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EU Business Innovation: in Decline?

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Abstract:

The European Innovation Scoreboard 2018, suggests Innovation in Europe "has declined." The Washington Post reports Europe's innovation deficit "isn't disappearing any time soon." The Centre for European Reform asks whether EU Competition policy may be "an obstacle to innovation and growth." Europe's history, asserts The Economist, "explains the (innovation) lag." This paper examines whether EU business innovation, the key to economic sustainability, is in decline.

This paper investigates five likely contributing factors to EU business innovation. First there is the effect of low productivity demand, and any resulting slow-down in growth. Might this be exacerbated by a lack of leadership in science? A second factor considered is the supply of entrepreneurial leaders. A third contributing factor concerns European investment in research and development when this is compared with similar investment in the United States. A fourth factor considers the impact of investment in "zombie" firms, (companies risking default) in contrast to investment in Europe's "unicorn' companies (start-up companies valued at over $1 billion). Then the fifth innovation factor may be the impact of European universities efforts to modernize and become entrepreneurial.

The methodology used to investigate these five contributing factors is extraction of data from current reports using established performance metrics. The conceptual and operational relevance of the five factors is considered. Data collected for each of the factors is summarized in the paper. The principal data sources include those of the European Union (EU), the Organization for Economic Co-operation and Development (OECD), and the International Monetary Fund (IMF). Deming showed how innovation provides "the foundation of our future." The paper, in final discussion, sees innovation shaping our work, private life, and social networks. Examples of recent business innovation in Europe call for a positive response to the question on innovation decline.

Key Words*: Innovation; Low productivity demand; Entrepreneurial leaders; FDI in Europe; Zombie firms; Modernization at European universities.*

Introduction

Business Innovation is "the exploitation of new ideas that leads to the creation of new products, processes or services" (IAI, 2019). The purpose of innovation, as Ralph Waldo Emerson noted (1882) is "to build a better mousetrap" to continuously improve, to find a newer product, so that the world makes "a beaten path" to the new product store. Our world has become a dynamic marketplace where new products, processes, and services interact. The 326 "Unicorns" 21st century business start-ups (CB Insights, 2019), mark innovative businesses that has already achieved company market valuation in excess of $1 billion (Bastone, 2018). These companies provide focus for the Innovation Union, a European "flagship initiative for smart, sustainable and inclusive growth" (EU Commission, 2019). They underscore the impact business innovation has in the global marketplace.

The European Innovation Scoreboard 2018, (EUIU, 2019) provides "a comparative assessment of research and innovation performance" across the European Union and selected major economies. In the Executive summary we learn "that progress remains uneven within the EU." This explains different assessments of progress. The Economist (2018) suggested dynamism across Western Europe "has declined." The Washington Post reported Europe's innovation deficit "isn't disappearing any time soon" (Downes 2015) and suggested that the decline "isn't disappearing any time soon." Yet Europe has been "a quite successful unicorn ranch" with Outsystems, Uipath, Taxify, Celonis, and 6 other European start-ups, for example, who all reached unicorn status in 2018 (Trajkovska).

The European Innovation Scoreboard 2018 (EUIU, 2019) provides an important source of information on the business innovation issue. This important report is recognized as an objective analysis of some 27 performance measures (Appendix 1) which, together, may be seen to provide an abundance of evidence on the issue of whether business innovation is accelerating or whether it may be in decline. In the foreword the authors note "improving performance," some "accelerating progress," and a diminishing "innovation gap" between Europe and the United States. However, "lags" in capital investment and SME's performance "is still at crisis level." Further, as the Executive Summary notes, the main framework for the Innovation Scoreboard "was significantly modified" so that research continues to be needed to improve the accuracy of the assessment of business innovation.

Therefore, this paper, wishing to contribute to European Union business innovation research, investigates five performance measures which are widely seen as likely contributing factors to EU business innovation.

The performance measures this paper examines are:

- The impact of low productivity demand
- The supply of entrepreneurial leaders
- The levels of inward investment into the European Union
- The impact of investment in "zombie firms"
- Slow pace of modernization of European Universities

Methodology:

The methodology used to investigate these five contributing factors is a review of the current literature regarding data related to business innovation from international organizations with reliable and established performance metrics. The Literature review is purposely innovative. Traditional academic literature reviews tend to be based on primary research. However, innovation is an essentially dynamic feature of the business world. Reflections on out-of-date sources fail to keep up with changes that are taking place in the world market and whose trends are reported in reliable secondary sources. A review of the latest issue of the International Journal of Innovation, for example, finds many articles contain no references to primary research post 2016 (Arun, 2019). As Drucker reminded us "the world we live in keeps changing at an alarming rate" (2018) so we must "focus on the present." With that in mind, the purpose of this paper is to identify present day trends in innovation which are being identified by reliable sources and which are the basis for decision-making in today's world.

Data collected for each of the factors is summarized in the paper, with selected tables and analysis in appendices. The principal data sources include the European Union (EU), the Organization for Economic Co-operation and Development (OECD), and the International Monetary Fund (IMF). The conceptual and operational relevance of the five factors is also considered.

Business innovation – five performance measures

The impact of low-productivity demand

There is a productivity-growth slowdown in advanced economies (Remes et al, 2018). The decline is following a boom in the 1960s. Productivity growth is seen to generate increases in wages and living standards and therefore increases the purchasing power of consumers, and stimulates demand for goods and services. Slowing productivity growth is certainly a matter of concern. There are several explanations for the apparent low-productivity demand.

First, the statistics relating to productivity are dated. The datasets used for measuring performance fail to reflect the many changes in technology and machinery that take place daily in our world of continuous industrial improvement. In the same way, the ubiquitous measure of growth that is GDP (Gross Domestic Product), in its 'modern' form, first developed by Simon Kuznets in 1934, no longer reflects the non-marketed ecosystem services our natural capital assets provide. These incorporate many improvements; examples include thermostatic temperature and climate control; water pollution control facilities; supply chains; and the many other intangibles like the Internet and advanced electronic communications which were not in play in 1934. These changes "have been estimated to contribute significantly more to human well-being than all the world's GDP combined" (Costanza, 2014). Now 84 years after the introduction of GDP we live with the non-marketed ecosystem growth, the growth in the contributions of social capital, and no advance in coming up with a realistic measure of growth.

If there is any impact from low productivity demand, we lack the means to identify reasons for any slow-down in growth. The major impact of the measure therefore appears to be a lack of innovation in the measurement of growth.

The supply of entrepreneurial leaders

Of the world's largest 15 digital firms, "all are American or Chinese: of the top 200, eight are European" (Charlemagne, 2018). In the 19th century Western Europe was the first continent to industrialize and to experience the absence of standardization, limited corporate regulation, the freedom to undertake experimental activity, the propensity for bold thinking. These aspects were unlimited. Today many barriers have been put in the way of entrepreneurship.

Europe's traditional industrial heartlands still struggle with the changes needed to adapt to the growing world of digital data. High levels of national unemployment divert finance from entrepreneurship to social policy. European investment in research and development is below similar investment in China, Japan, and the United States. And there is no European equivalent of DARPA (US Defense Advanced Research Projects Agency) which produced the basis for entrepreneurial development of microchips, GPS (Global Positioning System), and business innovation via the Internet. Indeed "the EU has failed to create a single market" (Brewer, 2018) and only slow progress on integration, like the Capital Markets Union, is being made.

Given this rather dated business environment, young entrepreneurial leaders are not getting much encouragement. Perhaps more important the availability of venture capital for start-ups in Frankfurt or Paris is well below the level of capital available in New York, Shanghai or Singapore. Further the market in Europe is very fragmented. "Financing innovative young firms is an increasing challenge to Europe" (Wilson, 2013), under these circumstances the supply of young entrepreneurial leaders is not accelerating.

The levels of inward investment into the European Union

The United Nations Conference on Trade and Development's latest World Investment Report 2018 (Zhan et al, 2018) shows how Foreign Direct Investment flows "fell sharply in 2017" for developed economies. Chinese foreign direct investment into Europe fell 40% in 2018 (Reuters, 2019) consistent with other major foreign investors in Europe.

Inward investment by foreign companies into Europe reflects the support of foreign investors in non-European economies for enterprises in which they have invested which are resident in Europe. The continuing inward investment flow implies that long term relationships exist between investors and their European enterprises and they have a significant influence on the way the enterprises are managed. So, the levels of Foreign Direct Investment into Europe are "a key driver of competitiveness and economic development" (EU Single Market, 2018).

Inward investment targets not only continuing operations in which foreigners have invested in Europe but also the purchases of new assets including acquisitions, mergers, takeovers and portfolio investments. Detailed data is available on the flow of inward investments on the Eurostat website.

There are three key reasons for this decline in foreign inward investment:

1. Screening,
2. The availability of skilled labor
3. Uncertainty.

Recently the European Union introduced stricter rules on the screening of foreign inward investment (Stearns, 2019). These new rules have been established recognizing a need to prevent foreign investments from threatening national security. This is a concern across the markets of the world about national security. This also adds significant additional cost and time for documentation and until the documentary details have been finalized. The impact is unlikely to accelerate foreign inward investment.

Then a second key to declining inward investment is the available of a pool of skilled workers for what we recognize as the coming digitalization of the economy worldwide. Recently Ernst & Young identified "skill shortages" which are damaging Europe's potential growth (Clayton et al, 2018). Training systems in operation are not seen to be keeping up with the fast-changing needs of labor markets. This is linked with the weak performance of European universities which is mentioned in greater detail in performance measure 5.

A third key is the present uncertainty caused by Brexit. Readers of this article will be aware of the everyday uncertainty the departure of Britain from Europe is generating. Certainly, this provides a context for at best delaying further inward investment into Europe. Ironically Deloitte 2019 analysis shows that foreign inward investment projects in the UK in the past 3 years exceed total inward investment into France & Germany during the same period

The impact of investment in "zombie firms

A rising number of what are called "zombie firms," companies that are barely able to cover the cost of their debt service over a long period, is having a significant impact on business innovation in Europe. The best-known examples of "zombie firms" include the electric car maker TESLA and the streaming giant Netflix (Reid 2018) in the United States and Stefanel Spa and Carillion Construction in Europe.

The Financial Times of London has reported that The Bank for International settlements estimated in 2018 that "10% of all European firms are zombie firms" (Harford, 2018)

In Europe interest rates have been low for a long time and so zombie firms have been able to secure continuing and revolving loans for long periods. The long-term debt, often held by weaker banks (Andrews and Petroukalis, 2019) has be maintained on "performing loan status," too often with the extension of the loan period repayment periods.

In a well-functioning economy capital flows towards the more productive firms at the expense of the less productive firms. Zombie firms therefore provide a formidable financial barrier to new business innovation as the barely performing loans crowd out the availability of credit for business innovation that brings healthier and more productive ideas to the market. Put simply, Zombie firms crowd out the market for investment in potentially healthier and more productive firms.

How bad is the situation? Can Europe handle a rise in interest rates? The spectre of rising interest rates is said by the Wall St Journal to be "haunting Europe's Recovery" (Sylvers, 2017). Zombie firms are being kept alive at the expense of employment and investment and thereby undercutting healthy rivals, tying up capital and stunting Europe's recovery. The rising number of these zombie forms "is linked to the decline in OECD potential output growth" (McGowan et al, 2018).

The OECD noted the increasing survival of these low productivity "zombie firms" when, in a normal competitive market, these firms would typically exit. The continued existence of the zombie firms clearly crowds out the innovation opportunities which might otherwise be financed for more productive firms. The OECD noted that the "zombie firm problem" in Europe "is connected" to the banking sector weakness (OECD home, 2018) further limiting the investment available to support business innovation in the European Union.

Clearly the weak banks of Europe and the depressed restructuring of their barely performing loan portfolios have failed to support the sort of business innovation that needs access to start-up capital.

Slow pace of modernization of European Universities

A three-year study funded by the European Commission and led by Rand Europe and the University of Maastricht reported on the views of the heads of 47 European universities on whether their institutions were innovating enough to encourage student business innovation (McGrath and Harte, 2016). Drawing conclusions their study recognized the higher education environment was challenged by the

- Diversity of higher education systems,
- Organizational constraints faced by those who try to innovate,
- Significant differences in the financial resources, and
- Absence of strategic plans that incorporated key performance indicators.

The European Higher Education Area (EHEA) covers higher education in 33 European countries. EHEA notes the absence of a genuine European higher education system, as each member country hold on to its own individual higher education system.

This year is the twentieth year of the Bologna process and we recognize that the United States still has "the lead in educational standards and research," while European universities are still seen to be "less competitive and less innovative" (Caddick, 2008). Recently the changes the Bologna process seeks to implement have been seen to "undermine institutional autonomy and universities' ability to educate students to high standards" (Grove, 2012). Critics find that the Bologna process provides for a series of bureaucracies which mean the process itself is still "treading Water" and is recognized as a process which reacts to the higher education initiatives of others, rather than being proactive and providing leading edge initiatives (Teichler, 2001). As technology makes advances higher education should be anticipating the future processes and activities that need to be included be in a continuously evolving curriculum. Too often speculation about future scenarios is confined to "non-inspiring forecasts" usually based on extrapolations of the past and not based on an examination of current trends in the business world.

A good example might be the current employment of executive coaches by leading American multi-nationals to provide independent assessment of manager skills and so improve their contributions to corporate strategy. Executive coaching has gone from "rare to common" and is helping real-world executives see themselves and others more clearly; learn new ways to respond to real situations; leverage existing strengths; and build productive relationships (Andersen, 2017). Meanwhile higher education

continues to silo educational subjects into special areas, taking away the dynamism of the liberal arts, so that preparation for "executive coaching" will not be found in any European MBA programs.

European university funding is seen by Times Higher education to be "stuck in austerity mode' (Bothwell, 2018) so that budget cuts made during the 2008 financial crisis have not been restored and even government constraints kept level with economic growth. An analysis of public funding for higher education across Europe by the EUA (European University Association) found that many university systems were receiving less public funding in 2017 than they had received in 2008. The competencies of the graduates of European universities are, almost inevitably, related to the funding and organization of the universities. Thus, the impact of underfunding European universities has reduced the innovative power of EU economies since "they depend on the competencies of graduates" (Ritzen, 2016) for business innovation.

We may conclude that the combination of institutional diversity, bureaucratic constraints and underfunding has left little room for business curricular innovation in institutional long-term strategic planning.

Discussion

The most innovative countries in Europe are seen to be Sweden, Denmark, Finland, the Netherlands and the United Kingdom (Belinchon, 2018). The list, based on the European Commission's own analysis of innovation (EUIE, 2018) confirms how the EU "continues to improve its position relative to the United States, Japan, Canada and China. However, this positive assessment is based on solid data which in turn, as we saw in the first performance measure is based on outdated data metrics which no longer reflect the nature of productivity in the 21st century.

This exposes an important area for future research. Out-of-date measures like GDP need to be replaced by new (and innovative) methods of identifying productivity and activity-based measures of regional and national performance. The lack of effective innovation metrics in a period of economic must surely attract the interest of researchers.

Meanwhile the World Economic Forum finds that Europe "is falling behind … in how it develops and invests in business innovation" (Bilbao-Osorio and Arjona, 2018). They provide seven different charts to assess progress. These charts confirm that the performance measures which this paper has outlined are areas where Europe needs "to the modernize and become more entrepreneurial" if Europe is too keep pace with innovations in the 21st century. They report that just 15 unicorn founders have a European university as their *alma mater*. This point supports the nature of the problems we discovered in the area

of a lack of entrepreneurial leaders and the associated slow pace of modernization at European universities.

Further, attention is needed to solve one of the major problems with innovation, the limited availability of capital investment funds to provide the sort of support that has facilitated the growth of unicorn companies across the world. There is mounting evidence, as we have shown regarding foreign inward investment and the investments in "zombie firms," that the engine of growth is misfiring" (Douglas et al, 2018). Deming (1982) showed how innovation provides "the foundation of our future." The Lisbon Council (Ederer, 2017) confirmed how "innovation is key to remaining at the forefront of global economic development." Innovation is shaping our work, private life, and social networks. The good news is that there are many examples of recent business innovation in Europe which respond to the question on innovation decline. We find that it is the individual who will ask "is this an opportunity to innovate? (Drucker 1999). We note that they find ways round the funding limitations that certainly exist.

So, we celebrate the ground breaking technologies discovered by the Croatian company Rimac (Euronews, 2019), and the extraordinary contributions of Ericson to the developing 5G network (Matos, 2017). These are among many exciting examples of business innovation, as are the 16 Future Unicorns 2019 shown in Appendix 3.Seems like reports of a decline in business innovation in Europe, like the reports of the death of Samuel Clemens, are, as he reported, "greatly exaggerated."

Appendix 1 – Measurement Framework of the European Innovation Scoreboard

This appendix is provided to show the combination of metrics which have been used by the European Innovation Scoreboard to measure innovation in Europe. The Framework has been in use for a decade and significant research opportunities are open to students of the trends that have taken place during the last decade.

FRAMEWORK CONDITIONS

Human resources

1.1.1 New doctorate graduates
1.1.2 Population aged 25-34 with tertiary education
1.1.3 Lifelong learning

Attractive research systems

1.2.1 International scientific co-publications
1.2.2 Top 10% most cited publications
1.2.3 Foreign doctorate students

Innovation-friendly environment

1.3.1 Broadband penetration
1.3.2 Opportunity-driven entrepreneurship

INVESTMENTS

Finance and support

2.1.1 R&D expenditure in the public sector
2.1.2 Venture capital expenditures

Firm investments

2.2.1 R&D expenditure in the business sector
2.2.2 Non-R&D innovation expenditures
2.2.3 Enterprises providing training to develop or upgrade ICT skills of their personnel

INNOVATION ACTIVITIES

Innovators

3.1.1 SMEs with product or process innovations
3.1.2 SMEs with marketing or organisational innovations
3.1.3 SMEs innovating in-house

Linkages

3.2.1 Innovative SMEs collaborating with others
3.2.2 Public-private co-publications
3.2.3 Private co-funding of public R&D expenditures

Intellectual assets

3.3.1 PCT patent applications
3.3.2 Trademark applications
3.3.3 Design applications

IMPACTS

Employment impacts

4.1.1 Employment in knowledge-intensive activities
4.1.2 Employment fast-growing enterprises of innovative sectors

Sales impacts

4.2.1 Medium and high-tech product exports
4.2.2 Knowledge-intensive services exports
4.2.3 Sales of new-to-market and new-to-firm product innovations

Source: European Innovation Scoreboard 2018, ISBN 978-92-79-77623-6, Page 8
Luxembourg Publications Office of the European Union, 2018

Appendix 2 – EU and US investment by venture capital funds

This appendix compares the investment by venture capital funds in the European Union with those in the United States. Bearing in mind the comparative populations (European Union: 508 million - USA: 327 million) there appears to be a significant underfunding of innovation in the European Union. Venture capital investments, while relevant, may or may not be an indicator of innovation potential.

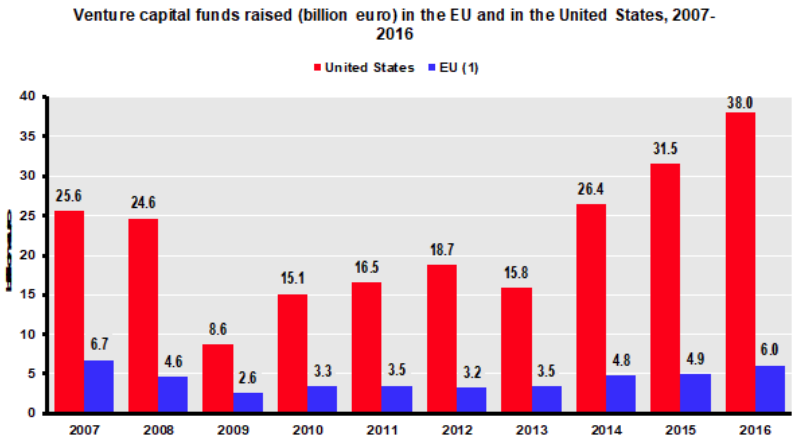

Image: Invest Europe, NVCA/Pitchbook/DG Research and Innovation - Unit for Analysis and Monitoring of National Research and Innovation Policies

Appendix 3 - Nominated companies for the Future Unicorn Awards

The Nominated companies for the Future Unicorn Awards (Europe) 2019 are:

- ASTI Mobile Robotics, Spain
- DataConcept, Slovakia
- Envelio, Germany
- Ivalua, France
- iyzico, Turkey
- LearnUpon, Ireland
- MaaS Global, Finland
- Out2Bound, Bulgaria
- Patronite, Poland
- Qwant, France
- Rombit, Belgium
- TeleSoftas, Lithuania
- Tooploox, Poland
- Turbine, Hungary
- Umbraco, Denmark
- Teslasuit, United Kingdom

Innovation researchers may want to compare the nature of these companies and consider the features to which they attribute their success. Certainly, a great research opportunity, great subject for another paper.

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