></td>
<td>• Higher degree of flexibility</td>
<td>• Less access to new technologies and state-of-the-art engineering</td>
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<td></td>
<td>• Nimble response to market signals</td>
<td>• Risk-averse culture</td>
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<td></td>
<td>• Proficiency in a specific niche</td>
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Source: Project team
## Innovation Need

- **DigitalGlobe**: Leveraging high-resolution satellite images, aerial photos, and other geospatial content to create innovative offerings.
- **Orbital Insight**: Seeking to access a large imagery database and new clients by leveraging DigitalGlobe's historical data.
- **DSM**: Looking to create a joint venture to produce carpets with materials made 100% from carpet that can be recycled ad infinitum.
- **Niaga**: Developing a proof of concept for materials that can be used and re-used in multiple generations, including carpets made from recycled materials.

## Lessons Learned

- Establishing a collaboration with such companies as DigitalGlobe can lead to revenue-sharing schemes and other financial benefits.
- Maintaining a clear legal structure for partners is crucial when entering into any collaboration agreement.
- DSM and Niaga have developed seven patent families and five more patents are in the pipeline.
- The collaboration with start-ups and other types of companies is essential for companies that have high levels of agility and speed.

## Collaboration: Structure and Results

<table>
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<tr>
<th>Firm Name</th>
<th>Firm Description</th>
<th>Innovation Need</th>
<th>Lessons Learned</th>
<th>Collaboration: Structure and Results</th>
<th>Search Method</th>
</tr>
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<tbody>
<tr>
<td>DigitalGlobe</td>
<td>1,200 employees</td>
<td>DigitalGlobe is an established firm active in the health, nutrition, and materials sections. DSM delivers high-performance and cost-effective materials to markets that would positively impact the world. The materials must be marketable, and the intellectual property must be protected.</td>
<td>DigitalGlobe and Orbital Insight established a regular collaboration agreement in mid-2012, wherein data belongs to DigitalGlobe, and the model to Orbital Insight. This collaboration provides a larger audience base and exposure to a larger audience base and exposure to new clients. At this stage, the intellectual property of the predictive model and the model to Orbital Insight. This collaboration provides a larger audience base and exposure to new clients. At this stage, the intellectual property of the predictive model and the model to Orbital Insight.</td>
<td>A number of investors have approached DigitalGlobe to ask whether a potential collaboration would be of interest.</td>
<td>An investor of Orbital Insight approached DigitalGlobe to ask whether a potential collaboration would be of interest.</td>
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