Systemic Innovation

About the Social Innovation Europe Initiative

The Social Innovation Europe initiative (SIE) represents a major effort to build the social innovation field in Europe. The project is run by a consortium of partners including Euclid Network, the Danish Technological Institute and the Young Foundation and led by the Social Innovation Exchange (SIX). Funded by the European Commission's DG Enterprise and Industry, the SIE initiative will run over 2 years from January 2011 until December 2012 and will work to connect policy makers, entrepreneurs, academics and third sector workers with other innovators from across Europe. It is our goal to become a hub — a meeting place in the network of European networks – where innovative thinkers from all 27 member states can come together to create a streamlined, vigorous social innovation field in Europe, with a shared voice that can propel Europe to lead the practice of social innovation globally.

In order to do this, SIE is taking three overlapping approaches:

1. SIE is publishing a series of reports and recommendations for action which will define, analyse and support the best work in the field;
2. The initiative is hosting an online hub, www.socialinnovationeurope.eu. This aims to be an indispensable resource providing the latest information on European social innovation; and
3. SIE is hosting a series of events across Europe to bring social innovators together offline and build partnerships across countries and across sectors.

For more information please visit: www.socialinnovationeurope.eu.

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All opinions, errors and omissions in the report are the responsibility of the authors alone.

Legal notice

1. Introduction

Europe has experienced profound changes over the last few decades. Globalisation, international migration and innovations in information and communication technologies have transformed the societies we live in, and brought about substantial improvements to the lives of Europeans.

However, these developments have failed to stem the rising tide of social, economic and environmental challenges. We are in the midst of the worst financial and economic crisis for generations, with the highest levels of unemployment for decades. Climate change, social exclusion, inter-generational worklessness, material poverty, health and wealth inequalities and ageing populations continue to pose real and significant challenges across Europe.

These challenges are already swamping public budgets (and in the case of ageing and chronic disease, private budgets too) as well hampering Europe's competitiveness and economic growth in the long term. There is a growing recognition across the continent and around the world, that new and innovative approaches are required to meet the economic, social and environmental challenges now and into the future.

The field of social innovation is beginning to gather momentum, with significant investment from foundations, governments and businesses. Europe is playing a leading role in setting an agenda that embeds social innovation into the centre of policy making and service delivery. The Europe 2020 Strategy makes a strong commitment to promoting social innovation, and the European Commission's Innovation Union strategy clearly places innovation at the centre of the policy agenda for meeting social challenges affecting Europe and its Member States.

Social innovations can be understood as "new solutions (products, services, models, markets, processes etc.) that simultaneously meet a social need (more efficiently and effectively than existing solutions) and lead to new or improved capabilities, assets and/or relationships. In other words, social innovations are both good for society and enhance society's capacity to act."[1]

Fortunately, there is no shortage of social innovation in Europe. Every day ingenious people are developing new projects, ideas, organisations, products and enterprises to address social problems and needs. While often successful in their own right, the overall impact of most of these innovations is limited as they usually remain small and locally focussed. Scaling up and successfully replicating innovations is, therefore, vitally important. However, even if scaled up, social enterprises and new products and services alone cannot effect the wide scale change that is so urgently needed. Profound innovation across entire systems is required.

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[1] Defining Social Innovation. A deliverable of the project: "The theoretical, empirical and policy foundations for building social innovation in Europe" (TEPSIE), European Commission – 7th Framework Programme, Brussels: European Commission, DG Research. Caulier-Grice, J. Davies, A. Patrick, R. & Norman, W 2012

Systemic social innovation involves the fundamental transformation of the systems of society on which we all depend – such as healthcare, housing, education or energy. This is rarely achieved through a single organisation or sector, but involves a complex interaction of public policy and reforms to legislation, changes to business cultures and practices, as well as shifts in consumer attitudes and behaviour.

In this, the third and final report of the Social Innovation Europe initiative (SIE) we make the case for systemic innovation. We explain what systemic innovation is, elaborate particular strategies for transforming whole systems, look at the areas where Europe is already taking a lead in driving forward systemic change, and make recommendations which we believe could help support systemic social innovation going forward.

We do not argue that systemic innovation is easy; it is notoriously difficult to understand entire systems, let alone transform them. There are no toolkits or simple recipes that can provide answers. However, in the midst of the current crisis we believe that systemic innovation is more important than ever. While it is no doubt complex, we believe there is a range of options open to policy makers to support systemic innovation and take a more systemic approach to tackling the fundamental challenges that Europe is currently facing.

2.   What is systemic Innovation?

We define systemic innovation as:

> **"A set of interconnected innovations, where each is dependent on the other, with innovation both in the parts of the system and in the ways that they interact."**

We have taken the idea of a system as our starting point. A system is a set of two of more elements where the behaviour of each element has an effect on the behaviour of the whole, and where the behaviour of the elements and their effects on the whole are interdependent.[2] A defining feature of systems is that changes in one part affect other parts.

Systemic social innovation occurs when a number of complementary innovations occur in a parallel and interconnected way to impact on a social issue or problem. An example of an individual social innovation might be a social enterprise that provides apprenticeships and other training to disadvantaged young people. A systemic approach to the same issue would look at how a combination of innovations in education provision, community services and business regulations could all be used to impact on youth unemployment. Since systems exist at different levels, a systemic approach of this nature might apply to a single town, region or a whole country.

Systemic innovation is often required for the full value of radical innovations to be realised. Indeed, the term was first used to describe a class of innovations that required specialised and complementary assets for their successful commercialisation. This includes innovations such as cars: in order to transform the nature of transport, a whole raft of complementary innovations in terms of products and services (petrol stations, driving schools, road traffic management and so on) and regulations were necessary. Until these were in place, cars remained less efficient than horse-drawn carriages and their adoption was understandably slow. This is the case with electric cars today: systemic change will only be realised when charging stations, battery production and exchange, car servicing and personnel are all in place.

In this sense, systemic innovation in the social sphere is about, realising the full value of social innovations which means dramatically improving outcomes, such as higher levels of educational attainment, lower levels of unemployment, greater levels of wellbeing, and so on.

Because numerous innovations will need to be put in place at the same time, systemic innovation necessarily requires co-operation between and across organisations and sectors. It is rarely owned or orchestrated by any one organisation, let alone a single individual. There are some examples of systems that are dominated by a small number of companies and government actors, and where the implementation of a range of technologies and tools can be planned more easily – the current roll out of 4G mobile phones is a good example. However, in most instances, many actors crossing several sectors will need to be involved to bring about systemic change. Recycling and waste management provides a helpful

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[2] R. Ackoff, Creating the Corporate Future, John Wiley, New York, 1981 pp. 64-5

illustration. Transforming the way we manage our waste requires a combination of new laws (for example, related to what retailers do with electrical waste, or the amount and type of packaging used by producers), new services (how recyclable waste is collected from homes and businesses), new technologies (turning recycled goods into new products or energy), as well as changes in behaviours and attitudes amongst consumers.

Since systemic change is rarely effected by single groups or institutions (in fact it often requires involvement across all four sectors of the economy – business, government, civil society and the household) it tends to be much slower and harder to achieve than individual social innovations. Change in complex systems is particularly hard to achieve because it requires changes in behaviour, structures and processes. Systems are also slow to shift because they tend to be optimised around their current forms and powerful interests combine with personal relationships to maintain the status quo.

Even though systemic innovation is highly complex and challenging, it is possible to achieve. There are numerous examples of systemic innovation – from the creation of welfare states in the last century, to more recent developments in housing (for example eco-towns such as Vauban in Germany), in education (for example holistic early years' provision in Reggio Emilia in Italy), in health (such as the North Karelia Project) and in ICT (with the proliferation of high speed broadband and mobile phone technology, which have led to innumerable social benefits).

Even though systemic innovation is not amenable to simple recipes or toolkits, and is inherently complex and multi-faceted, there are a number of common elements which are often present when we look at examples. Even though many of these elements will be common to all types of innovation, or could themselves be examples of social innovations, we argue that systemic innovation will require many of these elements to be in place to be truly transformational. These elements include:

- Developing following a crisis or period of upheaval
- New ideas, concepts and paradigms
- New laws and/or regulations across a broad area
- Coalitions for change of many actors and/or across more than one sector or scale
- Changed market metrics or measurement tools
- Changed power relationships and new types of power structures
- Widespread diffusion of technology and technology development
- New skills or roles across many actors
- New institutions
- Widespread changes in behaviour, structures and/or processes.

Example: Health in North Karelia, Finland

An early and powerful example of systemic innovation is the North Karelia Project in the 1970s. This region in the east of Finland was suffering very high cardiovascular disease levels, particularly amongst male residents. In response, the region developed a community based intervention strategy, the first of its kind to try to shift the risk factor profile of this area. A wide variety of programmes was established to

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tackle the issue of poor diet and lifestyle drawing on resources and expertise across sectors.

These included: a programme in workplaces to help employees lose weight and stop smoking; media collaboration to produce a popular TV show following individuals losing weight; cholesterol lowering competitions organised between villages; strong anti-smoking legislation; collaboration with the food industry to reduce the salt content of products and with vegetable oil manufacturers to produce healthier spreads. As a result of these targeted interventions, the age-adjusted coronary heart disease mortality rate among the 30-64 year old male population reduced by a huge 73% between 1970 and 1995.[3]

Example: Reggio Emilia approach to early years' education, Italy

Reggio Emilia is a town in Northern Italy which has developed a holistic and child-centred approach to pre-school and primary education. After World War II, the citizens of Reggio Emilia created a new approach to teaching their children to help rebuild their community. The model is based on the principles of respect, responsibility, and community. It involves a child-centred curriculum where children are encouraged to explore and discover in a supportive environment.

Parents are central to the Reggio Emilia philosophy in their roles as collaborators and advocates for their children. Teachers respect parents as each child's first teacher and involve parents in discussions about school policy, child development concerns as well as curriculum planning and evaluation. The importance of the physical environment is also emphasised in the Reggio Emilia approach, and is often referred to as a 'third teacher'. Designers seek to integrate each classroom with the rest of the school, and the school with the surrounding community.

International recognition of the municipal early childhood institutions of Reggio Emilia has led to the development of an educational exchange network of over 30 countries. Reggio Children, the International Center for the Defense and Promotion of the Rights and Potentials of All Children, has co-ordinated tours of institutions in the area since 1994.[4]

Example: Sustainability and anti-poverty initiatives in Curitiba, Brazil

In the 1980s, the city of Curitiba in Brazil was facing a growing waste problem; residents in nearby favelas were dumping their rubbish in rivers and fields. The city's mayor, Jaime Lerner, developed an innovative set of responses that treated the problem of waste in an integrated way, using it to address other social problems in Curitiba. Since traditional waste trucks could not fit in the narrow shanty town streets, Lerner developed a scheme whereby people could bring their waste to neighbourhood collection points. In exchange for their waste, residents were given transport tokens which helped to boost use of the city's extensive bus system. Eighty

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[3] http://www.who.int/chp/about/integrated_cd/index2.html
[4] http://www.reggiochildren.it

per cent of travellers use the city's bus system and Curitibanos spend only about 10 per cent of their income on travel, much below the national average.[5]

In another initiative, recycling collection vehicles were sent around the city together with food lorries. Recyclable goods were exchanged for fresh fruit and vegetables to help improve nutrition amongst poorer citizens. The city also employed homeless and recovering alcoholics in its rubbish separation plant. In short, the processes for managing waste in Curitiba became a hub for a system of highly integrated social initiatives.

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[5] J Goodman, M Laube and J Schwenk , 'Curitiba's Bus System is Model for Rapid Transit', available online at http://www.urbanhabitat.org/node/344.

3.   Why do we need *systemic* social innovation?

"The most critical challenges we face are also the ones which are most interconnected or systemic in nature."[6] Bryan Boyer, SITRA

Systemic innovation is increasingly pressing in the social sphere. There is now a growing awareness that the state and the market as currently constituted are unlikely to be able to deal with many of today's most pressing social and environmental challenges. It is becoming increasingly apparent also, than solutions to today's most pressing challenges will invariably involve all sectors, and in many cases, different sectors working together in an integrated way.

In part, this is because there is a growing realisation that many of the social challenges we face today are complex or 'wicked'. This complexity is not only highlighting the need for social innovation but also shaping the kinds of social innovations being developed and the ways in which they are being developed. In addition, new information and communication technologies – and in particular, the ability to gather, analyse and disseminate large swaths of data and connect large number of people over wide areas – have also enabled a greater understanding of complexity and complex adaptive systems. This means that there is now a range of tools for mapping and therefore better understanding systems and the processes which lead to innovation of those systems.

Complex problems can be characterised by non-linearity, ambiguity and uncertainty. In this way, they can be distinguished from simple or complicated problems which can essentially be solved using specialised knowledge, methods and techniques.[7] Take the case of climate change for example. Climate change as a problem is difficult to define, there is no clear solution, or single cause, there are many interdependencies, interventions will often have unintended consequences and dealing with climate change requires significant behavioural change. As such, climate change defies governmental siloes and national boundaries, and requires unified global action on an unprecedented scale. With climate change and other complex social challenges, such as homelessness, poverty and educational attainment, there is an inherent inability of traditional institutions and structures to deal with these challenges because of their scale, scope and complexity.

These kinds of challenges confound the traditional response of defining a problem and then administrating to resolve it. This is because they cut across different policy domains, sectors and political and administrative jurisdictions. Coherent responses to these kinds of challenges cannot be driven by single institutions but will be reliant on numerous people, organisations, institutions and stakeholders working in a coordinated way. And as these social challenges become more pressing, a systemic approach becomes necessary. Individual social innovations may deliver certain

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[6] B Boyer, JW Cook, M Steinberg, In Studio: Recipes for Systemic Change, Sitra, Helsinki, 2011, p.19
[7] Sholom Glouberman and Brenda Zimmerman 'Complicated and Complex Systems: What Would Successful Reform of Medicare Look Like? Commission on the Future of Health Care in Canada, 2002.

benefits in a piecemeal way. But if we really want to address a major social challenge, we will need to look at problems in a holistic way.

Table 1 Simple, Complicated and Complex Problems		
Following a Recipe	**Sending a Rocket to the Moon**	**Raising a Child**
The recipe is essential	Formulae are critical and necessary	Formulae have a limited application
Recipes are tested to assure easy replication	Sending one rocket increases assurance that the next will be OK	Raising one child provides experience but no assurance of success with the next
No particular expertise is required. But cooking expertise increases success rate	High levels of expertise in a variety of fields are necessary for success	Expertise can contribute but is neither necessary nor sufficient to assure success
Recipes produce standardized products	Rockets are similar in critical ways	Every child is unique and must be understood as an individual
The best recipes give good results every time	There is a high degree of certainty of outcome	Uncertainty of outcome remains
Optimistic approach to problem possible	Optimistic approach to problem possible	Optimistic approach to problem possible

Source: Sholom Glouberman and Brenda Zimmerman, 2002

Looking forward

However, looking at social challenges in a holistic and systemic way can also inform approaches to tackling these challenges. Thinking about challenges in a systemic way will also lead to particular kinds or paths of action.

Complex problems, by definition, do not have an 'end' or a 'solution'. As a result, the *process* of addressing complex problems becomes significant. As Jeff Conklin explains, 'you don't so much 'solve' a wicked problem as you help stakeholders negotiate shared understanding and shared meaning about the problem and its possible solutions. The objective of the work is coherent action, not final solution'.[8] Emerging strategies for dealing with complexity, therefore, focus on outcomes (rather than inputs and outputs) that are demonstrable and measurable (even if only qualitatively), collaboration and co-ordination (across sectors, fields, organizational boundaries etc.), co-production with service users (who are best placed to identify their own needs and possible solutions), decentralisation and self-organisation (by increasing decision making powers of local communities), building adaptive capacity (in order to support decentralisation and self-organisation and build resilience)[9] continuous improvement methods and the creation of learning organisations, often through reflective practice.[10]

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[8] Jeff Conklin, 'Rethinking Wicked Problems' [interview]. *NextD Journal*, 10: 1-30. Available at: http://nextd.org New York, NextDesign Leadership Institute, 2007.
[9] Overseas Development Institute, Taking responsibility for complexity, Briefing Paper, London, ODI, 2011
[10] See for example, Donald Schön, 'The Reflective Practitioner; How Professionals Think in Action', New York, Basic Books, 1983 and Brian Head and John Alford, Wicked Problems: The Implications for Public Management, Panel on Public Management in Practice International Research Society for Public Management 12th Annual Conference 26-28 March, 2008, Brisbane and Overseas Development Institute, Taking responsibility for complexity, Briefing Paper, London, ODI, 2011 and Jim Woodhill, 'Capacities for Institutional Innovation: A complexity perspective', IDS Bulletin Vol. 41, No 3, 2010.

In addition, taking a more systemic approach is increasingly made possible as a result of new tools and technologies which enable us to map complex systems. Large scale data sets and visualisations enable us to see patterns and relationships between actors and processes. Experts in modelling, such as Dirk Helbing at the Dresden University of Technology, argue that by using simple models of social interactions we can gain useful insights into the social, macro-level outcomes and dynamics that are implied by micro-level interactions. A current project in this vein is the European Commission funded Future ICT initiative which includes the Living Earth Simulator, a computing machine that attempts to "model global-scale systems — economies, governments, cultural trends, epidemics, agriculture, technological developments, and more — using torrential data streams, sophisticated algorithms, and as much hardware as it takes"[11]. These are powerful new tools, and even though we still have much to learn in terms of how they can best be used, they show much promise.

In summary, a growing awareness of the complexities, interdependencies and interconnections of the social challenges we face, together with the technologies and tools to better understand those systems, have brought the need for systemic innovation and a systemic approach to innovation, that is grounded in real human behaviour and lived experiences to the fore. In what follows we will explore some of the options open to policy makers.

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[11] D Weinberger, The Machine That Would Predict the Future', *Scientific American*, Dec 2011, Vol. 305, Issue no. 6

4. Systemic Innovation & Policy

Over the past twenty years there has been a paradigm shift in our understanding of how innovation actually takes place. This is referred to in the literature as a move from linear models of innovation to a systemic or networked model of innovation. To varying degrees, these new theories about how innovation happens, have influenced innovation policy, and opened up a range of policy tools and instruments for governments to use. Of particular relevance, these new models of innovation depict a role for policy makers, less as innovators in their own right, and more as orchestrators or enablers of innovation.

One of the most important theoretical developments in this respect has been the concept of National Innovation Systems (NIS). This was first developed in the 1980s by Chris Freeman and Bengt-Åke Lundvall to describe the "set of distinct institutions which jointly and individually contributes to the development and diffusion of new technologies and which provides the framework within which governments form and implement policies to influence the innovation process. As such it is a system of interconnected institutions to create, store and transfer the knowledge, skills and artefacts, which define new technologies".[12] The idea stressed the fact that innovation processes are dynamic, that firms are learning organisations with 'bounded rationality', involved in numerous inter-connected and inter-related networks and deeply embedded in the wider socio-political and economic environment. As such, the unit of analysis is not just the firm, or the networks and relationships between firms, but the whole system of innovation.

According to Lundvall, the most important resource within National Innovation Systems is knowledge and the most important process is learning.[13] This is because innovation results from the complex interaction between the various actors of the system and the flows of knowledge these interactions create. These flows of knowledge can be categorised in the following groups: interactions among enterprises; interactions between enterprises, universities and public research laboratories; diffusion of knowledge and technology to firms; and movement of personnel.[14] This counters the 'classical view' which sees technological change and innovation as exogenous. In this context, the innovative performance of a country depends on the quality, nature and extent of the flows of knowledge between the various actors of the system. This analysis of National Innovation Systems omits individuals, communities, networks and 'the crowd', which we now know to be integral to innovation processes and to social innovation processes in particular. Nevertheless, the systems approach has made a significant contribution to academic discourses on innovation.

In particular, it has fundamentally transformed discussions about the role of governments in supporting innovation. It has challenged the linear model of innovation and encouraged policy makers working in the fields of science, technology and industrial policy to see innovation as an iterative and dynamic process.

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[12] J. Metcalfe, 'The Economic Foundations of Technology Policy: Equilibrium and Evolutionary Perspectives' in P. Stoneman, (ed.) *Handbook of the Economics of Innovation and Technology Change*, Blackwell, Oxford, 1995
[13] B. A. °, Lundvall, 'National Innovation Systems – Analytical Concept and Development Tool', *Industry and Innovation*, vol. 14:1, 2007, pp. 95-119
[14] OECD, *National Innovation Systems*, Paris, OECD, 1997

This systems approach has also been applied at a regional level. The concept of Regional Innovation Systems, which shares a similar rational with the national system of innovation concept in that it emphasises territorially based innovation, was first developed by Philip Cooke in 1992. The core of the approach is "an emphasis on economic and social interactions between agents, spanning the public and private sectors to engender and diffuse innovation within regions embedded in wider national and global systems."[15] It is a much wider concept than that of a cluster, since a regional innovation system can transcend multiple sectors, and several researchers argue that it provides a more comprehensive framework.

While the application of NIS theory to public policy has not always been straightforward,[16] this systems perspective has been adopted by a number of countries. The Nordic countries in particular have been pioneers in this respect with a number of OECD countries such as Germany, the UK, US and Japan not far behind. It is also reflected in the national innovation policies of Brazil, Russia, India and China. And while there is much debate about the limits and practicability of the concept, and the extent to which it has been implemented, it is clear that it has had a demonstrable impact in terms of encouraging nations to explore a broader range of policy tools and instruments to support innovation.

From a policy perspective, systemic innovation, by its very nature, is challenging; transforming a whole system will require a set of complementary innovations (usually introduced at the same time), the involvement of a multiplicity of actors from across the public, private and third sectors, often with diverse needs and motivations. In many cases, systemic innovation results from a confluence of forces: social movements, the creation of new markets, public policy (such as new rights or new legal, fiscal and regulatory frameworks) and behavioural change. While some systemic innovations are more challenging to effect than others (because of their scale, scope or complexity), systemic innovation in general is difficult to orchestrate or support (through the creation of enabling conditions, for example) and certainly more challenging than innovation at the level of a new project or a new venture.

What then are the options open to policy makers? How can policy makers effect systemic innovation, especially when so many actors, at so many levels need to be involved to transform a whole system? What tools and instruments can policy makers use to change systems?

Politicians and policy makers can of course effect systemic change - through funding, legislation, new budgets and the creation of new services, collaborations with other sectors, co-opting social movements and so on. Policy makers have been involved in some way in all the examples we have laid out so far in this report.

Indeed, there are a set of tools and strategies available to those hoping to effect systemic change. These include:

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[15] B. T. Asheim, H. Lawton Smith and C. Oughton, 'Regional Innovation Systems: Theory, Empirics and Policy', Regional Studies, 45:7, 2011, pp. 875-891

[16] Lundvall (2007) argues, the concept has been misapplied and 'abused'. He argues that "quite often policy makers pay lip-service to the concept while neglecting it in their practice." More generally, he claims that the "wider implications of an innovation and learning perspective on general economic policy have not been seriously considered and worked out. Others (see Endquist) have argued that the theory has not been misapplied, but rather, that the concept itself is problematic and suffers from a lack of conceptual clarity.

- Planning for systems change (for example, Curitiba's famous transport system, Nantes' experiment with parallel currency), which usually depend on the backing of leaders with power and resources.

- The design and creation of new towns, designed to embody and demonstrate a radically different model (such as Hammarby *Sjöstad*, Vauban and the other eco-towns).

- Holistic pilots (like Robert Owen's co-operatives in the 19th century, BRAC in Bangladesh or the Harlem Children's Zone in the late 20th century) and whole system demonstrators (like the NHS' recent attempt to show the effectiveness of combining many assistive technologies together).

- Living Labs (which in some accounts are meant to develop and promote systemic innovation).

- Networks (like NCSL's Networked Learning Communities for school leaders) or the New York educational innovation zone) or the various collaboratives in health in the UK.

However, perhaps most importantly, policy makers also create the conditions for systemic innovation; they shape the legal, fiscal and financial frameworks under which entrepreneurs and innovative firms operate. These enabling conditions might include, for example, stimulating the creation of new markets or adopting particular goods through procurement, investing in early stage research and development or developing a strong intellectual property rights regime to protect and encourage investment in innovation. Recent examples include anti-smoking legislation which has brought about a dramatic reduction in tobacco consumption in many countries (which will hopefully have a significant impact on cancer rates in years to come) or opening up public data and making it freely available, which has led to widespread innovations in services and entrepreneurship (even if much of this is mainly at a city or regional level).

In the next section we look at some of the initiatives where the European Union is playing a leading role in creating conditions for systemic innovation, through the Innovation Union and new programmes such as Horizon 2020 and the European Innovation Partnerships.

5.   Systemic Innovation in Europe

There is increasing recognition of the role that policy makers and governments can play in creating conditions that can help enable systemic innovation to address complex challenges. These include setting the legal and regulatory frameworks to support systemic change, providing economic assistance, supporting research and stimulating markets. These also include more informal approaches such as the Open Method of Co-ordination, which is used at the European level to support collaboration between Member States.

Over the past few years the European Union has been developing a range of initiatives that are designed to foster systemic innovation to increase economic growth, provide jobs and address a range of social challenges across the 27 Member States. Achieving systemic change is not only complicated, but also takes time. Many of the EU initiatives are in their infancy and it is too early to evaluate their outcomes. In this chapter we look in more detail at three of these initiatives, to examine how they are intended to achieve systemic change.

The Innovation Union

The Innovation Union is one of seven flagship initiatives launched in 2010 by the European Commission as part of the Europe 2020 Strategy.[17] The overarching aim of the Innovation Union is to translate innovative ideas into goods and services which can create jobs and growth for a smart, sustainable and inclusive Europe.

The Innovation Union takes a systemic approach to innovation; it is an integrated innovation strategy, based on a broad view of innovation that includes actors from the private, public and third sectors. It aims to improve the conditions for innovation by removing obstacles which prevent innovative ideas from reaching the market, such as expensive patenting, market fragmentation, slow standard-setting and skills shortages etc. It is also pioneering new forms of cross-sectoral collaboration, including the new European Innovation Partnerships which bring together European institutions, national and regional authorities, businesses and civil society organisations to tackle specific challenges.

Key initiatives of the Innovation Union:

Pillars	Details
Strengthening Europe's research base	This includes measures to complete the European Research Area by 2014 (in order to create more coherence between national and European research agendas, to support mobility and cross-border collaboration amongst researchers and so on), to improve and develop business-education partnerships and, sets a target of 3% of EU GDP spent on R&D in Europe by 2020. A number of Innovation Union commitments will be taken forward by Horizon 2020[18], the new Framework Programme for Research and

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[17] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Europe 2020 Flagship Initiative Innovation Union, SEC (2010) 1161
[18] http://ec.europa.eu/research/horizon2020

	Innovation. Under Horizon 2020 funding will be simplified, streamlined and more focused on societal challenges.
Getting good ideas to market	The Innovation Union aims to create a single European market for innovation (including patent protection, standardization, public procurement and smart regulation) and stimulate private sector investment (especially private venture capital).
Regional and social benefits	As part of the Innovation Union, some of the structural funds (2007-2013) will be focused on Member States with the lowest levels of investment in research and innovation in order to prevent an 'innovation divide'. The Innovation Union will also focus on the social dimension of innovation by encouraging employees to innovate, launching a major research programme on public sector and social innovation and piloting a European Public Sector Innovation Scoreboard.
Innovation partnerships	The EU is pioneering new cross-sectoral partnerships focused on tackling challenges such as climate change, energy and food security, health and an ageing population. The first pilot European Innovation Partnership (see below) focused on active and healthy ageing.
International collaboration	The Innovation Union will encourage collaboration across Member States and with countries outside the EU. Actions include developing international research infrastructures.

European Innovation Partnerships

A core initiative of the Innovation Union is the European Innovation Partnerships (EIPs).[19] EIPs are intended to address major societal challenges that are of common concern across Europe, by scaling up and accelerating the development and deployment of innovative new solutions. EIPs are not a new European legal or financial instrument and they do not replace existing decision making processes. Rather they are an initiative to bring together actors at all levels and in all sectors to mobilise resources and expertise, drawing together all existing efforts into a coherent framework.

The first European Innovation Partnership on Active and Healthy Ageing (AHA) was initiated in October 2010 to tackle the common challenge of an ageing population across Europe.[20] Its overarching objective is to "enable citizens to live longer independently in good health by increasing the average number of healthy life years by 2".[21] This EIP brings together public and private stakeholders to develop innovations which can improve the quality of life for older people in Europe, while also creating market opportunities for businesses. This first EIP is a pilot to test out the concept of the Partnership and to gauge levels of support and appetite from stakeholders. Another four major challenges where an EIP could achieve real value have been identified; these are related to agriculture, water, raw materials and smart cities.

EIPs are distinctive in that they are active across the whole research and innovation chain. This means that they bring actors together from all levels (EU, regional,

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[19] http://i3s.ec.europa.eu/commitment/43.html
[20] http://ec.europa.eu/research/innovation-union/index_en.cfm?section=active-healthy-ageing&pg=home. Many thanks to Michael Arentoft for helpful discussions about the EIPs and the Active and Healthy Ageing EIP in particular.
[21] http://ec.europa.eu/research/innovation-union/index_en.cfm?pg=calendar

national) in order to step up research and development efforts, coordinate investment in demonstrations and pilots, anticipate and fast track any necessary regulations and standards, and mobilise demand through better coordinated public procurement to ensure that innovation breakthroughs are more quickly brought to market. In this sense, EIPs are a good example of a systemic approach to innovation.

The Social Business Initiative

The Social Business Initiative (SBI) was launched by the European Commission in November 2011 with the aim of fostering a favourable environment for the development of social business in Europe. The initiative contains 11 priority measures under 3 themes: making it easier for social enterprises to obtain funding; increasing the visibility of social entrepreneurship and improving the legal environment of social business.[22] It has been described by Commissioner László Andor as "an invitation to national and regional governments and stakeholders to develop eco-systems for social enterprise, to strengthen efforts at national and regional levels, and to make best use of the structural funds and other available sources of support."[23]

As part of the SBI there will also be a range of actions to create new European Venture Capital Funds and promote social entrepreneurship among older people, in the context of the European Year for Active Ageing in 2012. Another priority is the development of rigorous measurement of the scope and impact of social enterprises with the aim of providing policy makers and other stakeholders with comparable and systematic information and incorporating social enterprises into national accounting systems. A call for proposals on reliable statistics on social enterprise was issued in June 2012.

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[22] http://ec.europa.eu/internal_market/social_business/index_en.htm
[23] Mr László Andor, EU Commissioner responsible for Employment, Social Affairs and Inclusion 'Using social business to improve the European economy' Social Business Initiative Conference Brussels, 18 November 2011

6.   Conclusions & Recommendations

Europe is facing a number of profound and complex social challenges ranging from an ageing population to the effects of climate change. The existing support systems are struggling to cope. The deep financial crisis is intensifying many of these problems, while at the same time reducing the financial resources available to address them. Meanwhile, resources which are potentially available, such as skills and capabilities in local communities or physical resources such as empty commercial or municipal properties are often under-used, hidden or difficult to access. It is clear that we need new approaches to addressing our problems. Social innovation is essential.

In this paper, we have argued that individual social innovations, no matter how successful, are important but not sufficient to respond to the challenges we face. The challenges are complex, 'wicked' problems that require systemic change. We have argued that systemic innovation is needed if we are to build successful, cohesive and prosperous communities for the future. Achieving systemic innovation is not easy. However, we have demonstrated that policy makers have a critical role in setting the conditions required to instigate systemic change. Europe is already taking a lead in doing this. A number of initiatives have been established to drive systemic innovation across the continent. There is, of course, more to be done. In what follows we outline some key recommendations:

Common Vision

- The EU plays a significant role in developing common narratives and a common vision around specific issues. In this respect, it is well placed to lead the way in terms of developing an overarching narrative and vision for social innovation, and in particular, the need for systemic social innovation. To do this it needs to define what social innovation is, how it can best be enabled and supported, and what its impact can and should be. In particular, the EU can play a leading role in creating a common vision for what success might look like in tackling specific challenges such as youth unemployment, climate change and an ageing population. While all of these challenges have unique characteristics in particular places and contexts and therefore need to be addressed as such, they also share many overarching common characteristics which means that a European vision, approach and framework could help to align actors and strategies, share knowledge and scale impacts across Europe.
- The European Innovation Partnership (EIP) pilot on Active and Healthy Ageing has already demonstrated how a common vision about a particular social challenge can streamline efforts at the local level in an effective way. The focus for next set of EIPs has already been determined (agriculture, water, raw materials and smart cities). The EU should consider adopting this approach for other grand challenges, for example developing an EIP and associated targets for youth unemployment, with potentially, additional resources to increase their impact.

Greater experimentation

- Systemic social innovation can happen at different levels – from the European or national levels all the way down to municipal and local levels. The EU needs to support greater experimentation of new solutions to pressing social challenges at these varying levels. Historically, pilots have focused on individual projects or ventures. What is needed now is greater experimentation at the level of the system.
- Europe should facilitate opportunities for greater experimentations. One option is a system whereby different regions, cities or communities can offer themselves as candidates for experimentation. Another might be to support the greater use of randomised controlled trials (RCTs) in public policy contexts.
- To assist this, systemic innovation approaches should be integrated with the EU's smart specialisation agenda – this supports regions in developing a vision, identifying their competitive advantage, setting strategic priorities and making use of smart policies to maximise their knowledge-based potential.

Mutual transparency for rapid learning

- Greater experimentation should go hand in hand with new tools and techniques for rapid learning. We need to learn as much as possible from experiments and spread this knowledge widely and quickly. In particular, we need to learn about the systems we are attempting to transform, the ways in which systemic innovation can take place and what seems to work and not work in this context.
- Rapid learning will require new protocols and standards about which information should be shared, how it should be shared and how it can best be disseminated.
- These new protocols should apply to all sectors involved in meeting social challenges. Indeed, public and private institutions as well as civil society organisations need to open up their data so that lessons about what is working can be shared in real time.
- In addition, systemic innovation, which necessarily entails collaboration across sectors and areas of action (health, care, education, employment etc.), requires open and collaborative methods of working. As such, there must be a free and open exchange of information, supporting by new platforms and protocols.
- The EU should take a leading role in developing these protocols and creating platforms for sharing, building on what it has already achieved with publicdata.eu.

Developing enabling conditions

- The EU is able to add considerable value in developing the right enabling conditions to support systemic innovation, through its funding instruments, regulation and legislation.
- With regards to funding, the EU should work to leverage member state funding as well as private sector investment to focus on scaling up successful innovations.
- The EU should offer a range of instruments across the whole ecology of finance, ranging from quasi equity, loans and grants. Specifically, the EU should look at

how ESF and ERDF can be used to support systemic innovation. The JASPERS[24] programme (a partnership between the European Commission—Directorate General for Regional Policy, the European Investment Bank—EIB, the European Bank for Reconstruction and Development—EBRD, and Kreditanstalt für Wiederaufbau—KfW), has helped improve the quality of major projects to be submitted for grant funding under the Structural and Cohesion Funds, and is therefore one tool that could be used as an example to encourage projects to demonstrate evidence of a systemic approach in their bid.

Capacity building

- There is currently no comprehensive training or forum for shared learning for senior policy makers and officials to support systemic approaches to social innovation. And the tools that do exist are not being effectively used or shared.
- Developing literacy around understanding and mapping systems, modelling and scenario planning would be a first step to embedding more systemic approaches to social challenges.
- ESF and ERDF's Technical Assistance could be one source of funding for this kind of training.

Incubation

- The EU can play a major role on creating space to incubate and grow innovations that address social challenges. However, the EU should start to consider whole systems of innovation as the relevant unit for incubation support, rather than individual projects.
- Living labs – currently supported through the European Network of Living Labs - are another important approach to accelerating systemic innovation in collaborative innovation networks. The EU's continued support for them should focus on ensuring that Living Labs are sufficiently integrated into regional innovation ecosystems.

Growing networks

- The EU can play a major role in supporting social innovation networks, such as the Social Innovation Exchange and the Social Innovation Europe initiative. These networks play a critical role in identifying, sharing and disseminating best practice. The European Union should build on the achievements and progress of the Social Innovation Europe initiative, taking the initiative forward. Specifically, the initiative should focus on identifying innovative practice; bringing together key stakeholders to spread and disseminate innovative practice and; convening a range of actors to support systemic innovation in fields of ageing, climate change and youth unemployment.

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[24] For further information see:
http://ec.europa.eu/regional_policy/thefunds/instruments/jaspers_en.cfm and http://www.jaspers-europa-info.org/