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## Article

Multiple helices as agents of change? : the case of the neighborhoods of the future project and the development of direction for policy and practice on health, happiness and wellbeing for the next generation of older adults

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## **Multiple Helices as Agents of Change? The Case of the Neighborhoods of the Future Project and the Development of Direction for Policy and Practice on Health, Happiness and Wellbeing for the next Generation of Older Adults**

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**Abstract.** *This article describes a case study on a project to create cooperation between international (EU) and national governments, small and large enterprises, universities and non-governmental charitable and social organizations. It explains the nature of the project and investigates the implications of the project for the discourse concerning the Triple Helix. The project, still in progress at the time of writing, required the stimulation of large scale and pervasive innovative responses to the challenge of aging populations in European countries, particularly as regards the creation of appropriate homes and neighborhoods that will enable the new generation of older adults to live well, happily and healthily. People in this new generation is conventionally referred to as baby boomers, the largest, longest lived, healthiest, wealthiest, longest working older generation that Europe has ever seen. The paper describes the first stage of the project - the creation of an inclusive dialogue between the different parties. Then it presents a discussion of the learnings from the case study for organizers of other similar dialogues, based upon an in-depth interview with the initiator of the project, who is also one of this article's co-authors. It also proposes a new configuration of Triple Helix model. We conclude this paper by presenting a question that Triple Helix participants as agents of change will have to answer in the future.*

**Keywords:** *Triple Helix, public service, health, social care, aging, university, innovation.*

## Introduction

Europe's population is aging quite rapidly (European Commission, 2014). Older adults are an important focus for researchers, policy makers, employers, and marketers throughout Europe and the costs of managing them (e.g. housing, caring, keeping them healthy) are often used to predict severe problems in managing the next generation of older adults, the so-called baby boomers (Robinson, 2014).

A (reasonably well) accepted definition of the generations is as follows (Bump, 2014):

**Table 1. The Generations**

Generation	When born
Matures (Greatest/Silent)	Pre 1945
Baby Boomers	1946 - 1964
Generation X	1965 -1981
Generation Y (Millennials)	1982 - 2004
Generation Z	2005 - present

We know that these descriptions of generations and their situation are simplistic, but they are a convenient shorthand. In some countries, particularly in Eastern and part of Southern Europe, because of the slaughter and devastation of the war and the political and economic situation after, the birth of baby boomers is considered to extend up to even as late as the mid-1950s (Van Bavel & Reher, 2013). Later influences, such as the EU freedom of movement of labor, the collapse of Soviet hegemony, reunification of families, the economic crisis in the last decade and upheaval in the Middle East and Africa have complicated the situation by generating patterns of migration and fertility that are changing the demography of many countries (Willekens, 2014).

The baby boomer generation is the largest generation of older people the world has seen and, in comparison with earlier older generations, it is:

- The healthiest and longest living (and possibly the most conscious of the benefits of exercise, diet and lifestyle for health and longevity and with a higher participation in significant exercise as they age) (Bingham, 2012);
- The richest (in income and assets), and the most property-owning (in some countries, and in some Eastern European countries very much so because of the sale of state housing) (Whitcombe, 2013);
- The most educated (school and university) (Universities UK, 2015);
- Working the longest number of years (and the longest beyond retirement, often part-time) (Office for National Statistics, 2015);

- The most home-working (often in their own business) (Office for National Statistics, 2014, 2016);
- The most portfolio-career oriented (both in terms of frequency of job change and in terms of having more than one job at once) (Macaulay, 2003);
- The most customer-service-experienced (as customers and in some cases as suppliers) (Office for National Statistics, 2013);
- The most connected, both through broadband and through use of smartphones (Ofcom, 2016).

These statements are averages, concealing differences by location, social class, past and present (healthy or not) lifestyles, ethnicity and genes, and other dimensions, however it is evident that the needs and characteristics of the next generation of older adults (baby boomers) are very different from those of current older adults. This implies a different approach to the making and implementation of policy for them, in the areas of health, social care and housing. Drawing on this, we use as a case study the “Neighborhoods of the Future” project, which has focused on the creation of appropriate homes and neighborhoods that will enable baby boomers to have a happier and healthier life. Of course, the question of what constitutes an age-friendly home could not be addressed through the lens of a single discipline; hence a “triple helix” of university, industry, and government emerges. This paper describes the first stage of the project that was the creation of an inclusive dialogue between the different parties. Then it presents a discussion of the learnings from the case study for organizers of other similar dialogues, based upon an in-depth interview with the initiator of the project, who is also one of this article’s co-authors, and proposes a new configuration of Triple Helix model. We conclude this paper by presenting a question that Triple Helix participants as agents of change will have to answer in the future.

### **Neighborhoods of the Future project: Stage 1 - the creation of an inclusive dialogue between the parties**

The project was a Pan-European Neighborhoods of the Future initiative, started at the beginning of 2016, including a roadshow in several European cities, culminating in an event in December 2016 at the Brussels EU headquarters, where the needs, achievements, and plans of the public sector and of businesses, NGOs and institutions were reviewed by the Agile Ageing Alliance (AAA), a social business established by as a social venture and campaigning organization, aiming to boost knowledge, investment and commercialization of innovations to promote *agile ageing* at home and in the community. The aim of the EU initiative was to support the

development of a 'European Reference Framework for Age-friendly Housing' and an 'EU Blueprint for Digital Transformation of Health and Care'. Central to the project was a focus on a holistic collaborative and an open approach to research, development, and commercialization.

The AAA engaged with universities, national governments, city, local and regional authorities, health and care practitioners, NGOs, corporates, SMEs, 'end-users', technological solution providers, financial institutions, academics and others. Staff from the AAA listened to the views of many private, public and third sector stakeholders concerning new forms of cross-border and cross-sector collaboration, capacity-sharing and risk-sharing models, to achieve improved user experience and interoperability and develop a shared long-term vision based on a set of principles, a voluntary code of conduct and a common language.

The initial focus of the dialogue was on the construction and retrofitting of homes and neighborhoods to meet the needs of the next generation of older adults, more specifically the aim of the project was to create focus on practical solutions such as:

- The use of new technology in helping older adults manage themselves, and transition to being managed cost-effectively, using new models of care;
- New approaches to training and education for older adults, helping them remain as suppliers as well as consumers;
- Encouragement of healthier lifestyles – diet, physical activity, etc.

To achieve this, the dialogue needed to include designers, developers, delivers and providers of support policies and services, including:

- Companies, as employers, marketers, customer services or outsourcing partners (those who contract to any of the above to deliver services);
- National and local public agencies and authorities;
- Educational and research bodies;
- Third sector organizations – charities, NGOs etc.;
- Public and private health and care services.

In December 2016, at the second European Summit on Digital Innovation for Active and Healthy Ageing, European Commissioner Günther Oettinger (Digital Economy and Society) delivered the first phase of a blueprint providing a basis for cooperation and delivery stakeholders, including the European Innovation Partnership for Active and Healthy Ageing, reference sites, industry, standards organizations and user organizations; underpinned by a €4 billion commitment from the public sector, to invest in health and care innovation in the next three years (European Commission,

2016). The Commission envisaged that this vision would be developed through a unique, open, collaborative and dynamic set of resources and tools, co-created with a number of "champions" including organizations such as the Agile Ageing Alliance.

## **Research method**

The method is a mixture of case study and participant observation. One author of this paper, Ian Spero, was the leader of the project and creator of the social business at the center of it, the Agile Ageing Alliance. The second co-author, Merlin Stone, was introduced into the project by Ian Spero, to achieve an additional research and creative focus, based their experience of working together in a similar way more than a decade before, but focusing on a project aimed at the other end of the age spectrum, the youth of the time. The third co-author was introduced as an organizational psychologist, to make sense of how the project related to the academic discourse on the Triple Helix. This approach brings the obvious possibility of strong bias. However, this has the compensating advantage that how co-operation between the different types of organization involved was shaped creatively could be fully documented via the insights from the project leader who is also a co-author.

The main empirical inputs into this article were:

- Documentation of the interactions between the organizations;
- Interviews carried out by the Agile Ageing Alliance with the different - participating organizations;
- A one-to-one interview with co-author and project leader Ian Spero, in which he was asked to reflect upon his experience of creating and managing the relationships with the different parties;
- A literature review.

## **Learnings from the central interview**

In this part of the paper, we present co-author Ian Spero's reflections based on his experience in creating and managing the relationships among different parties during the course of the project. The article presents a discussion of the learnings from the case study for organizers of other similar dialogues and proposes a new configuration of Triple Helix model. Much of the interview focused on the idea that if co-operation between universities, governments, private sector companies large and small and non-government organizations, particularly charities, is not based on

achieving a common social good, then the outcomes are likely to be skewed towards the objectives of one or the other partners, for example academic publications in high quality journals which become cited and lead to promotion for the academics concerned, profit for enterprises, solving policy problems for governments, and using funding productively for NGOs.

### ***Lack of social agenda: The black hole of Triple Helix model***

“The Triple Helix model adds to the meta-biological models of evolutionary economics the sociological notion of meaning being exchanged among the institutional agents.” (as cited in Leydesdorff, 2010a, p.402). However, as Ian Spero suggests:

*“There is a Black hole at the center of the Triple Helix, which is that it has the wrong starting point. If you take greed as a starting point, then it has a lack of meaning, e.g. enriching a company. Each party sits inside a certain box and so lacks common meaning, which should be a benefit to the world. We need to start off with something which is of value, which becomes a collective mission. If there is not a social agenda, then it’s just another commercial partnership. We need something that is not just what the participating organizations buy into, but one into which all the individuals participating in the project buy into. In the case of this project, it was the need to improve the quality of life for older adults, and to overcome the dysfunctionality that society creates for older adults. People who get older and less confident in themselves are easily repressed and depressed by the world. They need a positive sense of their own identity. The very language we use to refer to older people is ridiculous. Everything young becomes hip and the old are forgotten, becoming invisible. This is a form of prejudice, like racial and religious prejudice. We need to create a new moral ground. Financially, no country can afford all older people to be problems. However, to achieve a change, we need to be disruptive. There are of course physical requirements that no one can argue with, and in those areas, such as housing and institutional care, provision is not fit for purpose. This is possibly the only sector where the customer is not entitled to know what they are paying for a service. You have no say in it.”*

A characteristic example of the lack of social agenda is the role that universities play in such partnerships. As Raceanu (2016, p.81) suggests “the role of universities is expected to be broader and its actions should be characterized by both responsibility and pragmatism within the context of sustainable decision making”. Referring to the one of the four dimensions to the development of the Triple Helix, Etzkowitz (2001, p.9) suggests that “universities and other knowledge producing institutions play a new role in society, not only in training students and conducting research, but also in

making efforts in seeing that knowledge and human capital is effectively put to use". Drawing from this argument, our review of the literature indicates that there is a gap here. Previous research on the Triple Helix has paid much attention to knowledge transfer (see e.g. Etzkowitz 2001, 2007) not on making change happen. Ian Spero emphasized that the focus should be on the delivery of social change, in which innovation has a place, not knowledge transfer:

*"But with universities – as an Innovate UK assessor and monitoring officer, assessing proposals for projects and monitoring their delivery, working at any time with large numbers of projects, I have concluded that success is down to the people involved, not the institutions. If the individual is truly committed to making a difference, it is more likely that the difference will be made. Too many academic partners focus just on the technical aspects of innovation, not in the communication that has to be created to translate an innovation into success in society, and that is because the university is often participating for the wrong reason, to raise funding for its research, not to make a difference to society. If it is done for the right reasons, the impact will follow, done for the wrong reason, there will be no real impact."*

Therefore, it seems that the different parts of the triple helix have, in the case of Neighborhoods of the Future project, created a situation in which the outcomes are more focused on problems and research rather than the design and implementation of solutions and measurement of their effectiveness. An example of what could be seen to be a positive output would be in the area of social care of older adults, by ensuring that the dialogue focused on how to achieve a lower-cost, customer-managed, self/telecare model, identifying how many older adults might be amenable to this model of managing them and how many not (with all the variations in between), and how the former may transition into the latter, and then identifying how to ensure that technological, care, health and housing solutions were provided to meet the needs of these different groups.

"The Triple Helix as a concept is recognized to have a transformative effect on industry performance, generating accelerated knowledge and technology transfer between the public and the private sectors and inducing systemic change at regional, national and global levels" (Etzkowitz & Ranga, 2010 cited in Danson & Todeva, 2016, p.20). Nevertheless, the extent of alignment between the objectives of Industry, government and a, and in the intended and the actual impacts of the various projects undertaken are both questioned (Leydesdorff, 2000). Therefore, the extent to which such projects bring social change is also questioned. The need for alignment and the important role that intermediaries play on focusing on the real impact



that projects can have on peoples' lives was highlighted by Ian Spero, who supports that:

*"If you want to achieve change, commercial, government, university and third sector agendas must run in parallel. Of course, each must meet their own objectives, but only by meeting the overall objectives. Setting these overall objectives may require serious challenging how projects are set up, to create truly innovative but also sustainable and scalable outcome. Our mission is to improve the quality of life."*

Much of the public discourse and much of the research on housing, health and care for older adults tends to be backwards looking, as it focuses on current older adults with an average age of 75-85 (Sanderson & Scherbov, 2007, 2008), leading to pessimism and obsession with a high cost model of care and health management and to general pessimism about the future, while much research so far has shown how difficult things will be in the future and why we need to put more resources into this area based on analysis of the current generation of older adults (Department for Work & Pensions, 2015). Therefore, we suggest that however serious the problems of this large next generation of older adults are expected to be, it is a duty of university and other researchers, industrial organizations of all sizes, charities and other non-government organizations and governments at all levels - supranational, national and local - to find ways of ensuring that the lives of this next generation of older adults, from the point of view of employment, housing, health and care, will not be as negative as indicated by generalizing from current older adults or as portrayed by the many researchers and associated bodies who could be considered to have an interest in making things look bad (to secure budgets, to further careers etc.). Having a shared vision on improving peoples' lives is key to success for the project, as it helps ensure alignment of objectives, consistency in direction and focus on an agreed end-result.

### ***The role of intermediaries in the Triple Helix***

Contrary to the misconception that regards intermediation and facilitation as synonymous, Todeva (2013, p.264) suggests that "intermediaries have a dual role, involving both control and facilitation, implemented through different activities and coordination platforms and mechanisms". Ian Spero confirms this:

*"Our initiative began with Innovate UK, the UK government's innovation funding agency. Many of the applicants seem to be recycling grant applications – they are addicted to grants. I was asked to disrupt the existing system and did it by breaking down silos. I went to non-conventional partners,*

*not the 'usual suspects'. I thought we needed a retail-banking partner. Entrepreneurs do not normally engage with public sources of finance. I persuaded NatWest Bank to stage a series of roadshows around the UK, with partners from the private, public and third sectors, who became the founding pillars of the Agile Ageing Alliance, including the Royal Society of Public Health, the National Health Service, Arup architects. Our original brief was to de-institutionalize long-term care. So, if was to be in not institutions, where should it be? The home! However, homes not fit for purpose. We don't want to lock people into their age-inappropriate homes. So, we have got to make their homes, neighborhoods and local environment age friendly."*

At this point, referring to project success, Ian Spero argues "success is determined by how much momentum a program or project creates for its philosophy. You need a clear agenda, clear needs, clear plan and a clear commercial opportunity. You must think about everything, have a map which is themeless. However, it must also be intergenerational, aspirational e.g. to encourage younger people to talk about how they see age, for older generations and also for themselves. There is a real richness in the experience that older people have had. It can be and should be beautiful to be old. It can be a family reunifier."

The fourth aspect in the development of the Triple Helix intermediation model as proposed by Todeva (2013) is associated with the role of intermediaries and the different practices that add value by assisting each party of the Triple Helix (Industry - Government - Academia) to perform their roles, whilst they allow them at the same time to "translate the message from one helix to another, while helping each to engage in the coordination of resources and activities with the others" (Todeva, 2013, p.276). This is elaborated further: "financial and institutional intermediaries enable the integration of the innovation process across the public and the private domains, across different science and knowledge fields and across different stages of the research process" (Todeva, 2013, p.276). This is also confirmed by Ian Spero:

*"Although people have the power to communicate themselves, you need a communications channel, so you should always have media partners. Major retailers can also act as a communication channel. Then you have the outer ring or halo of secondary partners. In the past, with work in the arts sector (museums), a newspaper was our primary partner, then we had a sponsor (Barclays) and then other partners. We needed to be disciplined and regimental about such communication. In this older adult project, we are pushing things to another level, there will be many partnerships. These partners expect you, leading the project, to be investing yourself – time, energy and money, and so should all the partners. All the communities must*

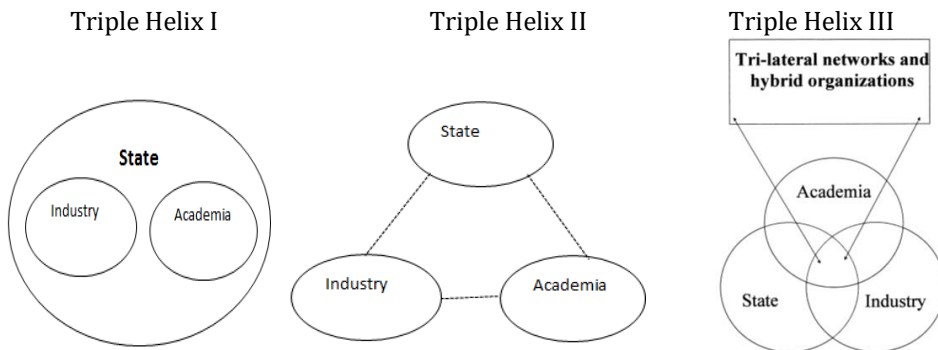
have a financial or resource interest. It is also important to have a communications platform. For this project, it is the Neighborhoods of the Future report. The 500-member Agile Ageing Alliance LinkedIn Group is also very important. You also need to demonstrate what you can do, in this case by involving McCarthy & Stone, whose engagement is a statement of intent. They represent the conservative side, but their interest is clearly to build more age-friendly homes. For us, their engagement demonstrated success in getting stakeholders interested. It is easy to persuade universities to become involved and small businesses to engage because they can see an immediate financial gain from grants, but persuading big companies is much more of a challenge. If you can convince them that what you are talking about is important, then they will sit up and take notice. For this project, the key to success will be the impact the report makes on other big businesses, and also more widely, throughout different government departments, and in many universities. I think of it as creating a new wave of ripples. Things will start to happen. However, because we were working slightly outside traditional marketing framework for big companies, we had to do our own research to prove the validity of what we are about. We were competing with hard marketing people who claim to big companies that they can guarantee that the company will achieve its marketing objective. This is the discipline that we have tried to create in the work with Innovate UK - including different languages, different reference points; this is the holy grail of marketing, final frontier that has not been touched. We tried to marry interest of public, private and third sectors, which have historically taken different forms. Whatever you do, whoever the recipient, you have to respect the integrity of what they do. You need to take the position of custodian. You are creating a bespoke ecosystem, setting the vision, managing risk, persuading senior people that it is safe to go forward without making fools of themselves, but you cannot impose your own views. Instead, you need a significant discovery phase in which you listen to stakeholders. Of course, before that, you need a phase in which you decide whether it is worth doing, by identifying whether what the topic has the potential for being a transformative initiative and whether it warrants the effort that will need to be invested”.

Discussing the issues of communication and managing relationships among several stakeholders, Ian Spero gives us a different perspective about the role of trust: “You always assume you are starting without trust, when creating a group, you are bound to have people in the group or behind them with whom you must build trust, and this depends on whether what you are doing is the right thing. I don’t expect anyone at the beginning to trust that I know what I am doing. Another word for trust is credibility. Do you have the right and the credibility to say what you are saying?”

### **A new proposed configuration of Triple Helix**

According to Etzkowitz and Leydesdorff (2000, p.111), “the evolution of innovation systems, and the current conflict over which path should be taken in university–industry relations are reflected in the varying institutional arrangements of university–industry– government relations”. As depicted in Figure 1, in Triple Helix I the government has a dominant role by surrounding academia and industry and directing the relations among the three parties. However, by not offering enough space for “bottom up” initiatives, the key deficiency of this model is that innovation is not encouraged. On the contrary, in Triple Helix II each party is autonomous and the relations among them are highly demarcated. This means that the sources of innovation are synchronized a priori and thus there is little room for flexibility. Finally, in Triple Helix III the three parties overlap by exchanging roles and with hybrid organizations emerging at the interfaces. The source of innovation in this model is a challenge for the parties involved as well as for policymakers to resolve whilst trying to deal with the sub-dynamics of intentions and strategies that emerge.

As Etzkowitz and Leydesdorff (2000, p.112) argue “these arrangements are often encouraged, but not controlled, by the government, whether through new ‘rules of the game’, direct or indirect financial assistance, or through ... new actors ... to promote innovation ...”. This is also supported by Leydesdorff (2000), who emphasizes the self-organizing dynamics of interactions among the different parties that lead all parties relations to be in continuing reconstruction and beyond control. The development of the Triple Helix and of its relationships are partly random and hard to plan, so, therefore, we suggest that all parties involved in the Triple Helix consider whether triple helix theories and practices are based on conventional roles, and incrementalism in research and knowledge development, rather than disruptive, revolutionary change. On this basis, we suggest that a new form of Triple Helix emerges from our interview and discussion that is based on developing a consensus first (see the Appendix for examples of the interview responses that contributed to the consensus and which indicate the possible risk of conservatism in traditional Triple Helix projects, a conservatism that can be and in this case is being removed through radical intervention by NGOs), then bringing action to bear afterwards. Therefore, our proposed Triple Helix IV (which is depicted in Figure 2) is not as decentralized as Triple Helix III.



**Figure 1. The Triple Helix Version I, II and III Configurations (Etzkowitz & Leydesdorff, 2000)**

However, the Triple Helix model is not seen as a mandated set of procedures. “On the normative side of developing options for innovation policies, the Triple Helix model provides us with an incentive to search for *mismatches* between the institutional dimensions in the arrangements and the social functions performed by these arrangements. The frictions between the two layers (knowledge-based expectations and institutional interests), and among the three domains (economy, science, and policy) provide a wealth of opportunities for puzzle solving and innovation” (Leydesdorff, 2010a, p.401).

By focusing on the role of Triple Helix interaction in policy development, Sunitiyoso et al. (2012, p.146) argue that “support from the university to the agencies would strengthen the agencies competences and capabilities to developed recommendation based on systematic, structured and accountable analysis”. Adding to this, we believe that universities ought to be honest on how much and what kind of support they can and/ or are willing to provide intermediaries in different areas e.g. high in health, possibly low in social change?

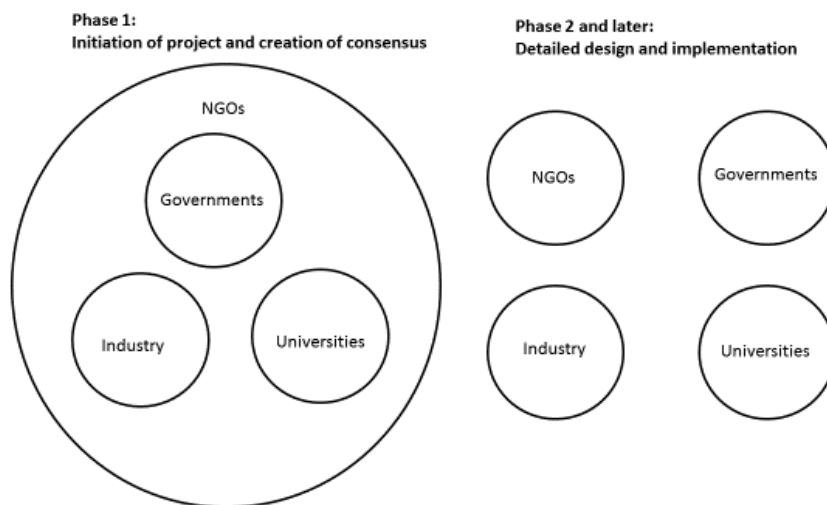
Sunitiyoso et al. (2012) proposed a modifying model on the interactions among different parties (Industry - Government - Academia) on policy development by suggesting that agencies and consulting groups should focus their R & D to address the needs of policy makers, whilst by receiving support from universities and industry, agencies’ capabilities to produce appropriate recommendations would be strengthened. However, the model adopted by the Agile Ageing Alliance does not presume that government knows what it needs, but rather that an NGO without any interest other than the improvement of economy and society can identify areas of improvement required and create initiatives to achieve those

improvements. It could be argued that NGOs can play an important role because national systems of innovation only improve the situation if they are correct about directions, otherwise they create problems for innovators – in economics, this is an example of government failure.

According to Ranga and Etzkowitz (2013, p.237) “the overall function of Triple Helix systems of knowledge and innovation generation, diffusion and use is realized through a set of activities in the Knowledge, Innovation and Consensus Spaces. This perspective provides an explicit framework for the systemic interaction between Triple Helix actors that was lacking heretofore, and a more fine-grained view of the circulation of knowledge flows and resources within and among the spaces, helping to identify existing blockages or gaps. From a Triple Helix systems perspective, the consolidation of the spaces and the non-linear interactions between them can generate new combinations of knowledge and resources that can advance innovation theory and practice, especially at the regional level.”

Ian Spero agrees and believes that this approach makes the model more tangible and consequently easier to define and possibly measure benefits/impact; although it is still something of a blunt instrument. Ranga and Etzkowitz's (2013) model is innovative (Stanford University, 2017). Our approach is to orchestrate the Triple Helix involving transdisciplinary stakeholders working to a collaborative agenda, sharing aims and objectives as defined by the primary change agent/project lead, in this instance me. Not only do we leverage Ranga and Etzkowitz's Triple Helix systems of knowledge and innovation generation, employing an explicit framework for the systemic interaction between Triple Helix actors. We actually inform, inspire, motivate and help said actors to navigate their way through the system, working to a prescribed pattern, leading to pre-determined societal and commercial outcomes. In this model the universities amplify and enrich the outcomes, assuming the participating academics are proactive, agile, translation orientated and engaged personally, not just professionally.

Our conclusion from this discussion is that the model that best suits the experience of the project described in this article is one that includes a time sequencing, with a particular role for NGOs in creating awareness of a social need at the beginning of the project, and then gathering the different parties together to create consensus of the direction of action, with NGOs moving more into the position of equal partner towards the end of the project. In the UK, many NGOs are delivery partners of government (particularly in housing and social care), but they are also very important as producers of research highlighting social issues and possible solutions. The model is thus represented by two diagrams, as shown below.



**Figure 2. Our proposed Triple Helix IV**

Having presented the discussion of the learnings from the case study for organizers of other similar dialogues, and having proposed a new configuration of Triple Helix model, we conclude this paper by presenting a question that Triple Helix participants as agents of change will have to answer in the future.

### **Looking ahead...**

One of the main issues raised during the project's research is the need for new business models to address problems which are intractable using old models, even if much larger budgets were available – which they are not. The research for this project concluded, amongst other things, that supporting our health and care in the future would require the adoption of new business models, just as the demand for improved communication, retailing and travel has been met by Apple, Google, Amazon, Uber, Airbnb and low-cost airlines (Stott, Stone & Fae, 2016).

The shape of these new models is not yet clear. However, they are likely to involve a fundamental change to value propositions (e.g. a shift towards self-service, which will require a big change in another component, the customer relationship), and the cost structure (e.g. a significant cost reduction as the activity is carried out much more by customers). This, in turn, is likely to disrupt revenue streams, (with less coming from public

funding, for example, and more direct from customers or from partners), segmentation (perhaps focusing on those segments which are technologically most adept or which are most keen to serve themselves), and information technology (using the most recent platforms, particularly those best able to support self-service and cognitive developments). Like most successful new business models, their design must start with a deep understanding of the needs of the next generation of older customers for age-friendly homes, and not with the needs of the suppliers, sitting in their different silos of construction, housing management, inform.

Therefore, a key question is to what extent the agents of change (i.e. public & private organizations, NGOs) want and can articulate new business models that can bring/ support social change. Much of the literature relating to the Triple Helix concerns relatively small innovations with limited impact, often for manufactured products. The new business models required to manage the next generation of older adults (baby boomers) must focus largely on service innovation, as described by Vida and Dr. Morton's, even though these may use new technology manufactured products. In practice, the innovative companies mentioned above have created new models largely through software and different ways of managing information (e.g. n the cloud), but usually exploiting well-established technology that is already fully diffused into millions, even billions of households. Actually, they depend on this level of maturity and technology, or otherwise, they would not have a market. Therefore, it is legitimate to ask what the contribution of the Triple Helix can be in these situations. There are several examples of the contribution that can be made – for example, the contribution of the Stanford Research Institute to the development of Apple's Siri (Roush, 2010).

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## Appendix

As an example of the kind of inputs, here is a sample of extracts from the interviews for the AAA report that respondents were happy to have quoted (not all were). These interviews were a critical input into the consensus-forming process.

Name	Organisation	Examples of interview input	Learnings
Jeremy Porteus	Director, Housing Learning and Improvement Network	The next generation of older adults will require much more in the way of co-creation and collaboration rather than “dictating” terms of provision. They will be split broadly between those who needed specialist retirement housing or care and ‘younger older’ adults who can remain independent, want simple one-stop shops for products and services, and require much better information on services available. Also, wealth issues will be very important, as these determine attitudes to costs and the desire to buy private professionally configured homes for retirement, of which there is not enough provision. We need lots more research into this generation	This statement, from the leader of a network which provides educational and research material to organisations of many kinds that provide housing in the UK, demonstrates recognition of the need for a segmented approach to the management of housing for old people, and the inadequacy of the research carried out to date, despite the enormous budgets invested so far into university and government research. It indicate a failure of focus of the triple helix, which is being remedied by the intervention of the NGO, the Agile Ageing Alliance
David Eaton	Policy and Public Affairs Officer, International	There is a big opportunity to encourage older adults to downsize their property, releasing funds, to help the next generation and to make their own	This statement, from one of the leading NGOs which delivers research in this area,

	Longevity Centre	final years more enjoyable. This will require innovative financing mechanisms.	indicates the need for integrated thinking between different bodies of UK government (in this case, the Treasury, responsible for setting policy on taxation, and the Department for Communities and Local Government, which sets housing policy). The siloed nature of decision making makes it inevitable that the government side of the triple helix will fail when it comes to delivery of policies to resolve the problem.
Jeremy Myerson	Director, Helen Hamlyn Centre and Curator of the New Old exhibition at the Design Centre Museum	For the past 30 years we have heard that demographic change is a ticking time bomb set to explode in our faces and that ageing is a burdensome thing. In fact, the faster we head towards an ageing society in which there are more old people than young, the more such thinking takes hold. The NEW OLD project seeks to reverse that mind-set, to give pause for thought with a simple message: design-led innovation can lighten the load of ageing. Through this approach, people facing greater longevity can enjoy fuller, healthier, more rewarding lives in the future – ‘years full of life rather than life full of years.	This statement, from a leading design-focused NGO, demonstrates awareness of the bias of much of the work from existing partnerships of universities, government and private sector, which focuses on problems rather than opportunities.
Naushard Jabir	Founder of Vida, the home care start-up	Britain’s care industry has “hardly been touched by new technology. The company can afford to pay higher wages and offer training because it has reduced overheads, such as office space, by using new technologies. The minimum appointment is also an hour long, rather than the 15 minutes that most carers are paid to provide. Among the innovations at Vida are an algorithm to match patients with carers based on their location, skills, availability and expertise, as well as	This statement, from one of the new business model companies, suggests that research into incremental improvements in health and care may not only fail to lead to improvements, because it assumes existing business models in health and

		any cultural sensitivities or gender preferences. The carer receives the day's schedule via an app, which tells them how long it should take to travel to the appointment as well as the customer's profile, care history and requirements for that day. It also allows the patient and Vida to track the carer's progress, including after they arrive at the door. If there are any problems, the carer can raise a red flag via the app so the office can intervene and arrange, for example, more medicine or a doctor's appointment.	care remain the same, but may also be positively misleading about resource requirements.
Michelle Hawki	Head of Futures, Virgin Care	Helping older adults to make the most of their age-friendly homes is not just a question of health care, but about supporting their well-being. This includes the simple pleasures in life that add joy to our day, a sense of feeling connected, staying in control and having a sense of purpose. Delivering all this will require much better integration between professions, industry sectors and systems. Virgin Care is already working closely with partners in their value chain to deliver better, more integrated products and services that will provide a clear pay back in terms of cost-savings as well as people's experience and quality of life. Virgin Care expects big changes in the configuration of care, in line with Government policy, with hospitals changing and health care being delivered ever closer to where people live rather than the person having to travel far for treatment. This shift will be supported through the availability of low cost and highly effective remote care technologies, like Bluetooth blood pressure monitors and pulse oximeters and by offering patients the opportunity to take more control of their own health and well-being through self-management.	This statement, from one of the leading large suppliers of care, suggests that significant organizational change will be required to deliver good care, and that researching on the assumption of persistence of existing business models may be misleading.
Dr Karen Morton	Founder, Dr Morton's	We are not just an app on an iPhone. The ethos of Dr. Morton's is to give people speedy and direct access to a top GP or gynecologist without a huge cost. Our website allows customers to	This statement from a web-based new generation provider of medical advice, suggests how a new

		access prescriptions, test kits and medical packs and it also contains important and up to date medical information. Callers can discuss the health problems that arise in their everyday lives and in most cases, avoid the need to join a surgery queue. All doctors are UK-based and General Medical Council registered and can prescribe for a wide variety of medical issues and arrange for medication to be sent to the customer's door.	model can achieve a transformation in health delivery similar to that advocated by Vida in social care.
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