



Financial and Institutional Reforms for the Entrepreneurial Society Part I

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Executive summary

The European Union aims to restore innovative, inclusive and sustainable economic growth to the Union and its Member States. To achieve that goal, it is imperative that the economies of the European Union become more entrepreneurial. To date the EU has launched many initiatives and formulated strategies to bring about the transition to an Entrepreneurial Society. Inspired by successes in the United States these strategies often involve deregulation, (financial) support for new ventures and entrepreneurship education. We argue, however, that such reforms only go skin deep. To really nurture an Entrepreneurial Society in Europe, a more fundamental reform agenda is needed. Here we propose reforms that relate to (i) the rule of law and the protection of property rights; (ii) the tax system; (iii) regulations governing savings, capital and finance; (iv) the organisation of labour markets and social insurance systems; (v) regulations governing goods and service markets; (vi) regulations governing firm failure; (vii) R&D, commercialisation and knowledge spillovers; (viii) human capital investments; and (ix) informal institutions. Overall, the proposed institutional changes move in a liberalising direction; however, one-size-fits-all policy reforms are not likely to be successful in Europe's varied, historically deeply rooted and interacting institutional complexes. Instead, successful reform strategies must consider history and local conditions that affect the viability of reform without abandoning the long-term goal of institutional liberalisation to promote a more entrepreneurial society.

1. Introduction

In the FIRES-project we aim to analyse the **broader contexts of smart, inclusive and sustainable growth** in Europe to support implementation of the Commission's 'Europe 2020' growth strategy and to restore Europe's **ability to innovate, grow and create jobs** over the coming decades. In our proposal we argued that entrepreneurship¹ must play a central role in that effort. 'Entrepreneurship' tends to make people think of the US and its model of high growth and high-tech start-ups in Silicon Valley. We argue, however, that a European growth agenda requires a focus on *European* entrepreneurship. US recipes and models will not always fit the European context and do not necessarily deliver the results that Europeans want. Our project's objective was to thoroughly analyse European institutional arrangements and their current (in)ability to mobilise Europe's human, financial and knowledge resources for entrepreneurial activity. This will help us formulate an effective reform strategy to reinvigorate European economies. The current diversity of institutional arrangements in Europe has long historical roots that first should be recognized and understood (WP2). Based on common global trends in technology and competition, our project also established the urgency and desirability for making the transition to a more entrepreneurial economy throughout Europe (WP3).² Meanwhile our project further developed tools for policy makers to assess the quality of national and regional entrepreneurial ecosystems and to identify the main strengths and weaknesses regarding making the transition (WP4). Based on a wealth of literature and the more direct assessment our tools allow, we can now formulate specific proposals to enhance the allocation of talent, finance and knowledge to new venturing and value creation in Europe. After having discussed and debated these proposals over most of 2017 and the spring of 2018, we concluded our project by specifically tailoring our reform agenda to the institutional contexts of Italy, the United Kingdom and Germany (WP5) and provide a legal analysis to see where competencies currently lie and what action could be taken (WP6).

The aim of this report is to deliver and discuss the FIRES approach to formulating an effective institutional reform agenda. Parts of this report and the attached policy briefs were presented and discussed in a series of policy round tables and at our concluding consortium meeting in Brussels in May of 2018. There our approach was discussed intensively with policy makers at different levels in the European Union. This report is the capstone to our project and sets the stage for a more entrepreneurial Europe.

The remainder of the report is structured as follows. In chapter 2, we set the stage and present and motivate the structure in which our reform proposals are presented. Here we largely copied the structure proposed and motivation published earlier in Elert et al. (2017). Chapter 3 then presents reform proposals that together make up a menu of possible interventions. This menu was largely compiled out of three sources. First it contains reform proposals that were drawn directly from the policy briefs produced during the FIRES-project. Second, it contains the results of an open brainstorm the FIRES-consortium had in November 2016. There a longlist of reform proposals was first formed, based on consortium members' prior research and preliminary results from the FIRES-sponsored deliverables under development. We invited practitioners representing vested interest parties as well

1 We will define our key concepts more precisely below. Entrepreneurship here refers to introducing change into the economy by organisations (new and old) creating and engaging in new value creation propositions.

2 We will use the terms entrepreneurial society and entrepreneurial economy interchangeably, although strictly speaking the latter should be considered a part of the former more encompassing concept.

as stakeholders in the entrepreneurial ecosystem.³ The conclusion of these discussions was that stakeholders generally agreed or were open to discuss the proposed reforms and even agreed that most of what we had labelled “wild ideas” were worth considering and thinking through.

This longlist was then extended and amended with proposals that were based on extensive literature search and were developed in FIRES-report D2.1 and Elert et al. (2017). The resulting longlist was further discussed in the consortium during 2017 in Athens. From where we developed our proposals and reduced the longlist to our final policy interventions menu, presented in chapter 3. In chapter 4, we provide a summary of the arguments and present our conclusions for part I.

The discussion in this first part of the strategy is one on general principles. When implementing a reform strategy in any specific institutional context, however, due attention will have to be given to how our general proposals fit the local context best. These problems of implementation are addressed in more detail in Part II of this report. Part II outlines how these reform proposals can be implemented in three specific member states, roughly representing three institutional families in the VoC literature: the United Kingdom, Germany and Italy. Tailoring a reform strategy for a more Entrepreneurial Society following the FIRES-approach consists of three steps. First, we present a brief historical scan to identify country and regional historical specificities that form the foundations upon which the reforms are to be built. The next step is to perform a strengths and weaknesses analysis using the Global Entrepreneurship Index (GEI) and Regional Entrepreneurship and Development Index (REDI) presented and developed in WP4. We can link our menu of policy interventions to the 14 pillars that make up these indices.⁴ That link allows one to connect the results of the country and regional GEI-REDI-scans to the menu of reform proposals presented in Part I and draw inspiration to formulate a tailored reform strategy at the appropriate levels of policy intervention. Part II of the report presents the results of such an exercise for Italy, Germany and the UK, respectively. The resulting reform strategies were developed in this report, summarized in three policy briefs and discussed in policy round tables held in the spring of 2018 in Rome (March 5), Berlin (April 24) and London (April 26). The policy briefs attached to this deliverable were the input to these round tables and the reports on these discussions are attached as annexes to this deliverable.

³ These stakeholders were predominantly invited from the Netherlands for practical reasons. See FIRES D1.3 for the full report on the consortium meeting in Utrecht at <http://www.projectfires.eu/wp-content/uploads/2018/02/1st-Annual-conference-Utrecht-Oct-16.pdf>

⁴ All interventions in this report are organized into the nine domains discussed above and used in D2.1 and D6.2. A spreadsheet, attached to this deliverable, contains all interventions described here and a correspondence along the 14 pillars that make up the GEI/REDI in WP4. Obviously, the correspondence is not perfect, but overlap is significant.

2. Setting the stage: Europe's innovation emergency

The European Union suffers from an acknowledged lack of entrepreneurship. A flagship initiative of the Union's well-known 2020 strategy was the so-called "Innovation Union", launched in 2015 with a tone of urgency: "We need to do much better at turning our research into new and better services and products if we are to remain competitive in the global marketplace and improve the quality of life in Europe. We are facing a situation of 'innovation emergency'" (European Commission 2015b).⁵ Despite this urgent tone, little has been accomplished in the intervening years. The Union's own composite innovation index, measured by the European Innovation Scoreboard, has only increased modestly since the strategy was formulated in 2010 (European Union 2016; see also *Figure A1* in the Appendix).

2.1 Fostering an Entrepreneurial Society

Increasing innovation therefore remains an imperative, but the way to achieve it is a complex issue. Current emphasis to increase R&D spending exposes an overly mechanistic view of how the economy functions. New knowledge and inventions are only the first steps in the innovation and commercialization process. For increased R&D to translate into economic growth, entrepreneurs must be allowed and enabled to exploit the new knowledge and inventions by introducing new methods of production or new products into the marketplace (Bhidé 2008). It is a mistake to focus policies exclusively on creating new knowledge and to take entrepreneurship for granted. We are pushing a cart with a rope.

To turn invention into innovation, entrepreneurs must be able, willing and supported in mobilizing resources, knowledge and people and allocating them to inherently risky and uncertain ventures (Michelacci 2003; Acs and Sanders 2012). To recognize and engage opportunities, but also to quickly fail and abandon them if they prove unviable, is the essence of an entrepreneurial economy. Hence, if Europeans are to benefit from innovation and investment in knowledge and capital to the greatest extent possible, their economies must become more entrepreneurial (Acs et al. 2009; Baumol 2010). We argue that an Entrepreneurial Society (Audretsch 2007) can be seen as the economic equivalent of Karl Popper's (1945) Open Society. As in Popper's Open Society, in the Entrepreneurial Society the status quo must, can and will always be challenged. In the battle of ideas that ensues in the global market place, the best ideas survive until they themselves become challenged by even better ones. This dynamic process makes progress possible through what Schumpeter (1911) dubbed the "gales of creative destruction". And it is such entrepreneurship that keeps the wheels of capitalist economies turning.

But there are more than materialist reasons to promote an Entrepreneurial Society. Having the opportunity to challenge incumbents and the status quo is, as Friedman (1962) and Hayek (1944) would argue, also the core of economic freedom and liberty. And like Popper, Schumpeter's biggest worry was the seemingly inevitable closing of the system. Because vested interests, often disguised and speaking for the public interest, will try to limit access to knowledge and resources for challengers of the status quo (van Bavel 2016). When challenges are no longer feasible, progress stops and inevitably decay sets in. The challenge, therefore, is to maintain an open system that allows for challengers and encourages more entrepreneurship in Europe.

⁵ See http://ec.europa.eu/research/innovation-union/index_en.cfm?pg=why.

At first glance, the means of achieving this goal are clear from an economist's perspective. Homo economicus responds to incentives. So, incentivise people to be entrepreneurs and the miracle will come about. But that, unfortunately, is not how it works. And entrepreneurship scholars are keenly aware of this. At least since Baumol (1990), there has been a recognition that entrepreneurship and innovation are shaped by a society's rules of the game - its institutional environment (Aldrich 2011; Estrin et al. 2013). Entrepreneurs and other actors in the so-called entrepreneurial ecosystem are crucially dependent on their institutional environment. More importantly, the institutional framework also largely determines the quality of the entrepreneurial venturing it enables (Stenholm et al. 2016; Autio and Acs 2010; Bowen and DeClerq 2008; Estrin et al. 2013). In this report, we present multiple proposals on how Europe's institutional framework conditions could be made more supportive of productive, high impact entrepreneurship and innovation, and outline a reform strategy to achieve this objective.

2.2 Institutional reform strategies

If political and economic institutions are structured to reward productive entrepreneurial activities (such as starting new and reorganising existing firms to provide new and better goods and services that people want) at the expense of non-productive and even destructive activities (such as rent seeking, exploitation of market power and lobbying), then many economists would argue that more innovation and economic growth will occur (Mueller and Thomas 2000; Hwang and Powell 2005; Acs et al. 2008; Urbano and Alvarez 2014). Here we add the caveat that it is often the combination of institutions that supports their function and one cannot expect specific institutions and reforms to work in the same way in different contexts. Still, if the complex of interlocking institutions can be reformed to increase the flow of resources, talent and knowledge to productive entrepreneurship, an economy at the global technology frontier will benefit. Thus, we will focus on economic institutions that have previously been identified as particularly relevant for enabling productive entrepreneurship (Hall and Jones 1999; Béchar and Grégoire 2005; Henrekson and Johansson 2009; Bjørnskov and Foss 2013) and discuss how their functions could be enhanced in a European context. In summary, we propose institutional reforms pertaining to nine broad areas:

(i) The rule of law and protection of property rights. These are the most fundamental rules of the economic system, and all member states must ensure that they are stable and secure. But more is not always better. Regarding intellectual property rights, an important balance must be struck between the interests of inventors, investors and the need for knowledge diffusion.

(ii) Taxation. Taxation flows back as public goods and facilities that benefit entrepreneurs, that should contribute their fair share. But some taxes are more distorting than others and many types of taxes affect entrepreneurial decisions and activity. Tax rates should generally be low or moderate on a broad tax base and policy makers should strive for simplicity rather than (targeted) concessions. Specifically, we argue for a high degree of tax neutrality across owner categories, sources of finance and different types of economic activities.

(iii) Savings, capital and finance. Institutions governing the allocation of investable resources are central to any economy. To promote more small scale entrepreneurial experimentation, they should be reformed to support increased private wealth formation and the creation of a dynamic venture

capital industry. As a large share of savings currently ends up in pension funds, it would be helpful to allow at least part of these assets to be invested in entrepreneurial firms and not just in real estate, publicly traded stocks and bonds. Moreover, as entrepreneurial venturing is all about managing uncertainty (as opposed to risk), the current strong bias towards debt finance through banking and institutional investors, allocates financial resources towards investing in the status quo. Europe has a bank-based financial system with long historical roots and widespread institutional complementarities. We deem some rather fundamental reforms essential before banks can take the role they should play in an Entrepreneurial Society. That is, to act as the arbiter among competing projects and reallocate resources to those with the best risk-return profiles on behalf of their depositors.

(iv) Labour markets and social security. Institutions governing the allocation of labour resources should facilitate the recruitment of competent employees by new ventures in existing and new firms. Reforms should therefore remove onerous labour market regulations. Furthermore, incentives are best served by government income insurance systems that encourage activation, mobility and risk-taking. Social security institutions should enable the portability of tenure rights and pension plans as well as a full decoupling of health insurance from the current employer. To leave tenured employment positions to pursue entrepreneurial projects should be a viable career option without punishment. One step further down this road of decoupling social insurance and income security from specific jobs, would be to move towards forms of basic income or work entitlements. Although it sounds counterintuitive to combine deregulation and flexibility with more and basic income security, that would fit Europeans' low tolerance for income uncertainty, inequality and poverty with the need to enable entrepreneurs to hire the team they need. Moreover, a vibrant entrepreneurial economy is likely to provide more opportunities and a fair competitive position for marginal groups in formal labour markets. Reforms motivated by and aligned with equity objectives can therefore strengthen entrepreneurship when we choose to reduce privileged positions instead of creating equally exclusive privileges for disadvantaged groups.

(v) Regulation of goods and service markets. Preventing market-leading incumbents from unduly exploiting dominant market positions is essential. Lowered entry barriers are key to this reform area, as is the opening of those parts of the economy that are almost invariably closed to private production, such as healthcare and education. Within a well-designed system of public financing, sizeable private production and contestability should be encouraged. We do not argue for a blind privatisation and deregulation in these domains. There can be good reasons to organise things collectively. But in an open, entrepreneurial society, all positions of power should be contestable, also, and perhaps especially, in the exclusive domains of the State.

(vi) Regulation of firm failure. Entrepreneurial failure provides valuable information to other economic actors. Failed ventures must be discontinued to redirect their resources to more productive uses. And the knowledge, also of failed ventures, should be diffused in the general interest. Bankruptcy law and insolvency regulation should therefore be relatively generous and allow for a "second chance". However, a delicate balance must be struck. Filing for bankruptcy should not be too easy, as it encourages undue exploitation and destructive entrepreneurship, harming creditors and the rest of society. Reforms could imply a more generous bankruptcy law for those that financed their ventures with a lot of equity. Entrepreneurs with more "skin in the game" deserve more consideration than those that leverage their ventures with debt to maximise social and minimise private losses. A redress

of the imbalance in the fiscal treatment of debt and equity finance would complement reforms in this area.

(vii) R&D, commercialisation and knowledge spillovers. For R&D spending to translate into economic growth, entrepreneurs must exploit the inventions and created knowledge by introducing new methods of production or new products into the marketplace. Therefore, instead of focusing on quantitative spending goals and targeted R&D support, policy should more generally make it easier to start and grow businesses. This complements the reforms in intellectual property protection we proposed under *(i)*. Knowledge has become key in developing new products and services at the global technology frontier. The externalities involved in knowledge creation and diffusion warrant rethinking current trends in IPR in light of a more open, entrepreneurial society.

(viii) Incentives for human capital investment. Entrepreneurial venturing needs access to knowledge, but also to labour that can absorb such knowledge. Policy should thus create positive incentives for individuals to acquire knowledge and skills, whether through formal or through workplace education. Incentives must also be developed by the education system itself to supply such opportunities. In this respect, the US university system seems more responsive to the economic needs of society than European university systems. There are long historical and institutional roots for this that cannot easily be emulated in a European context. Still, the US system could be an important role model, if due attention is paid to European concerns regarding academic autonomy and equal access.

(ix) Informal institutions. Informal institutions affect the workings of formal institutions but may also be important in their own right for fostering entrepreneurship. Norms and habits that facilitate cooperation and impersonal exchange must be strengthened, particularly with regard to trust. High-trust environments have been found to nurture market entry, enterprise growth and productive entrepreneurship. The extent to which policy can influence this development is of course doubtful. To build trust is a complicated and daunting challenge and trust is easier destroyed than rebuilt. Not to destroy emerging trust with well-intended but ill-conceived regulation is perhaps as important, as trying to design trust enhancing policies. Government intervention and market competition can both destroy exiting social structures and arrangements that foster societal trust. A general reevaluation of informal organisation can be instrumental and complementary with Europe's corporatist roots.

Our overall message is that policymakers in member states and at the centralised EU level should cultivate entrepreneurship-friendly institutions by smart liberalisation. The original intent of the European Union project, the promotion of the so-called four freedoms of its single market (of goods, workers, services and capital), is aligned with the aim to make Europe more entrepreneurial. Convincing arguments have also been put forth that the Union's procedural logic will inherently push the institutional setups of member states in a liberalising direction (Scharpf 2010).⁶ However, the way countries effectuate such reforms is fundamentally important.

⁶ As explained at length by Scharpf (2010) a substantial asymmetry exists between the scope of the rulings of the European Court of Justice (ECJ) - automatically binding throughout the entire EU - and the high consensus requirements of political action at the European level. It is very difficult for member states to protect a national regulation or policy that allegedly impedes any of the four freedoms.

2.3 Local varieties of reform

A best-practice reform approach would be to identify a country (whether a member or non-member) that appears to be performing well in an institutional dimension and to promote and adopt this institution in other countries (Rodrik 2008). Indeed, this type of approach has been extensively promoted by organisations such as the World Bank and the IMF, especially in developing countries. This is problematic for several reasons.

First, first-order economic principles – such as the protection of property and contract enforcement – do not map onto unique policy packages; there is no unique correspondence between well-functioning institutions and the form that such institutions take (Berkowitz et al. 2003; Djankov et al. 2003; Evans 2004; Mukand and Rodrik 2005; Dixit 2007; Rodrik 2007). Therefore, reformers must creatively package basic preconditions into institutional designs that are sensitive to local constraints and take advantage of local opportunities.

Second, not all institutions that affect entrepreneurial activity can be influenced through policy measures even in the long run. This is true for many informal institutions, such as trust and reputation (Greif 2005) or the way people speak of businessmen and entrepreneurs (McCloskey 2016). Affecting these institutions by means of policy may only be possible through indirect means, as these institutions often only change incrementally over time and/or through bottom-up processes that may be rapid but difficult to anticipate and engineer. To *not* act when societal processes unfold and perhaps even face some growing pains and problems that feed a call for policy intervention, may then be the best approach.

The sharp difference in the initial conditions for member states (and the various regions inside them), is a third reason why the first-best universalist approach to institutional reform will become problematic. Countries around the world obviously differ greatly in their capacity to achieve high standards of living for their citizens. This is no different in the European Union. Each of the Union's 28 member countries has evolved its bundle of institutions, many of which are complementary to one another. According to the *varieties of capitalism* (VoC) perspective (Hall and Soskice 2001) institutional complementarities mean that one cannot simply adopt institutions that work well in another country and expect them to work in the same way in a different institutional context. Instead, a prudent and viable reform approach must acknowledge these complexities, or change might become unpredictable or even detrimental to entrepreneurship and economic development.

The use of the VoC perspective also allows us to highlight the limitations of our analysis. For example, institutional complementarities are not necessarily confined by the borders of national polities, but can work across borders (as in the case of the EU itself) as well as within them. Concerning the latter, institutions at the local level are certainly important. Granted, they commonly evolve and operate against the backdrop of the national institutional framework, particularly in non-federal states, but local initiatives and policies have plenty of room to influence the local entrepreneurial climate in any country.⁷ The focus in our reform strategy will be on what the Union and Member States can do, but the local level is not to be ignored.⁸

Europe needs an institutional climate that is more conducive to entrepreneurship, catalysed by smart liberalisation as a long-term goal for the promotion of entrepreneurship and innovation in Europe. The

⁷ This pertains to both formal institutions, such as taxes (e.g., Haughwout et al. 2004) and regulations (Tannenwald 1997), and to informal institutions, such as the attitudes and social legitimacy derived from entrepreneurship (Elert 2014).

⁸ Regarding local institutions that foster local entrepreneurship the reader is referred to Andersson and Henrekson (2015), Stam and Bosma (2015) and Bruns et al. (2017).

reform journeys that countries should undertake may look very different – more or less bumpy, long and winding – even though they ought to lead in the same basic direction (if not to the same endpoint). It is clearly beyond the scope of this report to develop a detailed reform roadmap for each EU country, let alone account for regional differences within these countries. Therefore, in the next chapter, we seek to identify the general direction that should be taken while emphasising those differences between the EU countries that must be reckoned with by those assigned to suggest or implement specific reform packages. The second part of the report will then illustrate how these general ideas might be usefully implemented in the specific contexts of the UK, Germany and Italy.

3. Promoting entrepreneurship in the European Union—building an institutional reform agenda

In this chapter, we discuss the nine institutional areas that the previous literature identifies as the most relevant for nurturing the activities of entrepreneurs and other actors in the ecosystem. Previous research suggests that (innovation-based and high-impact) entrepreneurship has numerous important prerequisites, such as an educated workforce (Béchar and Grégoire 2005; Kuratko 2005); a well-functioning labour market (Poschke 2013); and a tax system that favours work, investment and entrepreneurial effort (Cullen and Gordon 2007). Giving a complete overview of the large empirical literature that identifies the effect of various institutions and policies on the rate of entrepreneurial activity is clearly beyond the scope of this report. A lot of the empirical research, however, is of the variety that estimates the sign of the correlation between institutional variables and policies and entrepreneurial outcomes. This perspective has rightfully been criticized as too simplistic (Rodrik 2008). The underlying assumption that the effects are separable and we can expect institutions and policies to have the same effect in different contexts will inevitably lead to disappointment and may even backfire. McCloskey (2016) quipped that such an approach essentially amounts to “add institutions and stir”. Hence, we recognize the need to complement it with insights offered by the Experimentally Organised Economy (EOE) and the Variety of Capitalism (VoC) perspectives discussed in Elert et al. 2017 (chapter 2) and the work underlying the Global Entrepreneurship Index (Acs et al. 2014a; 2014b, Acs et al. 2017) that builds the complex interplay between institutions and productive entrepreneurial activity into a composite index at the national and regional level.

In the sections that follow, we list in *italics* the proposed policy interventions and institutional reforms that have been discussed with our stakeholders. Note that the proposals presented here cover a wide range of issues and that the views on these proposals differ significantly between the members of the consortium. In this document, we present a comprehensive overview of the issues discussed and a broad menu of reform proposals considered.

3.1. The rule of law and protection of property rights

3.1.1 Preamble

The legal principle that a polity should not be governed by arbitrary decisions made by autocratic rulers or government officials is central to any country striving for inclusive prosperity. Likewise, private property rights—the existence of legal titles to hold property and the protection thereof—is arguably the most fundamental of all economic institutions (North and Weingast 1989; Libecap 1993; Acemoglu et al. 2001; Baumol 2002; Rodrik et al. 2004; Acemoglu and Johnson 2005; Besley and Ghatak 2010) and relevant for all actors in the ecosystem.⁹ Secure property rights ensure that physical objects can be turned into capital (de Soto 2000), a transformation that requires judgment, imagination, and innovation. Without control over assets and their returns, a potential entrepreneur will lack the incentive to innovate. What matters is *de facto* control; formal property rights which do not offer control rights in practice are useless, while the absence of formal property rights need not be prohibitive if control rights are sufficiently strong (Rodrik 2007). However, entrepreneurs in countries with weak property rights are generally discouraged from (re)investing (retained) earnings in their

⁹ One could emphasize in this debate the establishment of legal titles to property (North and Weingast 1989) or the enforcement of property rights (Acemoglu et al. 2001), once in place. We take both together here as one without the other seems hard to conceive.

ventures; see Johnson et al. (2002). If the protection of property rights is too weak, destructive entrepreneurship, such as raiding, extortion and corruption, is likely to flourish (Acs et al. 2013; Sanders and Weitzel 2013). Organized crime syndicates such as the mafia are often innovative in their response to shortcomings in the legal enforcement framework and pursue entrepreneurship as a substitute for absent or maladaptive public institutions.¹⁰

What holds for property rights in general, however, does not necessarily apply to intellectual property rights (IPR). Most modern theories of endogenous growth assume high levels of IPR-protection and the monopoly rents associated with these rights are what motivates knowledge creation and growth in these models. Also, the widespread use of patents as an empirical proxy for innovation and their framing as “property rights” has led many to support strong patent protection as a useful tool to support innovation (Kahn 1962; Gilbert and Shapiro 1990). Jaffe and Lerner (2004, 2011), Cohen (2005) and Gans and Persson (2013), among others, argued in contrast that too much IPR-protection may result in strategic (ab)use of IPR and may have a negative effect on innovation beyond a certain level. We will therefore discuss this specific area of property rights protection separately.

3.1.2 The rule of law

Although no country in the world can pride itself on having perfected the rule of law, cross-country differences are substantial. As presented in column 1 of *Table 1*, this is also true among EU countries. The former Soviet-bloc countries score especially low on the rule of law, but this is also true for Greece and Italy and, to a slightly lesser extent, for Spain and Portugal. The top countries are the Nordic, Anglo-Saxon and Benelux nations, with Germany and France in close pursuit. These are also the wealthiest EU countries. The second column of the table reveals large differences in terms of the security of property rights as well, and the order of countries is quite like the order for the rule of law. For citizens and economic agents to reap the full benefits of the rule of law, the laws and regulations in question must be of high quality, and the government must be sufficiently effective in maintaining the rule of law. The third and fourth indicators in *Table 1* show that the differences across EU countries are large in these respects as well. However, it is noteworthy that the quality of the laws and regulations in the laggard countries tend to be higher than the government’s effectiveness at enforcing compliance. This is not surprising. Adopting the right laws is easier than enforcing them effectively. Furthermore, EU law compels countries to do the former but has far less clout to enforce or ensure the latter. A strong role of law is necessary condition to promote Entrepreneurship.

Proposal 1: We propose to further strengthen the current rule of law monitoring and enforcement mechanisms to ratchet up the performance of all Member States on issues related to rule of law, government effectiveness and protection of property rights.

Deficiencies in these factors negatively impact all agents in the entrepreneurial ecosystem and induce people to conduct activities and keep their capital in the shadow economy. Even the poorest EU member countries are higher medium-income countries, and neither the VoC literature nor arguments à la Rodrik (2008) provide any support for the view that these countries can compensate for these deficiencies through other institutional measures. Given a properly functioning Rule of Law and system

¹⁰ The Sicilian Mafia and criminal organizations in Japan illustrate that these activities are not necessarily negative for the economy, given the context within which they are conducted (Milhaupt and West 2000; Bandiera 2003; Douhan and Henrekson 2010). Nevertheless, the weaker the property rights, the more predatory the entrepreneurial activities are likely to be.

of property rights, it is also important to consider the width, breadth and extent of property rights in general and intellectual property rights in particular.

Table 1: The rule of law and the quality of government: four indicators for the EU member countries and the United States

Country	Rule of law	Security of property rights	Government effectiveness	Regulatory quality
Finland	100.0	8.98	95.1	91.9
Denmark	99.3	7.83	89.2	87.3
Sweden	96.8	7.82	88.8	89.4
Netherlands	96.5	8.07	89.9	88.8
Austria	95.9	8.07	82.6	81.7
Luxembourg	94.4	8.52	85.0	85.6
UK	94.2	8.70	84.0	90.1
Germany	93.3	7.73	87.2	86.7
Ireland	92.0	8.12	83.5	88.2
US	87.4	7.25	79.5	76.3
Belgium	84.8	7.41	77.9	73.8
France	83.7	7.57	78.0	71.6
Estonia	81.2	6.97	68.1	86.2
Malta	77.2	6.74	67.6	72.1
Czech Rep.	75.5	5.01	67.5	70.1
Portugal	75.3	6.41	67.1	63.8
Cyprus	73.5	5.55	70.6	71.9
Slovenia	71.5	5.30	67.1	61.2
Spain	70.5	5.54	71.1	64.0
Lithuania	69.7	5.41	66.7	74.5
Latvia	68.7	5.99	66.1	73.7
Poland	67.5	5.54	62.0	71.0
Hungary	59.5	4.56	53.9	63.7
Slovakia	58.9	4.74	63.3	67.0
Greece	55.7	4.84	50.0	53.3
Italy	55.5	5.02	49.5	61.1
Croatia	54.9	4.65	58.3	54.7
Romania	50.9	4.93	39.0	59.5
Bulgaria	45.2	4.11	41.6	59.0

Note: Rule of law captures perceptions of the extent to which agents have confidence in and abide by the rules of society, in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Security of property rights captures the extent to which individuals have secure rights to property, including the fruits of their labour. Government effectiveness captures perceptions of the quality of public and civil services and the degree of their independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. Regulatory quality captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private-sector development. All scores are standardized from 0 to 100, where the value 100 is assigned to the leading country. Singapore is the leading country for the 3rd and 4th measure.

Source: World Bank, *World Governance Indicators 2015*, and Gwartney et al. (2015) for security of property rights.

3.1.3 Patents and intellectual property

Although the protection of private property is generally considered an important precondition for a functional economy, the protection of intellectual property rights (IPR) merits further discussion. A vast literature on IPR exists and it is beyond the scope of this report to review it in any detail.¹¹ For our purpose, Acs and Sanders (2012) usefully conceptualized the system of IPR-protection (at an admittedly high level of abstraction) as shifting the balance of bargaining power between the inventor/scientist and the innovator/entrepreneur. Stronger IPR-protection gives the inventor more bargaining power over the rents of innovation, taking away such rents from the entrepreneur/innovator who is the residual claimant to venture profits. From that perspective, it seems inefficient to finance and motivate knowledge generation in a way that reduces the incentives and rewards for the diffusion and commercialization of that knowledge. As both activities have positive externalities, we are one instrument short to achieve a first best outcome.¹² In practice, one must therefore strike a difficult balance within the intellectual property rights system. On the one hand, if protection is too weak or can be circumvented too easily, there is no way to recover the costs of knowledge generation and early diffusion in the first place (Merrill et al. 2004; Acs and Szerb 2007; Baumol et al. 2007; Kauffman Foundation 2007). On the other hand, if protection is overly strong—if its time frame is too long or if it is too easy to obtain protection even for bits and pieces of potentially useful knowledge and inventions that are not truly novel—the inventor (or his delegate) will be able to extract excessive rents from the entrepreneur *ex post*, inhibiting the free flow of knowledge, reducing incentives to commercialize and leaving the economy less competitive and less innovative. Of course, one could then publicly subsidize the (sub)licencing costs of patents deemed particularly valuable for society (i.e. important new drugs). In that way, the positive externalities connected to knowledge generation and disclosure would be internalised without creating negative externalities in knowledge diffusion to finance the internalisation. This is a policy that can be implemented within the current system and involves no fundamental institutional reforms. But it does require public funds and a legitimized system for deciding what licence fees to subsidize. Moreover, if patent holders can fully anticipate and internalize the proposed subsidies, such a system would be ineffective and like most other current practices serve the interests of large, incumbent firms more than those of young, innovative SMEs, also in Europe. Costs of patenting are high and patent rights do not really protect against infringements by large firms with deep pockets and strong legal departments. Strong(er) patent protection is then not the solution, but the problem and more fundamental reforms to the patent system itself would be called for to promote the diffusion and use of knowledge:

Proposal 2: To promote the use of knowledge, one could think about the right to infringe upon patents that are not actually commercialized

¹¹ See e.g. MacAleer and Oxley (2007) for a broad overview of the issues.

¹² To address the issue David (1993) distinguished the three Ps: Property Rights, Patronage and Procurement. Universities and publicly funded R&D are examples of the latter two and discussed below.

And more generally,

Proposal 3: We propose to advocate the possibility to limit the breadth, width and span of patent protection to cover working prototypes and market ready innovations only for a short period of time.

Of course, the European union is party to international treaties, such as the WTO TRIPS Agreement, that sets minimum requirements to IPR. We do not propose the European Union violate or disregard these treaties, but encourage the Union to use its influence in the governing bodies to get them reformed to accommodate our proposals. These limitations of patent rights would still fall well within the institutional structure in place, but would significantly reduce the risk entrepreneurs face of being sued for infringements on patents they did not even know existed (Jaffe and Lerner 2004, 2011). Alternatively:

Proposal 4: We propose to explore the possibility to require patent applicants to set the price for the license ex ante instead of allowing them to negotiate the terms of a licence contract ex post when the potential for commercial application is known.

With patent registration and holding fees depending on this pre-set licence fee, inventors can charge a fair reward to recover the costs of generating knowledge, while innovators need not worry about unexpected claims on their profits. After paying a fair price for the invention, the residual rents to innovation then accrue to the entrepreneur for coming up with a commercial application of the idea. Eliminating the uncertainty for entrepreneurs considering a venture that uses protected knowledge, was generally perceived as useful. Taking a more extreme position on the issue, some have argued that IPR is simply not the right tool to mobilize resources for knowledge generation and allocation in a knowledge intensive, entrepreneurial economy. Some (e.g. Boldrin and Levine 2013, Lobel 2013) have even gone as far as to suggest we abandon the system of patent protection and intellectual property altogether, as it simply fails to deliver the desired results. Patent protection historically emerged in Medieval Italy and only gradually evolved into the instrument for incentivising knowledge creation for commercial purposes it is perceived to be today. Consequently: "What one is faced with is the mixture or intended and unintended consequences of an undirected historical process on which the varied interests of different parties (some widely separated in time and space) have left an enduring mark." (David 1993, p. 21). Boldrin and Levine (2013) present empirical evidence to support their case, showing strong patent protection is not promoting innovation. In the absence of patents, knowledge generation could alternatively be funded through patronage or procurement (David 1993) and commercialization would be motivated by profit but not by legally enforceable monopoly rents. Such drastic reforms, however, would involve the EU backing out of complex and encompassing treaties and implies withdrawing for example from the WTO altogether. Obviously, such drastic steps would cause large collateral damage. Moreover, due to historical co-evolution and complementarities among interacting institutions, radical institutional reform inevitably spills over in other domains. Patents, and IPR in general are for example also deemed important for entrepreneurs as signals of quality and potential financiers look for IPR in new ventures (e.g. Hsu and Ziedonis, 2008) as patents serve as a proxy for innovativeness, quality and gives some collateral, where uncertainty reigns. The patent registry serves as a repository of knowledge that tracks the origin of ideas and can be consulted for commercial and policy purposes. And finally, the role of and therefore total abolishment of patent

protection would work out very differently in different sectors. In some there is no problem achieving the same results with trade secrets (e.g. software), whereas in others (e.g. medicines), mandatory and highly uncertain certification procedures make it difficult to conceive of efficient alternatives. The functions of patenting can perhaps be fulfilled more efficiently in other ways and certainly do not require allowing inventors to monopolize and thereby limit the profitable use of the knowledge they have generated. But given the legal complexities and institutional complementarities we propose a cautious approach of experiments that retain the system's benefits while increasing the free flow of knowledge. Boettinger and Burke (2004) for example proposed open source patents to retain the functions of knowledge repository and verification, while improving the access to knowledge also for commercial use. In our stakeholder consultations, the Hellenic Industrial Property Organisation indicated they are setting up such a registry as a pilot and we support such experiments:

Proposal 5: Support experiments and pilots currently developed with open source patent registration.

We would claim that the monopoly rents that patent holders can now extract *ex post* reduce the *ex ante* private incentives to commercialise and serve as a tax on consumers. Because everybody, not only the buyers of the patented good or service, benefits from the knowledge spillovers that widely diffused knowledge generates, it is more efficient to incentivise and finance knowledge generation (and documentation) out of general tax revenue.¹³ We would agree with Verspagen (2007) who argued that policy makers in this area must be entrepreneurs themselves. Ready to implement reforms in this general direction, take the risk of failure and learn from their mistakes when that happens. Important dimensions over which these experiments could find very different results, include the geographical and sectoral dimensions.

3.1.4 Conclusion on the rule of law and protection of property rights

This section has argued that the rule of law and secure property rights are a *condition sine qua non* for any modern economy. Unfortunately, these conditions are not prevalent in all European Union Member States even today. As problems are typically not in the formal but rather the informal institutions being less supportive, implementing reforms in this area is a long run and tedious process. But given the fundamental importance of these very basic foundations of an entrepreneurial society, this should be pursued relentlessly, even if only small steps can be taken at a time. As for *Intellectual Property Rights* (IPR), we propose the European Union and its member states carefully reconsider the case for strict, broad and extensive IPR enforcement. Property rights are never absolute or natural and it is society that establishes and can also reform these rights if use and abuse prevent them from achieving their intended purpose. In the case of IPR, this serves the dual purpose of giving due credit and just reward to the originator, keeping track of useful knowledge that is available and disclosing it to the public for further development. The proposals made in the above, summarized in *Table I-1* below, together and individually aim to create more access to and flowing of useful knowledge, while maintaining a good public register of accumulated knowledge in society.

¹³ Of course, the latter needs to be collected in an efficient manner, without creating welfare decreasing distortions. We discuss tax reforms below.

Table I-1: Proposals Section 3.1

Number	Section	Title	Proposal	Explanation
1	3.1.2	The Rule of Law	We propose to ratchet up the performance of all Member States on issues related to rule of law, government effectiveness and protection of property rights.	Deficiencies in these factors negatively impact all agents in the entrepreneurial ecosystem and induce people to conduct activities and keep their capital in the shadow economy. Even the poorest EU member countries are higher medium-income countries, and neither the VoC literature nor arguments à la Rodrik (2008) provide any support for the view that these countries can compensate for these deficiencies through other institutional measures.
2	3.1.3	Patents and Intellectual Property	To promote the use of knowledge, one could think about the right to infringe upon patents that are not actually commercialized.	Of course, the European union is party to international treaties, such as the WTO TRIPS Agreement, that sets minimum requirements to IPR. We do not propose the European Union violate or disregard these treaties, but encourage the Union to use its influence in the governing bodies to get them reformed to accommodate our proposals. These limitations of patent rights would still fall well within the institutional structure in place, but would significantly reduce the risk entrepreneurs face of being sued for infringements on patents they did not even know existed (Jaffe and Lerner 2004, 2011).
3	3.1.3	Patents and Intellectual Property	We propose to advocate the possibility to limit the breadth, width and span of patent protection to cover working prototypes and market ready innovations only for a short period of time.	Of course, the European union is party to international treaties, such as the WTO TRIPS Agreement, that sets minimum requirements to IPR. We do not propose the European Union violate or disregard these treaties, but encourage the Union to use its influence in the governing bodies to get them reformed to accommodate our proposals. These limitations of patent rights would still fall well within the institutional structure in place, but would significantly reduce the risk entrepreneurs face of being sued for infringements on patents they did not even know existed (Jaffe and Lerner 2004, 2011).
4	3.1.3	Patents and Intellectual Property	We propose to explore the possibility to require patent applicants to set the price for the license ex ante instead of allowing them to negotiate the terms of a license contract ex post when the potential for commercial application is known.	With patent registration and holding fees depending on this pre-set license fee, inventors can charge a fair reward to recover the costs of generating knowledge, while innovators need not worry about unexpected claims on their profits. After paying a fair price for the invention, the residual rents to innovation then accrue to the entrepreneur for coming up with a commercial application of the idea. Eliminating the uncertainty for entrepreneurs considering a venture that uses protected knowledge, was generally perceived as useful.
5	3.1.3	Patents and Intellectual Property	Support experiments and pilots currently developed with open source patent registration.	The functions of patenting can perhaps be fulfilled more efficiently in other ways and certainly do not require allowing inventors to monopolize and thereby limit the profitable use of the knowledge they have generated. But given the legal complexities and institutional complementarities we propose a cautious approach of experiments that retain the system's benefits while increasing the free flow of knowledge. Boettinger and Burke (2004) for example proposed open source patents to retain the functions of knowledge repository and verification, while improving the access to knowledge also for commercial use.

3.2. Taxation

3.2.1 Preamble

The extent and design of the tax system affects the net (relative) returns to entrepreneurial venturing both directly and indirectly; it also affects the prevalence and activities of the other actors in the ecosystem. The tax system determines a potential entrepreneur's risk-reward profile and, consequently, his or her incentives for undertaking entrepreneurial activities. The literature has consistently found that the self-employed are more responsive to tax incentives than employees (e.g., Carroll et al. 2000; Rosen 2005; Heim 2010; Chetty et al. 2011; Harju and Kosonen 2013; Alstadsæter et al. 2014; Kleven and Schultz 2014). The elasticity of taxable income is far higher for the self-employed than for employees, which implies that higher taxes reduce the supply of taxable income due to a combination of real effects and tax reporting. However, the effects are often complex and sometimes counterintuitive. Here we will focus on two main ways in which the tax system affects entrepreneurial activity.¹⁴

The first is an *absolute effect* that influences the supply and effort of potential entrepreneurs in the economy, as an absolute increase in the taxation of entrepreneurs lowers the (expected) after-tax reward. It also makes expansion financed by retained earnings more difficult and negatively affects the liquidity position of entrepreneurs. In sum, the absolute effect serves to frustrate entrepreneurial activities and impedes the emergence of new start-ups and the expansion of firms.

The second is a *relative effect* that influences an individual's choice of occupation and organizational form by altering the relative returns for different activities if the tax favours one form of economic activity over another; thus, a higher tax rate may encourage income shifting and may positively influence (some forms of) entrepreneurship in the economy. A relative effect also occurs if the tax system favours certain forms of savings and investments. To the extent that the optimal financing and ownership structures differ across industries, firm type and firm age, such non-neutralities affect incentives for entrepreneurship.¹⁵

Entrepreneurial income is taxed in several different forms, notably as labour income, business income, current capital income (dividends and interest), or capital gains. A thorough analysis of the effects of taxation on entrepreneurship must disentangle these carefully and we do so by enumerating and discussing what we deem to be the key characteristics of a tax system favouring innovative entrepreneurship and the ecosystem supporting it.

3.2.2 Taxation in general

Our contention is that the tax system should strive for as much simplicity as possible rather than addressing shortcomings by granting exceptions and tax breaks for specific ownership types or industries. Tax breaks are often instituted for good reasons, and they may very well appear justified

¹⁴ See Henrekson and Sanandaji (2016b) and the references contained therein for a further discussion.

¹⁵ Two additional effects are of less importance for the discussion at hand: an *evasion* effect influencing the willingness to become an entrepreneur to exploit opportunities to decrease the tax burden, which arises if evading taxes on entrepreneurial income, either illegally or legally, is easier than it would be for wage income. Self-employed entrepreneurs may be able to underreport income by neglecting to register cash sales, overstating costs by recording private expenses as business costs, or using informal agreements that are difficult for the tax authority to verify. Higher taxes may therefore encourage self-employment, but tax avoidance opportunities become more difficult to exploit as a business expands. Lastly, there is an *insurance* effect in the case of both proportional and progressive taxation having a full loss offset, as such a scheme functions as insurance that stimulates risk taking (Domar and Musgrave 1944). With respect to entrepreneurship, increased taxation of the net return with a full loss offset will reduce the after-tax variance of profits and therefore the risk associated with the business. If potential entrepreneurs are risk averse, this risk reduction may stimulate entrepreneurship. By contrast, a progressive tax system with an imperfect loss offset will deter entrepreneurial business entry since entrepreneurial income is more variable than salaried income, which means that the average tax will be higher for entrepreneurs in a progressive tax system (Gentry and Hubbard 2000).

when analysed in isolation. However, they create complexities with numerous drawbacks. First, they are vulnerable to tax-driven business models that are legal but not in line with the spirit of the concession in question. Moreover, highly complex systems lack in salience. For example, if economic actors can realize a lower effective taxation than the statutory one, it becomes more difficult to achieve the behavioural effects that policymakers would like to see (Chetty et al. 2009).

Proposal 6: In general, we propose tax rates should be low, transparent, simple and neutral and the effective tax rates remain close to statutory rates.

We should emphasize here that important complementarities exist between different tax rates. Overall, to calculate the total effect of taxation, one must consider the specific rules for depreciation and valuation in corporate taxation and the taxation of interest income, dividends, capital gains, and wealth. The effective total tax rate also depends on the ownership category. In many developed countries, business ownership stakes that are directly held by individuals and families have been taxed more heavily than other ownership stakes. The wave of tax reforms that swept the OECD in the 1980s reduced many of these differences, but those that remain provoke an endogenous response in the ownership structure of the business sector to the tax-favoured owner categories (Rydqvist et al. 2014). If individual stock holdings are disfavoured relative to institutional holdings and if institutional investors are less willing to invest in small and new entrepreneurial projects, such tax biases will discourage entrepreneurial activity. Hence the proposed aim for neutrality, simplicity and transparency.

3.2.3 Taxation of labour income

The level and progressivity of labour taxation (including mandatory social security contributions) affects employees directly by determining the incentives for work effort, labour supply (on the extensive and intensive margin), occupational choice, career aspirations, and the propensity to upgrade and learn new skills (Rosen 1983). Most obviously, high and progressive labour taxes lower the rate of return on highly productive skills, and are therefore likely to impair the supply of skilled workers.¹⁶ They also slow restructuring and the reallocation of people across firms since it becomes costlier to achieve the net wage differential necessary to induce a person to leave their current employment. Hence, high taxation of labour income affects several of the categories in the labour force, especially competent employees and intrapreneurs.¹⁷ An adequate, competent and flexible labour force obviously benefits an Entrepreneurial Society and therefore taxation of such labour should preferably be kept low, especially at the margin.

As shown in the first column of *Table 2*, the highest marginal tax rates differ greatly across the European Union—spanning from 16 percent in Hungary to 57 percent in Sweden. However, the highest marginal tax rate is not necessarily the most relevant measure. One should also examine the total marginal tax wedge, which is defined as the share of total labour cost at the margin and consists of the sum of mandatory social security contributions paid by the employer and/or the employee and the marginal income tax rate. This is performed for different relevant family constellations in columns 2–4 of *Table 2*.

¹⁶ Although it is difficult to find direct evidence of such an effect, there is highly plausible indirect evidence in the form of high estimates of the elasticity of taxable income at high income levels (Gruber and Saez 2000; Saez et al. 2012).

¹⁷ This issue is discussed at some length in Henrekson and Rosenberg (2001).

Table 2: Top marginal tax rate on labour income, and marginal rate of income tax plus employee and employer contributions less cash benefits (tax wedge), 2015.

Country	Top marginal tax rate on labour income	Single no child, 100% AW	Single, no child, 167% AW	Married, 2 children, 100–67% AW
Austria	50.0	60.5	42.2	60.5
Belgium	45.3	66.3	68.5	65.5
Czech Rep.	20.1	48.6	48.6	48.6
Denmark	55.8	42.0	55.8	42.0
Estonia	19.7	41.2	41.2	41.2
Finland	49.1	55.5	58.5	56.2
France	54.0	59.3	59.8	56.4
Germany	47.5	60.2	44.3	57.7
Greece	50.0	47.6	54.8	47.6
Hungary	16.0	49.0	49.0	49.0
Ireland	47.0	55.8	55.8	37.7
Italy	48.8	56.0	63.3	56.6
Luxembourg	43.6	55.5	55.5	53.0
Netherlands	49.2	46.7	52.1	46.7
Poland	20.9	37.2	37.2	37.2
Portugal	50.3	53.9	60.8	51.1
Slovakia	21.7	46.5	46.5	46.5
Slovenia	39.0	51.0	60.4	43.6
Spain	46.0	49.9	38.0	49.9
Sweden	57.0	48.3	67.3	48.3
UK	45.0	40.2	49.0	40.2
US	46.3	43.6	43.6	34.3

Note: AW = average wage. The marginal tax wedge refers to the principal earner with an income of 100% of AW in the rightmost column. Source: OECD, Taxing Wages 2014–2015.

In a country like Belgium, as much as two-thirds of total labour cost consists of income taxes and social security contributions, while the share in Poland is only about half as large. The importance of the latter effect becomes obvious when comparing the third and fourth columns in *Table 2* for Belgium and Sweden.

In fact, Sweden has the highest employment rate in the entire EU, but this does not mean that its high taxation of high incomes is costless. In fact, a reform to remove taxations of the highest income levels in Sweden would probably more than finance itself (Sørensen 2010). As it stands, these taxes can be expected to have deleterious effects, particularly in the most advanced parts of the economy. In all likelihood, Sweden is successful in employment terms despite rather than because of its high labour taxes, which can only be borne because of the overall quality of the institutional environment. Countries with poorer institutional quality should therefore not see Sweden as a role model in this respect. Any poor country that would like to increase their taxes must begin by improving the quality of their basic institutions.

Labour income is taxed at low rates in most Eastern European countries. Nonetheless, these countries have large underground economies, while the employment rate is low, as is the rate of improvement-driven opportunity entrepreneurship. This strongly suggests that factors other than high taxes on

labour are binding constraints for this cluster of countries. The situation is different for several of the Mediterranean countries, which also suffer from low employment and entrepreneurship, whereas the underground economy tends to be large. In these countries, as well as in Belgium and France, high labour taxation is a clear impediment.

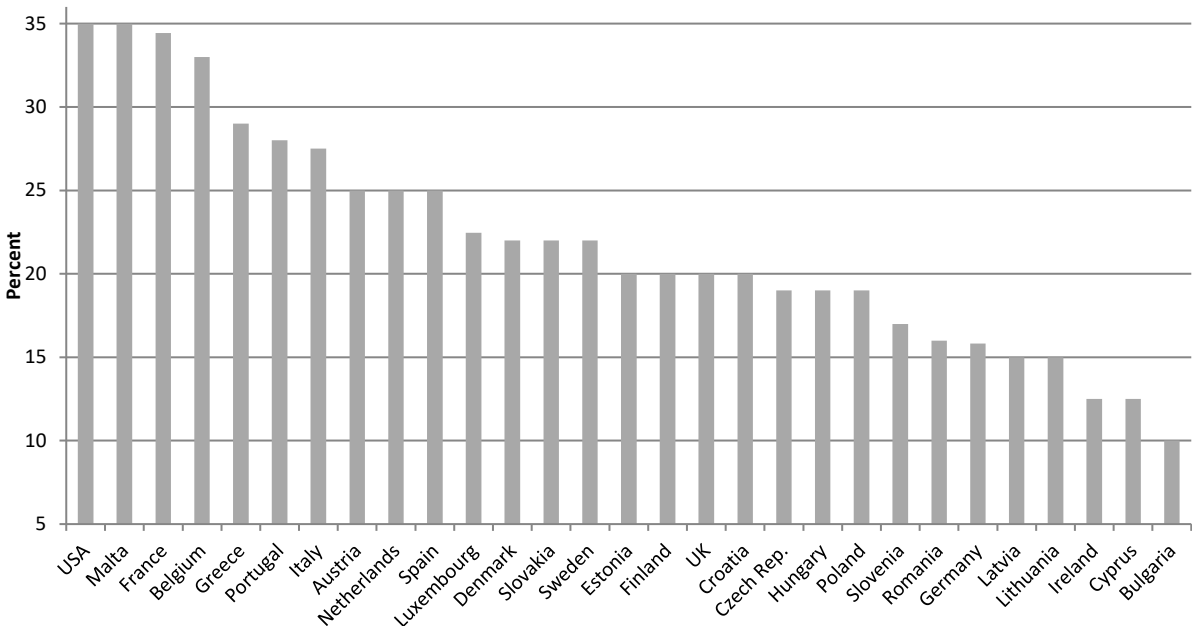
Proposal 7: It is preferred to reduce high tax burdens on labour over making subsidies, pension rights and social benefits more conditional on employment status.

We propose countries with high marginal labour tax rates rather not follow the Swedish model, but reduce their marginal labour tax rates where possible, because conditionality always benefits well-defined, existing forms of employment and tries to solve the problems of high taxation by introducing a new set of problems and layers of complexity.

3.2.4 Taxation of corporate income

Regarding corporate taxation, a high tax rate on business profits discourages equity financing and encourages debt financing if interest costs are tax-deductible (Desai et al. 2003; Huizinga et al. 2008). Given that debt financing is less costly and more readily available to larger firms, high corporate tax rates coupled with tax-deductible interest payments disadvantage smaller, younger firms and potential entrepreneurs (Davis and Henrekson 1999). Taxing corporate profits also reduces the retained earnings that can be used to expand young ventures. Consequently, taxing profits in small firms often leads to lower growth rates (Michaelas et al. 1999). It should also be noted that corporate taxation in the end is paid by consumers anyway and is biased in favour of large, incumbent firms also as they have the clout to negotiate special deals and set up international tax constructions that reduce their effective corporate tax rate. In general, we would therefore propose in line with proposal 6 above, to simplify the tax code and reduce corporate taxes for all firms to level that playing field.

Figure 1: The statutory corporate tax rate in EU countries and the US, 2016.



Source: OECD and Eurostat.

As shown in *Figure 1*, there are large differences across EU countries in the statutory corporate tax rate, ranging from 34 percent in France to 12.5 percent in Ireland. Such differences give rise to tax evasion and arbitrage. The European Union has limited competences to strive for convergence across EU countries, but in this case healthy institutional competition among member countries can also do the trick. A “race to the bottom” in this respect, is not particularly worrying, as we believe corporate taxation will benefit small and young firms most if it is low or even zero.

There is, however, an important role for the European Union in the meantime. The Union must be adamant about ending blatant institutional arbitrage and sweetheart deals negotiated between national governments and large multinational corporations.

Proposal 8: The Union should strive to reduce and ideally remove the discrepancies in member countries between statutory and effective corporate income tax rates, which may result from tax-reducing depreciation rules, inventory valuation rules or other more ad hoc country- or industry-specific tax reductions.

Their removal would create transparency and contribute to levelling the playing field for all firms regardless of their size, age, industry or nationality. Competition among member states is good, but it should be competition on corporate tax rates and not on complex, opaque fiscal deals and schemes. Moreover, when it comes to corporate taxation, member states should treat all firms equally.

We do believe under those conditions, one could support entrepreneurship with lower corporate taxation. A simple way to channel more financial resources to entrepreneurial ventures is to not take away their scarce financial resources in the first place. Therefore:

Proposal 9: We propose a complete tax exemption for start-ups up to their 3rd year.

Instead of trying to channel funds to the right entrepreneurial ventures, one then simply allows the market to allocate these funds. Those ventures that turn a profit can reinvest these funds, whereas those ventures that fail to break even, will vanish. This is not to say that personal incomes earned from start-ups should be tax exempt (see below), as this may cause unproductive tax arbitrage and promote solo-self-employment (Liebregts, 2016). This reform makes it easier and more attractive to make and reinvest profits, but at the same time creates a tough selection environment for firms and does not create the problem for policy makers and program managers to have to come up with (transparent, democratic and accountable) criteria for public support. The most efficient way to support new venturing is not to take from the successful ones and try to improve on the market’s allocation of funds. In the extreme case, entrepreneurial profits could be made fully tax exempt. Such a policy would only really be effective, however, when statutory corporate tax rates are also effective corporate tax rates.

3.2.5 Taxation of dividends and capital gains

The returns to entrepreneurial venturing typically accrue in the form of dividends and capital gains from ownership stakes in the firm. A high tax rate on dividends encourages a reliance on retained earnings and debt to finance expansion. New ventures typically have little access to either. Therefore,

a high tax rate on dividends will lock capital with a relatively high risk appetite, up in incumbent ventures (Chetty and Saez 2005). Most of the financial return from successful high-impact entrepreneurial firms, however, accrues to owners in the form of a dramatically increased value of their shares, not as dividend payments to the owners. Thus, the taxation of capital gains on stock holdings possibly affects the incentives of potential high-impact entrepreneurs and their (equity) financiers more directly than dividend taxation (Cumming 2005; Da Rin et al. 2006). We would argue that both tax bases give rise to fiscal arbitrage and should be low and neutral wherever possible.

The standard tax rates on dividends and capital gains among EU countries and the United States are given in Appendix *Table A1* and reveal major differences. More importantly, there are country-specific, highly idiosyncratic divergences from these standard rates. These divergences depend on factors such as the holding period, the size of the firm, whether the firm is private or public (i.e., traded on a stock exchange), whether a person is an active or passive owner, whether the firm and/or the investor qualifies for inclusion in a tax-favoured scheme (e.g., a scheme geared towards encouraging innovative start-up activity), and the tax status of the body (a physical or a juridical person, etc.) receiving the capital income.

As exemplified by Thornton (2016), such differences can be huge and vary substantially across countries. In Sweden, the dividend and capital gains tax rates can vary between 20 and 60 percent for physical persons depending on circumstances, whereas the Irish dividend tax rate varies between 20 and 40 percent and the Irish capital gains tax rate can be reduced from 33 percent to zero under certain conditions.¹⁸ On the other hand, the variation is small in the Netherlands, Poland, and Estonia; in the latter country, dividends are taxed at 0 percent and capital gains at 20 percent.

Proposal 10: Complexities should be removed when possible. Instead, countries should aim for dividend and capital gains tax rates with few exceptions and few (opaque) concessionary schemes.

Here, the Eastern European countries, such as Poland and Estonia, have exemplary models in which the tax rates are at reasonable levels and the effective tax rate is largely independent of other circumstances. Arguably, the reason for this clarity is that the design of these systems date back no further than 1989. A radical redesign from the ground up is probably not feasible in older member states, but they should nevertheless strive for similar improvements to simplicity and transparency. Specifically, grounding on the analysis in Europe performed by Grilli et al. (2018) for venture capital equity investments, the capital gains tax could then be reduced, possibly even to 0, to give incentives to invest in new ventures while keeping the possibilities to offload the risks onto the public sector low. If such reforms are considered, it is essential to prevent such measures from fuelling fiscally driven arbitrage and speculation in leveraged buy-outs and mergers and acquisitions.

3.2.6 Taxation of private wealth

For small, young and experimental SMEs (large) banks have little to offer. Small, experimental ventures do not require complicated financial products and services, represent too small accounts to justify specialized tailored services while their opacity implies standardized products are unsuitable. Bhidé (1992, 1994) has shown that the entrepreneurial process simply does not fit the preference of formal investors for plans and planning: “Investors prefer solid plans, well-defined markets, and track records.

¹⁸ See OECD (2015a) for details regarding the taxation of income from SMEs.

Entrepreneurs are heavy on energy and enthusiasm but may be short on credentials.” (Bhidé 1992, pp. 109). Entrepreneurs require financiers that can shoulder some of the inherent risk and are willing to bank on trust rather than collateral.

Therefore, we see “triple-F” finance take an important role in the early stages of many ventures. When an entrepreneur has exhausted his own resources, typically friends, family and fools step in (Mitter and Kraus 2011). Kotha and George (2012) show that entrepreneurs distribute ownership rights to informal investors and their investments early in the start-up process, suggesting triple-F financiers are not mere charities. And Burke et al. (2014) show that the supply of triple-F informal entrepreneurial finance typically follows demand closely and that amounts invested are typically in the same order of magnitude as those committed by angel investors discussed below (in the 0000s). That is, entrepreneurs mobilize significant funds from their personal networks and these funds help them develop their venture in its earliest stages. It is possible that more supply of informal finance would thus enable or even cause more entrepreneurial venturing.

Proposal 11: We therefore propose to increase the wealth available for informal entrepreneurial finance by reducing taxes on private wealth, private wealth transfers and inheritance.

There is evidence to suggest that an inheritance increases the probability of starting a firm (Blanchflower and Oswald 1998). The naïve policy implication one could draw from that, would be to eliminate inheritance taxes to maximize the chances that new ventures arise. Such proposals are, however, debatable, as that also has significant impacts on the (re)distribution and taxation of wealth in society. The consortium, as well as our stakeholders in the discussion, were far from unanimous on this point and we all realize this discussion will touch on deeply rooted cultural attitudes towards fairness and justice. Work by some in the consortium (Acs 2013; Acs and Phillips 2002; Acs and Dana 2001) has proposed that all Varieties of Capitalism require a complex of institutions to ensure the reconstitution of wealth and opportunities to new generations. Low or absent inheritance taxes are then compatible with an Entrepreneurial Society only if the social contract somehow forces those that accumulate private wealth to (re)invest that wealth in creating opportunities for future generations. Here the history of Europe (e.g. Piketty 2014; van Bavel 2016) may explain why Europeans have become somewhat sceptical of their rich. Wealth accumulation all too often resulted in the building of dynasties and the limiting of access to positions of economic and political power. In Europe, much more than in the United States or China, the welfare state was the institutional complex that created equal opportunity by appropriating private wealth through taxation and creating opportunities by publicly investing in infrastructures, and access to education and health for all.

Given such sensitivities, one can observe some agreement on the issue that owning and transferring private wealth should not be taxed heavily (except perhaps in the form of a Tobin tax or FTT to prevent unproductive financial transactions). The incomes that were used to build up private wealth have already been taxed. Leaving such private wealth un(productively) invested, however, should carry a penalty. We will return to the taxation of assets below, but to mobilize private wealth for entrepreneurial venturing, a preferential treatment of equity investments in young SMEs could be considered. Finally, regarding inheritance taxation, a balance must be struck between on the one extreme, the need to prevent the build-up of exclusive and unproductive dynasties, and on the other to provide incentives to accumulate wealth (through productive investment).

3.2.7 Tax neutral treatment of equity and debt

It is well understood that problems of asymmetric information cause adverse selection and moral hazard, causing markets for entrepreneurial finance to remain thin or even non-existent (Berger and Udell, 1998; Hall and Lerner, 2010; Kerr and Nanda, 2009). The problems of information asymmetry can be resolved by aligning investee and investor interests, often by allowing the investor to take an equity stake with some controlling rights in the venture (Mitter and Krause 2011). In Europe, this typically takes the form of common stock equity investments, whereas in the US convertible preferred stock are more common in VC (Kaplan et al. 2007). Equity investments can handle higher levels of uncertainty and ambiguity, because they make the investor an owner and thereby entitle him or her to a share in the residual rents of innovation. In the absence of a legal obligation to repay the principle, equity investments can never lead to liquidity problems or drive the venture into insolvency.

As a corollary to the above innovative entrepreneurs have very limited or no access to bank credit and other forms of tradable debt obligations. They may borrow from friends, family and fools or through peer-to-peer lending, but the allocation decisions there make this type of debt rather equity-like in the way it is allocated. Innovative start-ups face large disadvantages in attracting more formal debt finance.¹⁹ Tax structures that benefit debt over equity therefore implicitly and often unintendedly, will bias the flow of financial resources away from innovative entrepreneurship. Following this discussion one could propose three reforms in increasing order of radicalness.

Proposal 12: A quick win would be to make equity investments in start-ups entirely tax exempt. A more involved proposal is to start a program to achieve tax neutrality between debt and equity finance. And one step beyond achieving tax neutrality would be to make equity investments preferred.

Making equity investments in start-ups tax exempt is not a radical idea as the tax liability on returns on equity investments in start-ups are low or absent in most European member states already. It would simply help entrepreneurs finding investors if this was made explicit. Neutrality between debt and equity is much more involved. Currently, debt is cheap. It is subsidized because interest payments are deductible as operating costs while dividends are considered income and taxed at relatively high rates. Moreover, strong legal creditor protection reduces risks for creditors that would otherwise justify a higher risk premium on debt finance. These fiscal and institutional arrangements bias the supply of finance towards the debt channel, in which innovative entrepreneurs face strong disadvantages. Debt finance channels society's available savings into reproduction of the existing capital stock, whereas only equity type investments finance innovation and progress beyond the status quo (Polzin et al. 2017). Achieving neutrality can come about in two ways. One could reduce the tax incentives and advantages for debt finance or alternatively, seek to give similar advantages to equity. The first route is the first best, but political feasibility may force policy makers down the second route. And that may well lead to an overshoot that in this case may not be undesirable.

In an Entrepreneurial Society, it is equity investments that enable innovative entrepreneurial venturing and thereby generate useful knowledge about products, services and business models that work and fail. This useful knowledge constitutes a positive externality that could justify a tax preferential

¹⁹ They face similar problems in highly institutionalized and regulated equity markets, such as publicly traded stock. Investors there also allocate capital more like debt and hold stock as an investment yielding a financial return, not as an ownership stake. Such debt-like equity does not provide an affordable alternative for young start-ups.

treatment of equity investments over debt.²⁰ In short, we feel that fiscal advantages for debt should be eliminated and there is a good case to be made for making equity investments tax preferred. This could be achieved by making dividend payments tax deductible and treat them as costs of capital like interest payments.

On the income side the personal tax code should not distinguish between wealth income in the form of interest, dividends or capital gains. As we argued above, the best approach here is to simplify such that one single rate applies to all sources of wealth income or to simply abandon wealth taxation altogether. Achieving equity preference in the tax code would then imply for example allowing for deferral of tax liabilities on capital gains and dividend income.

As member states retain full control over their national tax codes, however, achieving this aim requires careful tailoring of the proposal to national fiscal peculiarities and systems. At the very least, even if these reforms do not increase the flow of funds to experimental entrepreneurial ventures, they will push the highly leveraged European financial system to make the transition to a more robust, equity funded steady state. Standard economic theory has us believe that the composition of corporate and financial firms' balance sheets does not matter for the real economy. Money is neutral and total savings will be allocated to total investment one way or another. But even if that were true, the financial crisis and a pile of empirical evidence collected since suggests that more equity and less debt is a no-regret. Given that innovative entrepreneurs are most severely affected by asymmetric information problems in financial markets, a more equity based economy will tilt the playing field in their favour and restore financial intermediaries to the important function Schumpeter (1934) envisioned for them.

3.2.8 Taxation of stock options

Employee stock options are the equivalent of promises of future ownership stakes in the firm, which will be realized if the firm develops according to plan and manages to achieve the prescribed objectives for value creation. Granting stock options can be substituted for high wages to moderate out of pocket costs at the beginning of the lifecycle (Gompers and Lerner 2001; Bengtsson and Hand 2013). Stock options can thus be used to encourage and reward individuals who supply key competencies to a firm—the competent employees in the ecosystem.

Proposal 13: We should lower the tax on capital gains specifically on stock options and underlying stock in start-ups. Moreover, these should only be taxed when exercised and/or sold, so when gains are realised.

Observations from the history of the American VC sector indicates that stock options are widely used when they are advantageous from a tax perspective. The contractual design of financial instruments constitutes a good fit for the issues facing the VC-funded entrepreneurial sector. Therefore, the effective tax treatment of option contracts may be a major determinant to the size of the VC-funded entrepreneurial sector. Henrekson and Sanandaji (2016a) calculate the effective tax rate on stock options in various countries given a typical scenario. The tax rates for the EU countries included in their study as well as those for the United States and Hong Kong are presented in *Table 3*, revealing a large

²⁰ The same logic also suggests banks and other investors should be encouraged to disclose information on loan applications they accept and refuse. Of course, the traditional banking business model relies in part on exclusive access to financial information on clients. As European banks abandoned their traditional relationship banking model, the justification for such exclusive access is much diminished. Alternative finance through platforms is exploring ways to effectively collect and disseminate such information.

variation in effective marginal tax rates. The VC sector is extremely small in most countries where the tax rate is high, as will become clear in the next section (see *Table 3*, in particular), while the low-tax countries (Hong Kong and the United States) have a large and highly dynamic VC sector. Of course, correlation is not causation and the tax code needs to be considered in its national context, but as tax codes are typically rather superficial institutions and reverse causality is hard to imagine in this case, we propose lowered taxation of gains on employee stock options in the start-up sector is likely to be effective in many countries

Table 2: Effective tax rate on stock options in selected European countries, the US, and Hong Kong, 2012.

Country	Tax rate, %	Country	Tax rate, %
Ireland	7.4	Finland	51.3
US	15.0	Switzerland	51.5
Hong Kong	15.0	Spain	52.0
Netherlands	25.0	Sweden	54.3
France	29.9	Denmark	55.3
UK	28.0	Portugal	56.5
Germany	47.5	Italy	72.2
Norway	50.8		

Source: Henrekson and Sanandaji (2016a).

This will both lure talented people away from traditional careers in incumbent firms and channel more institutional capital into the entrepreneurial sector, which should be mediated by a professional VC sector. The policy should narrowly target employee held options in the entrepreneurial sector rather than entail broad tax cuts (Gilson and Schizer 2003), to prevent a fiscally driven financial bonanza. When designed to apply only to employees in start-ups receiving VC-funding, a small but strategic sector of the economy, the risks of such abuse are minimal. The policy lowers the effective taxation of start-ups that are screened by venture capitalists willing to invest their own funds in equity, again without requiring governments to determine which firms are entrepreneurial. Innovative start-ups can then be favoured without needing broad capital gains tax cuts.²¹ A tax break that targets this segment would promote innovative entrepreneurship without the high fiscal cost of broad capital gains tax cuts. Moreover, broad-based capital gains tax cuts do not shift capital from passive investments to private equity, unlike tax breaks on stock options and other instruments used by the VC sector.

3.2.9 Conclusions on taxation

In this section we have discussed the many ways in which taxation affects the Entrepreneurial Society. Taxation directly affects the availability and flow of financial resources into entrepreneurial venturing and has important incentive effects for the supply of (trained) labour and the trade-offs the labour force faces in choosing between solo-self-employment, employing people and being employed. In general, taxation should not distort the allocation of talent across alternative labour market statuses and maintain a level playing field among these active participation options. Moreover, taxation should not favour financing options or drive the preferred capital structure of firms. Eliminating or reforming such fiscal structures, however, is typically an exclusive competence of the Member States and the

²¹ A mere 0.1 to 0.2 percent of all firms in the US receive early-stage financing from specialized venture capitalists (Puri and Zarutskie 2012), but they constitute the majority of firms that are sufficiently successful to go public (Kaplan and Lerner 2010).

European Union can only hope to inform, coordinate and support reform efforts. The proposals in this section, summarized in *Table 1-2* below, are all geared towards reducing such distortions and strengthen the competitive position of entrepreneurial ventures in the competition for financial and human resources. It should be noted, however, that there is quite some heterogeneity in the fiscal systems across Europe. Statutory and effective tax rates differ substantially and to complicate matters, Member States have implemented a myriad of tax deduction and credit rules that obscure the true structure and impact of taxation. Before any proposals are to be considered, a more detailed analysis of the local situation is warranted and our proposals are to be understood as signalling the general principles of transparent, simple and non-distortionary taxation. Taxation on the rewards to entrepreneurial venturing, that typically come in the form of capital gains on equity for owners and their financiers and in the form of (rather insecure) wages for employees, should typically be low(ered) to promote more entrepreneurial venturing.

Table I-2: Proposals Section 3.2

Number	Section	Title	Proposal	Explanation
6	3.2.2	Taxation in General	In general, we propose tax rates should be low, transparent, simple and neutral and the effective tax rates remain close to statutory rates.	Our contention is that the tax system should strive for as much simplicity as possible rather than addressing shortcomings by granting exceptions and tax breaks for specific ownership types or industries. Tax breaks are often instituted for good reasons, and they may very well appear justified when analysed in isolation. However, they create complexities with numerous drawbacks. First, they are vulnerable to tax-driven business models that are legal but not in line with the spirit of the concession in question.
7	3.2.3	Taxation of Labour Income	It is preferred to reduce high tax burdens on labour over making subsidies, pension rights and social benefits more conditional on employment status.	We propose countries with high marginal labour tax rates rather not follow the Swedish model, but reduce their marginal labour tax rates where possible, because conditionality always benefits well-defined, existing forms of employment and tries to solve the problems of high taxation by introducing a new set of problems and layers of complexity.
8	3.2.4	Taxation of Corporate Income	The Union should strive to reduce and ideally remove the discrepancies in member countries between statutory and effective corporate income tax rates.	Their removal would create transparency and contribute to levelling the playing field for all firms regardless of their size, age, industry or nationality. Competition among member states is good, but it should be competition on corporate tax rates and not on complex, opaque fiscal deals and schemes. Moreover, when it comes to corporate taxation, member states should treat all firms equally.
9	3.2.4	Taxation of Corporate Income	We propose a complete tax exemption for start-ups up to their 3rd year.	Instead of trying to channel funds to the right entrepreneurial ventures, one then simply allows the market to allocate these funds. Those ventures that turn a profit can reinvest these funds, whereas those ventures that fail to break even, will vanish. This is not to say that personal incomes earned from start-ups should be tax exempt (see below), as this may cause unproductive tax arbitrage and promote solo-self-employment (Liebregts, 2016).
10	3.2.5	Taxation of Dividends and Capital Gains	Complexities should be removed when possible. Instead, countries should aim for dividend and capital gains tax rates with few exceptions and few (opaque) concessionary schemes.	Here, the Eastern European countries, such as Poland and Estonia, have exemplary models in which the tax rates are at reasonable levels and the effective tax rate is largely independent of other circumstances. Arguably, the reason for this clarity is that the design of these systems date back no further than 1989. A radical redesign from the ground up is probably not feasible in older member states, but they should nevertheless strive for similar improvements to simplicity and transparency.
11	3.2.6	Taxation of Private Wealth	We therefore propose to increase the wealth available for informal entrepreneurial finance by reducing taxes on private wealth, private wealth transfers and inheritance.	Kotha and George (2012) show that entrepreneurs distribute ownership rights to informal investors and their investments early in the start-up process, suggesting triple-F financiers are not mere charities. And Burke et al. (2014) show that the supply of triple-F informal entrepreneurial finance typically follows demand closely and that amounts invested are typically in the same order of magnitude as those committed by angel investors discussed below (in the 0000s). That is, entrepreneurs mobilize significant funds from their personal networks and these funds help them develop their venture in its earliest stages. It is possible that more supply of informal finance would thus enable or even cause more entrepreneurial venturing.

Table I-2: Proposals Section 3.2 (Continued)

Number	Section	Title	Proposal	Explanation
12	3.2.7	Tax Neutral Treatment of Equity and Debt	A quick win would be to make equity investments in start-ups entirely tax exempt. A more involved proposal is to start a program to achieve tax neutrality between debt and equity finance. And one step beyond achieving tax neutrality would be to make equity investments preferred. And one step beyond achieving tax neutrality would be to make equity investments preferred.	Making equity investments in start-ups tax exempt is not a radical idea as the tax liability on returns on equity investments in start-ups are low or absent in most European member states already. It would simply help entrepreneurs finding investors if this was made explicit. Neutrality between debt and equity is much more involved. Currently, debt is cheap. It is subsidized because interest payments are deductible as operating costs while dividends are considered income and taxed at relatively high rates. Moreover, strong legal creditor protection reduces risks for creditors that would otherwise justify a higher risk premium on debt finance. These fiscal and institutional arrangements bias the supply of finance towards the debt channel, in which innovative entrepreneurs face strong disadvantages. Debt finance channels society's available savings into reproduction of the existing capital stock, whereas only equity type investments finance innovation and progress beyond the status quo (Polzin et al. 2017).
13	3.2.8	Taxation of Stock Options	We should lower the tax on capital gains specifically on stock options and underlying stock in start-ups. Moreover, these should only be taxed when exercised and/or sold, so when gains are realised.	In ideal circumstances, stock options provide incentives that closely mimic direct ownership, but their productivity greatly depends on the tax code. If gains on stock options are taxed as wage income, some of the incentive effect is lost—particularly if the gains are subject to (uncapped) social security contributions and the marginal tax rate on wage income is high. The situation changes dramatically if an employee with stock options can defer the tax liability until the options are exercised and the stocks are eventually sold. The effectiveness of these stock options is further reinforced if the employee suffers no tax consequences from the granting or exercise of the option, and if the employee is taxed at a low capital gains rate when the acquired stock is sold (Gilson and Schizer 2003).

3.3. Institutions governing savings, capital and finance

3.3.1 Preamble

A high savings rate in a country does not guarantee the availability of financing for innovative and growth-oriented entrepreneurship, especially not in the early, precarious phase of a firm's lifecycle. In fact, some of the countries with the highest savings rates are the least entrepreneurial, whereas the United States has a notoriously low savings rate and boasts a vibrant entrepreneurial sector. The channels through which the available savings flow to real economic activity are clearly more important than the volume of available financial resources. Different rules and decision heuristics apply in different channels and as such financial institutions govern the allocation of financial resources.

There are different, traditional and new, intermediation channels we can distinguish. Already Schumpeter (1943) extensively discussed the banking channel. In theory, banks, on behalf of the depositors/investors, select and monitor the entrepreneurs they lend to and thus enable to develop their ideas and test their innovations in the global market place. Competition among bankers then ensures that the best projects get the cheapest funding. And through diversification and prudent management, bankers can recover their costs and pay a competitive interest rate to their depositors. If banks perform this role in the economy, there is a strong case to allow them to create credit on fractional reserve to finance new ventures. That is, to allow them to create the financial resources that new ventures need, when retained profits and own resources do not suffice to finance growth, out of nothing. In this role, bankers would be instrumental in keeping capitalist dynamics going.

Banks, however, no longer perform the functions Schumpeter (1943) had foreseen for them (Bezemer 2014). Consolidation, economies of scale, high leverage, complicated risk modelling, modern portfolio management techniques and more recently financial regulation, have limited the ability and willingness of banks to lend to small and medium sized firms. Due to asymmetric information problems and high uncertainty, young, innovative firms and start-ups face difficulties gaining access to bank finance.²² Consequently, numerous studies reveal that a lack of access to capital is the most significant obstacle for growth in many business ventures (e.g., van Auken 1999 and Parker 2009). And in the bank dominated EU, entrepreneurs and SMEs rank financing as their second most important concern after administrative burdens (European Commission 2008).

At the same time, advances in ICT have reduced minimum capital requirements in many markets (Baumol et al. 2007, p. 236) and many start-ups now do not require much capital. Financial constraints are therefore not of a quantitative nature (Hurst and Lusardi 2004; Shane 2008, p. 79). Notably, the success of a start-up relies on its access to equity financing, a reliance which increases (relative to debt) with the degree of uncertainty. Therefore, entrepreneurial start-ups usually struggle to raise funds from banks and large financial institutions and are forced to rely on insider and internal funding in their infancy.

Meanwhile, banks do still dominate Europe's financial system and, together with institutional investors like pension funds and insurance companies, allocate the clear majority of Europe's abundant savings. The European bank based financial system has deep historical roots and involves many complicated institutional complementarities. This leaves us with two complementary approaches to reform. On the one hand, one can try to enable banks and institutional investors to engage more in entrepreneurial

²² That is not to say that bank credit is not an important source of finance for new ventures. These loans and credit, however, is typically taken out privately and are secured by private wealth and recourse. Also, historically, when banks operated with much higher levels of equity and therefore had more "skin in the game", they could justify and afford to take on more risk and uncertainty based on long term relationships, trust and local knowledge (see e.g. Westerhuis, 2016). Bank finance does become relevant later in the life cycle, even for new technology based firms. See Colombo and Grilli (2007).

and small and medium sized firm lending, whereas on the other hand, one could aim to strengthen alternative channels for capital allocation. In both, it is important to match supply and demand qualitatively as quantitatively small changes can already have large effects. We need to move from debt to equity, from large to small tickets and from backward looking transaction based to forward looking relationship based finance. To achieve this, reforms throughout the financial sector are advised. The basic underlying philosophy in all our proposals is, once more, to restore contestability and to open the system up for experimentation and fair and open competition while in this case also securing its public functions. This will create a more level playing field for entrepreneurs and SMEs seeking to finance their ventures but also gives more autonomy to European citizens willing and able to invest and bear risk.

3.3.2 Private Wealth

Family members are often assumed to be the most relevant providers of financial resources (so called “love money”) because financial capital from family members likely has important advantages such as lower transaction costs, favourable interest and payback requirements, and availability when other sources are not available. Consequently, the literature tends to assume implicitly that the more money from the family is available, the more likely there are to be entrepreneurial intentions (Siegar and Minola 2017). A handful of studies provided evidence that a large variation exists between countries in terms of the share of family financing in new business ventures. In FIRES-Deliverable 2.2 (Dilli and Westerhuis 2018) it was shown that these cross-national differences in family financing are result of the differences in extent to which individuals feel socially obliged towards their family members, shaped by the strength of family ties. These family ties are result of the historical family arrangements. As a result, the share of family financing is expected to be much higher in regions where traditionally the family group has priority over the individual (strong family ties), common in the Eastern European and the Mediterranean countries context compared to the North Western European countries where the individual and individual values have priority over family (weak family ties).

Proposal 14: Our proposal is that in regions where family ties are strong, there should be institutional arrangements that would promote lending from private funds especially from the family to ventures.

As a long-term solution, the best way to ensure the financing of entrepreneurial firms is likely to be the pursuit of policies that encourage private wealth accumulation in forms that do not preclude the assets from being used as equity in entrepreneurial ventures.²³ First, research strongly suggests that incentives and opportunities for individual wealth accumulation would likely increase entrepreneurial activity (Nykvist 2008; Parker 2009). Wealth-constrained would-be entrepreneurs are unable to credibly signal their project’s worth to outside investors by means of making sizeable equity infusions of their own. More private as opposed to institutionalized wealth would lessen the inherent problem caused by such asymmetric information, and, if needed, enable entrepreneurs to fully finance their ventures until organic growth based on retained earnings is possible.²⁴

²³ Pelikan (1988) provides forceful arguments supporting this view. See also the discussion on wealth taxation and the tax treatment of equity and debt on pages 29-30 above.

²⁴ It should be noted that availability does not yet imply the wealth is then also made available for venturing. Informal institutions for example will play a big role in where the wealthy will invest their money. If private wealth is invested less in new ventures than institutionalized savings, this proposal would even backfire. Careful evaluation and small scale experimentation are required to establish a firm evidence base before large scale implementation should be considered.

Proposal 15: Allow more wealth to accumulate/remain in private hands and make it (fiscally) attractive to invest such wealth in entrepreneurial ventures.

This can be done by reforming taxation in line with Proposal 12 above and by channelling less (mandatory) savings into institutional investment. Of course, one could also address the issue by making our institutionalized savings (more) accessible for entrepreneurial venturing. This implies, we should also consider changing the rules for institutional investors and banks.

3.3.3 Institutional investors

In many European countries, institutional investors, notably pension funds and insurance companies, manage large amounts of assets on behalf of others. Indeed, a progressively larger share of savings goes into pension funds.²⁵ There is a growing need for at least part of these assets to be invested in entrepreneurial firms and not just in real estate, public stocks and high-rated bonds.²⁶ Aggregate pension fund assets as a share of GDP are especially large in the United Kingdom and the Netherlands, but they are also high in Ireland, Finland and Denmark, while they are small but rising in the Eastern European countries and in Germany, France and Italy (OECD 2015b). The problem with these investors is that they are not free to invest the assets entrusted to them as they will. The funds have been accumulated for a purpose and it is not smart to allow people to just play around with other people's money (Kay 2015). Pension funds and insurance companies are therefore subject to strict and detailed supervision. But this implies that a growing share of society's aggregate savings is unavailable for new venturing. Instead it is invested in what Schumpeter (1934) would refer to as the second wave of unproductive investments (Bezemer 2014). Pension funds and insurance companies are forced by their constituencies and mandates and by regulation and supervision to invest the assets under management in safe and marketable securities.

A first best option for institutional reform, consistent with our discussion above, is therefore to reduce the share of institutionalized savings. We feel this is a no-regret as it will reduce leverage in the private sector overall and simply netting out financial assets (pension claims) and liabilities (mortgage debt) in the private sector can go a long way in many EU-countries. If less of Europe's wealth were tied up in highly formalized and compartmentalized institutional investments, this could potentially increase the flow of finance into entrepreneurial venturing.²⁷ One should realize that institutions have evolved historically and are not changed overnight. As the transition to a more entrepreneurial Europe is urgent, we believe it is also useful to think about how to channel more of the existing institutional savings to entrepreneurial venturing.

New legislation in the US in 1979 allowed pension funds to invest in high-risk securities that were issued by small or new companies and VC funds (Misher 1984; Fenn et al. 1995) and Europe could consider similar steps. This would have to be part of a package, though as the modern VC industry in the US would not have evolved unless the tax system was also changed in key respects. Sharp reductions in the capital gains tax and legislation pertaining to stock options around 1980 allowed the

²⁵ See Ebbinghaus (2011) and PensionsEurope (2017) regarding the trend away from pay-as-you-go and towards the privatization of pension systems in Europe.

²⁶ PensionsEurope (2017) reports for its members (covering 110 million people and 4 trillion in pension fund assets) in 2017 the shares of assets invested in these categories are 30%, 46%, 8%, 3% and 13% for equities, bonds, real estate, cash and other investments, respectively. Only the latter category contains some venture capital.

²⁷ By reducing the aggregate saving rates in the EU-member states with the highest surpluses on their internal and external balance of payments, this reform strategy may even address some of the macro imbalances that continue to trouble the Monetary Union. If the thus released savings find their way into consumption or informally allocated equity investments, imbalances will be corrected and the Entrepreneurial Society is also likely to benefit.

tax liability to be deferred until stocks were sold rather than when the options were exercised and were instrumental in promoting the VC sector. Therefore, we have also proposed these reforms above.

As the risk profile of entrepreneurial ventures is different from the risk profile such investors are used to handle, however, allowing institutional investors to engage in VC funds needs to be done carefully and on small scales before any significant reforms can be implemented.

Proposal 16: On an experimental basis, we propose that pension funds and other institutional investors be allowed to invest more in equity in general and in venture capital specifically.

However, most institutional investors currently lack the expertise to manage their own portfolio and rely on professional asset managers to invest their funds. The challenge is therefore not only to allow these funds to engage in more risky asset classes, but to help them write the contracts and draft up the incentive schemes that will push the actual (delegated) decision makers to channel more funds towards entrepreneurial ventures. As asset management is expensive and characterised by strong economies of scale, there is a natural tendency for asset managers to invest in large tickets and marketable assets.

Proposal 17: To effectively enable institutional investors to channel responsible shares of their portfolios into portfolios of new ventures, it may be useful to build funds-of-funds(-of-funds) to achieve the required scale and diversification.

The European Investment Bank could play a key role also in developing such a super VC fund with sufficient geographical and sectoral diversity. Achieving such scale and diversification would be essential in enabling Europe's institutional investors to really engage. Policy makers can then easily add-on any public guarantees or subsidies they would be willing to consider, although moral hazard problems should be prevented.

3.3.4 Banking

Europe's financial system can still be characterised as predominantly bank based. SMEs rely for over 80% of their finance on bank loans (Mitter and Krause 2014) and bank credit, accounting for about 100% of GDP up until the early 90s, has risen dramatically in the entire EU. At the start of the crisis in 2007 the total balance sheet of the European banking sector amounted to 350% of EU GDP, which is large by absolute and relative standards (Liikanen 2012). With ECB lax monetary policies and quantitative easing, these numbers have risen even further.

Table 3: Size of EU, US and Japanese banking sectors (2010)

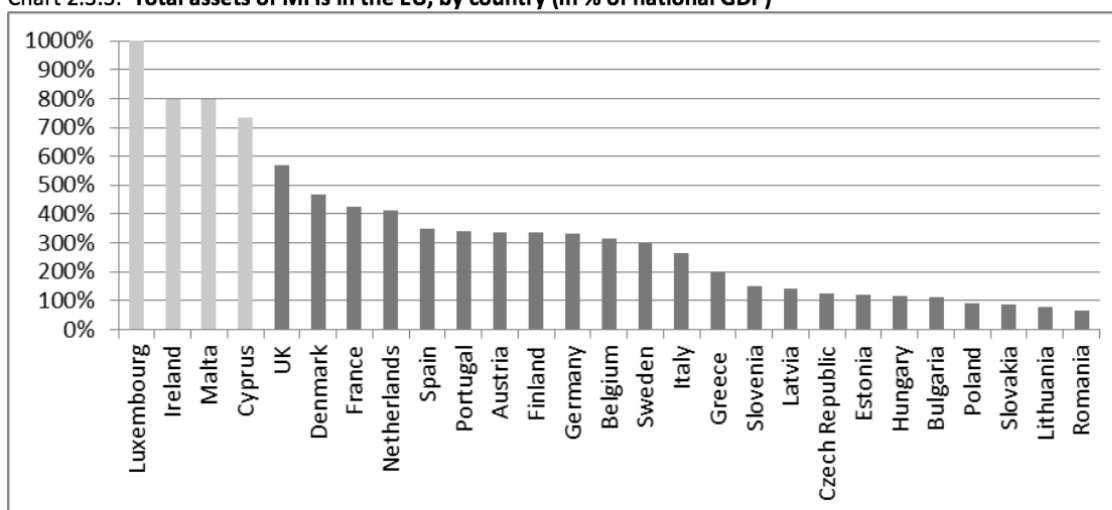
	EU	US	Japan
Total bank sector assets (€ trillion)	42,9	8,6	7,1
Total bank sector assets/GDP	349%	78%	174%
Top 10 bank assets (€ trillion)	15,0	4,8	3,7
Top 10 bank assets/GDP	122%	44%	91%

Notes: Top 6 banks for Japan

Source: European Banking Federation (Liikanen 2012, Table 2.3.1)

Figure 2: Size of bank balance sheets in the EU (Liikanen, 2012, Chart 2.3.3)

Chart 2.3.3: Total assets of MFIs in the EU, by country (in % of national GDP)



Notes: Assets as of March 2012, GDP data for end 2011. Based on aggregate balance sheet of monetary financial institutions (MFIs). Vertical axis cut at 1000% (ratio for Luxembourg is 2400%). Data on MFI includes money market funds.
Source: ECB data. Eurostat for GDP data.

The average hides quite substantial variation with the EU, where the size of the banking sector varies from staggering 800-2400% of GDP in countries like Luxembourg, Ireland and Malta, to more modest 70-120% for most of the Eastern Member States. Still, even in these countries, the dominant form of financial intermediation is through bank credit.

From the perspective of the entrepreneurial society, the absolute size of the banking system itself is not necessarily a problem. What is much more important for the flow of funds to new venturing is the way in which these banks allocate their credit. And here Europe's banking system is showing some worrying trends. These are regulation, consolidation and leveraging. Westerhuis (2016) shows that these trends have long historical roots and originate in the nineteenth century. Still, we believe they are certainly not irreversible and the recent financial crisis could be used to implement some structural reforms.

At the root of the problem lies the fact that Europe's universal bank based system mixes inherently public (payments system) and private (allocation of capital) functions. At the same time, Europe's fiscal and social security systems create strong biases towards managed assets and debt-based finance (Kay 2015). In addition, tighter regulatory (e.g. EC 2010) control, motivated exclusively to safeguard the public functions, reduces the risk of a single bank or intermediary collapsing but creates large systemic risks as all banks become alike (Haldane and May 2011). Consequently, financial markets in Europe are currently highly concentrated, largely debt and bank based and homogenous (OECD 1992, Klein 1995, Liikanen 2012). Even policy initiatives that explicitly promote a more diverse financial system, such as the Capital Markets Union (EC 2015), risk falling victim to the logic of harmonized regulation and securing the survival of existing business models (and worse, organizations).

The trend towards a more and more regulated banking sector is closely tied to the development of our monetary system. From a largely cash based system in which the national central bank controlled the monetary aggregates, modern Western economies have evolved into fractional reserve systems where payments among citizens are settled using demand deposits at commercial banks. This development was only possible because central banks and governments regulated commercial banks tightly and set up a lender-in-last-resort facility to ensure liquidity of chartered banks and a deposit insurance scheme to collectivize default risk for a large number of deposit holders. With private liquidity and default risks

eliminated, demand deposits at commercial banks were perfect substitutes for cash and could start to circulate as medium of exchange in our economies. The digitalization of banking now adds additional benefits and comfort and the electronic payment system is safer, more convenient and efficient than the cash it replaced. This digital banking system has great benefits for entrepreneurs also, as transaction costs have dropped and online services heavily rely on electronic banking.

The problem with this system, however, is that new bank credit is no longer channeled to new ventures. On the one hand, the large and growing demand for liquid assets created a push for banks to create new money by giving credit even if no projects could be found. On the other, regulation forced or incentivised them to hold reserves and invest in assets that risk management models can handle. That is, traded, collateralized, debt-based assets with known stochastic characteristics or at least a formal rating. To still make double digit returns on equity with such low yielding asset portfolios, banks were forced to increase their leverage and the sector consolidated heavily to reap economies of scale. As bank debt serves as medium of exchange, the market gladly accepted this high leverage. These trends ended with the financial crisis, but by then banks, who had never been active in early stage venture finance, had also more or less given up on SME-lending and channeled most available and new bank credit into the FIRE-sector. As Schumpeter (1934) describes, such secondary credit markets are speculative in nature and allocating more credit to financial assets has the self-fulfilling property of causing price increases and generating capital gains that justify a second round and easily develop into asset bubbles. Afraid to cause a further clamp down on credit to entrepreneurs and SMEs, policy makers are reluctant to intervene and often add insult to injury by supplying more new liquidity to fuel the bubble.

To break this vicious circle, policy makers should be keenly aware that not all credit is good (Bezemer 2014) and not all credit benefits entrepreneurship. In fact, under the current institutional arrangements, bank credit in Europe cannot play the role it should. An option to shift the flow of bank credit back to where it belongs, is to set up a system of loan guarantees for entrepreneurs and SMEs. In several member states such schemes are already in place and they work well to channel financial resources into productive investments. The European Union already has instruments in place to strengthen these national systems.²⁸ It is interesting the Union has put a legal right to feedback on the credit decision in place: **“You have a right to get feedback from credit institutions** on their credit decision. This can help you understand your financial position and improve your chances to obtain financing in the future. Use your right and refer to Article 431 of the EU Capital Requirements Regulation.” We believe that indeed the credit decision provides valuable information. We would even argue this information is valuable to other entrepreneurs as well.

Proposal 18: In the system of bank loan guarantees for start-ups, ensure that (appropriately anonymized) credit decision information is made available publicly.

Such public guarantees can be motivated from the fact that entrepreneurial venturing creates knowledge spillovers and positive externalities that banks and entrepreneurs do not consider in their private decisions. This information, however, should then be disclosed (for example via the proposed Entrepreneurship Observatories in Proposal 45 below). In addition, rebalancing the portfolio of banks by increasing the share of SME-loans, also reduces the risks of systemic financial crises. SME-loans are perhaps more risky, but their risk is also less correlated in times of crisis (Dietsch and Petey 2002).

²⁸ https://europa.eu/youreurope/business/funding-grants/access-to-finance/index_en.htm

A proposal that would also benefit entrepreneurship in Europe, is to increase banks' mandatory equity ratio's. These ratio's currently stand at 3-4%, which is sufficient to perhaps absorb the risks on current bank balance sheets. But if we want banks to take on more micro-risk by increasing their lending to (young) SMEs, they need to have larger buffers to do so.

Proposal 19: Increase the mandatory equity ratio in banking gradually to 10-15% to have more skin in the game and allow banks to take on more risk responsibly in their lending portfolios.

Given that European banks operated profitably at much higher equity ratios in the past whereas non-European banks continue to do so (Kalemi-Ozcan et al., 2012; IMF, 2017) this proposal only requires a sound implementation and transition strategy. Gradually building up the equity buffer while at the same time accumulating more publicly guaranteed SME-loans in the portfolio is a balanced approach. Higher required equity buffers will increase the price of credit and some might argue that this will reduce credit and investment in the aggregate. We feel, however, that such price increases will only drive out the marginal investment projects and most of these are currently found in the secondary, speculative investments that Bezemer (2014) deems unproductive. If banks stop fueling the financial asset and real estate bubbles in Europe, they do less harm and may even support its Entrepreneurial Society.

For the long run one might consider reforming the current monetary system, that has commercial, private banks issue debt obligations serving as the public medium of exchange. As long as private debt circulates as money in society, that debt on the liability side of the banks' balance sheets is subsidized. Banks can thus finance their activities too cheap. To tackle the ensuing moral hazard problem, regulators are forced to monitor and interfere heavily in the capital allocation decisions banks make on the asset side of their balance sheet. And this regulation, by prioritizing security and limiting downside risk, works against a more Entrepreneurial Society.

Proposal 20: A long run transition to a system of full reserve banking (Friedman 1962) could be considered as it will force commercial banks to return to their traditional intermediation role. A more modern way to achieve the same result is to introduce central bank digital currency to replace the claim on commercial banks as medium of exchange.

There are many ways in which such a transition can be shaped (Laina 2015) and the debate in the academic literature is still ongoing (Fontana and Sawyer (2016); Dyson et al. (2016)). The FIRES-project did not research this option in great detail, but the appealing feature of such a system is that the money in circulation again becomes a claim on the central bank, whereas commercial banks only intermediate the savings they attract before they can be invested. In the modern economy, however, banks will also be competing against alternative intermediation mechanisms we discuss below. To survive that competition, banks will probably have to return to building long term relationships in specialised niches. A more diverse landscape of such smaller, better capitalized and more specialized banks is likely to cater better to the heterogeneous needs of the Entrepreneurial Society (DeYoung et al. 2015). At the same time as a system it is more resilient to external and internal financial shocks. More diversity in the banking sector should then be coupled with more diversity in the financial system at large.

By clearly separating public from private functions, we believe banks can take a bigger role in financing new ventures and SMEs, as they have in the past. The financial crisis has shown the devastating effects

of the toxic mix of public guarantees, failing regulation and strong private profit motives. By requiring more own equity in banking and investing, we can responsibly allow traditional financial intermediaries to take on more risk and uncertainty, without having to fear they will offload such risks onto tax payers in case things turn bad.

3.3.5 Angel and venture capital

“Angels are often perceived as the second round of financing a start-up goes through, after the entrepreneur has exhausted all his family and friends’ money, but before he approaches formal VC partnerships” [Prowse (1998) p.786]. Research shows that the presence of these informal investors is crucial in overcoming liquidity constraints (Ho and Wong 2007). The United Kingdom has already successfully used tax relief and generous deductions to encourage business angel investments; see, e.g., Boyns et al. (2003) and Mason (2006) to stimulate the development of such less institutionalized sources of finance. Like private individuals, business angels can allocate capital using different decision making heuristics than highly institutionalized intermediaries. And after angels come venture capitalists that often take larger stakes and engage in a more invasive manner with the venture.

Venture capital is important as a follow-up for high-performing and high-growth entrepreneurial firms (Cumming 2012). Although the importance of the VC industry has increased over time, its presence is still rather modest in the EU (Bygrave and Hunt 2004; Lerner and Tåg 2013) with many entrepreneurial firms being too small for VC funding. It is often superior to bank finance since it comes with key expertise and access to networks that are important to entrepreneurial high-risk firms (Keuschnigg and Nielsen 2004a; Ho and Wong 2007). In this respect, it is troubling that the VC industry is less developed in Europe than in the US (Bottazzi and Da Rin 2002; Da Rin et al. 2006; Grilli 2014). It has been argued this is perhaps as much a demand as it is a supply problem, because European business owners are less prone to accept a loss of control, which is a normal consequence of venture capital support (OECD 1998). It may be for this reason that US firms grow faster than their European counterparts (Scarpetta et al. 2002; Henrekson and Sanandaji 2016a).

There is a huge academic literature on and policy interest in Venture Capital. In fact, both are much larger than its share in actual entrepreneurial finance (about 1%, Moskowitz and Vissing-Jorgenson 2002) would justify. The availability of good data and the high-profile of VC investors in Silicon Valley and the fact that many of the top-listed firms in i.e. the NASDAQ received VC funding early on can help explain this strong focus on this form of entrepreneurial finance. It seems that VC is therefore more important qualitatively than quantitatively. Barry et al. (1990) show that VC finance is successful in selecting and guiding the firms and ventures that go on to grow into global, publicly traded firms and it is well known from the literature that the positive impacts of entrepreneurship on growth, job creation and innovation must be attributed to that same small number of gazelles and unicorns that VC investors are after (Henrekson and Johansson, 2010). So, while it is true that VC investment finances only a small fraction of entrepreneurial venturing, it does seem to finance a highly significant fraction. As revealed in the first column of *Table 5*,²⁹ the differences in VC investments are substantial across Europe, with Denmark and Luxembourg clearly leading, whereas the Eastern European and the Mediterranean countries are found at the bottom. Regarding VC, policymakers could be inspired by the US experience of the 1970s and 1980s, and adopt a broad-based policy approach: an encouraging legal framework that combines tax cuts in capital gains with legislation allowing e.g. banks, pension

²⁹ Hong Kong and Norway are not included in *Table 5* below. According to Lerner and Tåg (2013), the sizes of their VC sectors were 0.23 and 0.053 percent of GDP, respectively.

funds and insurance companies to invest in high-risk securities issued by small and new firms as well as VC funds (Gompers and Lerner 1999; cf. Keuschnigg and Nielsen 2004a, 2004b). Additionally, as discussed above, effective tax treatments of options contracts are necessary to enable VC firms and other actors in the entrepreneurial ecosystem to design the appropriate incentive contracts for founders and other key personnel needed to build innovative firms (Henrekson and Rosenberg 2001). Without such preconditions in place, a sizeable and efficient VC sector is unlikely to develop.

Table 4: Venture capital investments as a share of GDP, and the ease of getting credit in EU countries and the US, 2015.

Country	VC investment, % of GDP	Ease of getting credit Score (0–100)
US	0.333	95.0
Denmark	0.109	70.0
Luxembourg	0.079	15.0
Finland	0.047	65.0
Ireland	0.041	70.0
Portugal	0.039	45.0
France	0.034	50.0
Sweden	0.034	55.0
Netherlands	0.033	50.0
UK	0.032	75.0
Germany	0.025	70.0
Estonia	0.023*	70.0
Latvia	0.023*	75.0
Lithuania	0.023*	70.0
Hungary	0.022	75.0
Belgium	0.015	45.0
Spain	0.010	60.0
Austria	0.008	60.0
Poland	0.007	75.0
Bulgaria	0.002	70.0
Czech Republic	0.002	70.0
Italy	0.002	45.0
Romania	0.001	85.0
Greece	0.000	50.0
Croatia	n/a	55.0
Cyprus	n/a	65.0
Malta	n/a	10.0
Slovakia	n/a	65.0
Slovenia	n/a	35.0

Note: *For VC-investments, values for Estonia, Latvia and Lithuania are a Baltic average. The ranking of economies on the ease of getting credit is determined by sorting their distance to frontier scores for getting credit. These scores are the distance to frontier score for the sum of the strength of legal rights index (range 0–10); and the depth of credit information index (range 0–8). New Zealand is the leading country. *Source:* Invest Europe (2016, p. 43) for venture capital and World Bank, *Doing Business 2016* for ease of getting credit.

A comparison of the first and second column of *Table 5* reveals that many of the countries with low scores on the size of external equity investment activity rank highly regarding the ease of getting credit (e.g., Romania, Hungary and Bulgaria). While some economies have traditionally been characterized as bank-centred—Germany being the archetypical case—banking itself has changed profoundly over the last two decades (Westerhuis, 2016). Bank lending or corporate bond markets are no longer a viable option for financing high-risk innovative entrepreneurship that does not occur on the balance sheet of large firms. Thus, bank reforms must be complemented with institutional reform that pave the way for external equity investment. Moreover, it is important to recognize that venture capitalists and other early-phase equity investors only are ownership specialists up to a certain point in the entrepreneurial ecosystem, since a highly successful entrepreneurial firm will reach a point at which it may be appropriate to sell the firm.

There are three principal ways in which an entrepreneurial exit can be done. The first is through a trade sale, i.e., being acquired by an incumbent firm that wants to gain access to new technologies and innovation (or just eliminate a future competitor), which is quite common in countries such as the Netherlands. The second way is by going public through an IPO, which is possible if there is a sizeable public stock market. The third way is by turning to buyout firms (the secondary market equivalent of VC firms). This option is contingent on the existence of a buyout sector through which pension savings can be channelled to the business sector in the form of equity investment. The existence of a viable market for exits matters for early-stage entrepreneurs, since this market affects the expected future value of embarking on an entrepreneurial venture (Norbäck and Persson 2009, 2012).

As shown in *Table 6*, there are large cross-country differences in the size of public stock markets and buyout sectors. These sectors are generally small in countries with small VC sectors and vice versa. Hence, they are quite large in the Anglo-Saxon countries, the Nordic countries, and the Netherlands, but small in Eastern Europe and the Mediterranean countries. This hints at strong complementarities between the early- and late-stage vehicles for corporate control and prompts us to look for underlying causes of the absence of these markets.

This also implies that naïve policy approaches to promote VC are not likely to be effective. Channelling more funds into VC when exit markets remain underdeveloped will not provide incentives to improve the searching and selection process, which is inherently difficult to scale up (Grilli and Murtinu 2014). It is for that reason that consortium members with expertise on the issue have suggested to stop ‘hands-on’ policy making at the supply side (Grilli et al. 2018). That is, promoting VC in Europe by directing more public funds to VC investors, without being able to leverage private competencies (and monies) in the field, will not result in more productive entrepreneurial venturing. Industry actors, despite their specialization, are at best moderately successful in picking the winners among high-risk projects (Gompers and Lerner 2004; Birch 2006; Svensson 2008; Gompers et al. 2009), but there is little empirical evidence to suggest that politically controlled organizations are better placed in this respect (Baumol et al. 2007, p. 220). Instead, such organizations might—directly or indirectly, openly or furtively, partly or completely—base their decisions on political rather than commercial criteria and therefore underperform.³⁰ Instead, it is of key importance that decision makers have substantial personal stake in the decisions they make.

³⁰ Baumol et al. (2007) assert that the Advanced Technology Program (ATP), administered by the Commerce Department in the United States, only supported ventures that also attracted private money, and there is some evidence that this has been successful. The largest US program is the Small Business Innovation Research (SBIR) program. Siegel et al. (2003) conclude that both ATP and SBIR have been successful, while Lerner (2009) is more sceptical and describes many government support programs that have failed due to ill-conceived designs, incompetence among government officials and fuzzy goals. The only countries in which he finds that government support schemes have

Table 5: Buyout investment and market capitalization as a percentage of GDP in EU countries and the US, 2015

Country	Buyout investment	Market capitalization
US	3.49	151.2
UK	0.68	106.5
Sweden	0.32	135.2
Denmark	0.31	71.3 (2012)
France	0.31	73.7
Finland	0.18	81.8
Netherlands	0.16	89.5
Germany	0.15	44.9
Poland	0.15	31.0
Belgium	0.14	71.2
Hungary	0.087	10.5
Luxembourg	0.062	97.4
Spain	0.062	71.9
Italy	0.060	21.8 (2008)
Ireland	0.030	57.2
Romania	0.029	11.2
Bulgaria	0.024	9.7
Portugal	0.023	25.1
Estonia	0.013*	10.1 (2012)
Latvia	0.013*	4.0 (2012)
Lithuania	0.013*	9.3 (2012)
Austria	0.008	22.2
Czech Republic	0.000	36.5 (2007)
Greece	0.000	23.4
Croatia		38.6 (2013)
Cyprus		17.4
Malta		44.1 (2013)
Slovakia		4.9
Slovenia		15.2

Note: *For buyout investment, values for Estonia, Latvia and Lithuania are a Baltic average. Market capitalization is the share price times the number of shares outstanding. Listed domestic companies are the domestically incorporated companies listed on the country's stock exchanges at the end of the year. Listed companies do not include investment companies, mutual funds, or other collective investment vehicles. Data are missing for some of the EU countries.

Source: For buyout: Invest Europe (2016, p. 44) for EU countries and American Investment Council and World Bank for the US For market capitalization: World Federation of Exchanges database; extracted from the World Bank's World Development Indicators database (2006–14) for all countries except for Sweden, Finland and Denmark. Source Denmark: "World Development Indicators 2014". Source Sweden: Riksbanken and Statistics Sweden. Source Finland: Finlands Bank and Statistikcentralen.

been a definite success are Singapore and Israel. The institutional context in which such programs are implemented, may seriously affect their efficacy.

This leads us to:

Proposal 21: Stop promoting VC capital with public funding directly. Instead focus on developing private competencies in the field.

This proposal, among other things, puts into question the approach suggested under the Juncker plan as in European Commission (2017). The problem of VC is not in the supply of finance. Rather, the business model of carefully selecting and coaching ventures resists efficient scaling. To avoid problems of moral hazard, a substantial degree of skin-in-the-game is required and too much public money chasing too few viable projects may result in expensive mistakes. A cleverer option to ensure that incentives to invest are stronger while possibilities to offload risks onto taxpayers and financiers are kept small, is to reduce capital gains taxation for venture capital equity investments (but NOT for private equity used for leveraged buy-outs, speculation and mergers and acquisition) as was discussed above. Or improve the opportunities to exit.

Proposal 22: Reduce barriers to the sale, acquisition and IPO of VC-funded start-ups.

In that way, VC investments are not subsidized directly but become more interesting as there are more options for a quick exit. It is important to realize that the European model of new venture creation, in all its diversity, does not rely as much on VC finance and independent start-ups reaching IPO-stage as the US. In Europe intrapreneurship (Bosma et al. 2014; Liebrechts and Rigtering 2016) is more common and VC finance is simply much less in demand. Also, doubts have been raised on the ability of European VC investors to select the best ventures (Bertoni et al. 2011). If the VC sector proves unable to select more successful ventures ex ante, there is in fact no reason to promote VC over the available alternative sources of finance, especially if these alternatives may also substitute the beneficial coaching and mentoring function usually performed by VCs (also in the EU context, see Bertoni et al 2011, Grilli 2014). Policies to level the playing field would be sufficient.

Finally, decision making by business angels and VC investors is often also a matter of judgment in which the criteria are largely tacit (Bhidé 2010). To have public agencies use similar criteria does not sit well with the requirement of treating all citizens equally under the law. Finally, failure is an inherent part of entrepreneurship, and private investors consciously assume this risk. It is more difficult for elected politicians who handle taxpayers' money (or bankers managing deposits or pension fund managers managing pension liabilities for that matter) to motivate this risk-taking and the ensuing losses in numerous projects. But in this respect, the emergence of new, crowd and platform based financial services, such as equity and debt crowd funding and peer-to-peer lending, are to be cherished. These new forms of capital allocation seem to fill a gap by funding the small tickets following equity investment like decision heuristics in a scalable way.

3.3.6 Alternative finance and disintermediation

Alternative sources of finance are on the rise as a source of funding for entrepreneurs (Bruton et al. 2015, Vulkan et al. 2016). Technological developments have made it possible for small firms to access large pools of financial resources through crowd funding and peer-to-peer platforms. The academic literature on these relatively new developments is mushrooming, but evidence remains scant and largely case based. Still, the early evidence supports some preliminary conclusions. Colombo et al.

(2015) show early contributions on crowd funding campaigns bring about further contributions. The allocation of capital in these platforms is not unlike FFF and angel investments but the new platform technology allows entrepreneurs to really leverage their personal networks while it efficiently handles large numbers of small investors. Average investments go down, whereas total investment increases. Modern platform technology decentralizes even informal finance and helps entrepreneurs, especially in the business-to-consumer markets, to combine finance, marketing and sales. Most attention in the literature and media is currently reserved for crowd funding campaigns that involve consumer products and large groups of very small investors that either pay for a cool gadget up front or donate money to a cause they feel worthy. But crowd funding and investment has also grown into a much more serious business. In a case study dedicated to the London Equity Crowd Funding Scene, Estrin et al. (2018) conclude that alternative finance, provided it is regulated and managed well, can develop into an important way to tackle the entrepreneurial equity gap and bridge the infamous Valley of Death in venture finance. The equity crowdfunding platforms based in and around London, have rapidly outgrown the sandbox and currently provide serious money from serious investors to serious ventures. It is essential, however, that regulators and supervisors resist their instinct to protect small-scale investors and regulate equity crowdfunding to eliminate all risks involved.

Proposal 23: We propose to implement a light-touch regulatory regime for equity crowd funding.

Light touch regulation has been successful in Britain (Vulkan et al. 2016, Hornuf and Schvienbacher 2017, Estrin 2018) and could work well in all European Member States. This is not controversial as the European Commission and most of the member states have already expressed their intentions to do so. However, the proof of the pudding is in the eating and policy makers should be aware and alert that vested interests have every incentive to lobby against these alternative, decentralized forms of finance. Crowd funding and direct finance strengthens the trend towards disintermediation and eats at the heart of the powerful banks' business models. It is easy enough for their lobbyists, in the wake of a large financial crisis that has shaken the confidence of all involved, to argue that the risks are hard to control (which they are) and poor people may lack the skills to fully understand what risks they take (which they do). The light-touch regulation we propose should be strict on the investees, but lax on the investors. If entrepreneurs build their business model on the naivety of the crowd-investors or are found to be rent seekers rather than productive entrepreneurs in other ways, the platforms and regulators should have instruments to act. We believe, however, that existing arsenals are well equipped for doing that, regardless of the funding source. The light-touch regulation should leave the investor free. We believe many more Europeans are willing and able to take a risk and eventually shoulder a loss, especially if the platforms enable them to collect and verify information on the project they invest in. Putting ordinary Europeans in the drivers' seat on investment decisions, allows them to collectively take the role Schumpeter (1934) had foreseen for the bankers. As the latter failed, the former should perhaps be allowed to take matters in their own hands.

A slightly more debatable reform proposal is to start building a harmonized European regulatory framework for facilitating peer-to-peer lending throughout the Union.

Proposal 25: Build a harmonized regulatory framework for peer-to-peer lending throughout the Union.

Peer-to-peer lending proved an important buffer for the impact of the financial crisis in countries where such parallel systems of corporate credit existed or emerged (Mills and McCarthy 2014). Moreover, such systems benefit SMEs and start-ups more than they do large, established corporates as they are better at handling smaller tickets efficiently and handle the opacity and information asymmetry that hinders SMEs in more traditional finance channels. Again, we should warn policy makers that the regulatory process should be isolated as much as possible from the interference of established financial lobbies. At best these parties will be indifferent to these developments, but if traditional financial intermediaries understand their self-interest (and they do) they will try to either appropriate or sabotage regulatory initiatives to develop disintermediation technologies. Finally, crowdfunding is also a useful way to source information for publicly funded investment programs.

Proposal 25: The European Investment Bank, as part of its efforts to allocate the Juncker-fund, could experiment with a euro denominated European crowdfunding platform and match successful campaigns with public funds.

That is, public institutions, instead of picking winners, could have the crowd decide where a significant part of e.g. the Juncker-fund should be allocated. Currently the initiatives to set up and manage crowd funding platforms are left to “the market”. Private individuals and firms set up platforms and vie for investors and investees. But in this market, first mover advantages are big and the platform that manages to establish itself first, typically takes all as both new investors and investees benefit from joining existing platforms. The platforms are almost natural monopolies and one might argue the platforms have the potential to develop into vital public infrastructures for exchanging information and finding investment opportunities. If such information, like knowledge, is considered a commodity with significant public goods properties, there is perhaps a case for publicly providing the infrastructures, once the dominant technical design has established itself. A semi-public institution like the EIB would perhaps be a suitable candidate for establishing and maintaining such vital infrastructure and at the same time use the information thus generated to be more effective in its current mandate. Both in the consortium and the stakeholders we consulted, however, there was quite a bit of scepticism about the ability of a semi-public institution to manage such a platform while the environment is still so much in flux. There was support for experimentation, but expectations should not be raised too high. The amount that can productively and effectively be channelled through matching crowdfunding platforms will necessarily be limited.

3.3.7 Conclusions on institutions governing savings and investment

Financial markets allocate society’s resources to productive investment opportunities. In an innovation driven economy at the global technology frontier, these productive opportunities are found in experimentation and innovation, as well as in the global scale ups that result when such experimentation proves successful. Financing such risky venturing requires a diverse and robust financial sector that can cater to the very heterogeneous capital needs of entrepreneurial venturers. Europe’s bank based financial system manages vast amounts of institutional savings as Europe’s populations age and retire. Such wealth is typically invested in large sums, in the form of debt contracts to insure repayment of the principle and generate stable, predictable cash-flows over long time-horizons. Moreover, European banks have taken up a central role in the digital payment infrastructure that by now provides vital economic infrastructure for any, but especially web-based entrepreneurial

ventures. To keep our payment and pension systems safe and secure, old and new regulation keeps European banks on a tight leash. They operate with high leverage and under tight regulatory control, making it unattractive for them to engage in SME and entrepreneurial finance from the outset. The European financial system is well-equipped to cater to the managed, industrial society where large corporates with robust balance sheets and high-quality collateral finance the replacement and incremental updating of large scale capital intensive production assets. But perhaps such a system is less well equipped to cater to the needs of small scale, experimental ventures and innovative SMEs. We would not propose to turn European financial institutions into what they are not. Banks are not and can never be VC-investors, so they should not try to become them. But some reforms in the financial system might allow banks and other asset managers and intermediaries in Europe to take a slightly bigger role in funding the Entrepreneurial Society. The proposals presented in this section therefore aim to reform a historically given strong banking sector and complement it with traditional (angel and VC) and innovative (platform based equity and debt crowdfunding) alternatives to increase the flow of financial resources to entrepreneurial venturing. Locally embedded small banks, historically and still prevalent in many EU Member States, should be encouraged and enabled to stick to their tradition of relationship banking and higher equity in banks would justify taking more (micro) risk on the asset side of bank balance sheets. At the same time, allowing more of society's wealth to be held privately and promoting the investment of such resources in arm's length equity investments through crowd funding or informal finance, could complement or substitute for angel and VC-markets that are traditionally strong in Anglo-Saxon market based financial systems. The proposals, summarized in *Table 1-3* below, together and individually, aim to strengthen the flow of (equity) capital into entrepreneurial venturing while removing barriers for such capital to reach innovative ventures through traditional intermediaries and modern platform based channels.

Table I-3: Proposals Section 3.3

Number	Section	Title	Proposal	Explanation
14	3.3.2	Private Wealth	Our proposal is that in regions where family ties are strong, there should be institutional arrangements that would promote lending from private funds especially from the family to ventures.	In FIRES-Deliverable 2.2 (Dilli and Westerhuis 2018) it was shown that these cross-national differences in family financing are result of the differences in extent to which individuals feel socially obliged towards their family members, shaped by the strength of family ties. These family ties are result of the historical family arrangements. As a result, the share of family financing is expected to be much higher in regions where traditionally the family group has priority over the individual (strong family ties), common in the Eastern European and the Mediterranean countries context compared to the North Western European countries where the individual and individual values have priority over family (weak family ties).
15	3.3.3	Institutional Investors	Allow more wealth to accumulate/remain in private hands and make it (fiscally) attractive to invest such wealth in entrepreneurial ventures.	Wealth-constrained would-be entrepreneurs are unable to credibly signal their project's worth to outside investors by means of making sizeable equity infusions of their own. More private as opposed to institutionalized wealth would lessen the inherent problem caused by such asymmetric information, and, if needed, enable entrepreneurs to fully finance their ventures until organic growth based on retained earnings is possible.
16	3.3.3	Institutional Investors	On an experimental basis, we propose that pension funds and other institutional investors be allowed to invest more in equity in general and in venture capital specifically.	New legislation in the US in 1979 allowed pension funds to invest in high-risk securities that were issued by small or new companies and VC funds (Misher 1984; Fenn et al. 1995) and Europe could consider similar steps. As the risk profile of entrepreneurial ventures is different from the risk profile such investors are used to handle, however, allowing institutional investors to engage in VC funds needs to be done carefully and on small scales before any significant reforms can be implemented.
17	3.3.4	Banking	To effectively enable institutional investors to channel responsible shares of their portfolios into portfolios of new ventures, build funds-of-funds to achieve the required scale and diversification.	The challenge is therefore not only to allow these funds to engage in more risky asset classes, but to help them write the contracts and draft up the incentive schemes that will push the actual (delegated) decision makers to channel more funds towards entrepreneurial ventures. As asset management is expensive and characterised by strong economies of scale, there is a natural tendency for asset managers to invest in large tickets and marketable assets.
18	3.3.4	Banking	In the system of bank loan guarantees for start-ups, ensure that (appropriately anonymized) credit decision information is made available publicly.	Such public guarantees can be motivated from the fact that entrepreneurial venturing creates knowledge spillovers and positive externalities that banks and entrepreneurs do not consider in their private decisions. This information, however, should then be disclosed (for example via the proposed Entrepreneurship Observatories in Proposal 45 below).

Table I-3: Proposals Section 3.3 (Continued)

Number	Section	Title	Proposal	Explanation
19	3.3.4	Banking	Increase the mandatory equity ratio in banking gradually to 10-15% to have more skin in the game and allow banks to take on more risk responsibly in their lending portfolios.	Given that European banks operated profitably at much higher equity ratios in the past whereas non-European banks continue to do so, this proposal only requires a sound implementation and transition strategy. Gradually building up the equity buffer while at the same time accumulating more publicly guaranteed SME-loans in the portfolio is a balanced approach. Higher required equity buffers will increase the price of credit and some might argue that this will reduce credit and investment in the aggregate. We feel, however, that such price increases will only drive out the marginal investment projects and most of these are currently found in the secondary, speculative investments that Bezemer (2014) deems unproductive.
20	3.3.4	Banking	A long run reform to force commercial banks to return to their traditional intermediation role. A modern way to achieve that result is to introduce central bank digital currency to replace the claim on commercial banks as medium of exchange.	For the long run one might consider reforming the current monetary system, that has commercial, private banks issue debt obligations serving as the public medium of exchange. By clearly separating public from private functions, we believe banks can take a bigger role in financing new ventures and SMEs, as they have in the past. By requiring more own equity in banking and investing, we can responsibly allow traditional financial intermediaries to take on more risk and uncertainty, without having to fear they will offload such risks onto tax payers in case things turn bad.
21	3.3.5	Angel and Venture Capital	Stop promoting VC capital with public funding directly. Instead focus on developing private competencies in the field.	This proposal, among other things, puts into question the approach suggested under the Juncker plan as in European Commission (2017). The problem of VC is not in the supply of finance. Rather, the business model of carefully selecting and coaching ventures resists efficient scaling. To avoid problems of moral hazard, a substantial degree of skin-in-the-game is required and too much public money chasing too few viable projects may result in expensive mistakes.
22	3.3.5	Angel and Venture Capital	Reduce barriers to the sale, acquisition and IPO of VC-funded start-ups.	A cleverer option to ensure that incentives to invest are stronger while possibilities to offload risks onto taxpayers and financiers are kept small, is to reduce capital gains taxation for venture capital equity investments (but NOT for private equity used for leveraged buy-outs, speculation and mergers and acquisition) as was discussed above. Or improve the opportunities to exit. In that way, VC investments are not subsidized directly but become more interesting as there are more options for a quick exit.

Table I-3: Proposals Section 3.3 (Continued)

Number	Section	Title	Proposal	Explanation
23	3.3.6	Alternative Finance and Disintermediation	We propose to implement a light-touch regulatory regime for equity crowd funding.	Light touch regulation has been successful in Britain (Vulkan et al. 2016, Hornuf and Schwiabacher 2017, Estrin 2018) and could work well in all European Member States. This is not controversial as the European Commission and most of the member states have already expressed their intentions to do so.
24	3.3.6	Alternative Finance and Disintermediation	Build a harmonized regulatory framework for peer-to-peer lending throughout the Union.	Peer-to-peer lending proved an important buffer for the impact of the financial crisis in countries where such parallel systems of corporate credit existed or emerged (Mills and McCarthy 2014). Moreover, such systems benefit SMEs and start-ups more than they do large, established corporates as they are better at handling smaller tickets efficiently and handle the opacity and information asymmetry that hinders SMEs in more traditional finance channels.
25	3.3.6	Alternative Finance and Disintermediation	The European Investment Bank, as part of its efforts to allocate the Juncker-fund, could experiment with a euro denominated European crowdfunding platform and match successful campaigns with public funds.	That is, public institutions, instead of picking winners, could have the crowd decide where a significant part of e.g. the Juncker-fund should be allocated. Currently the initiatives to set up and manage crowd funding platforms are left to "the market". These platforms, however, are almost natural monopolies and one might argue the platforms have the potential to develop into vital public infrastructures for exchanging information and finding investment opportunities.

3.4. The organization of labour markets and social insurance systems

3.4.1 Preamble

The discussion on labour markets centres on income, risk and mobility. For an Entrepreneurial Society, it is important that young and small firms can compete at par with large and mature incumbents for all essential resources, including labour. The available labour force should therefore be willing and able to change jobs, labour market status and location as opportunities arise. It is also important that no talent is wasted and skills keep pace with the demands of a modern economy. The labour market serves two important functions. It allocates the available labour force to its most productive use and it enables citizens to generate income, participate in society and thus make a living for themselves. The latter function makes the labour market special. The complex of institutions governing the allocation of labour and the distribution of income in most modern economies can barely be said to function as a market. “It is an inescapable fact that labour markets are more complex and more institutionally variable than orthodox theory would have us believe.” (Peck 1996, pp 4). And rightly so, as workers are much more than a pool of resources to be allocated efficiently. In labour markets, more than anywhere else, the issues of equity and inclusiveness thus play an important role.

The institutions governing the distribution of jobs and income have evolved over centuries and have deep historical roots. At the same time, many of the current institutions were developed and shaped in an era where lifetime employment of a single (male) provider in large, mature industrial, managed firms was perhaps the norm. A lot has been done already to reform these institutions and it is beyond the scope of this paper to review the ocean of literature on that topic. We approach the issue here exclusively from the perspective of the Entrepreneurial Society. The underlying philosophy in the proposals below is that an Entrepreneurial Society should provide opportunities for all, protect people against risks they cannot manage alone (or that are simply best managed collectively) and makes people mobile but does not force them to move. In that sense, our aims are aligned with the ILO’s Global Employment Strategy to provide full and productive employment and decent work for all (ILO 2008; Cazes and Verick 2010) and the Commission’s European Employment Strategy (1997) to create more and better jobs throughout the EU. We explicitly consider entrepreneurship “decent work”. In contrast to more neoclassical liberalisation programs that unilaterally focus on the allocation of labour as a resource, our proposals therefore aim to liberalize European labour markets by increasing people’s capabilities or positive and negative freedoms (Berlin 1969; Sen 1988; Dasgupta 1986).

Labour market regulation often implies that contracting freedom is constrained, even if both parties would like to deviate from the rules. Moreover, labour security mandates typically fall more heavily on younger, smaller, and less capital-intensive employers—categories in which entrepreneurial firms are overrepresented. Severance pay and strict regulations governing the order of dismissal in the case of redundancy are factors that may prevent entrepreneurs from adjusting their workforce in response to market fluctuations and changes in required skills, thereby increasing the risk of their projects (Audretsch et al. 2002). Research has found that labour market regulations shape the level of nascent entrepreneurship more than differences in entry regulations, with the result that new firm formation is higher in countries in which hiring and dismissing employees is relatively easy and inexpensive (Niehof 1999; OECD 2003; van Stel et al. 2007). In addition, labour market deregulation can and has stimulated entrepreneurial activity in many OECD countries (OECD 1998, 2000).

Europe's stricter employment protection legislation may partly explain its lower frequency of new, rapidly growing firms relative to the United States (Baumol et al. 2007, p. 210 and 222).³¹ The lack of flexibility may become detrimental to the overall economy, making it less adaptable to change. In addition, labour market regulation can influence entrepreneurial activity by affecting the relative advantage of being an employee; far-reaching employment protection legislation increases an employee's opportunity cost of changing employers or leaving a secure salaried job to become self-employed (Ho and Wong 2007; van Stel et al. 2007).

Less stringent legislation for temporary employment could provide more flexibility. However, from the ecosystem perspective, this is a second-best solution since staff on temporary contracts will be less motivated to invest in firm-specific skills and commit less strongly to the firm than employees on permanent contracts.³² Thus, it becomes less likely that the firm will be able to attract and retain workers who have highly valued skills or are inclined to develop such skills on the job.

The social security system is closely linked to the regime governing the labour market. Public income insurance systems in combination with strict labour security legislation tend to penalize individuals who assume entrepreneurial risk (Ilmakunnas and Kanninen 2001). This is because these systems confer a relative advantage on employees with many social security benefits—such as disability, sickness, unemployment and pension benefits—being explicitly linked to formal employment. These benefits further increase the opportunity cost of leaving a tenured position as an employee and thus reduce the incentives for entrepreneurship (Audretsch et al. 2002).

Many are unwilling to forgo a large part of their social protection in exchange for an uncertain and volatile entrepreneurial income. This should be amended to increase mobility.

Proposal 26: We propose below to make important social insurance benefits “portable”—e.g., by decoupling health insurance—between jobs and between regular employment and self-employment.

But even if we succeed to “generalize” the social security system, the self-employed and owners/managers of small entrepreneurial firms would still be unable to make practical use of the full extent of the system's benefits, such as those related to parental or sick leave. The challenge we face in reforming our labour market institutions for the Entrepreneurial Society is to balance effective and equal access to key social security services while at the same time maintaining incentives to work for or start up an entrepreneurial venture.

3.4.2 Inclusive entrepreneurship

Entrepreneurship is perceived to be inherently more inclusive than employment (Glazer and Moynihan 1970), but the evidence shows (Fairlie 2006, Dilli and Westerhuis 2017) that income and participation gaps largely extend to business ownership and income. To enable disadvantaged groups to engage with the opportunities the Entrepreneurial Society offers, some special attention and support, as already offered in the latest Horizon 2020 program, is justified.

³¹ Stringent labour market regulations thus deter and impede business activities but may simultaneously boost self-employment due to evasive measures. To circumvent stringent regulations, potential entrepreneurs can choose to become self-employed themselves. They could also decide to eschew hiring employees in favour of cooperating in networks with other self-employed individuals since no labour security is mandated for the self-employed and compensation and working hours are unregulated. However, this type of self-employment should not be interpreted as a sign of entrepreneurial dynamism but instead as a costly, albeit necessary, strategy to evade onerous regulation. Part of the increase in self-employment in recent years in many highly regulated economies is likely driven by such considerations (Liebregts 2016).

³² *Prima facie*, one may infer that permanent contracts are of little value in high-risk entrepreneurial ventures, as the contract is not secure anyway. However, unless the firm offers a permanent contract, the employee runs the risk of being dismissed when the temporary contract expires even if the venture is successful.

Proposal 27: Further develop entrepreneurship programs targeting groups that are disadvantaged in formal employment, such as youths, women, ethnic minorities and low skilled individuals and/or promote entrepreneurial activity that explicitly aims to have such groups participate and contribute to society.

Evidence for Europe (Blanchflower 2004) shows that the probability of being self-employed is significantly higher for males and less educated and in the poorer member states. In smaller samples, it has also been shown that disadvantaged minorities have lower rates of business ownership, whereas for immigrants these rates are comparable to or slightly higher than for the indigenous population, both in Europe and the US. Fairlie (2006) suggests these differences arise from a lower entry rate, which targeted programs may help increase, and higher exit rates, which targeted programs may help reduce. Specifically, for women, Dilli and Westerhuis (2017) propose an effective way to promote more and more ambitious and innovative female entrepreneurship requires addressing gender gaps early on and especially in promoting female participation in STEM-education, but we return to education in section 3.8 below.

3.4.3 Employment protection legislation

Already in the 1970s it became evident that labour markets failed to provide jobs and income for all (Peck 1996). High structural unemployment in Europe was first attributed to strong employment protection, high minimum wages and other market distortions, but as countries started to follow the recipes of deregulation and decentralisation, it became apparent that the situation is much more complex and nuanced. Strong employment protection was shown not to correlate with structural unemployment and the countries that had pursued the neoclassical recipes with most zeal, saw new problems arise as real wages stagnated for the lower and middle class, income inequality rose, job security dropped, investment in (firm-specific) human capital dropped and a new kind of long-term unemployment emerged (Peck 1996).

The bulk of the literature shows that flexible labour market institutions- less employment protection, regulated wage setting institutions and a lower level of social security- promote entrepreneurial activity. The Varieties of Capitalism approach (see Dilli et al. 2018) teaches us, however, that one-size-fit-all approaches to institutional reform are destined to fail, especially in areas where dense, highly interactive and complementary institutional frameworks have evolved. The institutions that govern our labour markets have roots and branches in educational systems, tax codes, social security, health and many more socio-economic domains. FIRES-deliverable 2.5 therefore studied the (co-) evolution of labour market regulations, wage setting institutions and social security, along with their link to entrepreneurship in 18 European countries and the United States. Two findings stand out. First, a cluster analysis reveals five distinct bundles of labour market institutions in Europe, which show persistence since the mid-1980s. The labour market structure of the Mediterranean Market Economies (MMEs) are least favourable to Schumpeterian type of entrepreneurial activity. Second, these institutional constellations in labour market institutions influence the relationship between each dimension of labour market institutions and entrepreneurial activity. For instance, less regulation on permanent employment is likely to be linked with high-growth aspirations among entrepreneurs particularly in the MMEs whereas no change is observed in the other institutional constellations. Given that Coordinated Market Economies (CMEs) are shown to perform rather well in innovative entrepreneurial activity, while being characterized by moderately liberal labor market institutions, centralized wage setting institutions and high levels of social security. We therefore conclude that a

policy of radical liberalisation following the Liberal Market Economies (LMEs) model is perhaps not the only way.

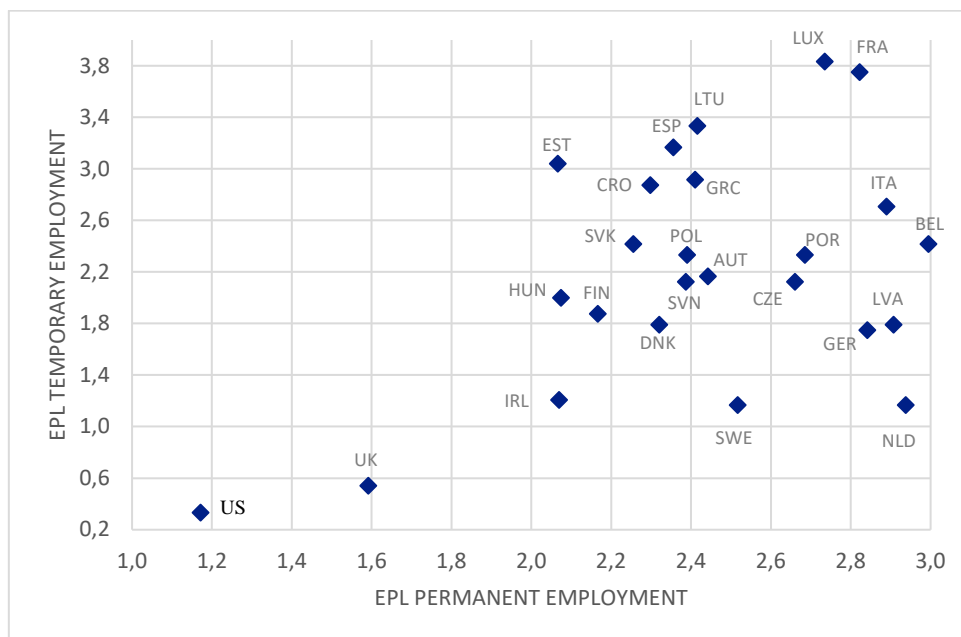
Proposal 28: CMEs can provide a model for MMEs, which show more similarities to CMEs in many respects than LMEs.

In all the complexity, however, a useful and relatively simple way to make labour supply more flexible and responsive to the needs of entrepreneurs would be to give workers and employers more freedom to contract on working hours.

Proposal 29: Allow for more flexibility in working hours.

Of course, regulation of working hours is set for good reasons and in diverse institutional contexts. Total annual hours worked in the OECD range from 2255 in Mexico to 1363 in Germany with an average of 1763 (numbers for 2016). The European Union has low and decreasing annual working hours due to generous holiday entitlements and the working week is capped at 48 hours in Europe, where France has set that limit most tight at 35. We believe this reflects in part the preferences of European workers and should therefore not be problematized per se. Moreover, there is something to be said for some centralized regulation of working hours and holiday rights, as individual workers will otherwise compete on working hours.³³ Still entrepreneurship requires flexibility and employing workers becomes a serious liability to small, young firms when this labour cannot be employed flexibly to match sometimes volatile demand. There are probably employees who have a high tolerance for such fluctuations, so matches can be found, but currently regulated working hours prevent such matches from occurring and some flexibility would be beneficial.

Figure 3: Stringency of employment protection legislation for workers on permanent and temporary contracts in EU countries and the US, 2013.



Note: The scale of the index is 0–6, where 6 represents the most stringent regulation. 2013 is the latest available year. The index for permanent employment is the index for individual and permanent dismissals.

Source: OECD/IAB Employment Protection Database, 2013 update.

³³ In China reportedly some 600.000 workers die from overwork every year despite a recently adopted 40-hour working week.

Reforming employment protection legislation more fundamentally is more involved, but there is a strong case for doing so. *Figure 5* shows the stringency of employment protection legislation (EPL) in the EU countries and in the United States for temporary contracts (y-axis) and permanent contracts (x-axis). The two measures reveal considerable positive correlation ($r = 0.46$). The Anglo-Saxon countries stand out as having the least stringent EPL by far, even though most other countries have liberalised their legislation for permanent employment in recent decades (Skedinger 2010; Martin and Scarpetta 2012). For temporary contracts, Sweden and Germany stand out for their substantial liberalisation over the past 20 years; notably, these are also two of the top-performing EU countries in terms of employment (see *Figure 2*). They also rank among the countries with the highest share of temporary employment. In Sweden, as much as 56 percent of employed 15–24-year-olds were on temporary contracts in 2015 (OECD 2016).

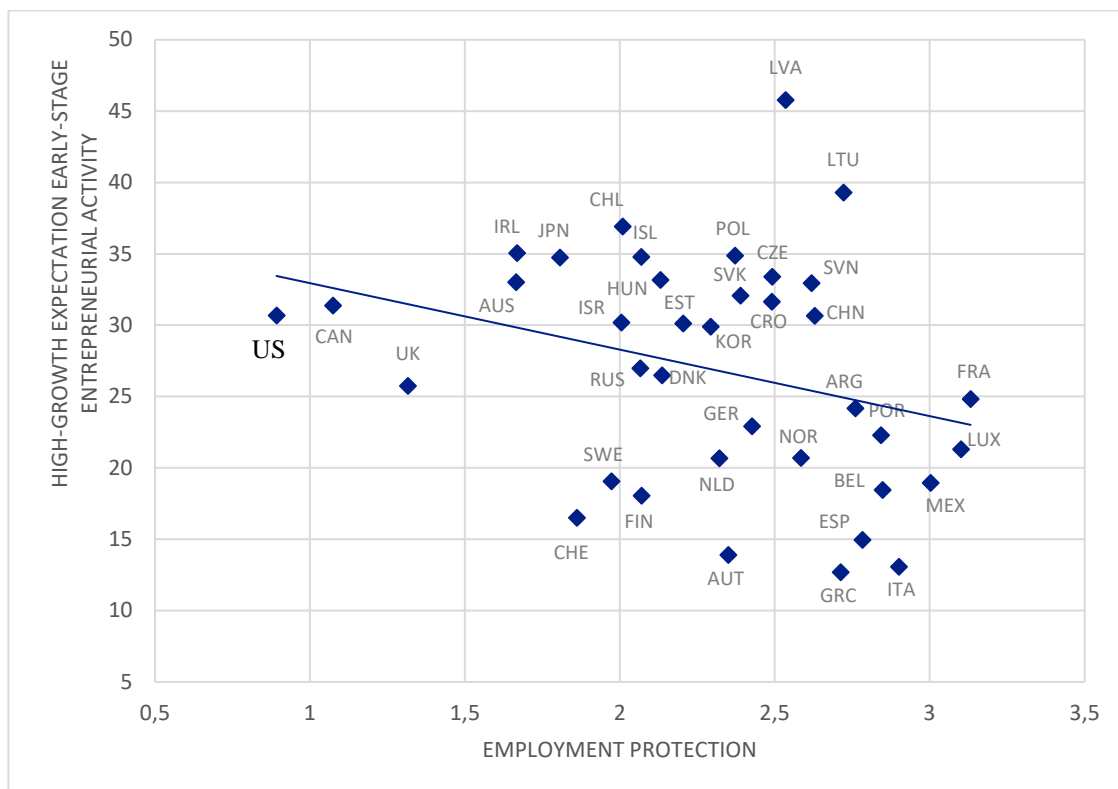
The Mediterranean countries (Portugal, Italy, Spain and Greece) have also liberalised their temporary employment legislation, and even though it remains comparatively stringent, the share of employed 15–24-year olds on temporary contracts is above 50 percent in all those nations except Greece (OECD 2016). By contrast, all Eastern European countries have increased the stringency of their legislation related to temporary contracts, which is noteworthy given their generally weak employment performance. Overall, legislation with respect to both types of contracts remains quite strict in most Mediterranean and Continental European countries.

Policymakers in several European countries are aware that the EPL may be too stringent; to mitigate the negative effect, they have instituted firm-size thresholds below which labour regulations are less onerous. Again, such a policy of exceptions can be criticized on neutrality grounds since, in practice, this is the equivalent of a tax on firm growth. Indeed, it has been revealed that firms are reluctant to grow beyond the size of the threshold in Germany (Autio et al. 2007), France (Garicano et al. 2013), Portugal (Braguinsky et al. 2011), and Italy (Schivardi and Torrini 2008).³⁴ Thus, firms are incentivized to remain small, and many entrepreneurs will never discover that they could have become high-impact entrepreneurs because they do not even try. Geurts and Van Biesebroeck (2016) further show that the pattern of firm-growth in Belgium indicates that young firms under-adjust to good news. As a result, promising firms scale up too slowly and they might miss out on opportunities in a fast-paced global market.

Employment regulations create strong incentives for actors in the labour market to devise arrangements to circumvent the regulations. Important symptoms of such attempts to create flexibility in several European countries include increased self-employment, the emergence of an underground economy in which the government does not or cannot enforce regulations, and an increased reliance on temporary employment. But such evasive manoeuvres fail to address the real problem. Instead, these measures tend to create a system in which many small firms without the ability or aspiration for high growth exist side by side with large firms and government-owned firms that are better equipped to handle a stringent EPL

³⁴ In Germany, the administrative cost based on the design of the regulatory framework rises sharply for firms with 50 employees or more. When French firms reach 50 employees, they must form work councils, provide more union representation and face higher firing costs. Portugal and Italy have important regulatory limits already at 15 employees with similar growth-impeding effects.

Figure 4: The strictness of employment protection and high-growth expectation early-stage entrepreneurial activity, 2010–13.



Note: Both variables are averaged over the four years 2010–13. Permanent EPL is given a weight of 2/3 and temporary EPL a weight of 1/3. Source: Global Entrepreneurship Monitor and OECD/IAB Employment Protection Database, 2013 update.

Outsiders remain outsiders and insiders are locked up in “gilded cages”. This dual labour market is not inclusive or conducive to innovation and high-skill entrepreneurial venturing. This is illustrated in Figure 6, which shows a negative relationship between the overall strictness of EPL and the rate of high-growth expectation early-stage entrepreneurship. There are two clear outliers, Lithuania and Latvia, which may suggest that EPL is less binding in practice in these countries because of mitigating complementary institutions.³⁵

If the goal is to make the European Union more inclusive, innovative and entrepreneurial, it is highly advisable that the most regulated countries reduce the stringency of their EPL for permanent contracts.

Proposal 30: Relax the stringency of employment protection legislation for permanent contracts.

A competently implemented liberalisation will reduce job security but increase employment security for workers, as labour demand will increase and more opportunities will be created in the labour market. That said, the impact and strictness of employment protection legislation depends on a complex combination of components, such as grounds for individual dismissal, redundancy procedures, mandated periods of advanced notice, severance payments, special requirements for collective dismissals, rules favouring disadvantaged groups, and so forth. For liberalisation to have the

³⁵ $r = -0.43$ if Latvia and Lithuania are excluded, otherwise $r = -0.31$.

desired results, countries must develop carefully tailored strategies to avoid jeopardizing the process, ideally by considering and possibly emulating the paths already taken by similar countries.

It is also important to complement this liberalisation with policies that will prepare people for the new labour market. Technological change and globalization march on inexorably and impact the relative productivity of the tasks that European workers perform. The modern paradigm in labour economics distinguishes between routine-intensive tasks which are common in production, and abstract, non-routine tasks which prevail in pre-production design work and in post-production interaction with clients. As machines or offshored labour are gradually able to perform ever more routine tasks, it is important for national welfare to reallocate workers to tasks and occupations where they are most productive.

Archanskaia et al. (2017) show that countries with a low rate of substitution between inputs in routine production, will not be able to gain a comparative advantage in high-value products that are intensive in non-routine tasks. As a result, they will end up specializing more and more in routine-intensive products and experience lower wage growth. Geurts and Van Biesebroeck (2016) further show that the pattern of firm-growth in Belgium indicates that young firms under-adjust to good news. As a result, many promising firms scale up too slowly and they might miss out on opportunities in a fast-paced global market.

Proposal 31: Establish or strengthen training programs to prepare workers for new occupations

Flexibility in the labour market thus has several benefits. This encompasses less stringent employment protection legislation, as already discussed above. In addition, it also increases the value of active labour market policies centred on training and re-training workers. Organizing formal education at the start of workers' careers is simply not sufficient anymore in our world experiencing continuous and fast-paced change.

3.4.4 Confidentiality agreements and other barriers to mobility

When it comes to enhancing the flow of talented labour to entrepreneurial ventures, labour mobility is key. This includes job mobility, sectoral mobility and geographical mobility as well as measures that enable people to combine different types of activities over their working life, both consecutively and simultaneously. In promoting more mobility, we can approach this question from a negative and positive concept of freedom to move. No regret proposals are found in removing barriers to mobility that would qualify as increasing the negative freedom for people to move.

Proposal 32: To promote the mobility of people and their knowledge across firms, lift the legal enforceability of confidentiality agreements between employers and their employees.

Of course, there can be justified instances in which confidentiality is needed to protect the legitimate interests and privacy of customers, but confidentiality agreements and especially non-compete clauses are more often used to prevent knowledge from flowing freely between firms and sectors. It is interesting to note that the lax enforcement of non-compete clauses in California (as opposed to for example Texas) has been identified as an important element in the development of this highly successful entrepreneurial ecosystem (Gilson 1999). Through employee mobility, the knowledge base

in the region became more integrated and productive to the benefit of all. For Europe, such an integration of the knowledge pool seems evidently beneficial. Limiting the possibilities of incumbent firms to prevent knowledge flows is therefore not in the public interest and in that of the challengers. On the positive freedoms side one can identify options that would enable people to effectively make use of their freedom to move in and out of entrepreneurial activities.

Proposal 33: Consider experimenting with measures such as a guaranteed return to a job after time spent with a start-up and/or a publicly funded “venture creation leave” for people engaged in a firm start up.

These proposals were greeted with approval in our stakeholder discussions as examples of policies that go beyond the removal of existing barriers. It was generally agreed that a policy to promote mobility would involve both pull (eliminating barriers) and push (encouraging mobility) instruments. However, the desirable mobility and flexibility in the labour market can only be achieved when a basic level of income and job security is ensured for those involved. People will not take the risks associated with working as or for a young start-up when necessities of modern life are not met and reasonably secure. This connects the issue of mobility to the proposals to reform social security systems discussed below.

3.4.5 Social insurance systems

In principle, providing insurance for unfavourable outcomes can encourage individuals to pursue entrepreneurial endeavours by making the burden of uncertainty less costly, e.g., through an extensive and generous public social insurance system that also includes generous unemployment benefits (*Figure 7*). This is a valid theoretical point shown formally by Sinn (1996), but it is an open question as to whether it is empirically important. Furthermore, the point no longer holds in labour markets in which job security is closely linked to job tenure; ultimately, what matters is the opportunity cost, i.e., how much an employee must sacrifice in terms of income and security if he or she transfers to self-employment or a risky job in an entrepreneurial firm.

Proposal 34: Guarantee equal access to welfare state arrangements for all, regardless of tenure in a specific job or labour market status, to make all potential employers compete on a level playing field.

An Entrepreneurial Society will see more people active in the labour market as self-employed or freelance worker or working in inherently risky ventures and SMEs with corresponding intervals of being between jobs. It is evident that these people face income and health risks that they cannot (self-)insure, as much as anyone else. Therefore, in a modernized labour market, these citizens should be given access to collective arrangements on an actuarially fair basis. Such access is particularly urgent in pensions, disability and illness and unemployment insurance. This is not a simple task as over time in many welfare states the goals of income support for the poorest and redistribution have pervaded social security schemes. Even if they were initially intended and set up as insurance schemes, income dependent premiums for e.g. health insurance or basic pension are commonplace and solidarity and redistribution are built in to these systems. Equity and fairness considerations have had a profound influence on eligibility criteria and the financing of social security, but have also created huge complexity and bureaucracy. To target support and security only to those deserving and weak, most

social security systems are now highly complex and conditional, often trapping citizens in their situation unintentionally (Dwyer, 2004; Hills, 2002; Devereux and Sabates-Wheeler, 2007).

Such eligibility criteria can be particularly damaging when they are tied to (tenure with) a specific employer. Company-specific health insurance, which is not common in Europe, is an example of such a benefit; another, more common one, is accumulated pension assets, that may be difficult to transfer when switching employer and/or industry. To the extent that such entitlements and accumulated rights are not portable, the mobility of (especially older) workers across firms is hampered, and the hiring of the elderly unemployed is discouraged.³⁶ Decoupling these and other benefits from employment would increase labour flexibility and lessen the risk that workers and potential entrepreneurs become “trapped” in large companies by reducing fears of losing adequate health insurance and other important employment benefits. In addition, supplementary pension plans should be made fully actuarial and portable. Making social security more portable and tied to the individual would also improve the low geographical mobility of workers in Europe, since being tied to a job in a firm also implies being tied to a specific location.

In this manner, public welfare systems can also reduce the need for stringent and costly employment protection legislation by replacing mandated security at the firm level, something which would arguably increase the acceptance of labour market liberalisations in many EU countries. An important role model in this respect is the *flexicurity* system of Denmark in which generous welfare protection and opportunities for retraining are combined with weak job security mandates (Andersen 2005). By contrast, a Swedish employee who voluntarily gives up a tenured position for self-employment may ultimately have no more security than what is provided by (means-tested) social welfare; in effect, the public income insurance systems and the employment security legislation tend to penalize individuals who assume entrepreneurial risk. Thus, the opportunity cost of giving up a tenured position in Denmark is substantially lower than in Sweden.

Like the European Employment Strategy, one could embrace the general principles of *flexicurity*, that can be summarized as: flexible and reliable contractual arrangements; comprehensive lifelong learning strategies; effective active labour market policies; and modern social security systems providing adequate income support during transitions (EC 2007). It is important, however, that Member States carefully consider the impact of such *flexicurity* reforms for young SMEs.

Proposal 35: Embracing the principles of flexicurity, we propose to carefully consider the impacts of reforms on young SMEs and not force them to take on high risks and burdens.

The Commission’s Employment Strategy still largely considers and supports entrepreneurship as a source of labour demand ([EC 2017](#)). It is important to stress that entrepreneurs can play their role of employer only when labour market institutions allow them to hire their workers profitably and without taking on risks they cannot bear. Well intended reforms that require employers to for example contribute to workers’ lifelong learning strategies or provide income support when workers fall ill or become disabled, may easily backfire. By the Commission’s own admission, any *flexicurity* related reform proposal will have to be tailored to local institutional conditions to be effective. Moreover, such

³⁶ Supplementary pension plans that are not fully actuarial and individualized often contain elements of redistribution and risk-sharing across individuals in a group, like white-collar workers in a certain industry. In addition, the pension benefit level is often disproportionately tied to the wage level achieved towards the end of an employee’s professional career, making employees unwilling to change to lower paid jobs towards the end of their careers even if that would mean that their career would be prolonged and the final retirement age would be deferred.

reforms are primarily the competence of individual Member States. The general guiding principles the European Commission have formulated, however, do not include structural and careful attention to what such reforms would mean for start-ups and young SMEs. While the specifics can and will vary country by country, we can infer that an important component of a policy that makes society more innovative and entrepreneurial involves making the individual's social insurances as portable as possible when changing jobs and moving between salaried employment and self-employment. This should be the case regardless of whether the insurance is public, paid by the individual herself, or paid by the employer based on individual or collective (union) agreement. One way to achieve this portability is the Austrian reform of 2003, which converted uncertain firing costs for employers into a system of individual savings accounts, funded by an employer-paid payroll tax (Hofer 2007). This system guarantees the employer certainty about the cost of any future dismissal when a person is first hired, while workers do not lose their entitlement to severance pay should they quit to take a new job.

Proposal 36: To ensure full portability of social security entitlements and put an unconditional floor in the social security system Member States could experiment variations on basic income or negative income tax systems.

The initiative to put a universal basic income on the European agenda was supported by over 200.000 citizens and in a [briefing](#) to the European Parliament support among EU-citizens was reported to be 60+%. Still, the evidence base to support such a radical reform is (naturally) thin. Our consortium discussed the proposal only considering the proposed transition to a more Entrepreneurial Society. We agree with some critics (e.g. Kay 2017) that the basic income is unlikely to deliver on all the promises its most ardent supporters make. As Kay (2017) puts it: "Either the level of basic income is unacceptably low, or the cost of providing it is unacceptably high." But we do feel it would move labour markets in the Entrepreneurial Society in the right direction. A basic income scheme, however low, would eliminate (some) necessity entrepreneurship (and employment) and release talent to engage in more fulfilling lifestyle or more productive opportunity driven entrepreneurship. It is an empirical fact that people are willing, all else equal and on average, to accept much lower incomes when self-employed and receiving an inheritance increases the probability of being self-employed substantially (Blanchflower and Oswald 1998). Currently this is partially explained by the fact that self-employed do and employed workers do not compete on wage and labour conditions. Self-employed are therefore forced to accept lower pay and higher risk. But their willingness to do so also suggests that formal employment carries a penalty. Putting a floor in the income distribution for all will then affect formal employment more than it does entrepreneurship. And as an unconditional basic income reduces income volatility and risks that especially more marginal entrepreneurs face, the predicted effect on entrepreneurial activity would be positive (Nooteboom 1987). Empirical evidence on win-for-life lottery winners in Belgium (Peeters and Marx, 2006), however, has shown that even substantial levels of basic income do not significantly affect people's propensity to become entrepreneurs. The main benefit of a basic income scheme would be to reduce the need to reform current, highly conditional and complex welfare state arrangements to create access for the hard to classify self-employed and freelance workers that are making up a growing share of the labour force. When some basic level for a decent living is taken care of as a collective responsibility, unemployment benefits, disability and illness insurance and pension systems go from being fundamental to being additional and can arguably be left (more) to private initiative or self-insurance. With some basic income to fall

back on, even a(n income) risk averse entrepreneur may not need expensive insurance for temporary involuntary unemployment or illness.

Proposal 37: Mandatory universal insurance for healthcare costs, old age and disability are necessary, given that adverse selection and behavioural biases are likely to cause underinsurance in these areas when such insurance is made voluntary.

Making such insurance mandatory prevents adverse selection problems, whereas making them universal prevents unproductive compartmentalisation in the labour market and ensures full portability of entitlements.

3.4.6 Conclusions on the organization of labour markets

The most important channel by which labour market institutions affect entrepreneurship is through their influence on the supply of skilled workers. Given the large worker flows required in a dynamic entrepreneurial ecosystem, institutions should facilitate the recruitment (and lay-off) of workers with the necessary competencies. Here, as we have seen, several institutional complementarities come into play. First, entrepreneurship and employment in young SMEs can offer opportunities for marginal groups in the labour market. For employers to be able to take that role, such groups should not be protected out of a job. On the one hand, this requires the removal of onerous employment protection legislation, as this discourages potential high-growth firms from hiring workers and expanding. On the other hand, firms should not be allowed to restrict the mobility of their employees. Matches between employers and employees should be voluntary and last only as long as they are mutually beneficial. Furthermore, social security institutions should be reformed to enable the portability of tenure rights and pension plans, as well as a full decoupling of health insurance from the current employer. Social security entitlements and eligibility should be decoupled from the employer and tied to the individual only. Other forms of conditionality can be damaging also. The direction in which the proposals summarized in *Table 1-4* below aim to move Europe and her Member States, is towards reducing complexity, increasing individual autonomy and freedom and securing basic social security entitlements that are unrelated to a persons' job or labour market history. If it were possible to start from scratch, perhaps the idea of a universal basic income should be considered. Given the evolution of Europe's welfare states we think such a drastic reform is currently unpractical, but the idea can serve as useful benchmark for a system that combines individual flexibility with collective security. The more feasible and practical flexicurity reforms should be carefully assessed on their impact on young and growing SMEs. Moreover, it should be stressed that, to be as efficient as possible, reforms should not be made in isolation but as part of a comprehensive reform package that also includes other areas, especially tax policy and competition policy, as discussed in sections 3.2 and 3.5.

Table I-4: Proposals Section 3.4

Number	Section	Title	Proposal	Explanation
26	3.4.1	The Organisation of Labour Markets and Social Insurance Systems	We propose below to make important social insurance benefits “portable”— e.g., by decoupling health insurance— between jobs and between regular employment and self-employment.	Public income insurance systems in combination with strict labour security legislation tend to penalize individuals who assume entrepreneurial risk (Ilmakunnas and Kannianen 2001). This is because these systems confer a relative advantage on employees with many social security benefits—such as disability, sickness, unemployment and pension benefits—being explicitly linked to formal employment. These benefits further increase the opportunity cost of leaving a tenured position as an employee and thus reduce the incentives for entrepreneurship (Audretsch et al. 2002).
27	3.4.2	Inclusive Entrepreneurship	Further develop entrepreneurship programs targeting groups that are disadvantaged in formal employment, such as youths, women, ethnic minorities and low skilled individuals.	Entrepreneurship is perceived to be inherently more inclusive than employment (Glazer and Moynihan 1970), but the evidence shows (Fairlie 2006, Dilli and Westerhuis 2017) that income and participation gaps largely extend to business ownership and income. To enable disadvantaged groups to engage with the opportunities the Entrepreneurial Society offers, some special attention and support, as already offered in the latest Horizon 2020 program, is justified.
28	3.4.2	Employment Protection Legislation	CMEs can provide a model for MMEs, which show more similarities to CMEs in many respects than LMEs.	Less regulation on permanent employment is likely to be linked with high-growth aspirations among entrepreneurs particularly in the Mediterranean Market Economies (MMEs) whereas no change is observed in the other institutional constellations. Given that Coordinated Market Economies (CMEs) are shown to perform rather well in innovative entrepreneurial activity, while being characterized by moderately liberal labor market institutions, centralized wage setting institutions and high levels of social security. We therefore conclude that a policy of radical liberalisation following the Liberal Market Economies (LMEs) model is perhaps not the only way.
29	3.4.3	Employment Protection Legislation	Allow for more flexibility in working hours.	Entrepreneurship requires flexibility and employing workers becomes a serious liability to small, young firms when this labour cannot be employed flexibly to match sometimes volatile demand. There are probably employees who have a high tolerance for such fluctuations, so matches can be found, but currently regulated working hours prevent such matches from occurring and some flexibility would be beneficial.
30	3.4.3	Employment Protection Legislation	Relax the stringency of employment protection legislation for permanent contracts.	A competently implemented liberalisation will reduce job security but increase employment security for workers, as labour demand will increase and more opportunities will be created in the labour market. That said, the impact and strictness of employment protection legislation depends on a complex combination of components, such as grounds for individual dismissal, redundancy procedures, mandated periods of advanced notice, severance payments, special requirements for collective dismissals, rules favouring disadvantaged groups, and so forth. For liberalisation to have the desired results, countries must develop carefully tailored strategies to avoid jeopardizing the process, ideally by considering and possibly emulating the paths already taken by similar countries.

Table I-4: Proposals Section 3.4 (Continued)

Number	Section	Title	Proposal	Explanation
31	3.4.3	Employment Protection Legislation	Establish or strengthen training programs to prepare workers for new occupations	Archanskaia et al. (2017) show that countries with a low rate of substitution between inputs in routine production, will not be able to gain a comparative advantage in high-value products that are intensive in non-routine tasks. As a result, they will end up specializing more and more in routine-intensive products and experience lower wage growth. Geurts and Van Biesebroeck (2016) further show that the pattern of firm-growth in Belgium indicates that young firms under-adjust to good news. As a result, many promising firms scale up too slowly and they might miss out on opportunities in a fast-paced global market.
32	3.4.4	Confidentiality Agreements and Other Barriers to Mobility	To promote the mobility of people and their knowledge across firms, we propose to lift the legal enforceability of confidentiality agreements between employers and their employees.	Of course, there can be justified instances in which confidentiality is needed to protect the legitimate interests and privacy of customers, but confidentiality agreements and especially non-compete clauses are more often used to prevent knowledge from flowing freely between firms and sectors.
33	3.4.4	Confidentiality Agreements and Other Barriers to Mobility	Consider experimenting with measures such as a guaranteed return to a job after time spent with a start-up and/or a publicly funded “venture creation leave” for people engaged in a firm start up.	It was generally agreed that a policy to promote mobility would involve both pull (eliminating barriers) and push (encouraging mobility) instruments. However, the desirable mobility and flexibility in the labour market can only be achieved when a basic level of income and job security is ensured for those involved. People will not take the risks associated with working as or for a young start-up when necessities of modern life are not met and reasonably secure.
34	3.4.5	Social Insurance Systems	Guarantee equal access to welfare state arrangements for all, regardless of tenure in a specific job or labour market status, to make all potential employers compete on a level playing field.	An Entrepreneurial Society will see more people active in the labour market as self-employed or freelance worker or working in inherently risky ventures and SMEs with corresponding intervals of being between jobs. It is evident that these people face income and health risks that they cannot (self-)insure, as much as anyone else. Therefore, in a modernized labour market, these citizens should be given access to collective arrangements on an actuarially fair basis.

Table I-4: Proposals Section 3.4 (Continued)

Number	Section	Title	Proposal	Explanation
35	3.4.5	Social Insurance Systems	Embracing the principles of flexicurity, we propose to carefully consider the impacts of reforms on young SMEs and not force them to take on high risks and burdens.	The general guiding principles the European Commission have formulated do not include structural and careful attention to what such reforms would mean for start-ups and young SMEs. While the specifics can and will vary country by country, we can infer that an important component of a policy that makes society more innovative and entrepreneurial involves making the individual's social insurances as portable as possible when changing jobs and moving between salaried employment and self-employment.
36	3.4.5	Social Insurance Systems	To ensure full portability of social security entitlements and put an unconditional floor in the social security system Member States could experiment variations on basic income or negative income tax systems.	Putting a floor in the income distribution for all will affect formal employment more than it does entrepreneurship. And as an unconditional basic income reduces income volatility and risks that especially more marginal entrepreneurs face, the predicted effect on entrepreneurial activity would be positive (Nooteboom 1987).
37	3.4.5	Social Insurance Systems	Mandatory universal insurance for healthcare costs, old age and disability are necessary, given that adverse selection and behavioural biases are likely to cause underinsurance in these areas when such insurance is made voluntary.	Making such insurance mandatory prevents adverse selection problems, whereas making them universal prevents unproductive compartmentalisation in the labour market and ensures full portability of entitlements.

3.5. Regulation of goods and service markets

3.5.1 Preamble

Natural entry barriers such as scale economies and capital requirements affect the workings of markets and the ecosystem, but artificial barriers created by governments are also important factors when considering the ease of starting a business (Begley et al. 2005; Dana 1990; Djankov and Murrell 2002). While environmental, health and safety regulations are often well motivated, competition policies that rely on excessive rules and procedures may discourage potential entrepreneurs (Dana 1990; Gnyawali and Fogel 1994; Djankov et al. 2003; Begley et al. 2005) and hamper the process of creative destruction (La Porta et al. 1997; Caballero and Hammour 2000; Desai et al. 2003). Arguably, most damaging are restrictions and prohibitions against entry into certain sectors of the economy (such as health care) as well as administrative costs and regulatory burdens imposed on new and/or existing firms. Granted, some governmental entry barriers can be justified as consumer protection against fraudulent or incompetent business owners, and few would support a system in which anybody could work as a doctor, surgeon, or psychologist (OECD 2007). Moreover, there is even some evidence to suggest that some barriers to entrepreneurial entry can increase the quality of entrepreneurs that do manage to enter (Stenholm et al., 2013). However, occupational licensing becomes problematic when it results in unjustified profit opportunities for license holders and blocks evidently more valuable business models. Consequently, licensing and other overly extensive regulations may curb the rate of innovation and hamper productive entrepreneurship (Kleiner 2006). Today, Europe has over 5,000 regulated professions involving over 50 million people, and according to the European Commission (2015a, p. 7): “many of these regulations are now disproportionate and create unnecessary regulatory obstacles to the mobility of professionals, lowering productivity” (cf. Erixon and Weigel 2016).

In recent decades, governments of developed countries have deregulated product markets with the aim of increasing market contestability and providing more opportunities for private entrepreneurship in sectors such as telecommunications, energy production, (public) transportation, and financial services. The scope for new high-impact entrepreneurship has thus increased dramatically. Furthermore, welfare states increasingly recognize that ensuring access to high quality health care and other social goods and services does not necessarily require the government to produce such goods. The Dutch example reveals that it may even be possible to eschew public financing: In the Netherlands, health care insurance is fully privatized in the sense that all private suppliers are forced to offer a standardized policy and accept all clients at a (competitive) price, while all citizens are forced to buy such a policy (Schäfer et al. 2010). Competition in this system ensures downward pressure on health costs, while guaranteeing access to health care for all.

Overall, governments are increasingly utilizing market-type mechanisms³⁷ that combine private provision and public financing of these services, such as outsourcing, vouchers and public-private partnerships. In many instances, opening previously monopolized markets to private providers has led to impressive entrepreneurial performances, hinting at a largely untapped productive potential in sectors such as health care, education, and care of children and the elderly. As examples, consider the voucher system for school choice that was introduced in Sweden in the early 1990s and the (contemporaneous) outsourcing of health care by many local and regional governments, which paved

³⁷ OECD (2005, p. 130) defines a market-type mechanism as “encompassing all arrangements where at least one significant characteristic of markets is present.”

the way for several high-growth firms, some of which have since become multinationals.³⁸ Andersson and Jordahl (2013) survey the empirical literature on the effect of outsourcing public services and conclude that it generally reduces costs without hurting quality. This is clearly the case for “perfectly contractible services” such as garbage collection, but outsourcing also often seems to work reasonably well for services with more difficult contracting problems, e.g., fire protection and prisons. However, outsourcing seems to be more problematic for credence goods, that is, goods for which buyers have a hard time determining the total cost and benefit even after purchase and use (Emons 1997), which is the case for many social services, such as education and medical treatments.³⁹

Welfare services are complex and difficult to procure regardless of the source of financing. When under the public domain, complexities arise from several additional sources: formalized procurement processes are likely to favour large actors and curb competition; producers cannot charge extra for quality improvements; costly excess capacity may arise; a lack of information makes rational decision making difficult for users; evaluations and compliance control are skill- and resource-intensive; segregating forces exist; and individual users and suppliers do not consider how society is affected. In these sensitive areas, considerations of public interest should move firms beyond what the law demands and towards what is really in their long-term interest. This means we should create what Kay (2004) calls “embedded markets” in which governments participate without controlling, financial incentives exist but do not dominate, pluralist structures can evolve based on experimentation, and social norms continue to play a key role in maintaining compliance with a system that inspires pride in the inhabitants. Of course, this necessitates that the agents involved “take upon themselves a wider set of responsibilities” (Kay 2004, p. 344).

Proposal 38: Allow experiments with private actors providing public services in the context of “embedded markets” and learn from these experiments.

In such markets the role of regulators is to hold private firms accountable on serving the public interest, while not smothering them in detailed rules, procedures and protocols. Market regulations in already private markets also need to be carefully reviewed. They should incentivize actors in the labour market to innovate and experiment to the greatest possible extent and are essential for a well-functioning entrepreneurial ecosystem. Market-leading incumbents should not be allowed to unduly exploit their dominant market positions, and all markets should be as contestable as possible. However, drafting appropriately balanced regulations is easier said than done; examples abound of the regulatory framework favouring a certain interest group rather than the public interest (Stigler 1971; Wagner 2014), giving rise to large fixed costs that effectively bar smaller actors from entering the market (Begley et al. 2005) or falling short of its objectives in other ways. Technological change and global competition may turn regulations into obsolete constraints at best and barriers to new entrants at worst, rendering adaptations to changed conditions more difficult.

³⁸ One of the most well-known examples is the health care provider Capio, which was founded in Sweden in 1994. In 2016, Capio had 12,500 employees in four countries. There are also several large operators in elderly care, and they are gradually becoming multinational as well. The largest of these firms, Attendo, had roughly 15,000 employees in late 2016.

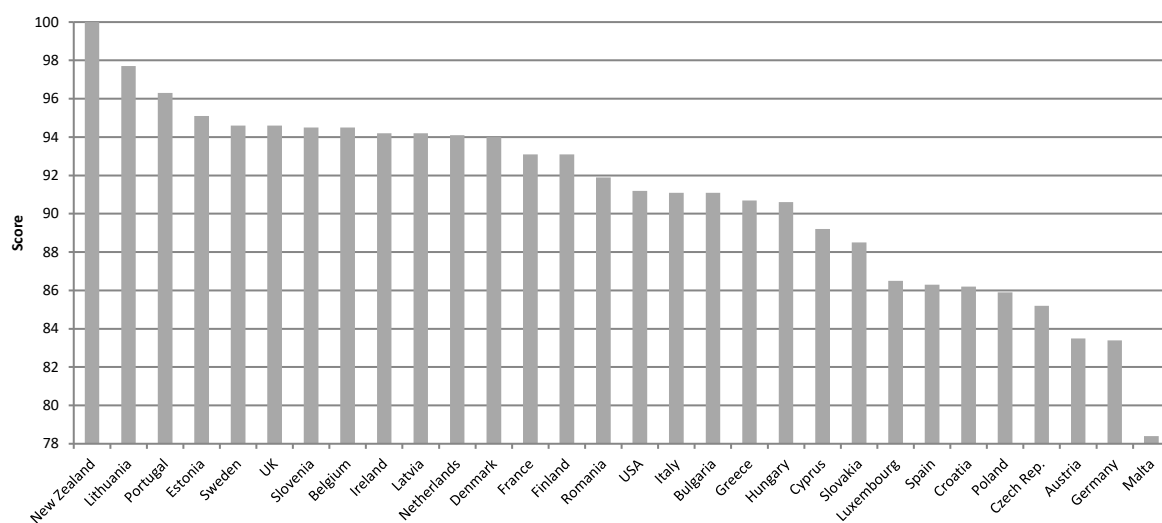
³⁹ This fact makes these goods more susceptible to fraud and manipulation. See Nooteboom (2014) for an in-depth discussion of the many challenges involved. Thus far, there are few studies comparing the quality of services produced by for-profit firms with government providers, although the evidence so far rather shows that the for-profit firms offer higher quality (Bergman et al. 2016).

3.5.2 Product market regulation

The fact that a certain market is formally deregulated does not guarantee contestability. There can still be artificial barriers created by governments and excessive rules and procedures that discourage entrepreneurial entrants from challenging incumbents.⁴⁰ This hampers the process of structural change and creative destruction. Thus, for market competition to work efficiently, it must be easy to start a new business and compete against existing ones. *Figure 8* reveals how the EU countries compare with respect to the ease of starting a business relative to the United States and New Zealand, which is the leading country. Countries such as Germany, Austria and Malta show considerable room for improvement, while the western EU countries have high overall scores on this measure. Apart from Poland and the Czech Republic, this is also the case for the Eastern European countries.

The picture that emerges from *Figure 8* appears bright. Part of the explanation can be traced to the wave of product market deregulation that began in the United States around 1980 and then quickly spread to other countries, rekindling innovation and entrepreneurship after a decade of stagflation and recurrent structural crises (Audretsch and Thurik 2000). Product market reform was a prime ingredient of the European integration effort; having similar product market regulations in all EU countries is considered necessary by European policymakers to fulfil the vision of transforming the European Union into one single market.

Figure 5: Ease of starting a business in EU countries, the US and the leading country, 2015.



Note: The ranking of economies on the ease of starting a business is determined based on their distance to frontier scores for starting a business. These scores are the simple average of the distance to frontier scores for each of the component indicators. *Source:* World Bank, *Ease of Doing Business Index 2016*.

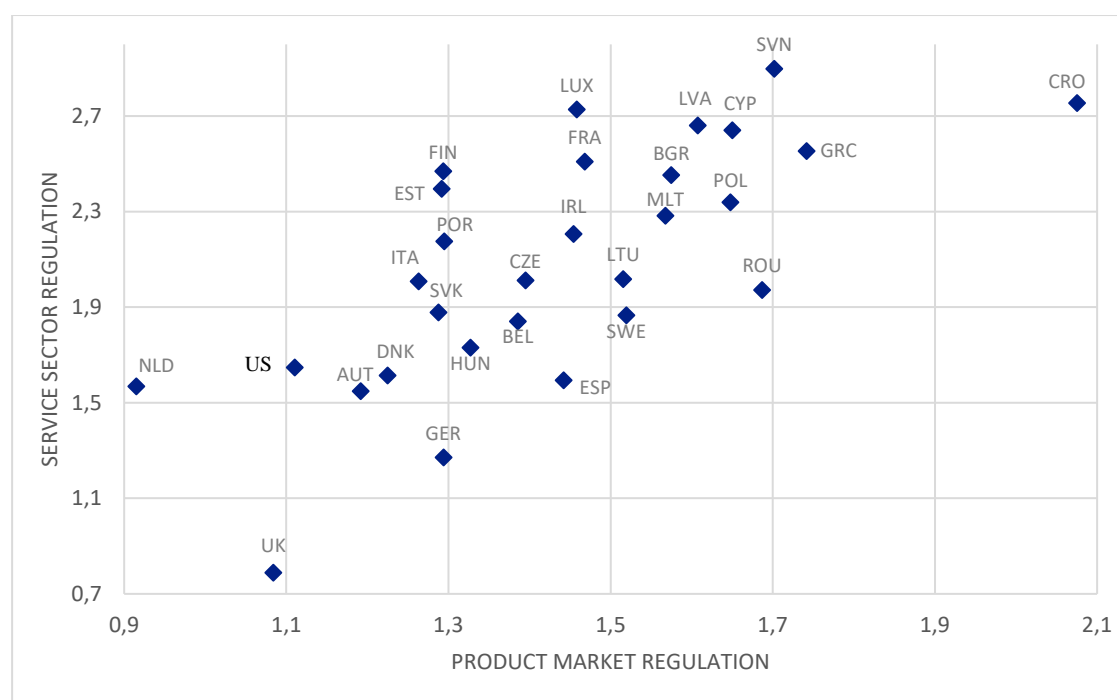
Nevertheless, as can be seen in *Figure 9*, presenting the strictness of product and service market regulations in the EU and the United States, countries still exhibit large differences in the extent of their product market regulations in the European Union.

⁴⁰ Formal and informal institutions tend to serve the economic status quo, conserving old habits and incumbent economic interests (Elert and Henrekson 2016). This tendency is often reinforced by attempts by large corporations and other incumbent interests to shape government regulations in ways that are favourable to them (Battilana et al. 2009; Lawton et al. 2013)

Proposal 39: Continue to harmonize and liberalise product and services markets in the Union.

The differences are even larger regarding service sector regulations (measured on the vertical axis), and the two measures are strongly correlated; countries with highly regulated product markets tend to have strictly regulated service markets and vice versa ($r = 0.70$). Furthermore, Western European countries generally score better than Eastern European and Mediterranean countries. Interestingly, however, no similar correspondence can be observed between these two indices and the measure of the ease of starting a business (Table 7). This suggests that complementarities with factors besides regulation of these markets could affect the perceived possibility of starting a business.⁴¹

Figure 6: Strictness of product and service market regulations in EU countries and the US, 2013.



Note: The scale of the index is 0–6, where a larger number means a more stringent regulation. 2013 is the latest available year. The product market regulation index is OECD’s aggregate indicator; the service sector index is the arithmetic average of the OECD indices for professional services, retail trade and the network sectors (transportation, energy, telecom and mail). The indices are based on responses of national governments to the OECD Regulatory Indicator Questionnaires.

Source: OECD (2013), Product Market Regulation Database.

For example, the fact that Austria and Germany score poorly in terms of the ease of starting a business despite their relaxed product and service market regulations could be because a great deal more is involved in setting up a firm than just product market regulations, including taxes, social security systems, other red tape, and tough conditions for financing.

Proposal 40: Excessive barriers to new business formation and new entry should be lifted where possible.

This, however, seems to be part and parcel of the EU policy agenda already. Our consortium supports that effort with the caveat that well justified barriers to entry are useful to keep unproductive or even

⁴¹ It should be noted, however, that the scope and methods between the OECD and World Bank differ substantially and there are many reasons why this different picture may emerge. We do not want to over interpret this here.

destructive ventures out (Stenholm et al. 2013; Darnihamedani et al. 2018). It should be easy for challengers to enter (and exit) but these challengers should be serious.

Table 6: The correlations between the ease of starting a business and the strictness of product (PMR) and service market regulations (SMR)

	PMR	SMR	Ease of starting
PMR	1.00		
SMR	0.70**	1.00	
Ease of starting	-0.19	0.02	1.00

Note: ** denotes statistical significance at the 1% level.
 Source: OECD (2013), Product Market Regulation Database for PMR and SMR, and World Bank, Ease of Doing Business Index 2016.

3.5.3 Regulation of (public) services

Service sectors are particularly important for the future of the entrepreneurial ecosystem for multiple reasons. First, they have a highly income-elastic demand and hold possibly the greatest future potential for entrepreneurship. If onerous regulations limit that potential, the consequence can be highly detrimental for the economy as a whole.⁴² Second, as already noted, it is becoming increasingly clear that ensuring access to health care and other social goods and services does not necessarily require government production of such goods, and as the Dutch case shows, it may not even require direct public financing (although that is likely to remain the default option in most EU countries for historical reasons).

Proposal 41: We propose responsible deregulation of (public) services as it promises to open entirely new arenas for private innovation and entrepreneurial venturing.

Perhaps most importantly, to tap the potential and handle the challenge of this combination of public financing and private production, novel institutional arrangements and experimentation are necessary to address the challenging fact that consumers do not pay producers directly. Manipulation and a wasteful use of resources are more likely to occur when the state acts as intermediary for an anonymous and absent third party (the taxpayers) and finances transactions between the producer and the consumer even if there is freedom of choice and competition.⁴³ Providers typically have limited options to offer and charge for extra quality added to what is granted through a tax- or mandatory premiums financed system. Consequently, customers will be barred from buying their preferred qualities and quantities of services from their preferred providers, and there will not be any signalling from spending decisions by demanding customers.

Unless governments experiment and innovate regarding the design of the regulatory framework governing activities characterized by a mixture of private production and public financing, the full benefits of innovation and entrepreneurial initiatives cannot be reaped, and the entrepreneurial ecosystem will remain incomplete. We should therefore allow private for-profit firms in these areas as they are also the most important channel through which pension savings (to a considerable extent via

⁴² According to studies on the US, the income elasticity for health care and education is approximately 1.6 (Fogel 1999).
⁴³ Welfare services are supplied and consumed in so-called quasi-markets that are characterized by a series of problems that must be addressed. Le Grand and Bartlett (1993) present a theoretical analysis of quasi-markets.

private equity firms) can be used to innovate and build capacity in the primarily tax-financed social service sectors.

3.5.4 Digitalisation

To allow entrepreneurs to act on the opportunities and protect European citizens from the risks involved in digitalisation, it is important to embrace these trends. No regret policy proposals to do so are to provide an excellent ICT-infrastructure in Europe that allows entrepreneurs to quickly scale their innovative ideas to the EU and global level. The same infrastructure can also integrate more European citizens in the common market and facilitate information exchange.

Proposal 42: Invest in an excellent, open access digital infrastructure for European citizens and businesses.

Building such an infrastructure has large positive network externalities, that justify a public policy interventions.

In addition, to providing European entrepreneurs and consumers with a springboard to the global market place, a high-quality ICT-infrastructure is also essential in the transition to a circular economy. Currently, our economic model is geared towards a linear model of production from virgin resources to waste (Haas et al. 2015). A more circular economic model is urgently needed in all sectors of the economy (Ellen MacArthur Foundation 2013, EC 2012). Such circular business models, however, require a much more intense cooperation and communication over the value chain. The same holds for more intense use of peer-to-peer lending and equity crowd funding, proposed in section 3.2. Price alone no longer conveys all relevant information and information flows become multidimensional and multidirectional. An excellent, reliable and secure ICT-infrastructure to manage these more complicated information flows in the economy is a prerequisite for the transitions we propose.

Proposal 43: We propose to develop open, but responsible standards and open regulation for the many digital platforms that emerge to facilitate peer-to-peer and business-to-business trade, services and finance.

It is important, however, to carefully consider the position of workers and customers in these platforms. Frenken et al. (2017) for example voice concerns about the quality of work and the potential that digital platforms may undermine social security. These developments necessitate a careful modernisation of labour market protection and social security systems in line with proposals in sections 3.4 and adequate investment in human capital in line with proposals in section 3.8, to ensure digitalisation contributes to inclusive growth. These proposals obviously can be aligned well with the Commission's [Digital Single Market](#) initiative, it's Circular Economy Package (EC 2017) and the Digital Agenda (EC 2014).

3.5.5 Conclusions on regulation of goods and services markets

In this section we have argued for a further harmonisation and qualified deregulation of product and services markets in Europe. The proposals, summarized in Table I-5 below aim to lower barriers and create new opportunities for venturing in Europe. Especially in the area of digitalisation, the European commission can use its competencies and instruments to create and promote an integrated market

for new services and products that can quickly be scaled to global markets. Public sector responsibility in our view is to safeguard fair and open competition in accessible markets. The provision of an excellent infrastructure based on open standards, will create a level playing field and new opportunities for successful venturing. Opening traditionally closed sectors, such as health and social services, can create new entrepreneurial dynamics while at the same time solve urgent societal problems.

Table I-5: Proposals Section 3.5

Number	Section	Title	Proposal	Explanation
38	3.5.1	Regulation of Goods and Services Markets	Allow experiments with private actors providing public services in the context of “embedded markets” and learn from these experiments.	We should create what Kay (2004) calls “embedded markets” in which governments participate without controlling, financial incentives exist but do not dominate, pluralist structures can evolve based on experimentation, and social norms continue to play a key role in maintaining compliance with a system that inspires pride in the inhabitants. Of course, this necessitates that the agents involved “take upon themselves a wider set of responsibilities” (Kay 2004, p. 344).
39	3.5.2	Product Market Regulation	Continue to harmonize and liberalise product and services markets in the Union.	Product market reform was a prime ingredient of the European integration effort; having similar product market regulations in all EU countries is considered necessary by European policymakers to fulfil the vision of transforming the European Union into one single market.
40	3.5.2	Product Market Regulation	Excessive barriers to new business formation and new entry should be lifted where possible.	This, however, seems to be part and parcel of the EU policy agenda already. Our consortium supports that effort with the caveat that well justified barriers to entry are useful to keep unproductive or even destructive ventures out (Stenholm et al. 2013; Darnihamedani et al. 2018). It should be easy for challengers to enter (and exit) but these challengers should be serious.
41	3.5.3	Regulation of (Public) Services	We propose responsible deregulation of (public) services as it promises to open entirely new arenas for private innovation and entrepreneurial venturing.	To tap the potential and handle the challenge of this combination of public financing and private production, novel institutional arrangements and experimentation are necessary to address the challenging fact that consumers do not pay producers directly. Manipulation and a wasteful use of resources are more likely to occur when the state acts as intermediary for an anonymous and absent third party (the taxpayers) and finances transactions between the producer and the consumer even if there is freedom of choice and competition.
42	3.5.4	Digitalisation	Invest in an excellent, open access digital infrastructure for European citizens and businesses.	To allow entrepreneurs to act on the opportunities and protect European citizens from the risks involved in digitalisation, it is important to embrace these trends. No regret policy proposals to do so are to provide an excellent ICT-infrastructure in Europe that allows entrepreneurs to quickly scale their innovative ideas to the EU and global level. The same infrastructure can also integrate more European citizens in the common market and facilitate information exchange.
43	3.5.4	Digitalisation	We propose to develop open standards and open regulation for the many digital platforms that emerge to facilitate peer-to-peer and business-to-business trade, services and finance.	It is important to carefully consider the position of workers and customers in these platforms. Frenken et al. (2017) for example voice concerns about the quality of work and the potential that digital platforms may undermine social security. These developments necessitate a careful modernisation of labour market protection and social security systems in line with proposals in sections 3.4 and adequate investment in human capital in line with proposals in section 3.8, to ensure digitalisation contributes to inclusive growth.

3.6. Managing firm failures

3.6.1 Preamble

The entrepreneurial ecosystem is experimental at its core. Failure is therefore a signal of paramount importance to the actors in the ecosystem. If the economy is to evolve and develop, unsuccessful and unproductive entrepreneurial ventures must close, so that their resources can be redirected to more productive uses. Failed projects, however, should not be considered a waste of resources, and bankruptcies are neither unproductive nor destructive. Instead, the failure of a firm provides valuable information to other economic agents about whether an endeavour is profitable. Moreover, the knowledge from failed projects and ideas can often be recycled and improved either in a restructured venture with new management or in a different firm. Past failure can be the foundation for future success. The restriction or delay of this process by stringent bankruptcy regulation harms knowledge generation and development (Holbrook et al. 2000; Gilbert et al. 2004; Armour and Cummings 2008). Moreover, making such knowledge better accessible and available beyond the parties directly involved, may be socially beneficial.

Psychological costs often accompany bankruptcies, and in many countries, the public exhibits negative attitudes towards business failures (OECD 1998; EU 2008; Eberhart et al. 2016), which are stigmas that may unnecessarily discourage people from entrepreneurial activities and disclose information after failure. Some countries, such as the United States, look more favourably upon failed business projects (Audretsch et al. 2002), and it is important that the business culture gives failed entrepreneurs a “second chance” and allows them to start anew. Empirical research shows that so-called habitual or serial entrepreneurs are more successful (Ucbasaran et al. 2008) – re-starters often possess valuable experience and business networks that increase their probability of success in the future. Much of that knowledge is tacit and hard to transfer, but for both tacit and codifiable knowledge diffusion it is imperative that the tolerance of failure is increased and both formal and informal institutions do not inhibit failed entrepreneurs’ willingness to try new projects.

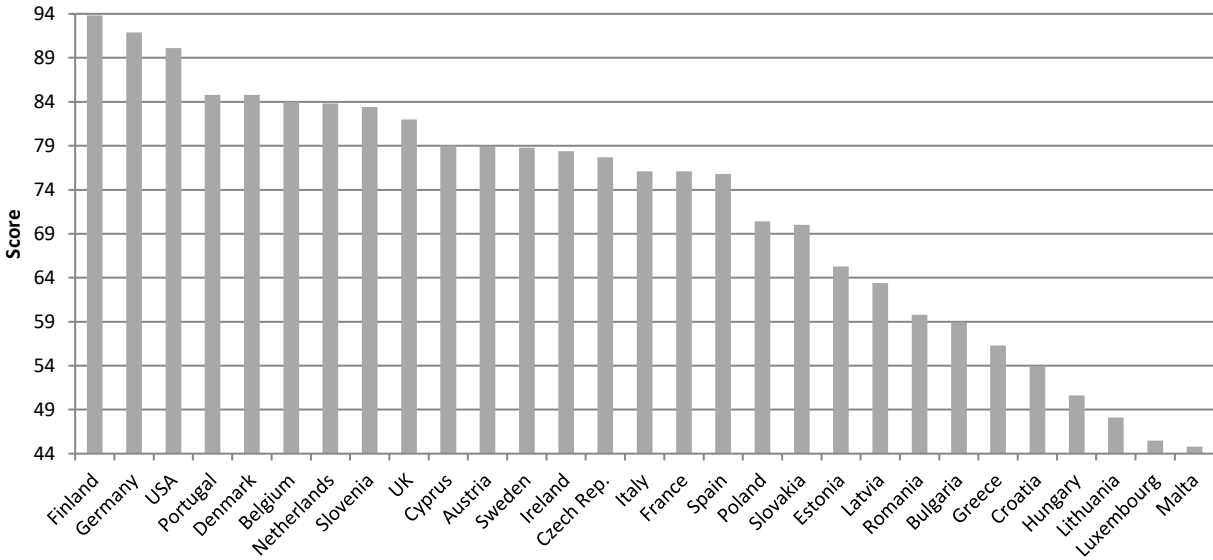
3.6.2 Bankruptcy law

A key formal institution that embodies a country’s attitude towards business failure is bankruptcy law. An efficient handling of ailing firms calls for well-designed and effective regulations to do the following: (i) minimize the time and costs to society in phasing out unprofitable and inefficient firms such that resources can be reallocated to more efficient uses, and (ii) minimize the damages for other parties involved, such as creditors, customers, suppliers, employees and the government. However, not all insolvent firms should be closed. A firm is insolvent when the value of its assets is less than its debt and illiquid when it is unable to repay its current obligations out of current liquid assets. This can signal a fundamentally ill-conceived business model, but a firm may also simply be experiencing temporary financial difficulties or cash-flow mismatches. If so, the best solution for both the firm and its creditors is normally firm restructuring and possibly debt reduction (a “haircut”) through negotiations with the firm’s creditors.

On the one hand, it should not be too easy to file for bankruptcy. That would give the firm too much bargaining power in such negotiations. If writing off debt and starting anew is too convenient a resort for failing entrepreneurs, it may encourage exploitation and destructive entrepreneurship, harming creditors and the rest of society (OECD 1998; Audretsch et al. 2002). That, in turn, will limit their willingness to finance, supply or work for legitimate start-ups. On the other hand, a person who goes bankrupt because of a failed venture should not be stigmatized and forever haunted by debt and ostracized from future entrepreneurship. Moreover, decreasing bankruptcy costs could also be

beneficial. Eberhart et al. (2017) studied Japanese start-ups and found that doing so improves the likelihood of high growth ventures by increasing the number of elite individuals (i.e., those with superior human and social capital) that become entrepreneurs. Consequently, these individuals are more likely to launch high growth ventures. They argue that easing exit barriers fosters a regenerative cycle of exit, founding and growth by attracting more capable entrepreneurs. There are indications that a similar dynamic is at play in the Italian context as well (Grilli et al. 2017a).

Figure 7: Ease of resolving insolvency in EU countries and the US, 2015.



Note: The ranking of economies on the ease of resolving insolvency is determined based on their distance to frontier scores for resolving insolvency. These scores are the simple average of the distance to frontier scores for the recovery rate and the strength of insolvency framework index. Finland is also the most highly ranked country in the world.
 Source: World Bank, *Doing Business 2016*.

As shown in Figure 10, there are substantial differences among the EU countries regarding the ease of resolving insolvency. Finland and Germany are thought to have the best regulatory framework in this respect—even better than that of the United States—and the rest of Western Europe also scores high except for Luxembourg. Meanwhile, the Eastern European and Mediterranean countries rank low with Portugal, Slovenia and Cyprus as interesting exceptions.

Proposal 44: Insolvency regulation should protect inherently healthy and promising ventures and allow for a quick and ex ante transparent liquidation of those that are not.

If firms are too hastily shut down, with their remaining assets shifted out to creditors, the result may very well be excessive value destruction. If the operation itself is healthy, it is often sufficient that the current owners lose all their equity, that the debt is restructured and that the consortium of debtors find a new controlling owner after restructuring (Becker and Josephson 2016).

While laggard countries must therefore improve their insolvency regulation to become more innovative and entrepreneurial, this cannot be done in isolation. Reforms in this direction must be combined with strengthening the rule of law and the security of property rights; otherwise, the reforms may prove ineffective or even facilitate abuse and fraud. An insolvency regulation such as the one in Finland (which is good at striking a balance between protecting and restructuring inherently

healthy firms, discouraging rent seeking, and still encouraging entrepreneurial risk taking) is only feasible when countries also rank high on the rule of law, government effectiveness and the security of property rights.

Certainly, this is no easy undertaking. Portugal and Slovenia provide what may be a second-best solution in this respect. Given their apparent success, it is probably a wise, low-risk strategy for countries with similar institutional configurations to undertake reforms akin to theirs, so as not to base their reform strategy on high-quality legal institutions that are in fact absent.

3.6.3 Knowledge diffusion after failure

When an entrepreneurial firm fails, that represents an important opportunity to learn. Not somehow drawing lessons and making the acquired knowledge available for future potential entrepreneurial ventures would be a waste of valuable resources. Our consortium agreed that a lot of useful knowledge, perhaps of a more applied and tacit nature, is generated in the entrepreneurial process, particularly when ventures fail. That knowledge is lost when entrepreneurs do not share their experiences. However, as that is not their core business and private incentives are absent, it makes sense to publicly fund the collection, curation and diffusion of that knowledge. Therefore:

Proposal 45: We propose to set up publicly funded “entrepreneurial knowledge observatories” where knowledge accumulated in the entrepreneurial process is collected, curated and freely diffused.

It was clear from the discussion that such knowledge observatories would be closely integrated with the local entrepreneurial ecosystems in Europe, as a lot of the tacit knowledge that entrepreneurs acquire in their ventures is highly context specific and localized. Such observatories could also play a key role in entrepreneurship education. Most scholars are somewhat sceptical about teaching entrepreneurship in school, but agree that contact and exchange of knowledge with actual entrepreneurs is useful to foster a more entrepreneurial culture (Rasmussen and Sørheim, 2006) with a higher acceptance of entrepreneurial failure. A consistent finding in the literature is that having a role model and knowing an entrepreneur personally is a strong predictor of the intention to become and succeed as an entrepreneur later in life (Scherer et al., 1989; Van Auken et al., 2006; Bosma et al., 2012; BarNir et al. 2011).

More debatable was the proposed public funding for these observatories as they directly support business development by entrepreneurs. Some have argued that such services should be market driven. There is, however, a theoretical case for public intervention in generating and disseminating the type of knowledge that entrepreneurial venturing can bring. At some point, all the research is done and the next step is to simply try if a venture will succeed. Learning that it does (or does not) and why is an iterative process that cannot be simulated in a lab or learned from a book. We thus see entrepreneurial venturing as a knowledge generation process that has some of the positive knowledge spill-overs that also motivate publicly funded basic R&D and scientific research. This is also why the organization of such knowledge diffusion is considered a public responsibility. Entrepreneurs generate new knowledge, but have no private incentives to share and diffuse that knowledge. The creation of entrepreneurial knowledge observatories and creating open access data on for example crowd funding campaigns would help to diffuse this knowledge to academic researchers, potential investors and would-be entrepreneurs alike.

3.6.4 Conclusions on managing firm failure

As one of our keynote speakers remarked at the FIRES-Utrecht conference: “Entrepreneurs should fail and when they do, they should fail epically”.⁴⁴ But then society should design its formal and informal institutions to be able to manage and even appreciate and learn from such failures. Currently, the tolerance of failure is perhaps less than it should be to support a more Entrepreneurial Society in Europe. With all the heterogeneity that exists in Europe in this respect, instincts in Europe are typically geared towards survival and stability of existing firms. Institutions are not designed to handle the dynamics of rapid organisational entry and exit. Informal institutions, such as cultural attitudes towards failure, are not directly subject to reform. But formal institutions can help to send powerful signals and perhaps cause perceptions and attitudes to gradually change in a more favourable direction. The proposals in this section, summarized in *Table I-6* below, aim to propose fitting reforms to the bankruptcy law and the establishment of a publicly funded infrastructure to collect, curate and disseminate the knowledge and lessons that can be drawn from failed ventures. In the absence of private incentives to provide and maintain such a knowledge repository and given the evident importance of prior experience in the success of entrepreneurial ventures, we proposed to develop Entrepreneurship Knowledge Observatories at the local level to serve as knowledge repository and exchange. This will make even entrepreneurial failure socially productive.

⁴⁴ Peter Blom, CEO of Triodos Bank, Utrecht, 14-10-2016

Table I-6: Proposals Section 3.6

Number	Section	Title	Proposal	Explanation
44	3.6.2	Bankruptcy Law	Insolvency regulation should protect inherently healthy and promising ventures and allow for a quick and ex ante transparent liquidation of those that are not.	It should not be too easy to file for bankruptcy. That would give the firm too much bargaining power in such negotiations. If writing off debt and starting anew is too convenient a resort for failing entrepreneurs, it may encourage exploitation and destructive entrepreneurship, harming creditors and the rest of society (OECD 1998; Audretsch et al. 2002). That, in turn, will limit their willingness to finance, supply or work for legitimate start-ups. On the other hand, a person who goes bankrupt because of a failed venture should not be stigmatized and forever haunted by debt and ostracized from future entrepreneurship.
45	3.6.3	Knowledge Diffusion after Failure	We propose to set up publicly funded “entrepreneurial knowledge observatories” where knowledge accumulated in the entrepreneurial process is collected, curated and freely diffused.	Our consortium agreed that a lot of useful knowledge, perhaps of a more applied and tacit nature, is generated in the entrepreneurial process, particularly when ventures fail. That knowledge is lost when entrepreneurs do not share their experiences. However, as that is not their core business and private incentives are absent, it makes sense to publicly fund the collection, curation and diffusion of that knowledge.

3.7. R&D, commercialization and knowledge spillovers

3.7.1 Preamble

The general idea behind all our proposals in this section goes back to Arrow's observation that knowledge is special. He states: "knowledge (...) 1) can be possessed only imperfectly, and it is difficult to prevent others from using it; 2) the use of knowledge in productive activities obeys the law of increasing returns, since the given need for knowledge in a given activity is independent of its scale. It follows from these remarks that neither the demand for nor the supply of knowledge satisfies the conditions of a competitive market." (Arrow 1965, pp. 191-192). All proposals below can somehow be referred to the basic insight that both the supply/generation of knowledge and the demand/use of it will be inefficiently low if left to private market forces only.

On the supply side, increasing returns come from knowledge being non-rivalrous in use. This implies knowledge generation creates benefits for society that exceed what the knowledge generator can appropriate. On the demand side, this non-rivalry implies that the marginal social costs for diffusion of existing knowledge are almost zero. An efficient production of knowledge then requires (large) public subsidies, while in diffusion the aim should be to make the knowledge available to all that derive even the slightest benefit from having access. Of course, around knowledge production and diffusion, a lot of institutions have already emerged and evolved, some of which were discussed above. Many of these, however, were not designed with these insights in mind. Our proposals typically go in the direction of more publicly funded knowledge generation, stronger private incentives for the commercialisation of knowledge and the free flow of and access to the knowledge thus produced.

Successful exploitation of knowledge stimulates growth and prosperity in a modern economy (e.g. Schumpeter 1934, Acs et al. 2009, Baumol 2010). Entrepreneurs play an important role in this respect in both new and established ventures, by their ability to recognize unexploited opportunities in the market and to spread innovations by imitation and incremental improvements of existing technologies (Baumol 2002). The processes of knowledge production and diffusion have changed quite dramatically over the past century, whereas many of the relevant institutions have not. In the early phase of industrialization in the West, leading innovators were mostly people with little formal education whose innovations emanated from practical experience in workshops and production plants. This gradually changed when specialised engineering schools were formed in the late 19th century both in Europe and the United States, followed by the formation of R&D departments in the large engineering firms (Rosenberg and Birdzell 1986, ch. 8; Mowery and Rosenberg 1998). Ever more effort now goes into research and development (R&D) to maintain modest levels of economic growth (Segerstrom 1998). We must run, to stand still (Krugman, 1979). However, even today, the common idea that more R&D spending is the tool that will promote innovation reveals an overly mechanical view of how the entrepreneurial ecosystem works. New knowledge and inventions are only the first step in an innovation and commercialization process. For increased R&D to translate into economic growth, entrepreneurs must exploit the inventions by introducing new methods of production or new products in the marketplace (Michellacci 2003, Bhidé 2008, Acs and Sanders 2012).

Neither Bill Gates nor Henry Ford invented the technologies used in their ventures, but in their role as entrepreneurs, they were needed to successfully exploit inventions that many others had created. The knowledge spillover theory of entrepreneurship (Acs et al. 2009; Braunerhjelm et al. 2010) illustrates this forcefully through its emphasis on the need for entrepreneurship to fully realize the benefits of innovation. First, and in the vein of Schumpeter (1934), it distinguishes between knowledge in general and *economic* knowledge (i.e., knowledge that is economically exploited). Second, this theory rejects

the assumption in many modern growth models (Acemoglu 2009) that knowledge created will automatically spill over and induce growth. Rather, the theory highlights the importance of the entrepreneur in enabling these crucial transformations. The entrepreneur is the actor who transforms knowledge into economic knowledge through the commercialization of inventions, and she is the one who thereby brings about knowledge spillovers throughout the economy.

Limiting the focus to inventions and R&D thus misses the bulk of the story, and although high R&D spending is a necessary component of a successful economy, it is far from sufficient. Increased R&D will not automatically bring forth entrepreneurs – perhaps it is even the other way around; in an economic system that rewards productive entrepreneurship, a great deal of R&D is undertaken because the results flowing from R&D are in high *demand* (Holcombe 2007, Michelacci, 2003). Moreover, knowledge is often tacit, sticky and uncertain, making it costly and difficult to evaluate and transmit. As the innovative process is shrouded in uncertainty, the expected value and variance of an innovation will differ across individuals—a discrepancy that creates profit opportunities for entrepreneurial firms or spinoffs in instances when incumbent firms do not recognize or realize a profit opportunity.

Furthermore, innovation and entrepreneurship are largely localized phenomena, and innovation capabilities originate from the interplay between generic knowledge and learning processes that are embedded in regional knowledge and market environments (Zucker et al. 1998). A critical mass seems to be required for a dynamic innovation environment to emerge since there are many benefits for firms located close to other firms in dense, knowledge-intensive areas (Feldman 1994; Feldman and Audretsch 1999; Paci and Usai 1999; Ejermeo 2009; Delgado et al. 2014). Such dense environments are characterized by distinct wage and productivity premiums and strong incentives that attract both individuals and firms (Puga 2010).⁴⁵ Glaeser and Mare (2001), for example, report a wage premium in the US of 33 percent between the largest metropolitan areas and non-urban locations. Such effects are also reported for European countries (Di Addario and Patacchini 2008; Andersson et al. 2014; D’Costa and Overman 2014). The evidence also suggests that the existence of strong clusters in a region enhances growth opportunities in other industries and clusters (Delgado et al. 2014). Research in the FIRES-project has shown that specialization, or more specifically diversification into related varieties, is an important driver for economic growth and innovation at the regional level (REF Frenken et al., 2007; Boschma and Iammarino, 2009; Boschma et al., 2012; Van Oort et al., 2015; Content and Frenken, 2016; Content et al., 2018). At the level of nations or the Union, however, a broad and diversified knowledge base is essential to support specialized regions in performing at the global technology frontier. At the EU level and in knowledge creation and diffusion there should therefore be no specialization and all in the Unions should have access to a broad and diversified pool of high quality knowledge. To strengthen and facilitate access to this common knowledge base in local entrepreneurial ecosystems is therefore the purpose of the proposals that follow below.

3.7.2 Knowledge generation

Knowledge production first requires smart people dedicating time to research. Having more smart people in the Union is therefore an obvious way to promote knowledge generation. In this respect, we support the Commission’s Blue Card proposal that is already in place.⁴⁶ But the original EU Blue Card

⁴⁵ Where obviously congestion, pollution, housing and real estate prices and cost of living typically work in the opposite direction.

⁴⁶ Council Directive 2009/50/EC of 25 May 2009 on the conditions of entry and residence of third-country nationals for the purposes of highly qualified employment (OJ L 155, 18.6.2009). This Directive is currently under review because it was found to be neither effective nor efficient. “The current EU Blue Card Directive has demonstrated intrinsic weaknesses such as restrictive admission conditions and very limited

Directive (2009) failed to achieve its objectives. The Commission therefore proposed to amend the Directive and improve the system in 2016. In addressing its intrinsic weaknesses, it proposed to “harmonize admission criteria and allow for intra-EU mobility for Blue Card holders”. These are important improvements, but the Blue Card remains reserved exclusively for highly qualified *employees* (Eisele, 2013). The proposal even explicitly refers to this group as “managers and specialists” that are required to have (and hold) a formal labour contract with a minimum salary that may differ per member state, but is invariably high. Consequently, the Blue Card system is not geared towards attracting talent and knowledge, but to attracting formally educated, high paid employees. These groups overlap, but certainly not perfectly. Moreover, the required involvement of an employer in the complex application procedures implies the system is currently useful for and used by Europe’s large corporates with sophisticated HR-departments. In its current guise, the Blue Card system has little to offer European SMEs and certainly does not promote the migration of entrepreneurs, who are typically not specialists but “jacks-of-all-trades” (Lazear 2004). There may be a correlation between educational attainment and entrepreneurial skills, but a college drop-out with a wild idea (like Bill Gates when he was starting up Microsoft) would currently not qualify for a Blue Card. Our consortium and the stakeholders we consulted agree with migration experts⁴⁷ that a more open European Union, welcoming people and ideas from abroad, would stimulate the generation of new knowledge in the Union and thereby support a more Entrepreneurial Society. We therefore propose to reform the Blue Card system in that direction.

Proposal 46: Reform the European Blue Card system to include also non-employees and people lacking high formal educational credentials provided they have a plan to support themselves.

The integration of the knowledge base would also be strengthened if we also push for more openness in the national science foundations. Scientists operate in a global playing field. National borders and nationality are irrelevant when it comes to basic research. It is therefore inefficient to allocate the resources for basic research within strictly delimited national science foundations or apply nationality criteria in European grants. Of course, national science foundations have evolved historically and have played an important role in the promotion of scientific research in the past. And member states retain a lot of autonomy over their science and innovation policies. But the Union should try to move beyond trying to coordinate and harmonize national research programs. All researchers from the EU should be eligible for funding by all research funding agencies active in the Union. Knowledge is blind to nationality and so should science. Only then can we create a truly European knowledge space and match the density and mass that our global competitors have achieved.

Proposal 47: Abolish nationality, residence and affiliation restrictions and quota in eligibility criteria on basic research grants.

As the generation of knowledge is expensive and uncertain but also creates large intra- and intertemporal spillovers (Caballero and Jaffe 2008), pooling resources and allocating them to Europe’s best and brightest, is the first best arrangement. This is the underlying logic behind the European Research Area program, but the structure of the current project still sets as its priority “to strengthen

facilitation for intra-EU mobility. This, combined with many different sets of parallel rules, conditions and procedures for admitting the same category of highly skilled workers which apply across EU Member States, has limited the EU Blue Card’s attractiveness and usage.”

⁴⁷ See the results of the ESHSLI (2009) as presented in e.g. Kahanec and Zimmermann (2011).

national systems” (DG Research and Innovation 2016), accepting national compartmentalization as a fact and trying to overcome its most important downsides. With the above, we propose to move beyond that.

In the literature, there is also broad consensus that scientific knowledge is a pure public good (Nelson 1959; Salter & Martin 1991; Pavitt 1991). It therefore makes perfect sense to channel more of the EU budgets to basic research as that provides such evident positive spillovers throughout the Union. Of course, this is easy to argue when we do not consider how such expenses should be covered. Still, given strong public-good properties in fundamental research, increasing the budget for science seems a no-regret policy. Such intensifications should not (all) be earmarked and allocated through detailed top down calls for proposals and competitive funding schemes.

Proposal 48: Both the EU and its member states should create healthy, well-funded, academic institutions that allow Europe’s best and brightest to pursue their research interests.

As is well-known from economic theory and empirical evidence, scientific knowledge is the ultimate engine of economic growth and development (Rosenberg 1974). Transforming that knowledge into ideas and growth is not an automatic process (e.g. Jones 1995; 2002; Acs et al. 2009). But without a strong science base, the Entrepreneurial Society will quickly run out of steam.

3.7.3 R&D

In addition to publicly funded basic science, there is a need for privately funded applied research to bridge the gap between knowledge creation and economic growth. This bridge is typically built on public and private R&D that increases the knowledge diffusion to and absorptive capacity of firms. *Table 8* reveals that expenditure on R&D currently constitutes a sizable share of GDP in rich countries. In the EU, the total R&D spending ranges from roughly three percent of GDP in the Nordic countries, Germany and Austria (slightly higher than the US level) to below one percent in most Eastern European and Mediterranean countries (column 1). Importantly, among top spenders, as much as 70 percent of total R&D spending is made by firms; the rest is spent by the government, primarily through the funding of applied academic research (columns 2 and 3). Furthermore, the business sector share of R&D is substantially lower in countries that have a low overall spending on R&D with the government share normally exceeding 50 percent. The ranking of countries is thus highly similar when comparing R&D spending by business enterprises.

The variation across Europe is further accentuated when considering that the number of researchers engaged in R&D per million inhabitants is almost ten times higher in Denmark at the top compared to Cyprus at the bottom (column 4). Nevertheless, R&D spending and the number of researchers per capita are input measures. The relevant output from the R&D sector is economically valuable knowledge and innovations. A crude proxy for that output is the number of patents per capita (column 5). Indeed, we can see a strong cross-country correlation between R&D spending and the rate of patenting.⁴⁸

Increased R&D spending can thus be associated with an increased production of economically valuable knowledge, as measured by the rate of patenting. However, this does not imply that a policy of increased government R&D spending, tax breaks or subsidies will automatically result in more economically valuable knowledge. First, patents are not the only way of measuring new economic

⁴⁸ Of course, the number of patents is not a perfect measure of innovation either (Boldrin and Levine 2013).

knowledge; when Da Rin et al. (2006) examined 14 European countries in a panel between 1988 and 2001, they did not find any positive relationship between public R&D spending and the rate of innovation, which they defined as the share of high-tech and early-stage venture capital investments. Furthermore, as shown in the last column of *Table 8*, the share of R&D in the business sector that is directly or indirectly funded by the government is lowest in countries with the highest R&D spending by business enterprises (see Appendix *Table A2* for a more detailed overview).

Table 7: Total gross expenditure on R&D and business R&D spending (BERD) as a share of GDP (2014), number of researchers per million population (2014), number of patent families relative to GDP (2012), and direct and indirect (tax incentives) government support of business R&D (2013).

Country	Total gross R&D expenditure	Business R&D spending (BERD)	Gov't share of R&D spending	No. of researchers per million	Patent families	Gov't funding, % of total BERD
Finland	3.17	2.15	0.32	6 986	8.38	3.3
Sweden	3.16	2.12	0.33	6 868	7.74	6.6
Denmark	3.08	1.98	0.36	7 198	4.27	6.1
Austria	3.00‡	2.11‡	0.30	4 815	4.28	12.8
Germany	2.84	1.93	0.32	4 460	5.87	4.0
US	2.73*	1.92*	0.30	4 019†	2.75	13.5†
Belgium	2.46	1.76	0.70	4 176	2.12	17.0†
Slovenia	2.39	1.85	0.23	4 145	1.69	18.4
France	2.26	1.46	0.35	4 201	3.52	25.3
Czech Rep.	2.00	1.12	0.44	3 418	0.68	16.1
Netherlands	1.97	1.11	0.44	4 478	3.43	15.3
UK	1.70	1.10	0.35	4 252	2.22	14.5
Ireland	1.52	1.11	0.27	3 732	1.69	20.7†
Estonia	1.43	0.62	0.57	3 271	0.47	12.9
Hungary	1.37	0.98	0.28	2 651	0.55	32.7
Italy	1.29	0.72	0.57	2 007	1.68	6.9
Portugal	1.29	0.59	0.54	3 700	0.39	22.0
Luxembourg	1.26	0.66	0.60	4 577	6.24	
Spain	1.22	0.64	0.48	2 641	0.69	15.6†
Lithuania	1.01	0.30	0.70	2 962	0.37	
Poland	0.94	0.44	0.50	2 037	0.48	9.1
Slovakia	0.89	0.33	0.63	2 718	0.30	6.1
Malta	0.85	0.51	0.40	2 133	2.48	
Greece	0.83	0.28	0.66	2 699	0.35	21.4
Croatia	0.79	0.38	0.52	1 437	0.20	
Bulgaria	0.78	0.51	0.35	1 818	0.29	
Latvia	0.69	0.25	0.64	1 884	0.27	
Cyprus	0.47	0.08	0.83	750	0.73	
Romania	0.38	0.16	0.58	922	0.11	

Note: *2013; ‡2015; †2012.

Source: R&D expenditure: UNESCO Institute for Statistics, UIS online database (2007–15), Researchers: UNESCO Institute for Statistics, UIS online database (2007–14). Patents: World Intellectual Property Organization, WIPO Statistics Database; International Monetary Fund, World Economic Outlook Database, October 2015 (PPP\$ GDP) (2007–12). Government support: *OECD Science, Technology and Industry Scoreboard 2015*.

In line with our previous discussion, this confirms that higher spending on R&D does not automatically produce more innovations or more entrepreneurial activity. Therefore:

Proposal 49: We propose to limit R&D subsidies and tax breaks to “new to the market” activities.

The reasoning behind that proposal is that only “new to the market” R&D generates the positive external effects that justify public support. New to the market should here be understood as new to the global markets and therefore truly innovative. In practice the distinction will be hard to make. Most innovation is smart recombination and one rarely finds something truly and genuinely new to the world. Moreover, as both subsidies and tax policies regarding R&D are largely the exclusive competency of national member states, the Commission can only take an advisory role in this area. Our proposal should therefore be understood as an encouragement to shift the emphasis more in the direction of more innovative (and therefore risky) R&D. In an Entrepreneurial Society experimentation is key, also in R&D.

Moreover, if a well-functioning entrepreneurial ecosystem is not already in place, the full potential from increased R&D will not be reaped. Therefore, quantitative R&D goals become a waste of resources, as focus and resources are directed towards factors that would have found a better use elsewhere in the European economy. In an economic system encouraging productive entrepreneurship, a great deal of R&D will be undertaken because the results from R&D are in *demand* (Holcombe 2007, Michelacci 2003). Here, entrepreneurs and demanding customers in the ecosystem serve as particularly crucial sources of information regarding consumer needs and preferences (von Hippel et al. 2011). This brings us to the importance of commercialization.

3.7.4 Knowledge diffusion and commercialization

Knowledge generation and diffusion are closely interlinked. The Blue Card proposal above enhances diffusion by increasing the mobility of knowledgeable people into the Union. The ERA-program’s efforts to increase within EU-knowledge mobility (DG Research and Innovation 2017) enhance the diffusion of knowledge through mobility of researchers and a similar argument applies when national science foundations would open their funding schemes for non-nationals. Moreover, there are well established channels for the diffusion of scientific knowledge, notably publication (which should of course be(come) open source when scientific knowledge generation is largely publicly funded as proposed above). Under this heading we therefore chose to focus on the knowledge that is not easily accumulated and spread through established channels of education and publication. To promote the diffusion of such knowledge, reforms should support firms that experiment with a clear market focus in mind.

Proposal 50: Therefore, we propose to expand the funding for Europe’s SBIR-programs and reform public procurement rules in that direction.

The public sector can then effectively and efficiently infuse public funds into entrepreneurial venturing without facing the information asymmetries that prevent direct support measures by simply acting as a (launching) customer. If public agencies articulate what they need and how much they are willing to pay for that, entrepreneurs can engage that challenge. One of the most important criteria for

entrepreneurs getting angel or venture capital funding is to show a viable market exists. Given the average size of the public sector in most European member states, such a viable market exists when products and services satisfy a public need and can hence be sold to public agencies. A well-known problem here is that public procurement is usually conservative, risk averse and biased in favour of established and well-connected firms. European rules on public procurement are often so complex and involved that indeed they effectively exclude small and young firms from competing. To overcome such problems, several European member states have already implemented versions of the US Small Business Innovation and Research program.⁴⁹ To date, however, with mixed and limited success (Camerer and van Eijl 2011; Apostol 2017). Apostol (2017) lists as key success factors for such programs that many high-risk R&D projects should be tendered to predominantly small and young firms and she stresses the key role of the public program managers in carefully selecting the projects based on a sound understanding of market and technological trends. Moreover, a tolerance for failure is essential and the SBIR-program should not be a backdoor to protect local and domestic firms from foreign competition. It seems, therefore, that SBIR-type programs are best suited for countries with high-quality public sectors, low risk of corruption and a strong tradition of small industrial firm R&D. Moreover, strict enforcement of non-discrimination clauses is essential. To further ensure the effective diffusion of knowledge, we propose supporting international partnerships for innovation, in which public and private parties cooperate to address specific innovation challenges.

Proposal 51: Support international partnerships for innovation on specific innovation challenges.

Such collaborations of course risk the spilling over of publicly funded knowledge to third countries and/or private parties that might be perceived to free ride on public efforts. One should realise, however, that even highly profitable private companies that use publicly funded R&D in their products (Mazzucato 2015), create an enormous surplus of economic well-being that they rarely fully appropriate through perfect price discrimination. Taxing such firms to try and recover public costs of basic research is a misguided policy. There are certainly equity considerations that play a role here, but from a dynamic efficiency point of view it would be wise to allow private firms, even from third countries, to use publicly generated knowledge at zero marginal cost. What should of course not be allowed is that such firms then claim any exclusive rights on the publicly funded knowledge they accessed through such partnerships (or otherwise). The problem is not that the knowledge is used, the problem is that sometimes it is appropriated and used to secure inefficient rents at the cost of many for the benefit of few. Specifically, it is a good thing that Apple is using a vast amount of knowledge, even knowledge that was developed initially with public funds, to build its smartphones. And for taking the risk and doing an excellent job at putting all that knowledge together in a well-designed smartphone, they are surely entitled to a healthy reward. But it is crazy to allow Apple to appropriate knowledge they did not develop (but patented) to boost their profits and prevent Samsung from doing the same at a lower price.

Most importantly, governments should mind the late Steven Klepper's (2016) persuasive findings that strong and highly dynamic industry clusters emerge anywhere and gain momentum through entrepreneurial spinoffs out of existing firms. The implication is clear: it should be easy to start a genuine business, and incentives for individuals to behave entrepreneurially and grow the new

⁴⁹ The first programs were established in the Netherlands and UK, followed by those in Belgium, Finland, Sweden, Czech Republic and Italy.

business should be strong. In most of Klepper's (Klepper, 2002, 2009a, 2009b; Klepper and Thompson, 2010) work, focusing on the US, it seems that conflict and strategic disagreement between R&D workers and their managers lies at the root of many spinoffs and spinouts. In the more consensual and harmonious European context, a system of more collaborative, open innovation with intrapreneurship and consensual spinouts may function well to serve the same function.

Proposal 52: We therefore propose experimenting with a (publicly funded) entrepreneurial leave of absence for R&D workers.

The idea behind that proposal is that a lot of R&D results currently are shelved at incumbent firms because they do not fit these firms' strategies and interests of the moment or outright go against their short-term interests. Instituting the right to an entrepreneurial leave of absence could then promote more spin-out entrepreneurship that may lead to new industries and activities. This proposal would increase the diffusion of potentially useful knowledge that was generated inside organisations that strategically withhold such knowledge or may simply fail to see the full potential of possible applications.

Proposal 53: We propose to strengthen and facilitate the tradition in many European countries of harbouring innovations, even of a radical kind, inside large firms through intrapreneurship (Liebregts, 2016; 2018; Stam and Stenkula, 2017).

Our consortium agrees that perhaps intrapreneurship, entrepreneurial venturing in the relative security of a formal employment relationship, is more complementary to the European model of the welfare state (Henrekson and Roine, 2007; Bosma et al., 2010). Promoting intrapreneurship is then probably a more efficient way to push Europe in the direction of a more Entrepreneurial Society. The problem is that intrapreneurship depends crucially on management practises and employee autonomy in the workplace. This implies the level of intrapreneurship will correlate highly with trust and is not easy to stimulate through institutional reforms. European firms, however, seem to be interested and actively experiment with employee entrepreneurship (Bosma et al. 2011; 2013; 2014) and in this case, making sure policies and regulations do not block this trend, is enough.

3.7.5 Regional and industrial policy

Research clearly reveals that geographic proximity facilitates knowledge spillover and knowledge transfer, suggesting a potential role for (local) government in promoting local networks, clusters and urbanization. Appendix *Table A3* shows the prevalence of clusters in European economies and the United States, revealing that clusters are considerably more common in Western European countries than in Eastern European and Mediterranean countries. If cluster policies enable more transfer of knowledge between businesses and organisations, entrepreneurship may be facilitated as a result (Moretti 2012; Moretti and Thulin 2013). Such clusters, however, should be allowed to form endogenously. This will involve, allowing market forces to drive the location decisions and clustering of new and incumbent firms. For example, well-functioning real estate markets, where prices reflect scarcity and preferences, are necessary conditions for continued growth in dense areas (Glaeser 2008, 2011), as is an adequate infrastructure that allows smooth transportation and commuting. Europe's

often stringent spatial planning regulations can be both a barrier to organic cluster formation, but is also often needed to be able to develop adequate physical infrastructures.

Proposal 54: Liberalise, where possible, spatial planning regulations to allow endogenous clustering of business activity and avoid planning clusters.

Liberalisation of planning policies, however, should not be limited to targeted firms and regions. The tendency of local politicians to create Biotech-, ICT- and other fashionable “Valleys” and clusters on every street corner, is an ineffective strategy. Support should not be directed to specific firms, sectors or regions; instead, firms must self-select and cluster in suitable locations and should not be “picked”. Policymakers do well to remember that cluster formation is a long-term process that cannot be accelerated by means of quick policy fixes. When different policies complement and reinforce one another, region-specific connections and institutions can evolve and adapt over time in a complex interaction (Gertler 2004; Wolfe and Gertler 2006) that will be hard to replicate in other places. Only then is a local cluster creating a secure, long run source of competitive advantage.

3.7.5 Conclusions on R&D, commercialization and knowledge spillovers

Knowledge is a special kind of input. It is typically very hard and costly to produce, but once available, the marginal costs of reproduction are zero. Moreover, it is impossible to assess and value knowledge, without actually owning it. Finally, knowledge creation and diffusion exhibit strong positive externalities in the form of economies of scale, scope and density. This implies the production and diffusion of knowledge is rife with market failure. Still, economic growth in an innovation driven economy at the global technology frontier is determined largely by its ability to generate and harness knowledge. Supporting a more entrepreneurial society in Europe therefore benefits from reforms that strengthen its knowledge production and diffusion infrastructure. The proposals in this section, summarized in *Table I-7* below, aim to create a European knowledge space that is both integrated across the Union and open to contributions from beyond, while at the same time allowing commercial exploitation of the knowledge that is generated or imported. As commercialisation is a key conduit for the creation of knowledge spillovers in an entrepreneurial economy, we propose to reduce barriers for knowledge exchange and promote knowledge intensive entrepreneurial activity in indirect ways, by creating sophisticated demand and fostering spin-out entrepreneurship and intrapreneurial venturing.

Table I-7: Proposals Section 3.7

Number	Section	Title	Proposal	Explanation
46	3.7.2	Knowledge Generation	Reform the European Blue Card system to include also non-employees and people lacking high formal educational credentials provided they have a plan to support themselves.	Consequently, the Blue Card system is not geared towards attracting talent and knowledge, but to attracting formally educated, high paid employees. These groups overlap, but certainly not perfectly. Moreover, the required involvement of an employer in the complex application procedures implies the system is currently useful for and used by Europe's large corporates with sophisticated HR-departments.
47	3.7.2	Knowledge Generation	Abolish nationality, residence and affiliation restrictions and quota in eligibility criteria on basic research grants.	All researchers from the EU should be eligible for funding by all research funding agencies active in the Union. Knowledge is blind to nationality and so should science. Only then can we create a truly European knowledge space and match the density and mass that our global competitors have achieved.
48	3.7.2	Knowledge Generation	Both the EU and its member states should create healthy, well-funded, academic institutions that allow Europe's best and brightest to pursue their research interests.	In the literature, there is also broad consensus that basic research is a pure public good (REFS). It therefore makes perfect sense to channel more of the EU budgets to an activity that provides such evident positive spillovers throughout the Union.
49	3.7.3	R&D	We propose to limit R&D subsidies and tax breaks to "new to the market" activities.	The reasoning behind that proposal is that only "new to the market" R&D generates the positive external effects that justify public support. New to the market should here be understood as new to the global markets and therefore truly innovative.
50	3.7.4	Knowledge Diffusion and Commercialisation	We propose to expand the funding for Europe's SBIR-programs and reform public procurement rules in that direction.	The public sector can then effectively and efficiently infuse public funds into entrepreneurial venturing without facing the information asymmetries that prevent direct support measures by simply acting as a (launching) customer. If public agencies articulate what they need and how much they are willing to pay for that, entrepreneurs can engage that challenge.
51	3.7.4	Knowledge Diffusion and Commercialisation	Support international partnerships for innovation on specific innovation challenges.	Such collaborations of course risk the spilling over of publicly funded knowledge to third countries and/or private parties that might be perceived to free ride on public efforts. One should realise, however, that even highly profitable private companies that use publicly funded R&D in their products (Mazzucato 2015), create an enormous surplus of economic well-being that they rarely fully appropriate through perfect price discrimination.
52	3.7.4	Knowledge Diffusion and Commercialisation	We propose experimenting with a (publicly funded) entrepreneurial leave of absence for R&D workers.	The idea behind that proposal is that a lot of R&D results currently are shelved at incumbent firms because they do not fit these firms' strategies and interests of the moment or outright go against their short-term interests. Instituting the right to an entrepreneurial leave of absence could then promote more spin-out entrepreneurship that may lead to new industries and activities.

Table I-7: Proposals Section 3.7 (Continued)

Number	Section	Title	Proposal	Explanation
53	3.7.4	Knowledge Diffusion and Commercialisation	We propose to strengthen and facilitate the tradition in many European countries of harbouring innovations, even of a radical kind, inside large firms through intrapreneurship.	Our consortium agrees that perhaps intrapreneurship, entrepreneurial venturing in the relative security of a formal employment relationship, is more complementary to the European model of the welfare state (REFS). Promoting intrapreneurship is then probably a more efficient way to push Europe in the direction of a more Entrepreneurial Society.
54	3.7.5	Regional and Industrial Policy	Liberalise, where possible, spatial planning regulations to allow endogenous clustering of business activity and avoid planning clusters.	For example, well-functioning real estate markets, where prices reflect scarcity and preferences, are necessary conditions for continued growth in dense areas (Glaeser 2008, 2011), as is an adequate infrastructure that allows smooth transportation and commuting. Europe's often stringent spatial planning regulations can be both a barrier to organic cluster formation, but is also often needed to be able to develop adequate physical infrastructures.

3.8. Incentives for human capital investment

3.8.1 Preamble

Economic growth and prosperity depend to a large extent on human capital. And human capital accumulation starts at birth. People are raised to function in the society they live in and acquire the skills and traits that help them to be productive throughout their lives. Human capital can be acquired in many ways, such as through formal schooling, formal and informal on-the-job training, labour market programs and retraining, and informal experience and personal interest. The human capital accumulated in early childhood and through primary education typically has huge social benefits and spillovers. It helps you function well in society, but also helps others to do so. Social norms, a shared culture and language are obviously most useful in the society that they belong to. There are huge positive network externalities involved and relatively few private benefits to such human capital. Moreover, children obviously do not rationally decide to invest in human capital accumulation. Therefore, primary education is justifiably mandatory and publicly funded in all advanced countries and all European member states have such systems in place.

In secondary school this gradually changes. Up to a point attendance is mandatory in all European member states, but the balance shifts to less public and more private benefits and (opportunity) costs while the individual gradually makes more and more conscious choices related to his or her own development. In higher education and training on the job, at least in most Western liberal democracies, people can choose what and how much human capital to accumulate, also because one simply cannot force people to learn things they do not want to know. According to human capital theory (Schultz 1960; Becker 1964), the conscious decision to acquire such human capital is best analysed as an individual investment decision. The rate of return on human capital that drives such decisions, is often measured as the relative increase in the individual's (discounted lifetime increase in) wage that can be attributed to a diploma or an additional year of schooling. As learning and maintaining knowledge are time and energy consuming activities, arguably varying considerably across individuals by ability and increasing with age, this theory predicts people will invest less in human capital accumulation as they have lower (perceived) ability and higher age, because of higher (opportunity) costs and a shorter remaining lifetime to recover the investment. Moreover, because the future is hard to predict, the decision to invest in human capital is made under great uncertainty. This implies that what is optimal for individuals facing limited information and high uncertainty when making long run choices, may well be suboptimal for society at large, justifying policy intervention.

There is little doubt that human capital is important for growth, a view strongly supported by the economic growth literature (Lucas 1988; Mankiw et al. 1992). These papers, however, assume the employment of human capital, once accumulated, is guaranteed and its allocation is efficient. Reforms in the organisation of labour markets, discussed above, are essential to bring this about. But even perfect labour markets do not eliminate the ex-ante uncertainty that people face in making human capital investment decisions. In this section, we will therefore focus on reforms to improve the accumulation of human capital considering the transition to a more entrepreneurial society. Thereby the emphasis will be on tertiary education, as here sunk costs and investments are largest, while the specialized nature of the knowledge acquired also involves the highest risks. Some reforms, however, will require complementary reforms in primary and secondary education.

3.8.2 Education in the entrepreneurial society

Of course, both the European Union and individual Member States already have a wide pallet of policies in place to promote education and human capital accumulation in general. The most obvious measure is by directly allocating public funds to the educational system. Let us therefore first consider (public) expenditures on education. The first column of *Table 9* reveals surprisingly large differences in educational expenditures as a share of GDP across EU countries.

The three Nordic countries are at the top, while the bottom is dominated by Eastern European countries and Italy. Of course, high spending is not everything. Arguably, the best source to compare outcomes of these investments come from the OECD's Programme for International Student Assessment (PISA).⁵⁰ Hanushek and Woessman (2015) find a strong and statistically robust relationship between national economic performance and the level of knowledge as measured in internationally comparable tests, such as PISA and TIMSS. PISA test results in mathematics, science and reading for the year 2012 are therefore presented in columns 2–4 in *Table 9*.

Table 9 makes clear that high educational spending can be associated with top results (Finland) as well as weak results (Sweden). Pupils in Poland and Estonia have excellent results despite relatively low educational spending, while Romania and Bulgaria spend little and do poorly. Moreover, the link to entrepreneurship is far from straightforward. In the United States, allegedly the most innovative and entrepreneurial of all countries, government spending on education is intermediate, but complementary private spending is substantial (2 percent of GDP compared to an EU average of 0.3 percent of GDP; see OECD 2015b, p. 207). But despite this high total spending, US pupils perform below average in all three areas and particularly poorly in mathematics. We therefore conclude that naïve increases in educational budgets are not likely to promote a more Entrepreneurial Society. Arguably a more potent reform strategy addresses the way policy incentivizes agents in the educational system itself, and how such activities and policies complement or act as a substitute for the training provided by employers. Currently, governments have geared educational systems towards promoting human capital accumulation at large and catering to the demand of incumbent firms. When looking at this issue from the perspective of the needs of entrepreneurs and entrepreneurial venturing, the priorities shift somewhat.

⁵⁰ The PISA survey was created by the OECD as a response to member countries' demand for a reliable metric of pupils' knowledge and skills. Every three years, nationally representative samples of 15-year old pupils take a test in mathematical, reading and scientific literacy. The number of participants has increased over time; in the latest 2012 survey, 65 countries and economies were represented (OECD 2013). TIMSS stands for Trends in International Mathematics and Science Study and is a test given every four years since 1995 in mathematics and science to 11- and 15-year-olds (Mullis et al. 2012a, 2012b).

Table 8: Expenditure on education as a share of GDP in EU countries and the US, 2012, and PISA results (in reading, mathematics, and science) in EU countries and the US, 2012.

Country	Education spending	Country	PISA Mathematics	Country	PISA Science	Country	PISA Reading
Denmark (2011)	8.55	Netherlands	523	Finland	545	Finland	524
Sweden	7.66	Estonia	521	Estonia	541	Ireland	523
Finland	7.19	Finland	519	Poland	526	Poland	518
Malta	6.76	Poland	518	Germany	524	Estonia	516
Cyprus (2011)	6.64	Belgium	515	Ireland	522	Netherlands	511
Belgium (2011)	6.37	Germany	514	Netherlands	522	Belgium	509
Ireland	5.84	Austria	506	UK	514	Germany	508
UK (2013)	5.72	Ireland	501	Slovenia	514	France	505
Slovenia	5.66	Slovenia	501	Czech Rep.	508	UK	499
France	5.53	Denmark	500	Austria	506	US	498
Netherlands	5.51	Czech Rep.	499	Belgium	505	Denmark	496
Austria	5.45	France	495	Latvia	502	Czech Rep.	493
US (2011)	5.22	UK	494	France	499	Austria	490
Portugal (2011)	5.12	Latvia	491	Denmark	498	Italy	490
Germany	4.95	Luxembourg	490	US	497	Latvia	489
Poland (2011)	4.86	Portugal	487	Spain	496	Spain	488
Estonia	4.79	Italy	485	Lithuania	496	Hungary	488
Lithuania	4.79	Spain	484	Italy	494	Luxembourg	488
Hungary	4.65	Slovakia	482	Hungary	494	Portugal	488
Spain	4.37	US	481	Luxembourg	491	Croatia	485
Czech Rep.	4.26	Lithuania	479	Croatia	491	Sweden	483
Croatia (2011)	4.16	Sweden	478	Portugal	489	Slovenia	481
Italy (2011)	4.14	Hungary	477	Sweden	485	Lithuania	477
Slovakia	3.94	Croatia	471	Slovakia	471	Greece	477
Bulgaria	3.59	Greece	453	Greece	467	Slovakia	463
Latvia	3.20	Romania	445	Bulgaria	446	Cyprus	449
Romania	2.99	Cyprus	440	Romania	439	Romania	438
		Bulgaria	439	Cyprus	438	Bulgaria	436

Note: Malta did not participate in the PISA test. The scores are calculated in each year so that the mean is 500 and the standard deviation 100.

Source: OECD Programme for International Student Assessment (PISA).

Traditional educational systems train and condition pupils for formal employment. And formal employment experience has been shown to increase the probabilities for successful venturing. But entrepreneurs have been characterised as “jack-of-all-trades” (Lazear 2004) and often creativity is more important than specialized and technical knowledge.⁵¹ Entrepreneurship itself cannot be taught directly. And the creativity, tolerance of failure and out-of-the-box thinking that characterises successful entrepreneurs is rarely taught and some have argued is often even discouraged in formal education (Hayes 2007). Still we would argue EU Member States should be encouraged to experiment

⁵¹ This statement is less true in knowledge intensive sectors where successful entrepreneurs are often “master of their business” with high specific knowledge and competences (Colombo and Grilli 2005, Grilli 2014).

with reforms in primary and secondary education, that make creativity and problem-solving skills more important than knowledge reproduction and cognitive skills.

Proposal 55: Push for reforms in primary and secondary education that promote creativity, a willingness to experiment, a tolerance of failure and out-of-the-box thinking.

More appreciation for creativity (and therefore tolerance of deviant behaviour) will probably shift the balance from business oriented to more creative entrepreneurship. Evidence from field experiments (Weitzel et al. 2010; Urbig et al. 2012) and in the FIRES-project (Lauritzen et al. 2017) suggest that creative entrepreneurs are more socially oriented than strictly business-oriented entrepreneurs. Promoting creativity in primary and secondary education, to the extent possible, is therefore a long-term strategy to promote productive entrepreneurship that will create innovative, sustainable and inclusive growth (Stam et al. 2012).

The skills and human capital entrepreneurs seek to attract in their ventures are often also in short supply. Entrepreneurship is so broad, diverse and unpredictable, that it is impossible to predict (let alone deliver in time) the specific human capital that entrepreneurial ventures need. The focus should therefore be on broad categories, rather than highly specialized topics and fields. Human capital of a mathematical and natural science orientation, however, has been shown to be important for science-based entrepreneurship (Shavinina 2013, Dilli and Westerhuis 2018). Such ambitious entrepreneurship, in turn, delivers the most scalable and growth enhancing innovations. It is also important to note that successful entrepreneurs tend to have advanced technical degrees.⁵² This is likely due to the causal effect of human capital but also captures the importance of access to new ideas and to the fact that unusually talented individuals that can complement and form founding teams, are selected into universities. Still, it would be a mistake to put all efforts into promoting STEM-education at the university only. Westerhuis and Dilli (2018) have argued that promoting STEM-topics, specifically among girls, would be a way to promote more ambitious entrepreneurship, but require interventions early in the educational career.

Proposal 56: Promote STEM education, specifically for females, early on and then throughout educational careers.

The best way to do so is probably to recruit passionate and knowledgeable teachers, which, as the Finnish experience has shown, requires upgrading of professional status and salaries. Finally, in an entrepreneurial society, people experiment with new technology, but new business formation thrives on a diverse and well-integrated knowledge base that can address a wide range of problems and challenges (Rauch et al., 2005; Audretsch, 2007).

Proposal 57: To promote the integration of Europe's knowledge base we propose to make English the (mandatory) second language and promote its

⁵² Many so-called super-entrepreneurs, i.e., entrepreneurs who built billion dollar fortunes by starting and growing their own companies, have acquired extensive human capital. In the US, one third of super-entrepreneurs have a degree from an elite university such as Harvard, Stanford or the University of Chicago, compared to less than one percent of the total labour force (Henrekson and Sanandaji 2014). High educational credentials are also quite common among European super-entrepreneurs. Of course, it is hard to claim causality on the basis of a correlation among so few observations. Moreover, common omitted factors (e.g. access to a network, finance or successful role models) may play a role.

instruction in primary and secondary education systems throughout the European Union.

We would like to stress, however, that we do not see this as part of building a European identity or culture. Rather, as a tool to enable citizens in the Union, and in particular those that end up in business and/or science, to exchange knowledge efficiently and effectively. Effective communication requires a common language and English qualifies as the Lingua Franca of modern science in most academic disciplines as well as global business. It is a simple fact that over a quarter of the world's population is proficient in English as first or second language and no other language matches that (Crystal 2012). In Europe, this percentage is even higher and still rising (Hoffmann, 2000). We realize, however, that this suggestion will certainly not go uncontested and emotions tend to run high. Language is an institution that is deeply embedded in national cultures. It is important to present this as a tool to communicate, not a central element in cultural identities. Key member states like Germany, France and Italy should take the lead in equipping their citizens to communicate across national borders.

3.8.3 Tertiary education

The first strategic and rational decision on the accumulation of human capital is typically when students leave secondary school and decide to work or pursue tertiary education. *Table 10* lists recent enrolment rates in tertiary education. The enrolment rate is high in many of the poorest EU countries, notably Greece, Bulgaria and the Baltic countries. High enrolment rates *per se* are no guarantee that tertiary education has a high social or private rate of return. The resources per student vary enormously across fields, countries and schools (van der Ploeg and Veugelers 2008). The quality of the educational system at the primary and secondary levels largely determines how much can be expected and demanded from students in these lines of study at the tertiary level. If the quality of their previous education has been deficient, fewer students will be willing or able to choose more analytically demanding lines of study. Moreover, humanities and social sciences are generally far less costly than the STEM fields, so in publicly funded educational systems there is a temptation for policymakers to expand these inexpensive programs if the aim is to boost university enrolment.

Such actions would be self-defeating of course, and the damage would be exacerbated if such measures crowd out existing non-academic post-secondary education and vocational training at the upper secondary level. Traditionally, such education has been important in central European countries (See Appendix *Figure A3*). The low level of S&E graduates in the US compared to Europe reflects in part the strong engineering tradition in many European countries, but may also reflect the deficient quality at lower levels of education in the US, causing fewer students to choose more analytically demanding disciplines (see the second column of *Table 10*).

Moreover, it may well be the case that in the strongly market driven US system, students misallocate due to high rents in financial and legal occupations (Murphy et al. 1991), although this tendency is much weaker in the UK. Given the high levels of uncertainty and favourable risk-return profile of business, medical and legal professions, we believe Europe should not opt for the US model of high private (out of pocket) investments and high expected lifetime incomes. For Europe's entrepreneurial society an adequate supply of well-trained technical personnel seems more valuable.

Proposal 58: Invest in high quality tertiary level technical education by attracting excellent teaching staff and students. Strengthen Europe's tradition of strong vocational training at the tertiary level.

Table 9: Tertiary enrolment and graduates in science and engineering in EU countries and the US, 2013.

Country	Tertiary enrolment (%)	Graduates in S & E (%)
Greece	110.2	28.7*
Finland	91.1	27.9
US	88.8	14.9
Spain	87.1	22.2*
Slovenia	85.2	24.7*
Denmark	81.2	20.4
Austria	80.0†	27.9
Netherlands	78.5*	14.4*
Ireland	73.2	23.8*
Estonia	72.9	22.1*
Belgium	72.3	16.4*
Lithuania	72.0	22.2
Poland	71.2	17.4
Bulgaria	70.8†	20.1
Latvia	67.0	17.9
Portugal	66.2	26.1
Czech Rep.	65.4	23.2
Italy	63.5	20.2*
Sweden	63.4	25.7
France	62.2	24.5
Croatia	61.7*	23.9*
Germany	61.1	
Hungary	57.0	16.8*
UK	56.9	25.2
Slovakia	54.4	20.5
Cyprus	53.1†	19.0
Romania	52.2	25.5
Malta	45.1†	19.1*
Luxembourg	19.4*	16.3

Note: *2012; †2014. The ratio of total tertiary enrolment, regardless of age, to the population of the age group that officially corresponds to the tertiary level of education. Tertiary education, whether or not aiming at an advanced research qualification, normally requires, as a minimum condition of admission, the successful completion of education at the secondary level. Graduates in science and engineering is defined as the share of all tertiary graduates in science, manufacturing, engineering, and construction over all tertiary graduates (n/a Germany).

Source: UNESCO Institute for Statistics, UIS online database (2007–14).

As mentioned, the decision to acquire and use economically valuable human capital is ideally a well-informed individual investment decision governed to a considerable extent by the rate of return on human capital (Schultz 1960; Becker 1964). *Table 11* presents two arguably imperfect measures of this rate of return. The first column demonstrates that the rate of return on schooling varies greatly across countries from the United States, Germany and Poland at the top to Denmark, Italy and Sweden at the bottom. Comparing the overall rate of return with the return on analytical/numerical ability in the

second column shows the relative scarcity of this knowledge. It is in high demand in advanced economies, but one should note that low returns may also reflect adequate supply.

Table 10: Before tax educational premiums and completion rates in EU countries and the US.

Country	Educational premium	Country	Return on analytical/numerical ability	Completion rate, %
US	11.1	US	27.9	78
Poland	10.1	Ireland	24.1	94
Germany	9.5	Germany	23.5	n/a
Slovakia	9.5	Spain	22.8	n/a
Cyprus	8.9	UK	22.5	84
UK	8.5	Poland	19.1	n/a
Ireland	8.5	Netherlands	18.3	66
Netherlands	8.2	Austria	17.9	78
Spain	7.9	Slovakia	17.9	n/a
Austria	7.7	Estonia	17.9	51
Estonia	7.4	France	17.4	70
Finland	6.8	Belgium	14.9	n/a
Belgium	6.2	Finland	14.2	n/a
Czech Rep.	5.9	Cyprus	13.8	n/a
France	5.5	Denmark	13.7	81
Denmark	5.5	Italy	13.2	n/a
Italy	5.3	Czech Rep.	12.4	60
Sweden	4.2	Sweden	12.1	53

Note: The educational premium is defined as the relative increase in the wage that can be attributed to an additional year of schooling. The return on analytical/numerical ability is defined as the relative increase in the wage that results from a one standard deviation increase in a person's PIAAC score for numeracy. All EU countries in the Hanushek et al. study are included in the table. The completion rate is defined as the share of student's who entered a Bachelor's Program that have graduated six years later (2014).

Source: Hanushek et al. (2015) and OECD (2016, p. 175).

3.8.4 Universities

Successful entrepreneurial ventures are often highly dependent on the availability of academically trained and motivated individuals and campuses are hotbeds of entrepreneurial venturing (Audretsch 2014). Once at the university level, several links must function efficiently for specifically knowledge-based entrepreneurship to flourish. There must be sufficient incentives (*i*) to invest in human capital at the university level, (*ii*) to become involved in knowledge-based entrepreneurial ventures during or after studies, and (*iii*) to adjust the university subject areas to bring them into line with business sector demand and to facilitate the transfer of knowledge from academia to the entrepreneurial sector. The returns to university education depend on the wage differential on the one hand and the cost of education on the other. With high wage differentials, the opportunity costs are (relatively) low and high private returns can compensate for high tuition and other out of pocket expenses. In contrast, with compressed wage structures, the opportunity costs are high and private returns are low, such that tuition fees need to be low to maintain strong incentives to invest in university level education.

In continental Europe, in contrast to tertiary education in e.g. the US and UK, the tuition and out-of-pocket expenses for education tend to be low.⁵³ This implies opportunity costs are the main investment component for European students. If these costs, as well as the returns to education, are low in general, individuals will partly adjust by basing their educational choice more on what they enjoy studying than on what might be financially lucrative in their subsequent careers. They then see education more as a consumption good or a means of self-realisation and less as a costly investment in human capital. This might imply a lower willingness to opt for demanding lines of study that deprive students of leisure time and prevent them from working part-time. If instead both returns and costs are high, rational students will choose studies more in line with market demand, especially if significant student loans must be repaid out of higher personal income.

In the (continental) European context, the university system has a distinctly different history and consequently institutional embedding as in the US. In Europe, the oldest universities are broad institutions of academic learning that had to fight for their academic independence with clerical and secular powers for centuries. They are now largely publicly funded but still maintain high levels of academic autonomy. US universities, in contrast, were founded on land grants or vast endowments by states or successful entrepreneurs with the explicit purpose to make academic knowledge available for use in agriculture and industrial applications. This has resulted in a very different landscape. Europe's lack of elite universities compared to the United States is considered by many to be a disadvantage for the European Union's ability to develop Schumpeterian entrepreneurship.⁵⁴ But in continental Europe the level of vocational education and on the job training are much higher. Moreover, dedicated knowledge institutes like the Fraunhofer Institut and Max Planck Society in Germany, the CNRS in France and TNO in the Netherlands complement the university system and successfully diffuse scientific knowledge into society at large and commercial activity.⁵⁵ In this much more institutionalized system of knowledge diffusion, incumbent firms are often the partners of choice and intrapreneurship complements these knowledge structures.

Recognizing the importance of this European model of knowledge diffusion, European universities can take a larger role in the transition to a more Entrepreneurial Society in Europe. This starts with simple no-regret policies that have been proposed before (i.e. the European Commission's Entrepreneurship 2020 Action Plan).

Proposal 59: We propose to educate the young and bright minds of Europe how to be more entrepreneurial before they make their career choices.

As this is already part of the Commission's Entrepreneurship 2020 Action Plan and many European universities today, but we want to stress that learning about entrepreneurship is not the same as learning to entrepreneurial and efforts on the latter should be focused on students active in the Science Technology Engineering and Mathematics (STEM)-fields.

We also propose that this effort be closely linked to the earlier proposal to set up the Entrepreneurship Knowledge Observatories (Proposal 45).

⁵³ See e.g. OECD at <http://www.oecd.org/education/skills-beyond-school/48631028.pdf>

⁵⁴ There is eight UK universities, two Swiss and six from EU countries among the 50 highest ranked universities in the world according to *The Times Higher Education World University Rankings 2015–2016* (https://www.timeshighereducation.com/world-university-rankings/2016/world-ranking#!page/0/length/25/sort_by/rank/sort_order/asc/cols/stats).

⁵⁵ In France Wikipedia lists 106, in Germany 173 and in the Netherlands 64 of such institutes. In the United States of course such institutes also exist. Wikipedia lists 405. This suggests they are more prevalent in Europe, but we did not study this more exhaustively.

Entrepreneurship scholars in Europe often look with some envy to the US. The American university system is decentralized, open and intensely competitive, which fits the basic philosophy of an entrepreneurial society well. American universities can pursue opportunities to solve their own problems and to build on their own unique strengths and aspirations. Competition occurs along several dimensions: (i) competition among universities for students and among professors for the best students at the graduate level; (ii) competition among universities for the best professors in a cultural and economic context in which mobility is high; and (iii) competition among professors for research support, giving them time away from teaching and access to complementary resources.

This system, however, also creates great dispersion. Alongside the world class institutions that everybody knows, the system in the US has many mediocre institutions. The average quality of bachelor and master diploma's in Europe is not significantly lower, but the distribution in the US system is wider, with less mass in the middle and much thicker tails, at the top, but also at the bottom. European universities historically evolved into institutions that aim to create opportunities for all and enlighten the middle class, whereas in the US the culture is much more to invest a lot in the best and brightest. In an entrepreneurial society that operates at the global technology frontier, it is the quality of the upper tail that drives growth and innovation. Europe's strategy of providing high-quality university education for the average student worked very well in the age of the Managed Society (Audretsch and Thurik 2000), where the rapid adoption of new knowledge was sufficient to maintain a competitive position. With the rise of Asia, this strength now needs to be complemented with policies that also allow Europe's best and brightest to excel. The challenge will be to establish more world-class universities in the EU, while maintaining their distinct inclusive character.

To meet this challenge, it must first be recognized that most European university systems are highly centralized; universities tend to be government owned, and the entry of private universities is disallowed or highly restricted (Jongbloed 2010). While it is our position that European countries should not try to mimic the US university system, certain steps could be taken to create more flexibility and responsiveness to societal demand.

Proposal 60: The link between universities and external stakeholders should be strengthened. Specifically, more research grants could require transdisciplinary approaches to innovation challenges.

There are already many successful examples (see Appendix Table A4). This collaboration brings more business to science. European universities could also strengthen their ability to do the reverse. Google and Netscape provide two interesting examples of innovations originating from university campuses. Learning from these examples European universities should facilitate the stimulation of academic entrepreneurship and accelerate the commercialization of university-developed innovations of great potential value (Goldfarb and Henrekson 2003; Kauffman Foundation 2007).

Proposal 61: University faculty must be encouraged to stimulate entrepreneurial initiatives while incentives for university spinoffs are increased.

Most US universities have a Technology Transfer Office (TTO), an in-house organization specializing in assisting academic entrepreneurs in commercializing their inventions. However, a TTO could also hinder the commercialization of useful technologies by making the process too bureaucratic and focusing on its own narrowly defined proprietary interests and key performance indicators (Baumol et al. 2007; Kauffman Foundation 2008). Therefore, we propose to promote team start-ups at universities

as opposed to trying to sell university knowledge through licence agreements and patents. Academics are usually not the best entrepreneurs and even if they are, in most EU countries opportunity costs are substantial for them. It should be much easier for them to team up with complementary talents, possibly recruited from the student body, to start-up a venture. That way the tacit knowledge can be transferred to the venture without the legal hassle of complicated IPR contracts and the scientist need not become an entrepreneur herself.

Moreover, we would argue in favour of strengthening the European approach to provide more research funding in connection to specific societal and commercial challenges. The Horizon 2020 program is an excellent example of doing so: “By coupling research and innovation, Horizon 2020 is helping to achieve this with its emphasis on excellent science, industrial leadership and tackling societal challenges. The goal is to ensure Europe produces world-class science, removes barriers to innovation and makes it easier for the public and private sectors to work together in delivering innovation”.⁵⁶

If the EU is serious about achieving this goal, however, universities and other public institutions of learning need to become more entrepreneurial, flexible and adaptive towards societal demand. It helps to then expose these hitherto sheltered institutions to healthy competition. One such a domain, in which competition would be healthy, is research staff. We already suggested in *Proposal 48* that funding of research, also in e.g. the societal calls under H2020, should be awarded to research(ers) and no longer be geographically or institutionally bound. The tradition of funding research and knowledge creation in Europe is still highly organised within these boundaries. A grant is given to the host institution (to ensure continuity that only the investigator, not his host institution can provide), while the minimum required geographical distribution of Horizon2020 consortia is another case in point.⁵⁷ Place, like nationality or institutional affiliation, should not be a criterion for the eligibility or continuation of funding as knowledge has no spatial, national or institutional boundaries (Friedman, 2006). Obviously, the places where centres of excellence emerge need not be in the same region or nation in which the money to fund them is raised. But it makes perfect economic sense to invest precious R&D resources collectively and allocate them to where they yield the highest return (Caballero and Lerner 2008). This logic is fully accepted at the national level and the same applies at the level of the European Union. If funding can follow knowledge, that makes knowledge geographically more mobile. This mobility will create clusters and concentrates knowledge generation in space, because of the strong agglomeration economies that exist in science and innovation. But at the same time, it promotes the geographical diffusion of knowledge through commercialisation, so all may benefit in the end.

A final idea to promoting entrepreneurial spirit in both academia and formal employment (intrapreneurship) is to allow for slack and autonomy in both academic and professional organisations. In the quest for efficiency and profit, firms and universities of course naturally try to reduce slack wherever it is found in the organisation. We know that slack, if not excessive, can be a source of creativity and corporate or academic venturing (Woodman et al. 1993; Nohria and Gulati 1996). Micromanaged academics and professionals do not engage in intrapreneurial ventures (Russel, 1999). At Google the famous 20%-time policy (even if it does not translate into 20% slack) sends a clear message to the employees that it is ok to be creative and follow crazy ideas (D’Onfro 2015). Of course, corporate policies are not a competency of the European Commission or the Member States, but from

⁵⁶ <https://ec.europa.eu/programmes/horizon2020/en/what-horizon-2020>.

⁵⁷ See e.g. http://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/international-cooperation_en.htm which states that consortia must consist of at least 3 partners from three different countries.

an entrepreneurial perspective it would make sense to put less emphasis on static efficiency and cutting slack in academia. In the long run, it pays to allow people to also reflect on and think about how to improve the things they do and problems they encounter. The strong competition and focus on rankings, external motivation and quantitative output measures in US universities, in that respect, is not very productive.

3.8.5 Lifelong learning strategies

Once human capital is accumulated in youth, it needs to be maintained and productively employed for the returns to society and the individual to materialize. There are several risks people face, that may prevent this. Illness, disability and unemployment are the most prominent among these risks, linking the incentives to accumulate human capital closely to the organisation of the social security system. With human capital accumulation investments fully sunk, the risks of under- and unemployment due to health issues, the normal business cycle and technological progress, are impossible to insure privately and put a big risk premium on human capital investments. By collectively insuring these risks, the risk premia can be reduced and people will invest more in human capital for the same levels of return. We do not think that reforms in health insurance and disability insurance are particularly relevant in this context. Increasing the mandatory retirement age such that human capital is productive longer, may work, but more urgent reforms to the pension system were discussed in section 3.2.

When it comes to human capital, high long-term unemployment remains a biggest challenge in Europe and beyond (Mincer and Ofek, 1982; Liungqvist and Sargent, 1998). Many of the reforms discussed under section 3.4 are of course also relevant in this respect. Here, we focus on the implications of unemployment for human capital. Unemployment is much more than the inefficient underutilization of a valuable resource. In an Entrepreneurial Society, where labour is reallocated between sectors, firms and activities constantly, some friction unemployment is unavoidable and even essential. But while “Being between jobs” is perhaps a welcome break for some, being out of a job for longer spells of time because of obsolete skills, structural mismatches on the labour market or institutional lock-outs is the kind of unemployment that those affected consider particularly damaging. It is well known that long term unemployment makes people unhappy and has negative consequences on health and individual well-being over and beyond the direct loss of income and consumption (Dolan et al. 2008). Consequently, unemployment has been studied to death and the FIRES project has little to add to the analysis of the problem or the many remedies that have been suggested. Some have suggested self-employment or entrepreneurship could be a way out of structural unemployment, especially for groups that face discrimination in formal labour markets (Light, 1979; Morolvasic, 1991; Clark and Drinkwater, 2000).

FIRES deliverable 5.8 has proposed entrepreneurship campaigns for the elderly as a no-regret option as age should not be considered a barrier to entrepreneurship (Proposal 24).⁵⁸ Notably, here we feel it would also be beneficial to develop mentoring programs by and for elderly employees, for whom the transition to a more flexible labour market may be particularly challenging.

Proposal 62: Develop mentoring programs by and for elderly employees and entrepreneurs.

⁵⁸ Boden and Nucci (2000) and Westhead et al. (2001) for example show that age is positively correlated with firm survival and export success.

More flexibility will benefit these workers too, but we should be sensitive to the fact that making the transition to an Entrepreneurial Society will be harder for some than for others. Entrepreneurship training and programs for (long-term) unemployed is perhaps an effective as a policy against unemployment but involves allocating scarce resources to entrepreneurs that are perhaps less likely to succeed.⁵⁹ But given the damaging effects of long-term unemployment on the employability and human capital of those affected, radical reforms to prevent it should be considered.

In the FIRES research we considered the possibility to grant public work or job guarantees. This may sound counterproductive at first. Giving public work or job guarantees would increase real wages, reduce the flow of labour resources available for entrepreneurial ventures and reduce the incentives to engage in them. But this depends a lot on how the system is set up. The government as Employer of Last Resort (ELR) is not new (e.g. Minsky 1965) idea and has been put forward by post-Keynesians (Mitchell 1998; Wray 2009) as a policy to tackle the problem of unemployment and aggregate demand fluctuations in the private sector. The basic idea is that the public sector simply absorbs excess labour when activity in the private sector declines and releases it again when the private sector is expanding. Replacing the buffer of unemployed by a buffer of publicly employed labour.

Proposal 63: If policy makers wish to experiment with guaranteed public sector jobs to earn a minimum income, such experiments should be set up in such a way that the jobs in young, innovative start-ups would easily compete with such guaranteed public sector jobs, both on wage and content.

In that way, human capital can be maintained while access to the human capital remains guaranteed. The same basic security as under a UBI-scheme can be provided, effectively enabling the risk averse or those responsible for household income to engage in riskier ventures themselves or be employed in those of others. Moreover, such a system would reduce the risks of accumulating the wrong human capital at high personal costs, particularly if public employment is coupled with intense retraining and educational programs.

The system of public work guarantees would not have the ethical and moral concern that citizens are given an income without any effort on their behalf. The latter (protestant?) work-ethic seems to be a deeply embedded cultural institution in many European Member States and a system of work guarantees may be more complementary with these deeply embedded cultural attitudes and sentiments, while still serving the need to maintain employable human capital and secure the portability of social security rights and entitlements. Moreover, the labour made available can help address important public challenges and/or help to finance the scheme and create useful self-selection effects into social security (only those in real need will try to enrol).

As with the UBI-scheme, this reform proposal is put on the policy agenda whenever crisis hits and it has strong pro- and opponents, who often take strongly ideological stands in the debate.⁶⁰ We propose to discuss this idea openly and without ideological prejudice, as we do feel a system of providing basic social security independent of labour market status and history is an important reform to promote a more Entrepreneurial Society in Europe's historically embedded welfare states.

⁵⁹ Interestingly the evidence on this is predominantly from Germany, where entrepreneurship programs for the unemployed have been implemented since the late 1990s. Pfeiffer and Reize (2000) show that entrepreneurs starting up from unemployment are less likely to survive and grow, while Hinz and Junbauer-Ganz (1999) showed this is largely due to reduced access to finance whereas Caliendo and Kritikos (2010) show survival but especially investment and employment growth depends strongly on the design of the support program.

⁶⁰ See for example op-ed contributions on [Forbes](#), in [the Atlantic](#) and in the [New York Times](#) and the work collected at <http://www.levyinstitute.org/topics/job-guarantee>.

3.8.6 Conclusion of incentives to accumulate human capital

Human capital is a key input in any venture. A team of founders needs a broad spectrum of talents and skills to launch the venture and develop the business model that will support a sustainable venture. To then successfully launch a new product or service into global markets, be it business-to-business or business-to-customer, new firms need a dedicated, loyal and well-trained labour force. The proposals in this section, summarized in *Table I-8* below, all aim to provide current and future ventures with the human capital they need. By focusing more on creativity and tolerance for failure in primary education through the promotion of STEM-education and integrating the European knowledge base all the way to breaking open Europe's hitherto rather closed academic institutions, the entire educational system can be tilted slightly more towards more entrepreneurial mindsets and skills. Moreover, we also propose investing in the maintenance and most importantly, upgrading of skills and knowledge, also after formal education has ended. Such investments on behalf of the employee, clearly have a positive social return, but private incentives may be lacking due to uncertainty and short repayment periods. To incentivise employees in dependent employment to maintain and possibly even improve their skills, also on-the-job, a delicate balance between providing job and employment security and the need to maintain one's own employability, has to be struck. Employees can neither be too comfortable in their current jobs, nor too uncertain about any job to be willing to invest in skills maintenance and upgrading. Experimental policy making is advised to find that balance.

Table I-8: Proposals Section 3.8

Number	Section	Title	Proposal	Explanation
55	3.8.2	Creativity in primary and secondary education	Push for reforms in primary and secondary education that promote creativity, a willingness to experiment, a tolerance of failure and out-of-the-box thinking.	More appreciation for creativity (and therefore tolerance of deviant behaviour) will probably shift the balance from business oriented to more creative entrepreneurship. Evidence from field experiments (Weitzel et al. 2010; Urbig et al. 2012) and in the FIRES-project (Lauritzen et al. 2017) suggest that creative entrepreneurs are more socially oriented than strictly business-oriented entrepreneurs. Promoting creativity in primary and secondary education, to the extent possible, is therefore a long-term strategy to promote productive entrepreneurship that will create innovative, sustainable and inclusive growth (Stam et al. 2012).
56	3.8.2	Education in the Entrepreneurial Society	Promote STEM education, specifically for females, early on and then throughout educational careers.	It is also important to note that successful entrepreneurs tend to have advanced technical degrees. This is likely due to the causal effect of human capital but also captures the importance of access to new ideas and to the fact that unusually talented individuals that can complement and form founding teams, are selected into universities. Still, it would be a mistake to put all efforts into promoting STEM-education at the university only. Westerhuis and Dilli (2018) have argued that promoting STEM-topics, specifically among girls, would be a way to promote more ambitious entrepreneurship, but require interventions early in the educational career.
57	3.8.2	Education in the Entrepreneurial Society	To promote the integration of Europe's knowledge base we propose to make English the (mandatory) second language and promote its instruction in primary and secondary education systems.	We would like to stress, however, that we do not see this as part of building a European identity or culture. Rather, as a tool to enable citizens in the Union, and in particular those that end up in business and/or science, to exchange knowledge efficiently and effectively. Effective communication requires a common language and English qualifies as the Lingua Franca of modern science in most academic disciplines as well as global business.
58	3.8.3	Tertiary Education	Invest in high quality tertiary level technical education by attracting excellent teaching staff and students. Strengthen Europe's tradition of strong vocational training at the tertiary level.	Given the high levels of uncertainty and favourable risk-return profile of business, medical and legal professions, we believe Europe should not opt for the US model of high private (out of pocket) investments and high expected lifetime incomes. For Europe's entrepreneurial society an adequate supply of well-trained technical personnel seems more valuable.
59	3.8.4	Universities	We propose to educate the young and bright minds of Europe how to be more entrepreneurial before they make their career choices.	Recognizing the importance of this European model of knowledge diffusion, European universities can take a larger role in the transition to a more Entrepreneurial Society in Europe. This starts with simple no-regret policies that have been proposed before (i.e. the European Commission's Entrepreneurship 2020 Action Plan).
60	3.8.4	Universities	The link between universities and external stakeholders should be strengthened. Specifically, more research grants could require transdisciplinary approaches to innovation challenges.	To meet this challenge, it must first be recognized that most European university systems are highly centralized; universities tend to be government owned, and the entry of private universities is disallowed or highly restricted (Jongbloed 2010). While it is our position that European countries should not try to mimic the US university system, certain steps could be taken to create more flexibility and responsiveness to societal demand.

Table I-8: Proposals Section 3.8 (Continued)

Number	Section	Title	Proposal	Explanation
61	3.8.4	Universities	University faculty must be encouraged to stimulate entrepreneurial initiatives while incentives for university spinoffs are increased.	Most US universities have a Technology Transfer Office (TTO), an in-house organization specializing in assisting academic entrepreneurs in commercializing their inventions. However, a TTO could also hinder the commercialization of useful technologies by making the process too bureaucratic and focusing on its own narrowly defined proprietary interests and key performance indicators (Baumol et al. 2007; Kauffman Foundation 2008). Therefore, we propose to promote team start-ups at universities as opposed to trying to sell university knowledge through licence agreements and patents.
62	3.8.5	Lifelong Learning Strategies	Develop mentoring programs by and for elderly employees and entrepreneurs.	FIRES deliverable 5.8 has proposed entrepreneurship campaigns for the elderly as a no-regret option as age should not be considered a barrier to entrepreneurship (Proposal 27). Notably, here we feel it would also be beneficial to develop mentoring programs by and for elderly employees, for whom the transition to a more flexible labour market may be particularly challenging.
63	3.8.5	Lifelong Learning Strategies	If policy makers wish to experiment with guaranteed public sector jobs to earn a minimum income, such experiments should be set up in such a way that the jobs in young, innovative start-ups would easily compete with such guaranteed public sector jobs, both on wage and content.	The basic idea is that the public sector simply absorbs excess labour when activity in the private sector declines and releases it again when the private sector is expanding. Replacing the buffer of unemployed by a buffer of publicly employed labour. In that way, human capital can be maintained while access to the human capital remains guaranteed.

3.9 Informal institutions

3.9.1 Preamble

Informal institutions are typically described as the customs, traditions, and norms that permeate society (Williamson 1998, 2000), and they are arguably of great relevance to entrepreneurship and innovation. This is partly because informal institutions affect the workings of formal institutions; they can function as substitutes for formal institutions in reducing transaction costs (Arrow 1972; Glaeser et al. 2002), and the law derives much of its value from the respect that it enjoys by being consistent with these informal institutions (Kasper et al. 2012; cf. Becker and Murphy 2000). The flipside of the coin is that reforms of formal institutions may prove counterproductive if undertaking them destroys the existing benefits of informal institutions (Berkowitz et al. 2003; Lundström and Stevenson 2005; Dixit 2009; Ebner 2009).

Informal institutions are also important to entrepreneurship in their own right. McCloskey (2016) argues that the norms regarding honourable and appropriate behaviour have been important historically for entrepreneurship and economic development; when people promote and honour entrepreneurs and their virtues, the floodgates of economic development will open (cf. Goldstone 1987; Mokyr 1992). Other cultural factors, such as individualism, power distance, uncertainty avoidance, masculinity and self-expressive values, have also been revealed as drivers of innovation and entrepreneurship (Shane 2003; Hechavarria and Reynolds 2009; Taylor and Wilson 2012).

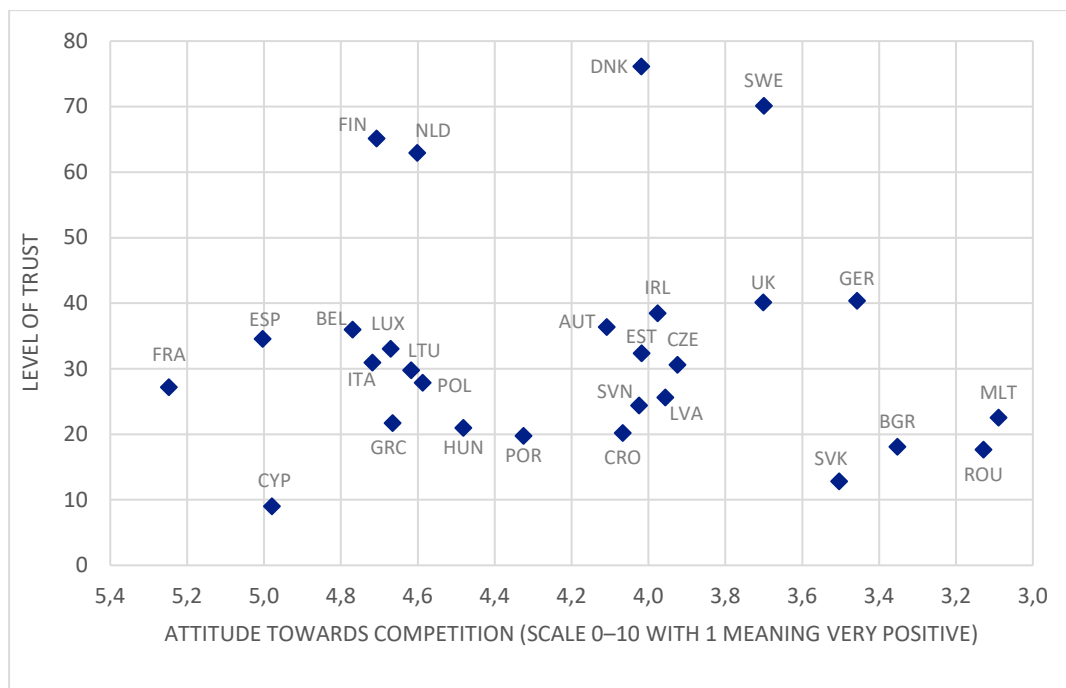
Furthermore, trust, already identified as a generally important determinant for enabling economic coordination, efficiency and growth (Knack and Keefer 1997; Zak and Knack 2001; Karlan 2005; Sabatini 2008; Pugno and Verme 2012), has become a variable of increasing interest for entrepreneurship scholars (Welter and Smallbone 2006; Welter 2012). High-trust environments are said to foster market entry, enterprise growth and productive entrepreneurship (Fukuyama 1996; cf. Welter and Smallbone 2006), and individual trust is believed to be of fundamental importance for supporting network relations (Jack et al. 2004; Kim and Aldrich 2005; Anderson et al. 2007). As a lubricant without which network activity could not be possible (Anderson and Jack 2002), trust is therefore immediately relevant for a better functioning entrepreneurial ecosystem.

In fact, trust might arguably take precedence over other cultural factors, such as attitudes towards entrepreneurship, competition or individualism.⁶¹ The point can perhaps best be illustrated by plotting the EU countries with respect to their level of trust and their attitude towards competition, which is done in *Figure 11*.

In terms of views towards competition, countries from Eastern Europe and the Mediterranean are among those that view it most favourably (Malta, Bulgaria, Romania and Slovakia) *and* least favourably (Spain and Cyprus). This suggests that the attitude towards competition is a poor determinant of innovation and entrepreneurship in and of itself. Meanwhile, whereas the Mediterranean countries and parts of Eastern Europe score low on trust, the Nordic countries and the Netherlands score exceptionally high. Of these high-trust countries, Sweden stands out as having the most positive attitude towards competition. High-trust countries are also more individualistic and less worried about uncertainty. With a generally high-trusting pattern, Western European countries exhibit high degrees of individualism *and* are better at dealing with (or worry less about) uncertainty, whereas Eastern European and Mediterranean countries exhibit more collectivism and worry more about uncertainty. These patterns can be seen in *Figures A4–A6* in the Appendix.

⁶¹ As shown in Stam and Stenkula (2017), trust may be an important explanation for the high level of intrapreneurship in Sweden and the other Nordic countries.

Figure 8: Trust and attitudes towards competition in EU countries



Note: The figure is based on V62 (share of people who claim that most people can be trusted), and V196 (mean on a scale from 1–10 with 1 meaning “Competition is good. It stimulates people to work hard and develop new ideas”, and 10 meaning “Competition is harmful. It brings out the worst in people.”)

Source: European Value Survey 2008.

One way of interpreting these correlations is that promoting competition in a low-trust environment is likely to prove futile or even detrimental. Though it may lead to entrepreneurship, it is likely to be of an unproductive or even destructive nature (cf. Baumol 1990). By contrast, a more positive view of competition is likely to be beneficial for productive entrepreneurship in a high-trust environment. Another question is whether trust can be promoted. A number of studies claim that trust can be improved by political means. Notably, the positive cross-country correlation between welfare-state size and trust is taken as evidence that certain types of welfare policies can produce trust and social capital (Barr 2004; Kumlin and Rothstein 2005; Uslaner and Rothstein 2005) or that more free market institutions can increase trust levels (Berggren and Jordahl 2006). Others argue that overall, causality should be reversed with historically high-trust populations being more likely and able to create and sustain large, universal welfare states of the Nordic type (Bergh and Bjørnskov 2011), while trust and trustworthiness can also substitute for government controls and regulations (Aghion et al. 2010). From this perspective, the development of a trust culture is characterized by path dependencies and spirals fuelled by unique historical circumstances (Humphrey and Schmitz 1998; Nooteboom 2002), suggesting that the evolution of a trust culture can take generations (Williamson 2000). In sum, this suggests that it is unlikely that policy in the short- or medium-run can improve trust and other norms relevant to entrepreneurship.

Evidently, the challenge of changing informal institutions in Eastern Europe is the most urgent but also the most difficult. The informal institutions in these countries evolved in the Soviet-dominated system, which made low trust a necessity for the people. With the fall of the Eastern bloc, a rapid shift occurred towards a capitalist system, the functioning of which would have benefitted greatly from higher trust and a greater tolerance towards uncertainty. Yet these cultural changes have yet to materialize. Hence, while increased trust levels would evidently improve the conditions for innovation and

entrepreneurship, policy is unlikely to be able to induce that change and we make no specific proposals to enhance such trust.

3.9.2 Conclusion of Informal Institutions

Informal institutions are crucial in supporting a more entrepreneurial society in Europe. Unfortunately, such institutions, however, are not subject to direct policy interventions and institutional reforms. This is why in this section we have not made any specific proposals for reform. We do believe, however, that governments at various levels of policy making throughout the European Union, can play an important role in gradually and organically shifting the European mindset towards more entrepreneurial venturing. The socio-cultural appreciation of risk-taking behaviour, experimentation and the crucially important tolerance for failure, can be promoted through a myriad of interventions. In the sections preceding, we have proposed interventions in educational systems from primary to tertiary education and reforms in the way society views firm formation, failure and employment and investment in creative, experimental ventures. These interventions are not sure to improve informal institutions as directly and surely as they will improve formal institutions, but they all transform social attitudes in the long run. We have also established that Europe's high trust societies are typically intermediately positive about competition. High trust can reduce transaction costs and allow for flexibility under conditions of stability. When formal rules and rights have to establish stability and security, as is the case in low trust societies, the trade-off between security and flexibility becomes more pronounced. European policy makers therefore do well to nurture and promote high-trust, wherever this is feasible. How to do that in any specific local context, however, is highly ambiguous and requires experimental (entrepreneurial) policy making across all levels.

4. Summary and conclusions

The purpose of Part I has been to propose an institutional reform strategy to enhance innovation and entrepreneurial activity in Europe. The observation that the European Union overall suffers from a lack of innovation motivated our analysis in the first part of this report. We assume entrepreneurship and innovation are what policy reforms should strive to improve. Entrepreneurship and innovation are crucial for the growth of the polities in which they occur and for their adaptation to well-known challenges at the global scale (Munters and Marx, 2017). Moreover, entrepreneurship and innovation create opportunities and are at the basis of open societies enjoying inclusive and sustainable growth. We have also argued that reforms, if they are to effectively channel more resources to entrepreneurship, will have to go beyond the traditional instruments of entrepreneurship policy. With Baumol (1990) we believe it is the institutional environment in which they operate, that determines how productive entrepreneurial talent in a capitalist economy will be.

We should also acknowledge, however, the existence of several types of capitalism among the EU member countries. These types have evolved into highly complex entities that are held together by complex of interacting institutions. None of these models consistently exhibits superior performance in terms of social welfare, making it difficult to determine which model the European Union should strive to converge towards. In fact, we draw the conclusion that convergence should not be the goal. Instead, all European Member States need to find fitting institutional reforms to enhance the key functions in a more Entrepreneurial Society. Some general directions for reform, however, can be identified.

In section 3 we presented what we believe is a useful institutional framework for innovation and entrepreneurship (Elert et al. 2017) and have translated these general directions into concrete proposals that we discussed in the consortium and with stakeholders in the field. We acknowledge that this agenda is easy to identify only at a rather high level of theoretical abstraction (Rodrik 2007), to say nothing of how difficult it may be for member states and regions to implement our proposals in practice. In fact, given the many institutional complementarities in the framework conditions of member states, the idea of all of them embarking on an immediate and straightforward journey towards best-practice institutions is naïve to say the least; at worst, it will be detrimental to achieving transition to the more entrepreneurial Europe that we advocate (Pistor 2002; Dixit 2009). Rather, a reform strategy must be tailored to each country's specific needs. Overall, the proposed institutional changes are slanted in a liberalizing direction. Freer access to and flows of knowledge, a more mobile and versatile labour force, sufficient risk bearing capital and open markets creating opportunities for all, would likely benefit all European Member states in some measure. But this does not mean that one-size-fits-all policy reforms towards freer markets are likely to be successful. Below, we identify several points to which such a strategy should adhere.

First, a European reform agenda needs local tailoring. Only at higher levels of abstraction can universal claims be made. For example, one should generally avoid complexity and strive for the sort of "simple rules for a complex world" advocated by Epstein (2009). But desirable economic ends can then be achieved through different institutional bundles. What is most appropriate is highly context-dependent; at worst, a thoughtless introduction of first-class legal institutions can backfire if instead of taking hold they undermine existing domestic institutions (Rodrik 2008). It falls on reformers to creatively package the principles identified above into institutional designs that are sensitive to local constraints and take advantage of local opportunities. In part two of this study we will endeavour to formulate more specific proposals for Germany, the United Kingdom and Italy. But even there, the

same logic will apply, as local conditions differ widely between Berlin and Hessen, London and Yorkshire and Milan and Sicily.

Second, a reform agenda must be appropriately concrete. This inevitably implies the evidence base on which one can build, wears thin. Most historical and econometric studies about institutions and growth (e.g., North and Thomas 1973; Hall and Jones 1999; Acemoglu et al. 2001) tend to remain at a high level of generality and do not provide much policy guidance (Besley and Burgess 2003; Rodrik 2008). Almost by definition, every proposed reform is unique and its full implications cannot be assessed out of context. In this part, we have been as concrete as the evidence and common sense allow. In the next part, we will proceed somewhat further down the ladder of concreteness.

Third, the reform agenda must prioritize. The entrepreneurial ecosystem perspective helps us identify which institutions matter most for the key actors in the entrepreneurial ecosystem, whereas the VoC perspective elucidates how countries group with respect to these institutions and hints at the institutional complementarities that characterize a particular cluster of countries. In work package 4 of our project we have developed tools that can help identify the weakest links in the entrepreneurial ecosystem to focus policy attention, whereas the work in work package 2 highlighted important historical and cultural constraints. In the country reports below, we illustrate how one might set such priorities before turning to the formulation of a reform strategy.

Lastly, it is important that the reform process is incremental and leaves room for experimentation. From a Schumpeterian perspective, the quest to develop an optimal set of legal rules ignores a central feature of successful economic development, namely, the continuous change, innovation and adaptation of institutions and organizations to each other and to the environment. Reforms that are tailor-made to a country's specific constraints and opportunities through experimentation during an evolutionary process will likely be more beneficial than reforms based on mere imitation (Lau et al. 2000; Qian 2002; Hausmann and Rodrik 2003; Imbs and Wacziarg 2003; Sabel and Reddy 2007). This implies a successful reform strategy is not a sweeping grand design, but more likely a series of small, modest steps that are continuously improved and evaluated. And importantly, allowed to fail. Such reforms are crucially important for the citizens of Europe, but unfortunately not very appealing to voters and politicians.

In an attempt to at least propose some useful starting points for the development of such a reform strategy, we have proposed institutional reforms pertaining to nine broad areas:

- i. The rule of law and protection of property rights.*
- ii. Taxation.*
- iii. Savings, capital and finance.*
- iv. Labour markets and social security.*
- v. Regulation of goods and service markets.*
- vi. Regulation of firm failure.*
- vii. R&D, commercialisation and knowledge spillovers.*
- viii. Incentives for human capital investment.*
- ix. Informal institutions.*

Proposals we have developed in the text on these nine areas are listed in *Table 1* below. These proposals are explicitly not intended to serve as one-size-fit all proposals that the European Union should try to roll out over all Member States and regions of Europe. Even if the European Commission had the legal competencies and political legitimacy to do so, such an approach would obviously backfire and fail to deliver the desired results. The transition to a more entrepreneurial Europe will require all levels of policy making collaborate to formulate tailored sets of reforms. Local and regional

institutions interact with national and European level ones, where the room to tailor to local conditions diminishes as rules and institutions need to serve larger constituencies. A general approach of building open systems can accommodate diversity under a unified institutional and regulatory framework.

In sum, the first part of this report should inspire both confidence and humility regarding Europe's entrepreneurial future. Later work could analyse and present specific policy proposals linked to the different clusters of European countries in more detail. A good starting point for a more detailed reform agenda is to identify leaders in each cluster and base reform advice directed to that cluster or the individual countries matching the leader's institutional framework. To begin that effort, the next part will present our reform strategies for Italy, Germany and the UK as leading countries in the Mediterranean, Continental and Anglo-Saxon clusters that the traditional Varieties of Capitalism approach identified.

Table I: Proposals Section 3

Number	Section	Title	Proposal	Explanation
1	3.1.2	The Rule of Law	We propose to ratchet up the performance of all Member States on issues related to rule of law, government effectiveness and protection of property rights.	Deficiencies in these factors negatively impact all agents in the entrepreneurial ecosystem and induce people to conduct activities and keep their capital in the shadow economy. Even the poorest EU member countries are higher medium-income countries, and neither the VoC literature nor arguments à la Rodrik (2008) provide any support for the view that these countries can compensate for these deficiencies through other institutional measures.
2	3.1.3	Patents and Intellectual Property	To promote the use of knowledge, one could think about the right to infringe upon patents that are not actually commercialized.	Of course, the European union is party to international treaties, such as the WTO TRIPS Agreement, that sets minimum requirements to IPR. We do not propose the European Union violate or disregard these treaties, but encourage the Union to use its influence in the governing bodies to get them reformed to accommodate our proposals. These limitations of patent rights would still fall well within the institutional structure in place, but would significantly reduce the risk entrepreneurs face of being sued for infringements on patents they did not even know existed (Jaffe and Lerner 2004, 2011).
3	3.1.3	Patents and Intellectual Property	We propose to advocate the possibility to limit the breadth, width and span of patent protection to cover working prototypes and market ready innovations only for a short period of time.	Of course, the European union is party to international treaties, such as the WTO TRIPS Agreement, that sets minimum requirements to IPR. We do not propose the European Union violate or disregard these treaties, but encourage the Union to use its influence in the governing bodies to get them reformed to accommodate our proposals. These limitations of patent rights would still fall well within the institutional structure in place, but would significantly reduce the risk entrepreneurs face of being sued for infringements on patents they did not even know existed (Jaffe and Lerner 2004, 2011).
4	3.1.3	Patents and Intellectual Property	We propose to explore the possibility to require patent applicants to set the price for the license ex ante instead of allowing them to negotiate the terms of a license contract ex post when the potential for commercial application is known.	With patent registration and holding fees depending on this pre-set license fee, inventors can charge a fair reward to recover the costs of generating knowledge, while innovators need not worry about unexpected claims on their profits. After paying a fair price for the invention, the residual rents to innovation then accrue to the entrepreneur for coming up with a commercial application of the idea. Eliminating the uncertainty for entrepreneurs considering a venture that uses protected knowledge, was generally perceived as useful.

Table 1: Proposals Section 3 (Continued)

Number	Section	Title	Proposal	Explanation
5	3.1.3	Patents and Intellectual Property	Support experiments and pilots currently developed with open source patent registration.	The functions of patenting can perhaps be fulfilled more efficiently in other ways and certainly do not require allowing inventors to monopolize and thereby limit the profitable use of the knowledge they have generated. But given the legal complexities and institutional complementarities we propose a cautious approach of experiments that retain the system's benefits while increasing the free flow of knowledge. Boettinger and Burke (2004) for example proposed open source patents to retain the functions of knowledge repository and verification, while improving the access to knowledge also for commercial use.
6	3.2.2	Taxation in General	In general, we propose tax rates should be low, transparent, simple and neutral and the effective tax rates remain close to statutory rates.	Our contention is that the tax system should strive for as much simplicity as possible rather than addressing shortcomings by granting exceptions and tax breaks for specific ownership types or industries. Tax breaks are often instituted for good reasons, and they may very well appear justified when analysed in isolation. However, they create complexities with numerous drawbacks. First, they are vulnerable to tax-driven business models that are legal but not in line with the spirit of the concession in question.
7	3.2.3	Taxation of Labour Income	It is preferred to reduce high tax burdens on labour over making subsidies, pension rights and social benefits more conditional on employment status.	We propose countries with high marginal labour tax rates rather not follow the Swedish model, but reduce their marginal labour tax rates where possible, because conditionality always benefits well-defined, existing forms of employment and tries to solve the problems of high taxation by introducing a new set of problems and layers of complexity.
8	3.2.4	Taxation of Corporate Income	The Union should strive to reduce and ideally remove the discrepancies in member countries between statutory and effective corporate income tax rates.	Their removal would create transparency and contribute to levelling the playing field for all firms regardless of their size, age, industry or nationality. Competition among member states is good, but it should be competition on corporate tax rates and not on complex, opaque fiscal deals and schemes. Moreover, when it comes to corporate taxation, member states should treat all firms equally.
9	3.2.4	Taxation of Corporate Income	We propose a complete tax exemption for start-ups up to their 3rd year.	Instead of trying to channel funds to the right entrepreneurial ventures, one then simply allows the market to allocate these funds. Those ventures that turn a profit can reinvest these funds, whereas those ventures that fail to break even, will vanish. This is not to say that personal incomes earned from start-ups should be tax exempt (see below), as this may cause unproductive tax arbitrage and promote solo-self-employment (Liebregts, 2016).

Table I: Proposals Section 3 (Continued)

Number	Section	Title	Proposal	Explanation
10	3.2.5	Taxation of Dividends and Capital Gains	Complexities should be removed when possible. Instead, countries should aim for dividend and capital gains tax rates with few exceptions and few (opaque) concessionary schemes.	Here, the Eastern European countries, such as Poland and Estonia, have exemplary models in which the tax rates are at reasonable levels and the effective tax rate is largely independent of other circumstances. Arguably, the reason for this clarity is that the design of these systems date back no further than 1989. A radical redesign from the ground up is probably not feasible in older member states, but they should nevertheless strive for similar improvements to simplicity and transparency.
11	3.2.6	Taxation of Private Wealth	We therefore propose to increase the wealth available for informal entrepreneurial finance by reducing taxes on private wealth, private wealth transfers and inheritance.	Kotha and George (2012) show that entrepreneurs distribute ownership rights to informal investors and their investments early in the start-up process, suggesting triple-F financiers are not mere charities. And Burke et al. (2014) show that the supply of triple-F informal entrepreneurial finance typically follows demand closely and that amounts invested are typically in the same order of magnitude as those committed by angel investors discussed below (in the 0000s). That is, entrepreneurs mobilize significant funds from their personal networks and these funds help them develop their venture in its earliest stages. It is possible that more supply of informal finance would thus enable or even cause more entrepreneurial venturing.
12	3.2.7	Tax Neutral Treatment of Equity and Debt	A quick win would be to make equity investments in start-ups entirely tax exempt. A more involved proposal is to start a program to achieve tax neutrality between debt and equity finance. And one step beyond achieving tax neutrality would be to make equity investments preferred. And one step beyond achieving tax neutrality would be to make equity investments preferred.	Making equity investments in start-ups tax exempt is not a radical idea as the tax liability on returns on equity investments in start-ups are low or absent in most European member states already. It would simply help entrepreneurs finding investors if this was made explicit. Neutrality between debt and equity is much more involved. Currently, debt is cheap. It is subsidized because interest payments are deductible as operating costs while dividends are considered income and taxed at relatively high rates. Moreover, strong legal creditor protection reduces risks for creditors that would otherwise justify a higher risk premium on debt finance. These fiscal and institutional arrangements bias the supply of finance towards the debt channel, in which innovative entrepreneurs face strong disadvantages. Debt finance channels society's available savings into reproduction of the existing capital stock, whereas only equity type investments finance innovation and progress beyond the status quo (Polzin et al. 2017).

Table 1: Proposals Section 3 (Continued)

Number	Section	Title	Proposal	Explanation
13	3.2.8	Taxation of Stock Options	We should lower the tax on capital gains specifically on stock options and underlying stock in start-ups. Moreover, these should only be taxed when exercised and/or sold, so when gains are realised.	In ideal circumstances, stock options provide incentives that closely mimic direct ownership, but their productivity greatly depends on the tax code. If gains on stock options are taxed as wage income, some of the incentive effect is lost—particularly if the gains are subject to (uncapped) social security contributions and the marginal tax rate on wage income is high. The situation changes dramatically if an employee with stock options can defer the tax liability until the options are exercised and the stocks are eventually sold. The effectiveness of these stock options is further reinforced if the employee suffers no tax consequences from the granting or exercise of the option, and if the employee is taxed at a low capital gains rate when the acquired stock is sold (Gilson and Schizer 2003).
14	3.3.2	Private Wealth	Our proposal is that in regions where family ties are strong, there should be institutional arrangements that would promote lending from private funds especially from the family to ventures.	In FIRES-Deliverable 2.2 (Dilli and Westerhuis 2018) it was shown that these cross-national differences in family financing are result of the differences in extent to which individuals feel socially obliged towards their family members, shaped by the strength of family ties. These family ties are result of the historical family arrangements. As a result, the share of family financing is expected to be much higher in regions where traditionally the family group has priority over the individual (strong family ties), common in the Eastern European and the Mediterranean countries context compared to the North Western European countries where the individual and individual values have priority over family (weak family ties).
15	3.3.3	Institutional Investors	Allow more wealth to accumulate/remain in private hands and make it (fiscally) attractive to invest such wealth in entrepreneurial ventures.	Wealth-constrained would-be entrepreneurs are unable to credibly signal their project's worth to outside investors by means of making sizeable equity infusions of their own. More private as opposed to institutionalized wealth would lessen the inherent problem caused by such asymmetric information, and, if needed, enable entrepreneurs to fully finance their ventures until organic growth based on retained earnings is possible.
16	3.3.3	Institutional Investors	On an experimental basis, we propose that pension funds and other institutional investors be allowed to invest more in equity in general and in venture capital specifically.	New legislation in the US in 1979 allowed pension funds to invest in high-risk securities that were issued by small or new companies and VC funds (Misher 1984; Fenn et al. 1995) and Europe could consider similar steps. As the risk profile of entrepreneurial ventures is different from the risk profile such investors are used to handle, however, allowing institutional investors to engage in VC funds needs to be done carefully and on small scales before any significant reforms can be implemented.

Table 1: Proposals Section 3 (Continued)

Number	Section	Title	Proposal	Explanation
17	3.3.4	Banking	To effectively enable institutional investors to channel responsible shares of their portfolios into portfolios of new ventures, build funds-of-funds to achieve the required scale and diversification.	The challenge is therefore not only to allow these funds to engage in more risky asset classes, but to help them write the contracts and draft up the incentive schemes that will push the actual (delegated) decision makers to channel more funds towards entrepreneurial ventures. As asset management is expensive and characterised by strong economies of scale, there is a natural tendency for asset managers to invest in large tickets and marketable assets.
18	3.3.4	Banking	In the system of bank loan guarantees for start-ups, ensure that (appropriately anonymized) credit decision information is made available publicly.	Such public guarantees can be motivated from the fact that entrepreneurial venturing creates knowledge spillovers and positive externalities that banks and entrepreneurs do not consider in their private decisions. This information, however, should then be disclosed (for example via the proposed Entrepreneurship Observatories in Proposal 45 below).
19	3.3.4	Banking	Increase the mandatory equity ratio in banking gradually to 10-15% to have more skin in the game and allow banks to take on more risk responsibly in their lending portfolios.	Given that European banks operated profitably at much higher equity ratios in the past whereas non-European banks continue to do so, this proposal only requires a sound implementation and transition strategy. Gradually building up the equity buffer while at the same time accumulating more publicly guaranteed SME-loans in the portfolio is a balanced approach. Higher required equity buffers will increase the price of credit and some might argue that this will reduce credit and investment in the aggregate. We feel, however, that such price increases will only drive out the marginal investment projects and most of these are currently found in the secondary, speculative investments that Bezemer (2014) deems unproductive.
20	3.3.4	Banking	A long run reform to force commercial banks to return to their traditional intermediation role. A modern way to achieve that result is to introduce central bank digital currency to replace the claim on commercial banks as medium of exchange.	For the long run one might consider reforming the current monetary system, that has commercial, private banks issue debt obligations serving as the public medium of exchange. By clearly separating public from private functions, we believe banks can take a bigger role in financing new ventures and SMEs, as they have in the past. By requiring more own equity in banking and investing, we can responsibly allow traditional financial intermediaries to take on more risk and uncertainty, without having to fear they will offload such risks onto tax payers in case things turn bad.
21	3.3.5	Angel and Venture Capital	Stop promoting VC capital with public funding directly. Instead focus on developing private competencies in the field.	This proposal, among other things, puts into question the approach suggested under the Juncker plan as in European Commission (2017). The problem of VC is not in the supply of finance. Rather, the business model of carefully selecting and coaching ventures resists efficient scaling. To avoid problems of moral hazard, a substantial degree of skin-in-the-game is required and too much public money chasing too few viable projects may result in expensive mistakes.

Table 1: Proposals Section 3 (Continued)

Number	Section	Title	Proposal	Explanation
22	3.3.5	Angel and Venture Capital	Reduce barriers to the sale, acquisition and IPO of VC-funded start-ups.	A cleverer option to ensure that incentives to invest are stronger while possibilities to offload risks onto taxpayers and financiers are kept small, is to reduce capital gains taxation for venture capital equity investments (but NOT for private equity used for leveraged buy-outs, speculation and mergers and acquisition) as was discussed above. Or improve the opportunities to exit. In that way, VC investments are not subsidized directly but become more interesting as there are more options for a quick exit.
23	3.3.6	Alternative Finance and Disintermediation	We propose to implement a light-touch regulatory regime for equity crowd funding.	Light touch regulation has been successful in Britain (Vulkan et al. 2016, Hornuf and Schwiendbacher 2017, Estrin 2018) and could work well in all European Member States. This is not controversial as the European Commission and most of the member states have already expressed their intentions to do so.
24	3.3.6	Alternative Finance and Disintermediation	Build a harmonized regulatory framework for peer-to-peer lending throughout the Union.	Peer-to-peer lending proved an important buffer for the impact of the financial crisis in countries where such parallel systems of corporate credit existed or emerged (Mills and McCarthy 2014). Moreover, such systems benefit SMEs and start-ups more than they do large, established corporates as they are better at handling smaller tickets efficiently and handle the opacity and information asymmetry that hinders SMEs in more traditional finance channels.
25	3.3.6	Alternative Finance and Disintermediation	The European Investment Bank, as part of its efforts to allocate the Juncker-fund, could experiment with a euro denominated European crowdfunding platform and match successful campaigns with public funds.	That is, public institutions, instead of picking winners, could have the crowd decide where a significant part of e.g. the Juncker-fund should be allocated. Currently the initiatives to set up and manage crowd funding platforms are left to “the market”. These platforms, however, are almost natural monopolies and one might argue the platforms have the potential to develop into vital public infrastructures for exchanging information and finding investment opportunities.
26	3.4.1	The Organisation of Labour Markets and Social Insurance Systems	We propose below to make important social insurance benefits “portable”—e.g., by decoupling health insurance—between jobs and between regular employment and self-employment.	Public income insurance systems in combination with strict labour security legislation tend to penalize individuals who assume entrepreneurial risk (Ilmakunnas and Kanninen 2001). This is because these systems confer a relative advantage on employees with many social security benefits—such as disability, sickness, unemployment and pension benefits—being explicitly linked to formal employment. These benefits further increase the opportunity cost of leaving a tenured position as an employee and thus reduce the incentives for entrepreneurship (Audretsch et al. 2002).

Table 1: Proposals Section 3 (Continued)

Number	Section	Title	Proposal	Explanation
27	3.4.2	Inclusive Entrepreneurship	Further develop entrepreneurship programs targeting groups that are disadvantaged in formal employment, such as youths, women, ethnic minorities and low skilled individuals.	Entrepreneurship is perceived to be inherently more inclusive than employment (Glazer and Moynihan 1970), but the evidence shows (Fairlie 2006, Dilli and Westerhuis 2017) that income and participation gaps largely extend to business ownership and income. To enable disadvantaged groups to engage with the opportunities the Entrepreneurial Society offers, some special attention and support, as already offered in the latest Horizon 2020 program, is justified.
28	3.4.2	Employment Protection Legislation	CMEs can provide a model for MMEs, which show more similarities to CMEs in many respects than LMEs.	Less regulation on permanent employment is likely to be linked with high-growth aspirations among entrepreneurs particularly in the Mediterranean Market Economies (MMEs) whereas no change is observed in the other institutional constellations. Given that Coordinated Market Economies (CMEs) are shown to perform rather well in innovative entrepreneurial activity, while being characterized by moderately liberal labor market institutions, centralized wage setting institutions and high levels of social security. We therefore conclude that a policy of radical liberalisation following the Liberal Market Economies (LMEs) model is perhaps not the only way.
29	3.4.3	Employment Protection Legislation	Allow for more flexibility in working hours.	Entrepreneurship requires flexibility and employing workers becomes a serious liability to small, young firms when this labour cannot be employed flexibly to match sometimes volatile demand. There are probably employees who have a high tolerance for such fluctuations, so matches can be found, but currently regulated working hours prevent such matches from occurring and some flexibility would be beneficial.
30	3.4.3	Employment Protection Legislation	Relax the stringency of employment protection legislation for permanent contracts.	A competently implemented liberalisation will reduce job security but increase employment security for workers, as labour demand will increase and more opportunities will be created in the labour market. That said, the impact and strictness of employment protection legislation depends on a complex combination of components, such as grounds for individual dismissal, redundancy procedures, mandated periods of advanced notice, severance payments, special requirements for collective dismissals, rules favouring disadvantaged groups, and so forth. For liberalisation to have the desired results, countries must develop carefully tailored strategies to avoid jeopardizing the process, ideally by considering and possibly emulating the paths already taken by similar countries.

Table 1: Proposals Section 3 (Continued)

Number	Section	Title	Proposal	Explanation
31	3.4.3	Employment Protection Legislation	Establish or strengthen training programs to prepare workers for new occupations	Archanskaia et al. (2017) show that countries with a low rate of substitution between inputs in routine production, will not be able to gain a comparative advantage in high-value products that are intensive in non-routine tasks. As a result, they will end up specializing more and more in routine-intensive products and experience lower wage growth. Geurts and Van Biesebroeck (2016) further show that the pattern of firm-growth in Belgium indicates that young firms under-adjust to good news. As a result, many promising firms scale up too slowly and they might miss out on opportunities in a fast-paced global market.
32	3.4.4	Confidentiality Agreements and Other Barriers to Mobility	To promote the mobility of people and their knowledge across firms, we propose to lift the legal enforceability of confidentiality agreements between employers and their employees.	Of course, there can be justified instances in which confidentiality is needed to protect the legitimate interests and privacy of customers, but confidentiality agreements and especially non-compete clauses are more often used to prevent knowledge from flowing freely between firms and sectors.
33	3.4.4	Confidentiality Agreements and Other Barriers to Mobility	Consider experimenting with measures such as a guaranteed return to a job after time spent with a start-up and/or a publicly funded “venture creation leave” for people engaged in a firm start up.	It was generally agreed that a policy to promote mobility would involve both pull (eliminating barriers) and push (encouraging mobility) instruments. However, the desirable mobility and flexibility in the labour market can only be achieved when a basic level of income and job security is ensured for those involved. People will not take the risks associated with working as or for a young start-up when necessities of modern life are not met and reasonably secure.
34	3.4.5	Social Insurance Systems	Guarantee equal access to welfare state arrangements for all, regardless of tenure in a specific job or labour market status, to make all potential employers compete on a level playing field.	An Entrepreneurial Society will see more people active in the labour market as self-employed or freelance worker or working in inherently risky ventures and SMEs with corresponding intervals of being between jobs. It is evident that these people face income and health risks that they cannot (self-)insure, as much as anyone else. Therefore, in a modernized labour market, these citizens should be given access to collective arrangements on an actuarially fair basis.
35	3.4.5	Social Insurance Systems	Embracing the principles of flexicurity, we propose to carefully consider the impacts of reforms on young SMEs and not force them to take on high risks and burdens.	The general guiding principles the European Commission have formulated do not include structural and careful attention to what such reforms would mean for start-ups and young SMEs. While the specifics can and will vary country by country, we can infer that an important component of a policy that makes society more innovative and entrepreneurial involves making the individual’s social insurances as portable as possible when changing jobs and moving between salaried employment and self-employment.

Table 1: Proposals Section 3 (Continued)

Number	Section	Title	Proposal	Explanation
36	3.4.5	Social Insurance Systems	To ensure full portability of social security entitlements and put an unconditional floor in the social security system Member States could experiment variations on basic income or negative income tax systems.	Putting a floor in the income distribution for all will affect formal employment more than it does entrepreneurship. And as an unconditional basic income reduces income volatility and risks that especially more marginal entrepreneurs face, the predicted effect on entrepreneurial activity would be positive (Nooteboom 1987).
37	3.4.5	Social Insurance Systems	Mandatory universal insurance for healthcare costs, old age and disability are necessary, given that adverse selection and behavioural biases are likely to cause underinsurance in these areas when such insurance is made voluntary.	Making such insurance mandatory prevents adverse selection problems, whereas making them universal prevents unproductive compartmentalisation in the labour market and ensures full portability of entitlements.
38	3.5.1	Regulation of Goods and Services Markets	Allow experiments with private actors providing public services in the context of “embedded markets” and learn from these experiments.	We should create what Kay (2004) calls “embedded markets” in which governments participate without controlling, financial incentives exist but do not dominate, pluralist structures can evolve based on experimentation, and social norms continue to play a key role in maintaining compliance with a system that inspires pride in the inhabitants. Of course, this necessitates that the agents involved “take upon themselves a wider set of responsibilities” (Kay 2004, p. 344).
39	3.5.2	Product Market Regulation	Continue to harmonize and liberalise product and services markets in the Union.	Product market reform was a prime ingredient of the European integration effort; having similar product market regulations in all EU countries is considered necessary by European policymakers to fulfil the vision of transforming the European Union into one single market.
40	3.5.2	Product Market Regulation	Excessive barriers to new business formation and new entry should be lifted where possible.	This, however, seems to be part and parcel of the EU policy agenda already. Our consortium supports that effort with the caveat that well justified barriers to entry are useful to keep unproductive or even destructive ventures out (Stenholm et al. 2013; Darnihamedani et al. 2018). It should be easy for challengers to enter (and exit) but these challengers should be serious.

Table I: Proposals Section 3 (Continued)

Number	Section	Title	Proposal	Explanation
41	3.5.3	Regulation of (Public) Services	We propose responsible deregulation of (public) services as it promises to open entirely new arenas for private innovation and entrepreneurial venturing.	To tap the potential and handle the challenge of this combination of public financing and private production, novel institutional arrangements and experimentation are necessary to address the challenging fact that consumers do not pay producers directly. Manipulation and a wasteful use of resources are more likely to occur when the state acts as intermediary for an anonymous and absent third party (the taxpayers) and finances transactions between the producer and the consumer even if there is freedom of choice and competition.
42	3.5.4	Digitalisation	Invest in an excellent, open access digital infrastructure for European citizens and businesses.	To allow entrepreneurs to act on the opportunities and protect European citizens from the risks involved in digitalisation, it is important to embrace these trends. No regret policy proposals to do so are to provide an excellent ICT-infrastructure in Europe that allows entrepreneurs to quickly scale their innovative ideas to the EU and global level. The same infrastructure can also integrate more European citizens in the common market and facilitate information exchange.
43	3.5.4	Digitalisation	We propose to develop open standards and open regulation for the many digital platforms that emerge to facilitate peer-to-peer and business-to-business trade, services and finance.	It is important to carefully consider the position of workers and customers in these platforms. Frenken et al. (2017) for example voice concerns about the quality of work and the potential that digital platforms may undermine social security. These developments necessitate a careful modernisation of labour market protection and social security systems in line with proposals in sections 3.4 and adequate investment in human capital in line with proposals in section 3.8, to ensure digitalisation contributes to inclusive growth.
44	3.6.2	Bankruptcy Law	Insolvency regulation should protect inherently healthy and promising ventures and allow for a quick and ex ante transparent liquidation of those that are not.	It should not be too easy to file for bankruptcy. That would give the firm too much bargaining power in such negotiations. If writing off debt and starting anew is too convenient a resort for failing entrepreneurs, it may encourage exploitation and destructive entrepreneurship, harming creditors and the rest of society (OECD 1998; Audretsch et al. 2002). That, in turn, will limit their willingness to finance, supply or work for legitimate start-ups. On the other hand, a person who goes bankrupt because of a failed venture should not be stigmatized and forever haunted by debt and ostracized from future entrepreneurship.
45	3.6.3	Knowledge Diffusion after Failure	We propose to set up publicly funded “entrepreneurial knowledge observatories” where knowledge accumulated in the entrepreneurial process is collected, curated and freely diffused.	Our consortium agreed that a lot of useful knowledge, perhaps of a more applied and tacit nature, is generated in the entrepreneurial process, particularly when ventures fail. That knowledge is lost when entrepreneurs do not share their experiences. However, as that is not their core business and private incentives are absent, it makes sense to publicly fund the collection, curation and diffusion of that knowledge.

Table 1: Proposals Section 3 (Continued)

Number	Section	Title	Proposal	Explanation
46	3.7.2	Knowledge Generation	Reform the European Blue Card system to include also non-employees and people lacking high formal educational credentials provided they have a plan to support themselves.	Consequently, the Blue Card system is not geared towards attracting talent and knowledge, but to attracting formally educated, high paid employees. These groups overlap, but certainly not perfectly. Moreover, the required involvement of an employer in the complex application procedures implies the system is currently useful for and used by Europe's large corporates with sophisticated HR-departments.
47	3.7.2	Knowledge Generation	Abolish nationality, residence and affiliation restrictions and quota in eligibility criteria on basic research grants.	All researchers from the EU should be eligible for funding by all research funding agencies active in the Union. Knowledge is blind to nationality and so should science. Only then can we create a truly European knowledge space and match the density and mass that our global competitors have achieved.
48	3.7.2	Knowledge Generation	Both the EU and its member states should create healthy, well-funded, academic institutions that allow Europe's best and brightest to pursue their research interests.	In the literature, there is also broad consensus that basic research is a pure public good (REFS). It therefore makes perfect sense to channel more of the EU budgets to an activity that provides such evident positive spillovers throughout the Union.
49	3.7.3	R&D	We propose to limit R&D subsidies and tax breaks to "new to the market" activities.	The reasoning behind that proposal is that only "new to the market" R&D generates the positive external effects that justify public support. New to the market should here be understood as new to the global markets and therefore truly innovative.
50	3.7.4	Knowledge Diffusion and Commercialisation	We propose to expand the funding for Europe's SBIR-programs and reform public procurement rules in that direction.	The public sector can then effectively and efficiently infuse public funds into entrepreneurial venturing without facing the information asymmetries that prevent direct support measures by simply acting as a (launching) customer. If public agencies articulate what they need and how much they are willing to pay for that, entrepreneurs can engage that challenge.
51	3.7.4	Knowledge Diffusion and Commercialisation	Support international partnerships for innovation on specific innovation challenges.	Such collaborations of course risk the spilling over of publicly funded knowledge to third countries and/or private parties that might be perceived to free ride on public efforts. One should realise, however, that even highly profitable private companies that use publicly funded R&D in their products (Mazzucato 2015), create an enormous surplus of economic well-being that they rarely fully appropriate through perfect price discrimination.
52	3.7.4	Knowledge Diffusion and Commercialisation	We propose experimenting with a (publicly funded) entrepreneurial leave of absence for R&D workers.	The idea behind that proposal is that a lot of R&D results currently are shelved at incumbent firms because they do not fit these firms' strategies and interests of the moment or outright go against their short-term interests. Instituting the right to an entrepreneurial leave of absence could then promote more spin-out entrepreneurship that may lead to new industries and activities.

Table 1: Proposals Section 3 (Continued)

Number	Section	Title	Proposal	Explanation
53	3.7.4	Knowledge Diffusion and Commercialisation	We propose to strengthen and facilitate the tradition in many European countries of harbouring innovations, even of a radical kind, inside large firms through intrapreneurship.	Our consortium agrees that perhaps intrapreneurship, entrepreneurial venturing in the relative security of a formal employment relationship, is more complementary to the European model of the welfare state (REFS). Promoting intrapreneurship is then probably a more efficient way to push Europe in the direction of a more Entrepreneurial Society.
54	3.7.5	Regional and Industrial Policy	Liberalise, where possible, spatial planning regulations to allow endogenous clustering of business activity and avoid planning clusters.	For example, well-functioning real estate markets, where prices reflect scarcity and preferences, are necessary conditions for continued growth in dense areas (Glaeser 2008, 2011), as is an adequate infrastructure that allows smooth transportation and commuting. Europe's often stringent spatial planning regulations can be both a barrier to organic cluster formation, but is also often needed to be able to develop adequate physical infrastructures.
55	3.8.2	Creativity in primary and secondary education	Push for reforms in primary and secondary education that promote creativity, a willingness to experiment, a tolerance of failure and out-of-the-box thinking.	More appreciation for creativity (and therefore tolerance of deviant behaviour) will probably shift the balance from business oriented to more creative entrepreneurship. Evidence from field experiments (Weitzel et al. 2010; Urbig et al. 2012) and in the FIRES-project (Lauritzen et al. 2017) suggest that creative entrepreneurs are more socially oriented than strictly business-oriented entrepreneurs. Promoting creativity in primary and secondary education, to the extent possible, is therefore a long-term strategy to promote productive entrepreneurship that will create innovative, sustainable and inclusive growth (Stam et al. 2012).
56	3.8.2	Education in the Entrepreneurial Society	Promote STEM education, specifically for females, early on and then throughout educational careers.	It is also important to note that successful entrepreneurs tend to have advanced technical degrees. This is likely due to the causal effect of human capital but also captures the importance of access to new ideas and to the fact that unusually talented individuals that can complement and form founding teams, are selected into universities. Still, it would be a mistake to put all efforts into promoting STEM-education at the university only. Westerhuis and Dilli (2018) have argued that promoting STEM-topics, specifically among girls, would be a way to promote more ambitious entrepreneurship, but require interventions early in the educational career.
57	3.8.2	Education in the Entrepreneurial Society	To promote the integration of Europe's knowledge base we propose to make English the (mandatory) second language and promote its instruction in primary and secondary education systems.	We would like to stress, however, that we do not see this as part of building a European identity or culture. Rather, as a tool to enable citizens in the Union, and in particular those that end up in business and/or science, to exchange knowledge efficiently and effectively. Effective communication requires a common language and English qualifies as the Lingua Franca of modern science in most academic disciplines as well as global business.

Table 1: Proposals Section 3 (Continued)

Number	Section	Title	Proposal	Explanation
58	3.8.3	Tertiary Education	Invest in high quality tertiary level technical education by attracting excellent teaching staff and students. Strengthen Europe's tradition of strong vocational training at the tertiary level.	Given the high levels of uncertainty and favourable risk-return profile of business, medical and legal professions, we believe Europe should not opt for the US model of high private (out of pocket) investments and high expected lifetime incomes. For Europe's entrepreneurial society an adequate supply of well-trained technical personnel seems more valuable.
59	3.8.4	Universities	We propose to educate the young and bright minds of Europe how to be more entrepreneurial before they make their career choices.	Recognizing the importance of this European model of knowledge diffusion, European universities can take a larger role in the transition to a more Entrepreneurial Society in Europe. This starts with simple no-regret policies that have been proposed before (i.e. the European Commission's Entrepreneurship 2020 Action Plan).
60	3.8.4	Universities	The link between universities and external stakeholders should be strengthened. Specifically, more research grants could require transdisciplinary approaches to innovation challenges.	To meet this challenge, it must first be recognized that most European university systems are highly centralized; universities tend to be government owned, and the entry of private universities is disallowed or highly restricted (Jongbloed 2010). While it is our position that European countries should not try to mimic the US university system, certain steps could be taken to create more flexibility and responsiveness to societal demand.
61	3.8.4	Universities	University faculty must be encouraged to stimulate entrepreneurial initiatives while incentives for university spinoffs are increased.	Most US universities have a Technology Transfer Office (TTO), an in-house organization specializing in assisting academic entrepreneurs in commercializing their inventions. However, a TTO could also hinder the commercialization of useful technologies by making the process too bureaucratic and focusing on its own narrowly defined proprietary interests and key performance indicators (Baumol et al. 2007; Kauffman Foundation 2008). Therefore, we propose to promote team start-ups at universities as opposed to trying to sell university knowledge through licence agreements and patents.
62	3.8.5	Lifelong Learning Strategies	Develop mentoring programs by and for elderly employees and entrepreneurs.	FIRES deliverable 5.8 has proposed entrepreneurship campaigns for the elderly as a no-regret option as age should not be considered a barrier to entrepreneurship (Proposal 27). Notably, here we feel it would also be beneficial to develop mentoring programs by and for elderly employees, for whom the transition to a more flexible labour market may be particularly challenging.
63	3.8.5	Lifelong Learning Strategies	If policy makers wish to experiment with guaranteed public sector jobs to earn a minimum income, such experiments should be set up in such a way that the jobs in young, innovative start-ups would easily compete with such guaranteed public sector jobs, both on wage and content.	The basic idea is that the public sector simply absorbs excess labour when activity in the private sector declines and releases it again when the private sector is expanding. Replacing the buffer of unemployed by a buffer of publicly employed labour. In that way, human capital can be maintained while access to the human capital remains guaranteed.

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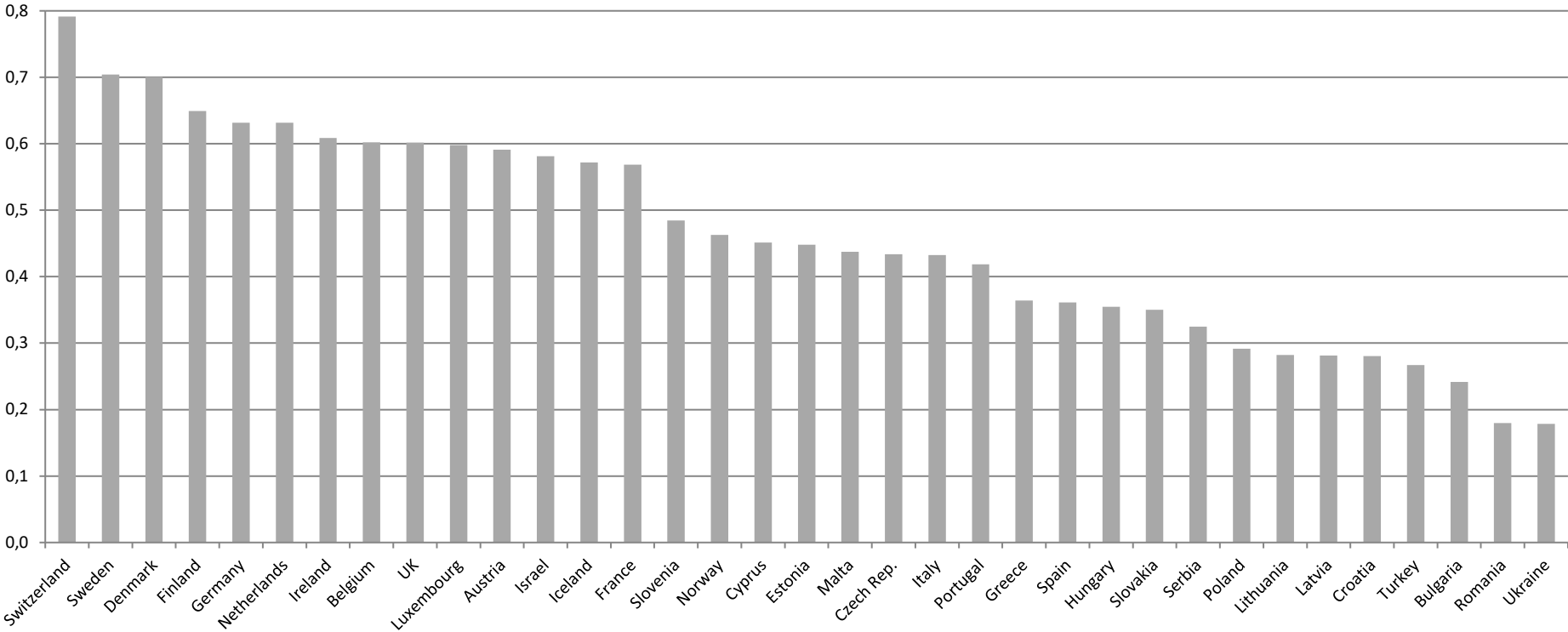
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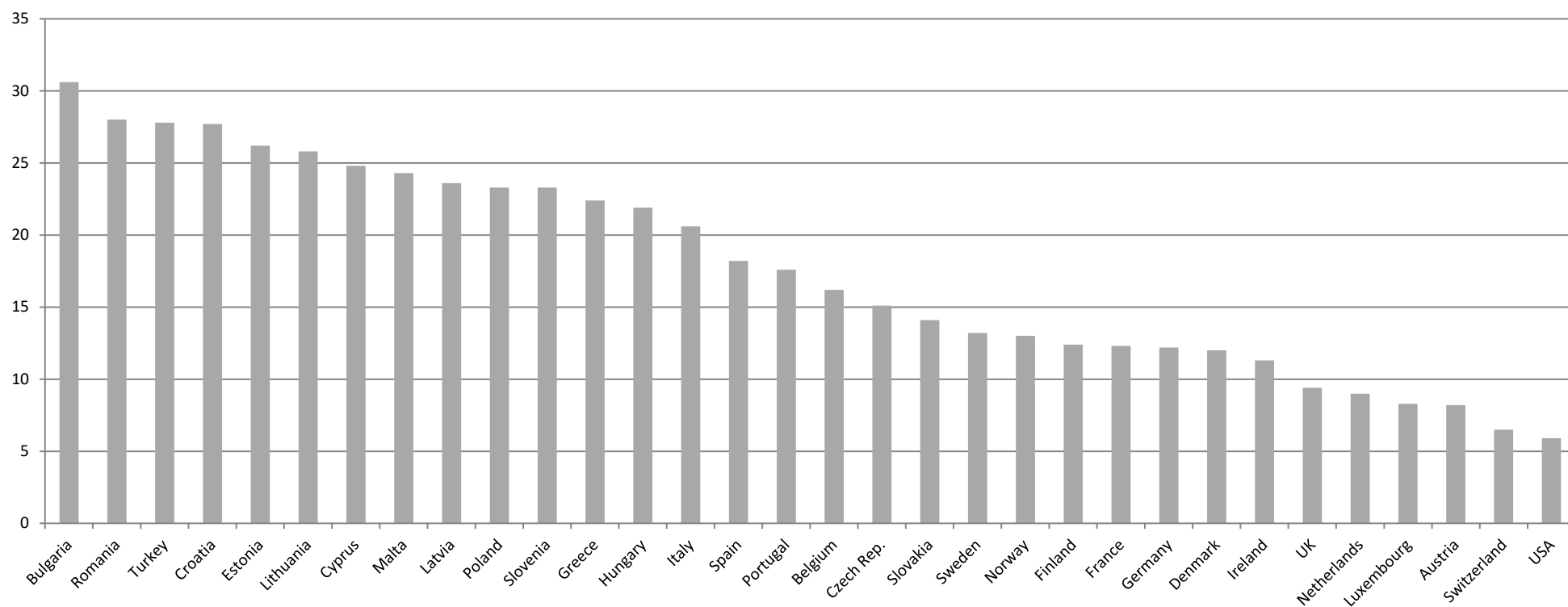
Appendix

Figure A1: Innovation score of EU member countries and other rich European Countries, 2015.



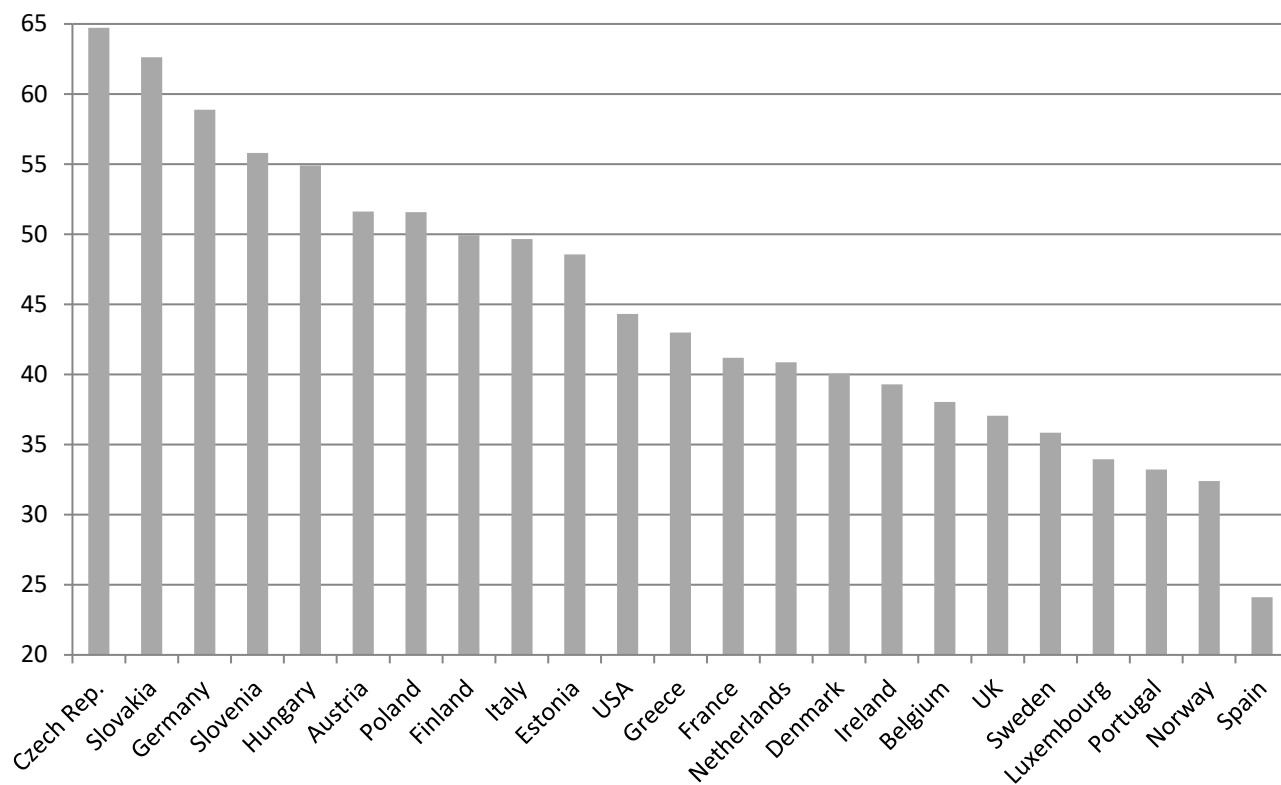
Note: The index is a composite of a total of 25 different indicators.
Source: European Union (2016).

Figure A2 The Size of the Shadow Economy in European Countries and the US in 2015 (in % of official GDP).



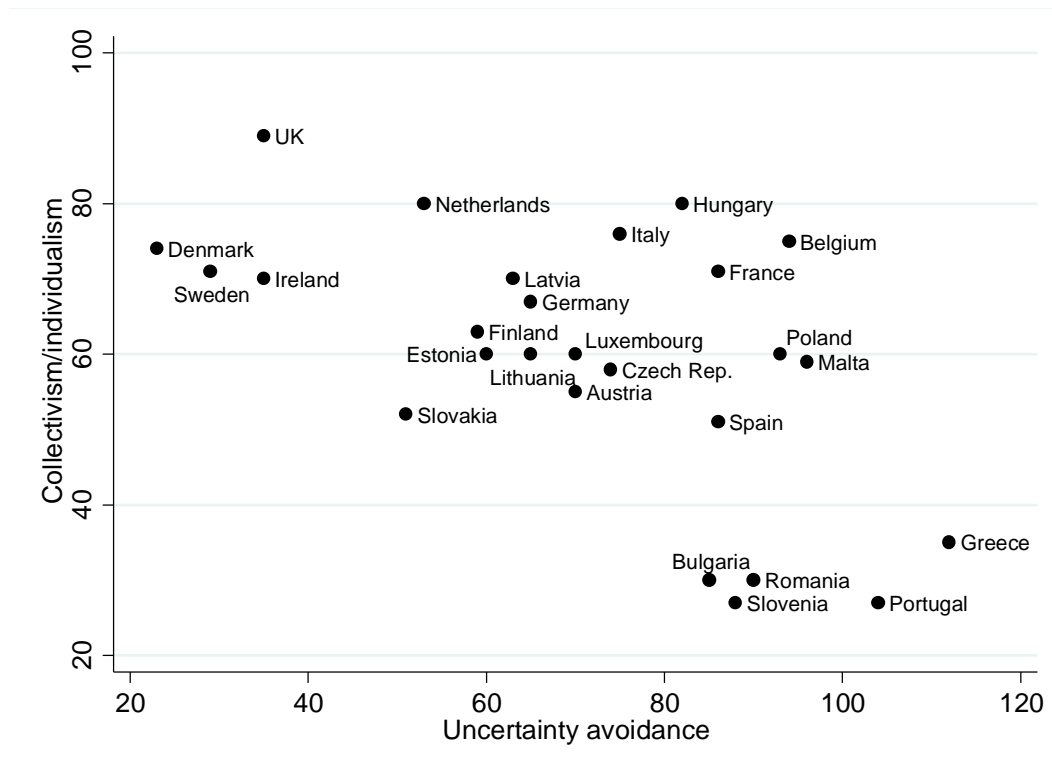
Source: Schneider (2015).

Figure A3 Share of 25–34 year olds with upper secondary or post-secondary non-tertiary education in EU countries and the US, 2014.



Source: OECD (2016).

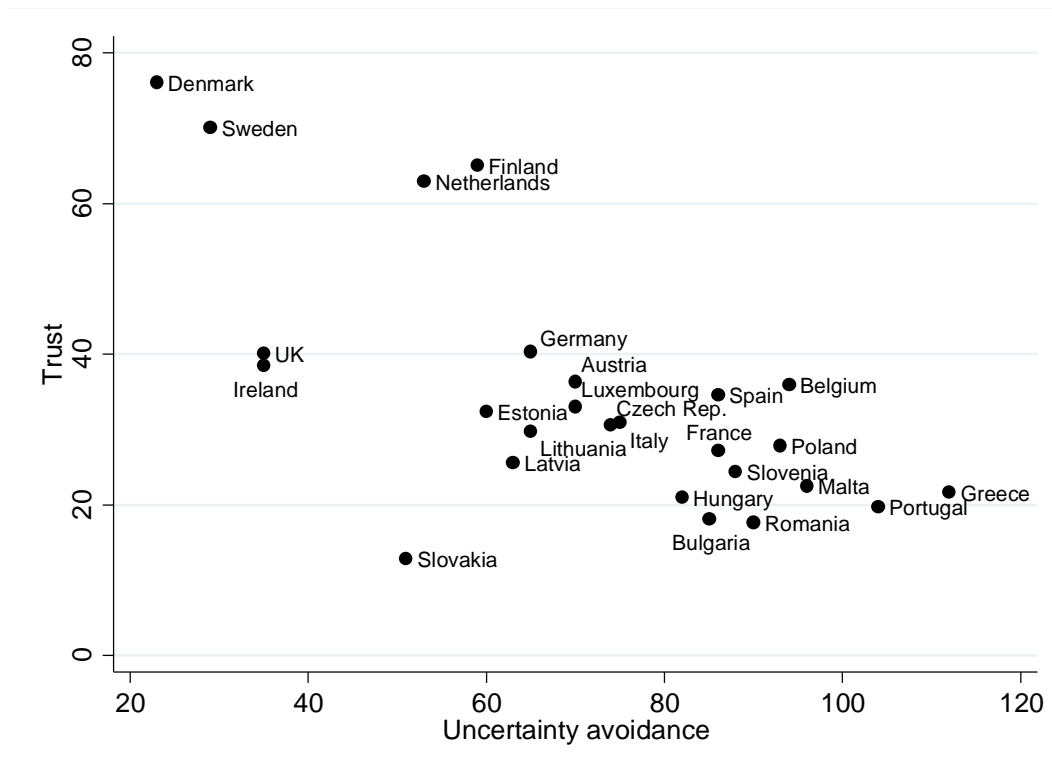
Figure A4 Collectivism/individualism and uncertainty avoidance in EU countries.



Note: Collectivism/individualism describes a society's preference for collectivism versus individualism. The high side (individualism) describes a preference for a loosely-knit social framework in which individuals are expected to take care of only themselves and their immediate families, whereas the low side (collectivism) represents a preference for a tightly-knit framework in society in which individuals can expect their relatives or members of a particular in-group to look after them in exchange for unquestioning loyalty. Uncertainty avoidance expresses the degree to which the members of a society feel uncomfortable with uncertainty and ambiguity about the future; high-scoring countries maintain rigid codes of belief and behavior and are intolerant of unorthodox behavior and ideas, whereas low scoring countries maintain a more relaxed attitude in which practice counts more than principles.

Source: Hofstede (2010). "Dimension Data Matrix", <http://www.geerthofstede.nl/dimension-data-matrix>.

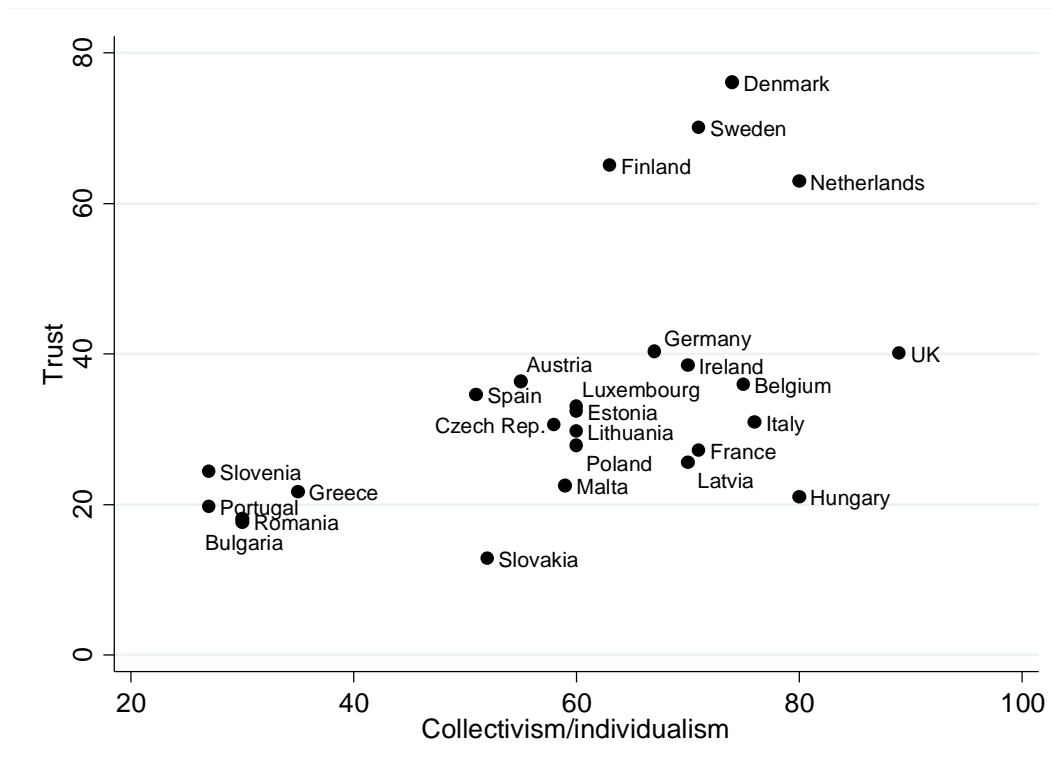
Figure A5 Trust and uncertainty avoidance in EU countries.



Note: Trust is measured as the share of people in a country who believe that most people can be trusted. Uncertainty avoidance expresses the degree to which the members of a society feel uncomfortable with uncertainty and ambiguity about the future; high-scoring countries maintain rigid codes of belief and behavior and are intolerant of unorthodox behavior and ideas, whereas low scoring countries maintain a more relaxed attitude in which practice counts more than principles.

Source: European Value Survey 2008; Hofstede (2010). "Dimension Data Matrix", <http://www.geerthofstede.nl/dimension-data-matrix>.

Figure A6 Trust and collectivism/individualism in EU countries.



Note: Trust is measured as the share of people in a country who believe that most people can be trusted. Collectivism/individualism describes a society's preference for collectivism versus individualism. The high side (individualism) describes a preference for a loosely-knit social framework in which individuals are expected to take care of only themselves and their immediate families, whereas the low side (collectivism) represents a preference for a tightly-knit framework in society in which individuals can expect their relatives or members of a particular in-group to look after them in exchange for unquestioning loyalty.

Source: European Value Survey 2008; Hofstede (2010). "Dimension Data Matrix", <http://www.geerthofstede.nl/dimension-data-matrix>.

Table A1 The Standard dividend and capital gains tax rate in EU member countries and the US, 2012.

Country	Dividends	Capital gains
Austria	25.0	25.0
Belgium	25.0	0.0
Bulgaria	5.0	10.0
Croatia	n/a	n/a
Cyprus	20.0	0.0
Czech Republic	15.0	0.0
Denmark	42.0	42.0
Estonia	0.0	21.0
Finland	22.4	32.0
France	41.1	32.5
Germany	26.4	25.0
Greece	25.0	0.0
Hungary	16.0	16.0
Ireland	41.0	30.0
Italy	20.0	20.0
Latvia	10.0	15.0
Lithuania	20.0	0.0
Luxembourg	19.5	0.0
Malta	0.0	35.0
Netherlands	25.0	0.0
Poland	19.0	19.0
Portugal	25.0	25.0
Romania	16.0	16.0
Slovakia	0.0	19.0
Slovenia	20.0	0.0
Spain	27.0	27.0
Sweden	30.1	30.0
UK	36.1	28.0
US	19.0	19.1

Source: Carroll et al. (2012).

Table A2 Direct government funding of business R&D and tax incentives for R&D, 2013.

Country	Direct funding	Indirect support (through R&D tax incentives)	Direct and indirect funding	Government funding as % of total BERD
Austria	0.15	0.12	0.27	12.8
Belgium (2012)	0.10	0.20	0.30	17.0
Czech Republic	0.12	0.06	0.18	16.1
Denmark	0.06	0.06	0.12	6.1
Estonia	0.08	0.00	0.08	12.9
Finland	0.06	0.01	0.07	3.3
France	0.11	0.26	0.37	25.3
Germany	0.08	0.00	0.08	4.0
Greece	0.02	0.04	0.06	21.4
Hungary	0.19	0.13	0.32	32.7
Ireland (2012)	0.07	0.16	0.23	20.7
Italy	0.05	0.00	0.05	6.9
Netherlands	0.02	0.15	0.17	15.3
Poland	0.04	–	0.04	9.1
Portugal	0.04	0.09	0.13	22.0
Slovakia	0.02	0.00	0.02	6.1
Slovenia	0.25	0.09	0.34	18.4
Spain (2012)	0.08	0.02	0.10	15.6
Sweden	0.14	0.00	0.14	6.6
UK	0.08	0.08	0.16	14.5
US (2012)	0.19	0.07	0.26	13.5

Source: OECD Science, Technology and Industry Scoreboard 2015.

Table A3 State of cluster development in EU countries and the US, 2015.

Country	Value	Score (0–100)
US	5.49	74.8
Germany	5.46	74.4
Italy	5.46	74.3
UK	5.30	71.7
Netherlands	5.22	70.3
Luxembourg	5.07	67.8
Austria	4.93	65.4
Finland	4.91	65.1
Ireland	4.89	64.8
Sweden	4.82	63.7
Belgium	4.58	59.6
Denmark	4.46	57.7
France	4.46	57.7
Portugal	4.16	52.6
Malta	3.96	49.3
Spain	3.92	48.7
Cyprus	3.89	48.2
Czech Republic	3.88	48.1
Slovakia	3.88	48.0
Estonia	3.76	45.9
Romania	3.65	44.1
Hungary	3.63	43.8
Latvia	3.60	43.3
Poland	3.58	43.0
Lithuania	3.52	41.9
Slovenia	3.46	40.9
Bulgaria	3.16	36.0
Croatia	3.05	34.2
Greece	2.95	32.5

Note: Average answer to the survey question on the role of clusters in the economy: In your country, how widespread are well-developed and deep clusters (geographic concentrations of firms, suppliers, producers of related products and services, and specialized institutions in a particular field)? [1 = nonexistent; 7 = widespread in many fields]. The scores denote the distance to the frontier score of 100.

Source: World Economic Forum, Executive Opinion Survey 2014–2015 (<http://reports.weforum.org/global-competitiveness-report-2015-2016/>).

Table A4 University/industry research collaboration in EU countries and the US, 2015.

Country	Value	Score (0–100)
Finland	5.97	82.8
US	5.85	80.8
United Kingdom	5.67	77.8
Belgium	5.58	76.3
Netherlands	5.38	73.0
Germany	5.34	72.3
Sweden	5.33	72.1
Ireland	5.24	70.7
Luxembourg	4.90	65.1
Denmark	4.90	65.0
Portugal	4.68	61.4
Austria	4.68	61.3
Lithuania	4.61	60.1
France	4.58	59.7
Estonia	4.36	55.9
Hungary	4.27	54.6
Cyprus	4.19	53.2
Czech Republic	4.00	50.0
Slovenia	3.96	49.3
Malta	3.86	47.6
Spain	3.77	46.2
Italy	3.73	45.5
Latvia	3.67	44.6
Romania	3.59	43.2
Poland	3.50	41.7
Croatia	3.39	39.9
Slovakia	3.36	39.3
Greece	3.06	34.4
Bulgaria	3.00	33.3

Note: Average answer to the survey question: In your country, to what extent do people collaborate and share ideas in between companies and universities/research institutions? [1 = not at all; 7 = to a great extent]. The score measures the distance to the leading country (= 100). Source: World Economic Forum, Executive Opinion Survey 2014–2015 (<http://reports.weforum.org/global-competitiveness-report-2015-2016/>).