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Global review of diversity and inclusion in business innovation

A report prepared for Innovate UK by LSE Consulting

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This research was commissioned via LSE Consulting, which was set up by the London School of Economics and Political Science to enable and facilitate the application of its academic expertise and intellectual resources. The research was finalised in July 2018.

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Glossary

BEIS	UK Department for Business, Energy and Industrial Strategy
D&I	Diversity and inclusion
GEM	Global Entrepreneurship Monitor
GII	Global Innovation Index
IFC	International Finance Corporation
ILO	International Labour Organisation
KTN	Knowledge Transfer Network
LGBTQ	Lesbian, Gay, Bisexual, Transgender and Queer/Questioning
NRC	Forskingsrådet (The Research Council of Norway)
R&D	Research and development
SMEs	Small and medium-sized enterprises
STEM	Science, technology, engineering and mathematics
TEA	Total early-stage entrepreneurial activity
UKIS	UK Innovation Survey
WEF	World Economic Forum
WIPO	World Intellectual Property Organisation

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Executive Summary

There is a groundswell of efforts aimed at increasing the inclusive and diverse character of innovation. This comes as technology and automation advance, and the returns to technologically enabled activities grow at an exceptional rate relative to traditional sectors. Non-profits, thought-leading businesses and governments are working to bring more of society into these activities in an effort to promote inclusive, equitable growth. What's more, research is emerging that demonstrates an economic case for diversity in the workplace, including the highly-cited McKinsey 2015 study, *Why Diversity Matters*, which revealed that diverse firms are also financial outperformers. There is increasing convergence on the aim – greater diversity and inclusion (D&I) in innovation – but there remains incomplete evidence of knowledge of best practices in government efforts to promote D&I.

Filling this gap is the precise aim of this report. Commissioned by Innovate UK, this LSE Consulting report provides a novel review of policy initiatives aimed at driving D&I in business innovation. The review develops a broad but precise understanding of what practices and strategies have worked, and which have not across the eight mandatory national case studies identified by Innovate UK (Finland, France, the Netherlands, Norway, Poland, Sweden, the UK and the USA) and the two additional case studies of Israel and Estonia. We highlight what inclusive innovation means across these ten countries, identify flagship programmes, present a new analysis of evidence of D&I in these countries, map synergies, differences and gaps in inclusive innovation policy, distil best practices in policy design, implementation and evaluation, and finally, offer recommendations for future collaboration across countries and stakeholders. In this executive summary, we present our key findings.

1. There are two primary conceptualisations of inclusive innovation.

One conceptualisation emphasises the inclusion of underrepresented groups in the workforce of innovative sectors, while the other focuses on harnessing innovations to promote the societal inclusion of underrepresented groups. In each of the ten countries covered by this review, there are government agencies responsible for driving inclusive innovation, varied policy initiatives, as well as awareness campaigns. In each of these national contexts, we find that inclusive innovation can have very different meanings. It can refer to the inclusion of people and places in the processes of innovation and research and development (R&D) into the processes of inclusion. Such efforts refer broadly to the following aims:

Demographic: gender, age, ethnic minorities/race, religious groups, people with disabilities, immigrants and migrants.

Spatial: particular rural communities and/or regions.

Industrial: promoting technical innovation and R&D in traditional industries.

The other conceptualisation of inclusive innovation focuses on the potential for technological innovations to drive social benefits and inclusivity. Policies motivated by this conceptualisation of inclusive innovation are exemplified by the 'Digital Israel Initiative' – an effort to advance and upgrade Israel's technological infrastructure, improve digital literacy and encourage the use of technology across SMEs – and campaigns to encourage technological innovations that strive to serve the needs of people with disabilities.

2. We have identified twenty flagship programmes with the aim of promoting D&I in business innovation.

For each of the ten countries covered by this Global Review, we identified two programmes, selected for their visibility, positive perception and relevance to inclusive innovation. The initiatives are diverse in their range, both in terms of which demographic they focus on, and the extent to which they are incentives to encourage innovation-related education (e.g. science, technological, engineering and mathematics (STEM) subjects), run in collaboration with the private sector, or impose legal mandates for inclusion. The full spectrum of approaches includes privately-funded non-profits such as Code.org, a non-profit in the U.S. deriving its support from corporations to teach coding to young women and underrepresented groups through to government regulations that require certain diversity rates (e.g. the Norwegian government's requirement that women hold 40% of board seats for publicly-traded companies). These efforts can be oriented in the context of the classroom or the workplace, as with Code.org and the Norwegian regulation, and run by the private sector and the state.

3. Our novel analysis of comparative country-level data exposes the shortcomings of current approaches to measuring D&I in business innovation.

Our first observations are that the global leaders in measuring innovation (Global Innovation Index (GII) and the World Economic Forum (WEF) Global Competitiveness Ranking – innovation pillar) do not capture the extent to which innovation is inclusive. These methods account for national abilities to innovate (e.g. output), but not the inclusiveness or diversity of workforces involved in those top-line activities. This means that these global scores and rankings do not, in fact, serve as a useful benchmark for indicators of D&I in business innovation. To conduct this more focused assessment, we instead investigated participation rates of underrepresented groups in entrepreneurship and innovation. This approach yielded the following results:

- For entrepreneurship, Estonia and the USA were the strongest performers in terms of female total-early-stage entrepreneurial activity (TEA). On a gender basis, leadership rates (measured by percentage of board seats held by women) are highest in Norway (42%) and France (40%), while Poland, France and Israel are leaders in patenting activity (the closest proxy for innovation), with the share of women inventors in Poland leading at 14.1%.
- Data is sparse for national comparisons on ethnicity and race basis, due to data-collection restrictions and differences in what is meant by minority in each country. We were able to draw upon some country-specific data on ethnicity for a sub-set of countries studied here, notably the UK (2017), Israel (2016) and USA (2016).
- We analysed data on TEA rates on an age basis, which revealed Estonia to be the highest performer amongst the four youngest age groups (18-24, 25-34, 35-44 and 45-54). Israel is the highest ranked country for entrepreneurship for older demographics (55-64).
- National data on people with disabilities focused more on the size of the demographic, or on their work participation rates, but not necessarily in terms of involvement in innovative activities.
- Again, scant data was available on participation rates of people by sexuality in innovative activities.

4. In our analysis of national approaches to supporting D&I in business innovation, we present the fundamental synergies, gaps and differences across the ten country cases.

In terms of **synergies**, we found the following four characteristics:

- **Inclusive innovation is largely conceptualised as the promotion of women in technology-related activities.** Women's participation in innovation activities and entrepreneurship is the predominant aim for inclusive innovation activities, with diversity in terms of ethnicity, age, sexuality and disability receiving less attention, respectively.
- **Demographic aims – rather than spatial or industrial – are the primary policy motivator across the national case studies.** The focus is largely on promoting underrepresented groups, with efforts aimed at inclusion on a socio-economic or spatial basis coming in next. Inclusive innovation is less frequently interpreted on an industrial basis, meaning that most policymakers design policies focused on underrepresented demographics, for disadvantaged regions and only much less regularly, for traditional sectors.
- **There is consistency in the policy types used.** Initiatives primarily take the shape of funding (grants, prizes, loans and guarantees), regulation (required participation and reporting), clusters, networks and institutes and education and training.
- **Competitions, events and prizes are especially popular** vehicles for both raising awareness and delivering business and skills training. Coding and business plan competitions for startups or innovation tend to focus on specific silos, e.g. women, minorities, etc.
- **A focus on education policies to encourage STEM subjects and technical skills, such as coding.** Across the national case studies, there is a concentration of efforts centred on access to STEM subjects and on teaching coding for young people, and particularly for young women and minorities. Such education initiatives are often delivered through partnerships with non-profits and universities.

We identified the following **gaps** across our country case studies:

- **LGBTQ and People with Disabilities-focused initiatives.** There is a resounding lack of efforts for these demographics across the sample.
- **Consistency of engagement with social media campaigns.** Social media campaigns sometimes accompany the organisation and implementation of competitions and training programmes, such as #TechDiversity, #GirlsWhoCode, #WomenInTech, #WomenInSTEM, #HiddenNoMore, #TechInclusion, #Diversity, #GAAD, and 'Women for future'. However, by and large, social media hashtags are not universally known by those who we interviewed, and tend to be crafted and used on a programme or competition-level basis. Related to the lack of engagement with social media, across the 10 cases, media coverage is not often used as a metric for programme evaluation.
- **Small size of budgets.** Interviewees revealed that they are working with modest budgets and, as a result, are limited in the types of policies and programmes that they are able to run.
- **Lack of visibility into budgets.** There is sparse information publicly available on the size of budgets available, which is a challenge for cross-national benchmarking studies.
- **Robust data and measurement.** There are challenges in both data collection and in the standardisation of metrics and valuation across countries, and even across initiatives. Policymakers often adopt different evaluation methods according to the type of policy and the initiative's life cycle.
- **Coherent collaboration across government entities and with private firms.** In many countries, there is a gap in the form and extent to which there is collaboration across government divisions, which can lead to a duplication of efforts and/or sub-optimal outcomes. There is also insufficient institutionalisation of collaboration with private initiatives with public backing, though there are notable exceptions such as Tech She Can (UK) and Girls Who Code (US), or public efforts that bring in private partners, such as France's 'a new deal for innovation'.
- **Limited range of policy types used.** The negative to the consistency in policy types used (as noted in Synergies above) is that several innovation policy types are not being widely used, including (2) Tax, (5) Attracting Talent & Investment, (6) Stock Market linkages and (7)

Technology Infrastructure and Procurement. A use of these types of policy instruments could add to policymakers' ability to incentivise D&I in innovative activities.

Across the case studies covered by this report, there were also a number of **differences**:

- **Data collection and availability.** There is a marked range in the formalisation of data collection, and as a result, availability. In some countries, such as Sweden, government entities have invested significantly in data collection and publishing reports, to provide evidence for demographic participation rates and policy performance (with particular reference to gender). In others, there are either legal restrictions inhibiting data collection (e.g. ethnicity data in France) or not coordinated efforts to more systematically collect data on D&I.
- **Mandating versus incentivising inclusion.** Legislation and social policy is used to mandate inclusive innovation. Legislation has been employed to foment diversity and inclusion – particularly on a gender basis – in business. Here Norway is the most binding, requiring female composition of 40% on company boards, with the Finnish Equality Act also adopting a quota provision of 40% and the Netherlands a 30% target. The UK's gender pay gap reporting requirement is a middle step, in requiring transparency but not a particular level of equity. At the opposite end of the spectrum are efforts to incentivise participation through funding and promotion of role models, mentors and coaches.
- **Open- versus targeted- policy design.** There are differences in the design of initiatives that are 'open for all', such as the promotion of STEM education by several American states, and those that target specific demographics.
- **Coherence versus bifurcation.** Within governments, some have been trending towards greater coherence and integration, such as the Israel Innovation Authority, which is the result of a merger of a few entities as well as BpiFrance, which is also the result of the consolidation of multiple entities. In contrast, in other cases, there has not been integration, and so many government ministries and agencies operate independently in their efforts to either promote social cohesion or innovation, and as a result, not inclusive innovation.
- **Existence of industrial and/or spatial aims within inclusive innovation remit.** Across governments, inclusive innovation is understood differently. For some, it is distinctly aimed at including particular demographics, especially women, minorities and people with disabilities, while in other countries the term has a broader meaning, which includes spatial and industrial aspects.

5. Based on our research, interviews and analysis, we identified best practices in policy design, implementation and evaluation.

In terms of **policy design**, we have identified a number of key best practices:

- **Conceptualising D&I together**, rather than diversity or inclusion in isolation; this means designing initiatives that strive to both increase the number of diverse sets of participants and promote feelings of inclusivity.
- Using public consultations and working groups to design policies.
- Partnering with private initiatives, NGOs and/or companies to deliver specialist training.
- Providing sufficient, but efficient funding for specific target groups.
- **Ensuring that policy design confronts the unique challenges and restrictions faced by target communities**, rather than simply adapting the applicant criteria to target underrepresented groups for existing/standard programmes.
- Encouraging role models and champions, particularly for school-age groups.
- **Collaborating and coordinating across government ministries and private sector initiatives.** A notable case in this regard is France's 'Strategy for Inclusive Innovation – A New

Deal for Innovation (une nouvelle donne pour l'innovation) – that brings together different parts of government and private sector firms to encourage creativity, initiative, and the taste for entrepreneurial work for all segments of French society.

For **policy implementation**, we present the following best practices for success:

- **Pilot studies**, and the use of the 'agile project management' approach, to test initial versions of a programme before a full launch.
- Training of programme operators and evaluators about '**unconscious bias**'.
- **Coaching and mentoring** to advance leadership and entrepreneurship skills.
- Policymakers being **physically present within target communities** to glean feedback in real-time and to demonstrate commitment to the initiatives.
- **Translate programme materials** into minorities' languages to ensure accessibility.

The successful **evaluation** of policies and programmes is also key to the success of efforts across the public, private and civil society sectors to promote D&I in business innovation. We identified best practices for monitoring and evaluation, on both a national- and project-level:

- Developing a national programme focused on demographic data collection and analysis with an aim to promote awareness of D&I, such as that in Sweden.
- Conducting **surveys of programme participants** (ideally via telephone).
- **Surveying unsuccessful applicants** to identify feelings of rejection or challenges with programme design and/or desirability.
- Measuring **social indicators**, particularly the number and% of applications from underrepresented groups, as well as their quality.
- Measuring the **social return on investment, rather than financial performance** of programmes or companies supported by the programmes.
- **Balancing quantitative and qualitative approaches** to triangulate the picture of programme numbers and a programme's quality.

6. Finally, we present recommendations for future collaboration between Innovate UK and its international counterparts.

As part of the interviews carried out for this Global Review, we asked key stakeholders from innovation agencies, government departments, the private sector and civil society about the potential for productive international collaboration to promote D&I in business innovation. From this process, we identified six potential forms of international collaboration:

- **Formalising networks** that run regular, perhaps quarterly webinars could help institutionalise a community of like-minded individuals, supported by a community or a programme manager.
- **Establishing clear frameworks for standard assessment of inclusive innovation initiatives.** There is a need, and opportunity, for stakeholders across countries to work together to establish a standard approach to measuring the performance of efforts.
- **Greater use of public-private initiatives** such as 'Tech She Can', an initiative that aims to improve the early-stage pipeline of female talent in the technological innovation sector.
- **Sharing the UK's experiences** as a country with a relatively long history of effective integration of minority groups and immigrants.
- **Cross-national competitions, missions and fellowship programmes** that send groups of entrepreneurs to other countries to share and learn new experiences and best practices.
- **Initiative efforts to facilitate a STEM study exchange** for secondary school students, potentially in collaboration with existing programmes. For example, the VHTO (Dutch National

Expert Organisation on Girls/Women and Science/Technology), runs 'Girlsday', which strives to promote STEM subjects and by extension, careers, for young women aged between ten and fifteen years old.

In the final sections of the report, we provide an overview of our methodology (Appendix I) and a list of telephone interviews conducted with experts (policymakers and academic researchers) in each country (Appendix II). Appendix III contains our individual country case studies, and details the business contexts, demographic environments and policy contexts relevant to this Global Review.

1. Inclusive innovation

1.1. Conceptualising inclusive innovation

There are two distinct conceptualisations of ‘inclusive innovation’. Most often, inclusive innovation refers to including **people, places and industries** in innovation processes and activities, so bringing underrepresented groups such as women, minorities, migrants and people with disabilities into work in innovative sectors. The other conceptualisation is inclusive innovation understood as a **product or service** that addresses social issues, such as technological innovations to enhance mobility or to reduce the occurrence of symptoms of certain diseases. Inclusive innovation can therefore involve **bringing people into the process of innovating** (and encouraging inclusion and diversity through employment) or innovative **products or services enabling inclusion of members of society**.

The idea of inclusive innovation centred on **people**, predominantly used by the OECD, refers to including underrepresented groups (women, minorities, the young, mature, migrants and people with disabilities) in innovative business activities. In an OECD report, Planes-Satorra and Paunov (2017: 6) conceptualise inclusive innovation policies as purposive actions ‘that aim to remove barriers to the participation of individuals, social groups, firms, sectors and regions underrepresented in innovation activities.’ Diversity – referring to people with different characteristics collaborating, often in the workplace – is promoted through inclusive processes. Inclusion is about people’s perceptions that they are included, not only about the existence of individuals with distinct characteristics. In this context, policies to promote inclusion target the increased amount of participation and substantive integration with underrepresented groups. Targeted policies encourage groups, according to age, gender, ethnicity/race, people with disabilities, rural communities and those from disadvantage socio-economic backgrounds, to participate in innovative activities through competitions, education and training, and funding schemes. The meaning of the term ‘minority’ varies across borders. In each context, it reflects the demographic composition of the country, and the extent to which certain groups are disadvantaged. For the Minority Business Development Agency (MBDA) in the USA for example, the definition of ‘minority’ changes as groups petition for inclusion as minorities on the basis of being subject to discrimination. This means that their term minority refers to African Americans, Hispanic Americans, Asian Americans, Native Americans, Alaska and Pacific Islands and the Hasidic Jewish community.

The other understanding of inclusive innovation focuses on technologically innovative **products** as the means of including marginalised groups and driving development and economic (inclusive) growth. Here, inclusive innovation refers to the potential for technological innovations to reach particular social groups (or regions) to benefit from innovations. Policy efforts can take the form of technology-promoting initiatives, such as funding for technologies that address social issues (e.g. improve agricultural productivity, alleviate loneliness for ageing demographics, etc.). In this version of putting inclusive innovation into policy action, policymakers design competitions, grants, tax incentives and more to target the solution of a social challenge often faced by a particular group. The Digital Israel Initiative, launched in 2013, is a good example of this form of inclusive innovation policy; the aim of the initiative is to drive digital literacy, and in so doing, propel social inclusion across the population. In the USA, the promotion of innovation to solve challenges for people with disabilities offers another example. Funding for technological innovations that reduce the symptoms of Parkinson’s disease, for instance.

In Table 1, we conceptualise the different approaches to inclusive innovation and the policy characteristics, key performance indicators and illustrative examples.

Table 1. Inclusive innovation policy types

	Inclusion in innovation process	Use of technological innovation to aid social inclusion
Policy aim	To increase the inclusion of underrepresented groups as participants in innovation activities	To encourage technological innovations that strive to ameliorate social challenges faced by particular demographics
Policy targeting criteria	Target by participant characteristics	Open to participants, focused on ability to solve problem
Key Performance Indicators (KPIs)	Number and share of group participation in innovation activities; evidence of inclusivity	Data on social aim (e.g. product sales via online application)
Example	Funding scheme to provide early-stage investment for women high-technology entrepreneurs	Competition to design new technology to improve sales and distribution of agricultural products from remote communities

Source: LSE Consulting

Policymakers' means of achieving their inclusive innovation aim can focus on participant characteristics, in which key performance indicators (KPIs) reflect their aims of increasing activities amongst select demographics. This suits the first type of inclusive innovation understanding, in which the aim is to bring more members of society into the digital or innovation-centric activities. Alternatively, KPIs focus on performance in alleviating a social condition when policies target the development or application of technological innovation in a particular social setting. For example, inclusive innovation initiatives that strive to improve financial inclusion may count the number of users who glean 'access to finance' through new FinTech services for groups previously underserved by financial services.

1.2. Differentiating diversity and inclusion

In order to review policies aimed at promoting inclusive innovation we need to differentiate between policies that aim to increase the participation of different groups (those aimed at diversity) and those that address perceptions of inclusivity. One is about increasing the quantitative distribution of participants (diversity) whilst the other centres on feelings of involvement (inclusion). In this global review, we explore policies both for their efforts to drive participation rates and perceptions of inclusion. Before 'inclusive innovation' can be propelled, diversity of participation is needed, which is why we explore both diversity and inclusion within the context of inclusive innovation.

We begin by defining the key terms of 'diversity' and 'inclusion'. Going beyond a broader definition of diversity, namely intended as a greater share of women and a mixed ethnic/racial composition in large companies (see also McKinsey, 2015), and in order to take into account with an impartial view the different regulations and legislations in place in the different countries of the study, we propose to follow in this project the definition of diversity provided by the International Labour Organisation (ILO): 'a commitment to recognising and appreciating the variety of characteristics that make individuals unique in an atmosphere that embraces and celebrates individual and collective achievement. Identity is dependent on much more than one dimension of a person's background. In recognising and

appreciating the many characteristics that make individuals unique, diversity provides solutions to eliminate discrimination in the workplace' (ILO 2016).

Although sometimes diversity and inclusion are used interchangeably, they have important differences. As discussed above, diversity refers to differences among members, including both observable (e.g., gender, race, and age) and non-observable (e.g., culture, cognition, education) attributes, and is often treated as a characteristic of a workgroup or organisation. Inclusion, in contrast, refers to an individual's perceptions that their unique contribution to the organisation, process or policy is appreciated and their full participation is encouraged. Inclusion can be seen as:

- A process of responding to and managing diversity;
- A process of identifying and addressing barriers through collection and analysis of evidence;
- Encouraging the participation of a wide variety of individuals in the programme/policymaking process;
- Encouraging the participation of marginalised and underprivileged groups.

Thus measuring inclusion requires a multi-dimensional approach, which combines an assessment of existing processes, evidence-base and engagement strategies, with the role of managers and role models in promoting inclusion. As Mor Barak (2015) describes: 'Managers who are true leaders can inspire their employees to transform their workplaces into inclusive organisations.' Thus, we can understand the role of champions both within organisations but also within the community/country as agents capable of promoting a feeling of inclusivity (beyond the numbers of participants).

Addressing diversity and inclusion provides important benefits for increasing business innovation and performance. Existing studies show that diversity and inclusion contribute to enhance creativity, by leading to better decision-making and problem solving which in turn increases innovation in companies (Forbes, 2011). In addition, diversity and inclusion is also associated with better financial performance. Indeed, as shown by a recent McKinsey report, 'companies in the top quartile for gender or racial and ethnic diversity are more likely to have financial returns above their national industry medians' (McKinsey, 2018). Diversity and inclusion also matter in attracting employees, with a particular reference to 'Millennials': a study conducted by PwC in 2015 found that 86% of female millennials consider prospective employers' policies on diversity, equality and inclusion (PwC, 2015). Despite these potential benefits, a genuine inclusive culture 'where all talents feel valued regardless of gender, ethnic background or sexuality, to higher reported innovation and team work' is still lacking in many companies (Zimmermann, 2017).

2. Flagship diversity and inclusion programmes

The identification of flagship initiatives is based upon the following methodology. Our research team first identified **at least five national initiatives in each case** (see Appendix III for details of full suite of top initiatives identified in each case), through desktop research. Then, in our interviews we collected feedback on performance and impact of the identified programmes. In the fieldwork interviews we asked ‘what are the two flagship initiatives aimed at inclusive innovation in your country?’. We asked interviewees to consider **(1) visibility, (2) positive reputation and (3) relevance** (e.g. extent to which it is specifically focused on inclusive innovation).

The answers most frequently given by expert interviewees for each case study are specified in the table; where there was not consensus from interviewees, the ranking reflects the findings of desktop research in terms of mentions as effective in raising awareness of diversity and inclusion in innovation. In this way, our research team considered the three criteria of visibility, positive reputation and relevance in our desktop research. Visibility was demonstrated by the availability of information on the programme through desktop searchers. For positive reputation, we considered nominations for international prizes. For example, the Women Leaders Programme, in Finland, won first prize in the best corporate social responsibility category at the World Chambers Competition in Torino in 2015 and the Netherlands Enterprise Agency’s Starters International Business (SIB) programme was shortlisted for the International Trade Promotion Network Award in 2016. However, in keeping with the third criteria – relevance – we assessed the relevance of the award to inclusive innovation; in the case of the SIB programme, the research team concluded that it is a broadly oriented programme for encouraging internationally oriented entrepreneurs, but not specifically inclusive innovation.

Here we identify what we have found – based upon desktop research and through fieldwork interviews – to be the two most visible and relevant diversity and inclusion efforts in each of the 10 countries studied. To be sure, the two initiatives per country identified here are primarily those **perceived to be the most impactful**, based upon our interviews. Table 2 indicates these flagship initiatives by name and also provides a one-sentence summary of the initiative and the date launched.

Table 2. Flagship diversity and inclusion efforts

Country	Programme 1	Programme 2
Estonia	Startup Estonia Strategy to strengthen startup ecosystem, via training programmes, education, attracting investors, and eliminate regulatory hurdles Launched: 2014	Estonian Integration Strategy 2014 Aims to help immigrants integrate into society through promotion of equal treatment and multilingual public and private support Launched: 2014
Finland	Immigrants and Innovation Economy Maps best practices for matching immigrants’ competencies with innovation in business and internationalisation Launched: 2017	Women Leaders Programme Promotes women in leadership positions, conducts research studies and provides mentoring and training Launched: 2008
France	A New Deal for Innovation (une nouvelle donne pour l’innovation) Strategy aimed at propelling all forms of innovation and all talents by reducing cultural	French Tech diversité Promotes social diversity in the French startup ecosystem, primarily on a socio-economic basis Launched: 2017

	<p>limitations and encouraging initiative, creativity and the taste for entrepreneurship</p> <p>Launched: 2013</p>	
Israel	<p>Digital Israel Initiative</p> <p>Strives to deliver equitable economic growth through the furthering of access to – and upgrading of – the technology infrastructure</p> <p>Launched: 2013</p>	<p>Integration of minorities into the hi-tech sector</p> <p>Grant programme that encourages product development from the Arab and ultra-Orthodox communities</p> <p>Launched: 2014</p>
Netherlands	<p>StartupDelta</p> <p>Network that provides a ‘single hub’ for startups to scale through access to capital, talent, networks, and technology</p> <p>Launched: 2015</p>	<p>Inspiring Fifty</p> <p>Identifies 50 female role models in technology as a means of encouraging women in the sector</p> <p>Launched: 2013</p>
Norway	<p>Norwegian Boardroom Quota</p> <p>Legislation requires large enterprises listed on the Norway Stock Exchange to have at least 40% women on their boards</p> <p>Launched: 2008</p>	<p>Innovation Norway’s ‘Reverse Mentoring’</p> <p>Programme implemented in public and private sector that pairs senior executives as mentees with young employees as mentors</p> <p>Launched: various</p>
Poland	<p>Mature Entrepreneur</p> <p>Guidance and financial support to people aged 50 to 64 years old with desire to start a business</p> <p>Launched: 2009</p>	<p>Entrepreneurial Eastern Poland</p> <p>Fosters entrepreneurship and a culture of innovation in the underdeveloped regions of eastern Poland</p> <p>Launched: 2014</p>
Sweden	<p>Swedish programme for Promoting Women’s Entrepreneurship</p> <p>Coaching and training to promote women in entrepreneurs across the country</p> <p>Launched: 2007</p>	<p>Open up! A National Strategy for Business Promotion on Equal Terms</p> <p>Mainstreams gender, ethnic and age diversity within the business sector through promotion, knowledge production and exchange and reporting</p> <p>Launched: 2015</p>
United Kingdom	<p>Women in Innovation</p> <p>Award for women innovators offering funding, mentoring and training</p> <p>Launched: 2016</p>	<p>Tech Talent Charter (TTC)</p> <p>Initiative, now backed by government, in which company signatories commit to pursuing diversity and inclusion</p> <p>Launched: 2017</p>
United States	<p>Code.org</p> <p>Non-profit initiative that teaches coding skills to women and underrepresented groups</p> <p>Launched: 2013</p>	<p>Inclusive Innovation Initiative (I3)</p> <p>Funding and access for minority entrepreneurs to commercialise technologies created in the Federal Laboratory Consortium</p> <p>Launched: 2014</p>

Source: LSE Consulting

In Sections 4 and 5 we will discuss these initiatives in greater detail, identifying Strengths, Weaknesses and Gaps across the cases as well as citing best practices in policy design, implementation and evaluation.

3. Comparative country-level data on diversity and inclusion in innovation and entrepreneurship

3.1. Introduction

Prior to examining the individual country case studies, it is important to look at the innovation performance indicators for the ten countries covered by this Global Review. These measures allow us to obtain a greater understanding of the countries' overall innovation contexts, as well as their relative strengths and weaknesses in their innovative performance. The indicators can also indirectly contribute to measurements of the countries' inclusive innovation policy impacts, which is especially beneficial in cases where the policy outcome metrics are not publicly available. This is not a perfect solution to a missing metrics problem, but paired with expert interviews, these rankings and indicators can help identify successful and unsuccessful inclusive innovation policies. We use existing performance indicators related to both innovation and entrepreneurship, although as we discuss later in this section, the two concepts are **neither interchangeable nor all-inclusive**.

Before we compare performance on diversity and inclusion in innovation, we first identify the rankings and scores of the 10 countries in leading international measures of innovation. Table 4, below, presents the rankings and scores for each country in the latest GII and WEF indices. It also includes national scores for Total Entrepreneurial Activity Rates, produced by the Global Entrepreneurship Monitor (GEM) for 54 countries annually. The TEA measures the % of adults (on a national basis) who have started or are running a business up to 3.5 years. These two sets of innovation and entrepreneurship statistics offer a baseline for what will follow in terms of data on the participation rates of particular demographics in innovation and entrepreneurship.

The GII and the WEF's Global Competitiveness Ranking are leading global innovation measurements. The GII is co-published by Cornell University, INSEAD, and the World Intellectual Property Organisation (WIPO). The GII ranks the innovative capacity of 127 countries based on two equally weighted sub-indices, the Innovation Input Sub-Index and the Innovation Output Sub-Index. The Innovation Input Sub-Index contains five internal pillars: Institutions, Human Capital and Research, Infrastructure, Market Sophistication, and Business Sophistication (Cornell University, INSEAD, and WIPO 2017, p.49). The Innovation Output Sub-Index contains two internal pillars: Knowledge and Technology Outputs and Creative Outputs (Ibid., p.52).

The WEF Global Competitiveness Ranking attributes a score and rank to 137 countries based on their twelve pillars of competitiveness, including infrastructure, technological readiness, and innovation, and on weighted overall scores (WEF 2017, p.317). The Innovation Pillar Score considers several indicators, including: company investment into R&D, the prevalence and quality of scientific research institutions, cross-sector collaboration in research and technology, and intellectual property protections (Ibid., p.319-323).

It is important to note that neither the GII framework nor the WEF Innovation Pillar Scoring takes inclusion and diversity into account. The GII's Institutions pillar (within the Innovation Input Sub-Index) encapsulates political, regulatory and business environments at the broad level, not as experienced by particular or different groups within the country. Similarly, GII's Human Capital analyses top-level attainment in terms of education, tertiary education and research & development. Similarly, in the WEF's Innovation pillar the indicators capture top-line investment in R&D, cross-institutional collaboration and quality of scientific institutions and IP protection. It does not include, for example, the share of scientific patents filed by women. This 'top-line' conceptualisation of innovation is not one that takes inclusion and diversity of the ecosystem into account.

We include entrepreneurship indicators in addition to the innovation scores, as the two terms (entrepreneurship and innovation) are in fact distinct, and policies aimed at promoting one would not necessarily also advance the other. Simply said, innovation refers to new products or processes, and thus, a new way of using inputs (factors of production in economic terms). Innovation can (and is) undertaken by all types of individuals and firms, including startups through to large multi-nationals. Entrepreneurship, on the other hand, most typically refers to the creation of a new firm or entity. In this sense, entrepreneurship is about forming a new company whereas innovation is about creating a new product or service. Innovation does not need to – and often does not – occur in a new firm, and a new firm is not necessarily innovative.

Thus, innovation capacity is often measured in terms of intellectual property (e.g. patents) and the quality and structure of research institutes, as in the GII and WEF methods. Entrepreneurship has more to do with the establishing of new companies, and so indicators include the rates of entrepreneurship as well as attitudes (spirits) towards risk. As one means of differentiating between types of entrepreneurship, GEM conceptualises ‘opportunity-driven’ and ‘necessity-driven’ entrepreneur, pointing to the different types of motivations for starting one’s own company. It can be in pursuit of an opportunity (e.g. deciding to leave a job to create a high-technology startup) or in response to the lack of options (e.g. starting a corner shop because of a lack of local high-quality jobs or one’s lack of credentials).

Given these differences, it is reasonable to expect that countries that perform well on innovation will not necessarily be outperformers in terms of entrepreneurial activity. There are a multitude of factors shaping entrepreneurship rates, or the ‘entrepreneurial framework conditions’. These include the fear of failure, local job market opportunities, social attitudes about entrepreneurship as a career, infrastructure, availability of finance, etc. (see GEM 2018). In fact, there may be a negative relationship between the two, as outperformance on innovation could mean the availability of high-quality jobs, and thus reduce the desire (and of course need) for entrepreneurship. Globally, the region with the highest TEA is Latin America (at 18.5%) while Europe has the lowest (8.1%). This global view of entrepreneurship rates by region corroborates the notion that a lack of opportunities can act as a strong driver of entrepreneurship.

This non-relationship – or even inverse relationship – between innovation and entrepreneurship is evident in Table 4 below. The countries that are most entrepreneurial, in terms of ranking, are Estonia, the USA and Israel, respectively, but this does not match the top rankings for innovation. In fact, the three least entrepreneurial countries – France, Sweden and the UK, respectively – are highest rated for their innovation. Sweden is the 2nd most innovative country in the world, leading the GII ranking, with the Netherlands, the USA and UK following in 3rd, 4th and 5th positions.

In the current context of efforts striving to support the rise of ‘startup nations’ there is a dual aim to support innovation-centric entrepreneurship. The objective is to offer support essential to the advance of startups that will constitute a local version of Silicon Valley; a dense cluster of technologically-oriented firms with high-growth potential. In this vein, these **national rankings of top-level innovation and indicators for entrepreneurial activity can inform only part of the story.** They do not, in and of themselves, reveal the propensity for Startup Nation activities. These global scorecards are useful here as a benchmark for the overall strengths of the 10 country cases in terms of innovation capacity and the rates of entrepreneurship vis-à-vis data on inclusivity and diversity in innovation and entrepreneurship activities.

Although all ten countries are in the top 50% globally according to both innovation measures, there are several innovation leaders within this sample. The top performers include Sweden (ranked 2nd by the GII and 7th by the WEF), the USA (ranked 4th by the GII and 2nd by the WEF), and

the Netherlands (ranked 3rd by the GII and 6th by the WEF). Poland was the lowest scoring country in this sample by both measures, ranked 38th by the GII and 59th by the WEF. Excluding Poland, the other countries in this sample scored within the top 25% globally.

Countries' relative scores in top-line innovativeness help us formulate expectations for the level of patenting activity, activities in the ICT sector, etc. In the next section we then explore the extent to which their innovation activities are characterised as diverse and inclusive. Said simply, we pay attention to the extent to which the top scoring countries (e.g. Sweden, the USA and The Netherlands) are the leaders in inclusive innovation, or vice-versa, how the relatively lower-positioned countries, in this case Poland, score in terms of inclusive innovation. In the sub-sections that follow we briefly speak to the picture for inclusive innovation scoring and rankings for distinct segments, particularly by gender, ethnicity, age, sexuality/LGBTQ and people with disabilities.

Key points

- Neither the Global Innovation Index nor the World Economic Forum Innovation Pillar Scoring methodology takes inclusion and diversity into account; their methods focus on 'headline' capabilities such as R&D spending, patents filed, etc. **rather than participation by demographic groups.**
- It is reasonable to expect that countries performing well on innovation **will not necessarily be outperformers in terms of entrepreneurial activity.**
- National rankings of top-level innovation and indicators for entrepreneurial activity **do not paint a complete picture of a country's prowess as a high-technology 'Startup Nation'**. These indicators are, however, a starting point by which we can explore the inclusivity and diversity of innovation and entrepreneurial activities.

Table 3. Overall innovativeness and entrepreneurial activity scores and rankings

Country	Global Innovation Index (2017)		World Economic Forum (2017-2018) Global Competitiveness Ranking - Innovation Pillar		Global Entrepreneurship Monitor Total Early-stage Entrepreneurial Activity (TEA) (2017)	
	Rank 1 of 127 countries	Score out of 100	Rank 1 of 137 countries	Score 1 to 7	Rank out of 54	Value
Estonia	25	50.93	30	4.0	11	19.4%
Finland	8	58.49	4	5.7		
France	15	54.18	17	4.9	53	3.9%
Israel	17	53.88	3	5.8	22	12.8%
Netherlands	3	63.36	6	5.6	29T	9.9%
Norway	19	53.14	14	5.0		
Poland	38	41.99	59	3.4	34T	8.9%
Sweden	2	63.82	7	5.5	43T	7.3%
UK	5	60.89	12	5.1	40	8.4%
USA	4	61.40	2	5.8	18	13.6%

T – indicates that the ranking is the same for two or more economies; Ranking from 1-54 countries

**As of the 2017-2018 report, Finland and Norway are not included in Global Entrepreneurship Monitor's 54-country sample.

Source: GII (2017), WEF (2017-2018)

3.2. Inclusivity of innovation

3.2.1. Gender

Efforts to increase women’s participation in innovative and entrepreneurial activity is a pervasive issue across the OECD. A 2015 OECD study reported that although 58% of students that graduated from a higher education institution with a bachelor’s degree in 2013 were women, only 31% of bachelor’s degrees awarded in science and engineering went to women (OECD 2015). The 2016 Report of the United Nations Secretary-General’s High-Level Panel on Women’s Economic Empowerment provides strong evidence that women are lagging behind men in terms of the number of female business owners, the size of women-owned businesses, and their access to economic resources.

The reasons for these lags are complex and the subject of significant academic and popular debate. Research into the causes of female underrepresentation in STEM fields points to ‘self-efficacy, institutional culture, discrimination, and bias [that] limit female participation in science’ while other researchers ‘do not find evidence of widespread, contemporary discrimination against women in STEM fields; instead, they primarily attribute disparities to family formation and child rearing, gendered expectations, lifestyle choices, career preferences and personal choice, among other complex factors’ (Gonzalez and Kuenzi, 2012, p. 26). As the causes for this underrepresentation are intricate and still under debate, we first look at each country’s performance in female entrepreneurship and innovative activity to establish a baseline to measure their overall inclusive innovation environment.

This review has primarily used four sources to obtain cross-national measures of women’s participation in innovation and entrepreneurship. The **Global Entrepreneurship Research Association** has published biannual reports on women’s entrepreneurship, which provide analysis of female entrepreneurs who intend to start and run businesses. Their 2016-2017 Report on Women’s Entrepreneurship measures the female and male TEA rates that represent the percentage of the adult population either in the process of starting a business or who have recently started a business (Global Entrepreneurship Research Association 2015, 17). The report also provides measurements on the female-to-male TEA ratio, and female-established business activity for each country (Global Entrepreneurship Research Association 2017).

Deloitte’s Women in the Boardroom Report (2017) measures the percentage of corporate board seats held by women within each country (Deloitte 2017). The OECD measures the rates of female-held patents and female inventors in their Science and Technology Report 2017 and their 2016 Gender Data Portal database (OECD 2017, OECD 2016). **The OECD Gender Data Portal** provides data on 18 indicators related to female entrepreneurship including the share of female-owned sole proprietor enterprises, earnings gap in self-employment and attitudes toward entrepreneurial risk. However, geographic coverage is limited to the 35 OECD members and partner economies.

The **International Finance Corporation (IFC) Enterprise Finance Gap Database** is based on data from a 2010 study by the International Financial Corporation and is published by the World Bank Group. It estimates the number of informal, micro, very small, small, and medium enterprises in different countries (World Bank Group, 2010). The database includes two key metrics: the total number of SMEs, which include very small, small, and medium enterprises, and the number of female-owned SMEs in each country. SME ownership is categorised in three ways: female-owned, not female-owned, and ‘not applicable.’

We analysed the IFC data to determine the rates of female-owned SMEs in the sampled countries. This analysis involved dividing the number of female-owned SMEs by the total number to calculate each country’s rate of female-owned SMEs. The USA had by far the greatest number of SMEs in total and in terms of female ownership; however, their female ownership rate was the lowest of all the sampled

countries at 34.60%. This corresponds with their low level of female board seats even in the context of their high female entrepreneurial activity levels. Poland exhibited the highest female ownership rate at 48.13%, which is consistent with Poland's high rates of female-held patents and female inventors. Estonia has the lowest number of SMEs in the sample but is relatively close behind Poland at 46.79% female-led SMEs. The average rate of female-led SMEs for the sampled countries is 38.20% and the median is 35.80%. The relevant data on female participation in entrepreneurship and innovation for the ten sampled countries is detailed in the tables below (Table 4, entrepreneurship, and Table 5, innovation and corporate leadership).

Table 4. Female entrepreneurship rates

Country	Female Entrepreneurship Rates			
	Female TEA Women Entrepreneurship 2016/2017 Report	Female- Established Business Activity Women Entrepreneurship 2016/2017 Report	Ratio F/M TEA Women Entrepreneurship 2016/2017 Report	Female-owned SME rates IFC Enterprise Finance Gap 2018
Estonia¹	11.7%	5.7%	0.6	46.79%
Finland	5.6%	5.1%	0.7	35.94%
France	3.4%	2.9%	0.5	36.01%
Israel	9.4%	2.8%	0.7	
Netherlands	8.6%	5%	0.6	35.43%
Norway	3.8%	3.4%	0.5	35.80%
Poland	8.1%	4.9%	0.6	48.13%
Sweden	6.3%	3%	0.7	35.79%
UK	5.6%	4.1%	0.5	35.29%
USA	10.5%	7.6%	0.7	34.60%

Source: GEM (2017), IFC (2018)

In addition to the global studies, BEIS published the results of its 2017 Longitudinal Small Business Survey, which found that 19% of SME employers (with up to 249 employees) in the UK were led by women (BEIS, 2018: 1). Women-led businesses were less common in the information/communication sectors, at the rate of 10% (ibid, p. 50). Note that the BEIS Longitudinal survey methodology only counts businesses that are **majority led** by women while the IFC Finance Gap data reported in the table above has a different methodology; the IFC counts businesses that have a woman as one of the founders/chief executives (who are not necessarily 'majority' leaders). BEIS (2018) explains that 'While 19% of SME employers were women-led businesses, 21% were equally-led by men and women, 9% had women

¹ Estonia's female patenting rate as a% of all technologies is not reported in the 2017 OECD report as its reporting did not meet the minimum threshold of 80% of patent filings having reliable gender data.

leaders in the minority, and 48% were entirely male led'. Thus, the BEIS methodology does not count the 21% of firms that were equally led by men and women whereas the IFC does.

Table 4 above details entrepreneurship rates as indicators of women's propensity towards starting a business. Across these indicators, the ten countries sampled had varying levels of female participation in innovation and entrepreneurship. **Based on the GEM 2016-2017 Report on Women's Entrepreneurship, women have the highest relative TEA rates and business activity levels in Estonia and the USA in the countries sampled.**

Below, Table 5 details female board rates as a measure of ability to enter senior management positions and patents as an indicator of women as the driver of inventing activities. The table includes two different indicators for female patenting activity rates, the % of All Technologies and Share of Women Inventors. These refer to two distinct datasets. The first, the % of All Technologies, represents the % of all technology-labelled patents have a women inventor named on the patent filing. The other indicator, Share of Women Inventors, is sector agnostic and so shows the share of all patents filed which have at least one woman named as inventor (and as a result, the figures are higher as they include all sectors).

According to Deloitte's most recent Women in the Boardroom Report, Norway has the highest rate of female-held board seats at 42% and Estonia has the lowest at 8% (Deloitte, 2017). It is important to note that Estonia's measure uniquely refers to the percentage of women serving on a sample of the country's company boards rather than the entire population of company boards. Excluding Estonia, the lowest level of female board seats is the USA at 14.2%, which is noteworthy given their relatively high level of female entrepreneurship activity. The average of all the ten sample countries' female board seat rates is 23.8%, which shows that overall the sample countries have not reached gender parity in corporate leadership. However, the relatively large spread between the lowest and the highest percentage indicates that policy implementation can have a positive impact on encouraging female firm leadership.

Table 5. Female board participation and patent rates

	Female Board Rates	Female Patents	
Country	Board Seats Held by Women Deloitte Women in the Boardroom Report 2017	% of All Technologies Data – OECD Science and Technology Report 2017	Share of Women Inventors OECD Gender Data 2016
Estonia	8%		13.3%
Finland	24.7%	7.3%	9.1%
France	40%	10.5%	12.3%
Israel	20.8%	11.6%	10.8%
Netherlands	21.4%	7.4%	9%
Norway	42%	6.7%	7.3%
Poland	15.2%	12.6%	14.1%
Sweden	31.7%	6.5%	9.1%
UK	20.3%	8.5%	9%
USA	14.2%	10.2%	10.4%

Source: Deloitte (2017); OECD (2016, 2017)

The OECD measured rates of female-held patents and female inventors revealed several important insights. **Poland is the leader in both patenting areas, with women holding 12.6% of all patents and 14.1% of their inventors listed as female.** In contrast, Poland has one of the lowest scores for women on board seats. Sweden has the lowest rate of female patent holders at 6.5% and Norway has the lowest share of female inventors at 7.3%. This relatively low performance in this realm is noteworthy given their high scores for overall innovativeness—especially Sweden, which is ranked 2nd for overall innovativeness by the GII (2017). However, as noted before, the GII methodology – as well as the World Economic Forum indicators for innovation capacity – do not cover the inclusivity and diversity of innovation activities, but rather the ‘top line’ statistics in terms of R&D spending, volume of patents, etc. Sweden does perform well – in the top three countries – for women on the board, though. **Performance in one measure (patents) does not correlate to another (leadership position). These contrasting performances – by Poland and Sweden most notably – are indicative of the need for government policy efforts to target particular behaviours (e.g. women in the laboratory, in corporate leadership positions, or in encouraging entrepreneurship).** Sweden, for its part, has inclusive innovation policies that strive to increase female engagement in innovation. If effective, we would expect to see female patent filing activity levels to rise in Sweden in the coming decade.

3.2.2. Ethnicity/race

Entrepreneurship and patent-filing rates are not available on a global comparative basis. This is due, in part, to legal restrictions in some jurisdictions on what demographic information can legally be collected. Global Entrepreneurship Monitor (GEM), for example, does not include ethnicity as an organising category in its Global report. It does, however, include entrepreneurship by ethnicity indicators in some of its recent national reports, including that of the UK (2017), Israel (2016) and the USA (2016). For UK data, BEIS also published the results of a longitudinal survey of SMEs in 2017, which offers insights into minority ethnic group (MEG)-led SMEs in the UK.

The GEM UK 2017 national report findings revealed that TEA rates of the UK’s white ethnic population was significantly lower than that of the nonwhite population, at 7.9% (white ethnic population) compared to 14.5% (nonwhite population) (Hart et al. 2018: 28). The report also found a significant differential between UK-born lifelong residents and immigrants, with the immigrant rate of 12.5% being significantly above the rate for UK born lifelong residents at 8.2%. In fact, this UK born lifelong residents category also exhibits lower entrepreneurial activity rates than those who are UK-born but has lived abroad, as this category has Total early-stage Entrepreneurship Activity rates of 9.2% (Hart et al. 2018: 29). The overwhelming majority of this entrepreneurial activity – across the different groups – is opportunity-driven rather than necessity-driven.

The 2017 BEIS longitudinal SME study (2018) found that 4% of SME employers in the UK were majority MEG-led. This rate has been relatively static for the last few years, as the survey found that there was no statistically significant difference in the overall proportion of MEG-led businesses between 2015 and 2017. Interestingly, the survey found that MEG-led businesses were more likely in information/communication (8%) and less likely in construction (2%). This suggests – for this report on inclusive innovation – that MEG-led SMEs are likely to be active in innovative sectors such as ICT. There is a spatial distribution to MEG-led businesses in the UK, as MEG-led businesses were most common in London (11%) and were least common in the South West and Northern Ireland (both 1%). For those MEG-led businesses where the ethnic origin of the sole owner or management team was known, ethnic origins were Indian (23% of MEG-led businesses), mixed-race (20%), Black Caribbean or African (11%), Pakistani (10%), Chinese (4%), other Asian (12%), Arab (3%) and other (4%) (BEIS, 2018).

In the USA, the GEM 2016 report asserted that the majority of entrepreneurs, 64%, are White/Non-Hispanic/Caucasian, which they note is reflective of the U.S. population. Black/African Americans and

Latino/Hispanic ethnicities account for 14% and 8% of entrepreneurs, respectively (Kelley et al. 2017: 10). As of 2015 racial composition data by the American Community Survey, 62% of Americans are non-Hispanic white, 17.3% Hispanic or Latino, and 12.6% Black or African American. The comparison of entrepreneurship rates relative to demographic distribution in the USA is that Black/African Americans constitute a slightly greater proportion of entrepreneurs than their demographic figures while Latino/Hispanic ethnicities less (17.3% of population versus 8% of entrepreneurs). More than the static figures from 2016, results from GEM studies from 2014 to 2016 suggest that entrepreneurship rates are more stable among the White/Non-Hispanic/Caucasian population than with minority groups.

The GEM 2016 report on convergence in Israel found that there has been a significant increase in the rate of entrepreneurship in the Jewish Orthodox and Arab sectors, especially amongst women. Still, the TEA rates are highest within the 'Veteran Jews' category, at 12.4% as of 2015, with Immigrants from the Commonwealth of Independent States (CIS) at 11.7% and Arabs at 8.9%. As a point of comparison, as of 2007 the TEA amongst these three groups was 6.5% for Veteran Jews, 3.1% CIS and 2.7% amongst the Arab population (Ehud et al. 2017: 18). Over time, the relative gap between groups has decreased whilst the TEA rates have increased across segments of the Israeli population.

Causes of the relatively low rates of women and minorities in innovative business activities are numerous, including barriers to accessing financing, weak connection to entrepreneurial networks, and living in deprived areas (Planes-Satorra and Paunov, 2017: 10-11). Minorities are disproportionately likely to experience poverty, which makes it more difficult to access education and other resources that promote innovation (Heilman and Chen 2003, p. 359). Stereotypes attributed to certain ethnicities and races may cause investors to avoid funding innovators from minority groups due to a greater perceived risk involved (Ibid. p.359).

One of the challenges to comparative data on ethnicity in inclusive innovation stems from the fact that different countries conceptualise the meaning of the term 'minority' in different ways. In the USA, 'minority' is a status that is legally awarded, on the basis of race, ethnicity, and religion, by which the group files a petition for minority status treatment on the basis of experiencing discrimination. As of spring 2018 in the USA, the term minority includes African Americans, Hispanic Americans, Asian Americans, Native Americans, Alaska and Pacific Islands and the Hasidic Jewish community. With this remit in mind, inclusive innovation policies as run by the Minority Business Development Agency in the USA reflect this conceptualisation by targeting certain underrepresented racial/ethnic demographics. More broadly, inclusivity and diversity efforts target representation by gender, socio-economic status and the rural/urban divide. In Estonia, minority inclusion programmes typically focus on immigrants and non-Estonian speakers, with particular emphasis on Russians and Russian-speakers, which make up 25% of the country's population of 1.3 million (Scrutton and Mardiste 2017). Yet again distinct, in Israel, the term minorities in the context of inclusive innovation policymaking is used to specifically refer to the underrepresented groups of the Israeli Arab and the Jewish (Ultra-Orthodox) communities.

3.2.3. Age

Many countries have initiatives to increase underrepresented age groups in innovation. These initiatives are typically **aimed either at young people**, as is the case with **the UK's Young Innovator Programme** and **Norway's Outstanding Young Investigators Scheme**, or **at older people**, such as **Poland's Mature Entrepreneur scheme**.

Entrepreneurship rates across age groups are available from the GEM. The GEM measures these rates through the TEA scores across five different age groups: aged 18-24 years, aged 25-34 years, aged 35-44 years, aged 45-54 years, and aged 55-64 years. In the latest GEM annual report (2017/18), the scores and rankings for each of the countries in the sample is as follows:

Table 6. Total Early-Stage Entrepreneurship Activity (TEA) Rates by Age Group

Country	TEA Score and Rank by Age Group (GEM Global Report 2017/2018)									
	TEA Score	TEA Rank	TEA Score	TEA Rank	TEA Score	TEA Rank	TEA Score	TEA Rank	TEA Score	TEA Rank
	Aged 18-24	Aged 18-24	Aged 25-34	Aged 25-34	Aged 35-44	Aged 35-44	Aged 45-54	Aged 45-54	Aged 55-64	Aged 55-64
Estonia	24.6	1	25.3	11	23.5	8	16.1	12	8.7	20
Finland										
France	1.6	53T	5.0	52	4.4	54	3.9	51	4.0	41
Israel	7.5	33	14.8	24	14.5	24	13.5	19	12.5	11T
Netherlands	11.2	22	15.0	23	12.7	27	6.5	42	5.4	31
Norway										
Poland	3.7	47	18.7	16	9.2	41	6.7	41	2.5	49T
Sweden	7.9	30	8.2	45	7.9	44	7.8	36	4.5	37
UK	6.8	34T	11.6	31	8.6	43	9.0	32	5.0	32T
USA	11.4	21	17.4	19	16.4	21	14.1	18	7.6	24

T – indicates that the ranking is the same for two or more economies; Ranking from 1-54 countries

**As of the 2017-2018 report, Finland and Norway are not included in Global Entrepreneurship Monitor's 54-country sample.

Source: GEM 2018, LSE Consulting

Estonia has the highest TEA ranking and score overall and out of the ten sampled countries.

While Estonia's TEA scores stay fairly consistent throughout the three youngest age groups (aged 18-24, 25-34, 35-44), their TEA scores vary, with their first place ranking in the youngest age group decreasing to 11th with the second age grouping. France is ranked the lowest of the sampled countries across all the age groups except for the oldest age group (aged 55-64), where they are ranked 41st and Poland is ranked 49th (tied). This is interesting given that both the GII and WEF ranked France above Estonia for innovation by at least ten places for both measures. Poland's entrepreneurship rates are relatively low across all the age groups, except for the second group (aged 25-43) with a TEA score of 18.7 and overall rank of 16. This relatively high score for this demographic may be due to Poland's emphasis on encouraging postgraduate students to innovate with their Innovative Entrepreneurs' Club and Master of Innovation Contest initiatives.

3.2.4. People with disabilities

People with disabilities face significant barriers to engagement in innovation and entrepreneurship. A disability is commonly defined as 'the loss of or an abnormality in an anatomical, physiological or mental structure or function of a person, which in interaction with various attitudinal and environmental barriers may hinder his or her participation in society on an equal basis with others' (Travors 2009, p. 3).

Not all countries collect information on people with disabilities and their participation in innovation, which made it difficult to find cross-national data for the ten countries sampled.

However, several countries have taken steps to include this population in their innovative and entrepreneurial communities.

The USA and Estonia are two such countries. In the USA, there are over 56 million people with disabilities, in a population of 325 million (as of 2017). At 17% of the population, people with disabilities are the largest minority group in the country. Technological innovations, such as Project Emma, can help improve the livelihoods of those with disabilities. In the case of Project Emma specifically, the technology is a prototype watch that cuts short the hand tremors caused by Parkinson's. In 2008, 135,419 Estonians were listed as people with disabilities, which is 10.1% of their 1.3 million total population (TRAVORS 2009, p. 3). According to the Finnish Institute of Occupational Health, there are some 70,000 people with disabilities in Finland who are capable of working (this in a population of 5.5 million, so 1.2% of the Finnish population). However, only 60% of them are employed (Nevala et al., 2015).

Specific initiatives or policies include:

- The Estonian Integration Strategy 2014 promotes including immigration and minorities in the labour market. The Special Care and Welfare Development Plan for 2014–2020 attempts to overcome barriers that keep people with disabilities from finding employment and being included in the innovation/entrepreneurship space (Estonia, 2017).
- The Finnish National Innovation Strategy from 2008 sets diversifying Finland's innovation policy as its goal (OECD, 2016). The aim is to enhance the competence-based competitiveness of different regions and the national economy. Indeed, within the current policy framework, the government is pushing for a comprehensive approach aimed at the inclusion of different kind of groups - such as immigrants, young people, people with disabilities, and women - to innovation processes (OECD; 2016; Interview 2). **Since 2016 the Finnish government launched the 'Entrepreneurship for people with disabilities' initiative**, which aims to have more people with disabilities and people with partial work ability as entrepreneurs. Professionals in the service system will receive complementary training in order to be able to effectively and successfully use the means meant to support people with partial work ability'.
- In France: Since 1987, companies with more than 20 employees are legally mandated to a 6% quota of employees with disabilities. Employers failing to comply have to pay a contribution to a fund dedicated to facilitating the professional insertion of disabled people into the economy.
- In the USA, awareness campaigns run by the USA Business Leadership Network (a non-profit initiative organised by the private sector) such as #GAAD (Global Accessibility Awareness Day) strive to bring the issue of how technology can be designed and used by people with disabilities. USBLN also runs an annual national conference, which focused on innovation and disability in 2017, as well as runs the Disability Equality Index and organises the Going for Gold initiative that promotes a network of companies that globally share best practices around disability inclusion.

3.2.5. Sexuality/LGBTQ

There is little research conducted on how Lesbian, Gay, Bisexual, Transgender, and Queer/Questioning (LGBTQ) populations in different countries are inhibited from or encouraged to engage in innovation. Many countries around the world do not have laws that prohibit discrimination against LGBTQ individuals, and this population faces significant barriers to obtaining skill-building

employment, quality education, funding, and other resources that facilitate innovation (Weeks 2015, pp. 105-107).

Despite these challenges, the countries surveyed in this sample overall do not specifically include LGBTQ populations as 'positive discrimination' targets in their major inclusive innovation policies. This is a significant gap in inclusive innovation promotion because implementing initiatives to attract and retain LGBTQ individuals in the entrepreneurial and innovation space can increase the community's innovative capacity and positively contribute to the economy (Benner and Pastor 2017, p. 19).

Key findings

Gender

- Efforts to increase women's participation in innovative and entrepreneurial activity is a pervasive issue across the OECD.
- Based on the GEM 2016-2017 Report on Women's Entrepreneurship, women have the highest relative TEA rates and business activity levels in Estonia and the USA in the countries sampled.
- According to Deloitte's most recent Women in the Boardroom Report, Norway has the highest rate of female-held board seats at 42% and Estonia has the lowest at 8%.
- In the gender data on innovation and entrepreneurship, performance in one measure (patents) does not correlate to another (the% of women on boards). These contrasting performances – by Poland and Sweden most notably – are indicative of the need for government policy efforts to target particular behaviours (e.g. women in the laboratory, in corporate leadership positions, or in encouraging entrepreneurship).

Ethnicity

- Entrepreneurship and patent-filing rates are not available by ethnicity/minority/race basis on a global comparative basis. This is due to a combination of factors, including some legal requirements against such information being collected, to processes that could, but do not, capture this information (e.g. patent filings in the USA), and differences in what 'minority' means across countries.
- There are some national studies of entrepreneurship rates by ethnicity; for example, the 2017 BEIS longitudinal SME study (2018) found that 4% of SME employers in the UK were majority MEG-led.

Age

- Age-focused initiatives are typically aimed either at young people, as is the case with the UK's Young Innovator Programme and Norway's Outstanding Young Investigators Scheme, or at older people, such as Poland's Mature Entrepreneur scheme.

People with disabilities

- Not all countries collect information on people with disabilities and their participation in innovation, which made it difficult to find cross-national data for the ten countries sampled.
- One example of a programme focused on people with disabilities is Finland's 2016 launch of the 'Entrepreneurship for people with disabilities' initiative.

LGBTQ

- There is little research conducted on how Lesbian, Gay, Bisexual, Transgender, and Queer/Questioning (LGBTQ) populations in different countries are inhibited from or encouraged to engage in innovation.
- From a policy perspective, little has been done in terms of 'positive discrimination', or targets for growing diversity through the increase of LGBTQ participants.

4. Synergies, gaps and differences

To systematically identify synergies, gaps and differences in approaches to inclusive innovation we mapped out how each of the 10 cases conceptualise the aim of these policy efforts, according to which demographic groups they target, and whether they strive for inclusion on spatial and industrial parameters. We considered similarity and difference across initiative aims, designs, implementation and evaluation elements.

There are synergies in that inclusive innovation efforts **most often focus on demographic conceptualisations of the term** rather than in spatial or industrial terms. Only in a few country cases did the same authority work on demographic diversity and inclusion as well as spatial and industrial aims. In the cases when geographic focus was evident, this tended to reflect the authority striving to target particular demographic communities, and those communities live in geographic clusters (rather than the social inclusion policymakers being equally responsible for and attentive to spatial distribution of activities). As an illustration, an interviewee in France explained that entrepreneurial funding was directed towards ‘immigrants living in underdeveloped suburbs’. The ethnicity component is not a necessary attribute of policies though, evidenced by bpiFrance launching, in 2015, the ‘Prêt Entreprises et Quartiers’ Loan aimed at fostering the creation of enterprises in priority disadvantaged areas in the main French municipalities. This funding is for companies incurring software, training, research and development, advertising, and marketing costs associated with the set-up of companies in disadvantaged areas.

To aid our ability to identify synergies, gaps and differences, we first mapped the varied policy approaches, lead policymaking bodies and evaluation and monitoring issues, as individually detailed in the report’s appendix. The result of this comparative analysis is summarised below in Table 7.

4.1. Synergies

4.1.1. Demographic aims

Across the 10 countries, there is consistency in the extent to which inclusive innovation is primarily focused on gender terms.

Across the countries sampled, the lion’s share of diversity and inclusion efforts focus on promoting the inclusion of women. This at least partially reflects the length of time that the promotion of women has been raised to high ministerial levels, and also the challenges associated with collecting data on some other demographic groups, particularly along ethnicity and race lines. In countries such as France, women’s promotion into the business environment was formalised in policy at the ministerial level in 1998 with the establishment of the Minister of Gender Equality.² In Sweden, the Ministry of Integration and Gender Equality was established in 2007 but then dissolved in 2010, with gender equality work moving to the Ministry of Education and Research. Since 2014, Sweden’s Minister for Children, the Elderly and Gender Equality has been within the Ministry of Health and Social Affairs.

² Ministries of Gender Equality were also established in other countries around the same time. For example, Korea created their Ministry of Gender Equality and Family in 1998 and in Denmark appointed the first Minister for Gender Equality in July 1999.

Table 7. Overview of national strategies

Country	Strategy	Design (by 8 policy types)	Lead policymaking bodies	Evaluation and monitoring
Estonia	Social policy strives to encourage women's broad participation in the workforce as well as to integrate immigrants. There is a bifurcation of efforts aimed at social inclusion in work and those that strive to promote innovation and entrepreneurship. Here we profile both sets of efforts, but note their separation.	(1) Funding: not for specific demographic groups. (3) Regulation: generous parental leave policy (575 days); equal treatment and reducing barriers to entrepreneurship. (4) Clusters, networks and institutes: Startup Estonia to strengthen startup ecosystem. (5) Attracting talent and investment: The 'Work in Estonia' campaign strives to attract foreign talent. (7) Technology Infrastructure: digital platform. (8) Education and training: awareness campaigns, coaching, practical training, particularly for immigrant groups.	<ul style="list-style-type: none"> ▪ Ministry of Economic Affairs and Communications. ▪ Enterprise Estonia. ▪ Startup Estonia. ▪ Ministry of Social Affairs. ▪ Ministry of Culture. 	Key Performance Indicators (KPIs) include: <ul style="list-style-type: none"> ▪ World Economic Forum Global Competitiveness Ranking. ▪ Number of startups, jobs created (in general and for people from certain groups). ▪ Revenue created by startups. ▪ Number of startups with more than 20 employees (to account for scale/growth).
Finland	Efforts aim to promote social inclusion, sustainability and wellbeing. Promoting women, youth and people with disabilities in work, and in entrepreneurship, are part of these broader efforts.	(1) Funding: loans for women entrepreneurs. (3) Regulation: reform legislation to support the employment of people with partial work ability. (8) Education and training: Training for people with disabilities to develop entrepreneurship skills; mentoring and training for women as business leaders and for immigrants (e.g. TOITA and Immigrants and the Innovation Economy).	<ul style="list-style-type: none"> ▪ Tekes ▪ Ministry of Social Affairs and Health. ▪ Ministry of Economic Affairs and Employment. ▪ Finland Chamber of Commerce. ▪ National Institute for Health and Welfare. 	KPIs include: <ul style="list-style-type: none"> ▪ Employment rates of different groups in business innovation. ▪ Number of events held. ▪ Media coverage. ▪ Policy briefs. ▪ Grants allocated. ▪ Number of contacts with companies, placements and impact in terms of career advancement.
France	Coordinated efforts across government entities, businesses and education sector to promote inclusive innovation on demographic and spatial bases through the use of regulation, provision of targeted finance, and more.	(1) Funding: Loans and grants for entrepreneurs of underrepresented demographics or disadvantaged socio-economic regions, such as the 'Guaranteed Fund for Women's Initiative'.	<ul style="list-style-type: none"> ▪ French Tech. ▪ Ministère de l'Économie et des Finances. ▪ BpiFrance. ▪ Business France. 	A national commission for the evaluation of innovation policies was created in 2014, as a 2013 report revealed the incoherence of the prior system. This commission (the CNEPI) broadly evaluates innovation policies for their economic impact, not specifically inclusiveness or diversity.

		<p>(3) Regulation: requirements for companies to have requisite proportion of women and people with disabilities.</p> <p>(8) Education and training: Training programmes, networks of ambassadors, role models and mentors.</p>	<ul style="list-style-type: none"> ▪ Ministry for Higher Education, Research and Innovation. ▪ Ministry for Social Cohesion. ▪ Ministry of Work. 	
Israel	<p>Inclusive innovation efforts strive to deliver on demographic, industrial and spatial aims, with particular attention given to involving the ultra-orthodox and Arab minorities in the high-technology sector given the relative growth of these groups.</p>	<p>(1) Funding: Grants for R&D and entrepreneurial activities for target demographics and spatial dimensions.</p> <p>(7) Technology Infrastructure: digital platform for traditional sectors.</p> <p>(8) Education and training: training focused on how to conduct R&D, coding and job interview skills, mentorship.</p>	<ul style="list-style-type: none"> ▪ Israel Innovation Authority especially: Societal Challenges Division, Startups Division, Advanced Manufacturing Division. ▪ Ministry of Social Equality. ▪ Investment and Industrial Cooperation Authority. ▪ Prime Minister's Office. 	<p>Method for programme evaluations includes telephone surveys of both successful and unsuccessful applicants. Evaluation according to the 'double bottom line' principle.</p> <p>KPIs include:</p> <ul style="list-style-type: none"> ▪ Quantity and quality of applications from minority groups. ▪ Companies and (high-quality) jobs created. ▪ Minority and female employment rates in technology sector. ▪ Labour productivity rate. ▪ Does NOT judge performance according to success of individuals' financial/economic success.
Netherlands	<p>There are many education-focused initiatives targeting social inclusion, entrepreneurship and innovation, though not necessarily concurrently nor using the language of 'inclusive innovation'.</p>	<p>(1) Funding: financial prizes, grants, credit guarantee schemes, seed capital, competitive interest rates for loans for high-growth companies and co-investment.</p> <p>(2) Tax: R&D tax credits.</p> <p>(3) Regulation: target for women's participation on boards.</p> <p>(4) Clusters, networks and institutes: StartupDelta focused on ecosystem, but not necessarily inclusion.</p> <p>(8) Education and training: training, mentorship, vocational training, promoting role models, work training opportunities, entrepreneur tool box.</p>	<ul style="list-style-type: none"> ▪ Ministry of Education, Culture and Science. ▪ Ministry of Justice and Security. ▪ Ministry of Economic Affairs and Climate Policy. ▪ Netherlands Enterprise Agency. ▪ National Platform of Science & Technology. 	<p>KPIs include:</p> <ul style="list-style-type: none"> ▪ Number of women, people with disabilities and immigrant groups with access to science and technology education. ▪ Companies, universities and students involved. ▪ Partnerships created.

<p>Norway</p>	<p>The strategies for supporting inclusive innovation focus on promoting gender equality and incorporating immigrants; the tools include regulation that mandates equality in addition to financial incentives to promote activities.</p>	<p>(1) Funding: Funding for academic projects led by women, grants and micro credit projects.</p> <p>(3) Regulation: Legislation requiring 40% women’s participation on boards of companies listed on Norway Stock Exchange.</p> <p>(4) Clusters, networks and institutes: Innovation Norway established a network focused on women entrepreneurs.</p> <p>(8) Education and training: STEM and research training, coaching, promoting role models, awareness training.</p>	<ul style="list-style-type: none"> ▪ Innovation Norway. ▪ Ministry of Education and Research. ▪ Ministry of Trade and Industry. ▪ Research Board and Forum for Government Officials. ▪ Research Council of Norway. 	<p>A Gender-SWOT tool is used to analyse innovation clusters from a gender perspective.</p> <p>Action-oriented research methods, such as search and dialogue conferences, are used to engage individual and organisations.</p> <p>Committees collect data on gender and diversity and work as watchdogs.</p>
<p>Poland</p>	<p>Inclusive innovation strategies vary from focus on age as well as spatial conceptualisations.</p>	<p>(1) Funding: Financial support, prizes, grants, welfare bridge allowance, promotion of micro-financing system and support for R&D.</p> <p>(8) Education and training: Guidance, training, mentorship and raising awareness.</p>	<ul style="list-style-type: none"> ▪ Gdansk Municipal Employment Office. ▪ Ministry of Investment and Economic Development. ▪ Polish Agency for Enterprise Development. ▪ Ministry of Economy. ▪ Ministry of Regional Development. ▪ Ministry of Science and Higher Education. 	<p>KPIs include:</p> <ul style="list-style-type: none"> ▪ Companies and full-time jobs created. ▪ Share of innovation-active enterprises (spatially). ▪ European Commission’s European Innovation Scorecard. ▪ Number of innovative SMEs. ▪ % of GDP generated by innovative enterprises.
<p>Sweden</p>	<p>Legislation and regulation are employed to mandate advances in inclusion in Sweden, with particular emphasis on the gender dimension.</p>	<p>(1) Funding: Funding for academic projects led by women, grants and micro credit projects.</p> <p>(3) Regulation: Legislation requiring 40% women’s participation on boards of companies listed on Norway Stock Exchange.</p> <p>(4) Clusters, networks and institutes: development of networks, particularly amongst women entrepreneurs.</p> <p>(8) Education and training: business guidance (in multiple languages), coaching, promoting role models, awareness training.</p>	<ul style="list-style-type: none"> ▪ Swedish Agency for Economic and Regional Growth. ▪ VINNOVA. ▪ Swedish Research Council. 	<p>Swedish Equality Ombudsman developed in collaboration with Nyckeltalsinstitutet a Gender Equality Index called JAMIX. It identifies nine performance indicators of equality, including leadership, career opportunities, salaries, health, part-time work and parental leave.</p> <p>The Open Up! Programme asks organisations to use SMRT goals (specific, measurable, agreed, realistic and time-bound).</p> <p>VINNOVA supports research on gaps between policy and practice.</p>

				KPIs are many, including academic promotions.
UK	Diversity and inclusion are key priorities of innovation strategy, with policy efforts taking a variety of forms, including gender gap reporting requirements through to targeted funding; efforts primarily address women and young people from disadvantaged backgrounds.	<p>(1) Funding: Targeted and open funding schemes.</p> <p>(3) Regulation: Legislation requiring the reporting of the gender pay gap.</p> <p>(4) Clusters, networks and institutes: promotion of networks through Knowledge Transfer Network Ltd and through centres such as Catapult Centres.</p> <p>(8) Education and training: business support and advice, diversity campaigns to raise awareness (including art exhibitions), mentoring from 'innovation champions' and promote role models.</p>	<ul style="list-style-type: none"> ▪ Innovate UK. ▪ Knowledge Transfer Network. ▪ Government Communications Headquarters (GCHQ). ▪ Department of Business, Energy and Industrial Strategy (BEIS). ▪ National Cyber Security Centre (NCSC). ▪ Department for Digital, Culture, Media and Spore (DCMS). ▪ Scottish Government. ▪ Government Equalities Office. 	<p>The UK Innovation Survey is run every other year, providing evaluation and monitoring data.</p> <p>Innovate UK conducted a large-scale survey on the gender of 8,566 funding applicants since 2013.</p> <p>On a programme basis, the following metrics are collected:</p> <ul style="list-style-type: none"> ▪ Number of participants. ▪ Number of 'returnees' to work. ▪ Signatories .
USA	Strategies primarily centre on increasing the participation rates of women and minorities, beginning with education through to workforce realms.	<p>1) Funding: Funding for startups (contracts and grants), technology transfer and prize money.</p> <p>(4) Clusters, networks and institutes: promotion of networks across regional centres.</p> <p>(8) Education and training: business support and advice, diversity campaigns to raise awareness (including art exhibitions), mentoring from 'innovation champions' and promote role models.</p>	<ul style="list-style-type: none"> ▪ Minority Business Development Agency (part of Department of Commerce). ▪ Women's Business Ownership. ▪ Small Business Administration. ▪ National Science Foundation. ▪ National Diversity Council. ▪ State Department – Bureau of Cultural .Affairs. 	<p>In 2016, the U.S. Equal Employment Opportunity Commission published a report on Diversity in High Tech, which revealed that the growing technology opportunity is captured primarily by white men.</p> <p>KPIs include:</p> <ul style="list-style-type: none"> ▪ Number of events held. ▪ Event attendees. ▪ Companies created. ▪ Jobs created. ▪ Revenue growth. ▪ Number of women receiving coaching and training. ▪ Quality of services provided. ▪ Geographic balance of distribution of programme funds, project types, organisational types, and overall portfolio of awards.

Source: LSE Consulting

To enhance inclusive innovation vis-à-vis women and other underrepresented groups, policymakers focus on the root causes of underrepresentation. Causes of the low rates of women and minorities in innovative business activities are numerous, including barriers to accessing financing, weak connection to entrepreneurial networks, and living in deprived areas (Planes-Satorra and Paunov, 2017: 10-11). Ultimately, national efforts are working to ameliorate these drivers of low participation rates through programmes that target increasing rates of women and minorities in science, technology, engineering and mathematics (STEM) studies, for example. These long-term, education efforts centre on endowing underrepresented groups with the skills they will need to compete in innovation-centric sectors.

The relative abundance of efforts focused at promoting women in innovation activities is captured in Table 8. In all but one country (Poland) there is at least one programme explicitly focused on encouraging women's participation. In several cases, there are government regulations that mandate the inclusion of women in leadership positions. There are a large number of prizes, awards and competitions that strive to promote women in innovation activities as well as in leadership positions.

Socio-economic and/or spatial aims are the second largest realm for inclusive innovation initiatives. Such efforts promote innovative activities in disadvantaged regions and strive to further distribute activities beyond capital cities and/or leading clusters. Targeted funding or education and training are distributed to communities on a geographic basis in eight out of the ten cases.

The next silo, in terms of attention and resources received, is age. Seven of the case countries run programmes according to a gender basis. Programmes to promote the inclusion of youth often focus on education, particularly coding and STEM education. This includes efforts such as SheCode and Girlsday, which target participants on both gender and age bases. There are some youth programmes with more of a workplace aim, such as the UK's Young Innovators' Programme and Sweden's Open Up. Across the cases, Poland stands out as formulating efforts aimed at promoting entrepreneurship amongst the mature demographic, through its Mature Entrepreneur initiative.

Third are initiatives to include minority groups according to ethnicity, race or immigrant status. Six of the countries have flagship efforts focused on minorities and/or immigrants. The lack of efforts in some cases was explained by several interviewees as the result of sensitivity associated with collecting data (e.g. in France this data cannot be collected) and, more broadly, integration with respect to immigrant groups. Those programmes that are focused on minorities often focus on integrating immigrant groups, particularly in northern Europe - Estonia, Finland and Sweden. In Israel and the United States, the focus is on minority groups getting more involved in innovative startups, either through grants or industrial parks as in the Israeli case, or through access to commercialising technologies developed in federal laboratories as in the United States.

There is less activity in the realm of encouraging people with disabilities, though there is growing recognition and desire to promote diversity and inclusion with reference to each of these demographics. In four countries there are schemes focused on promoting both entrepreneurship and innovation participation for people with disabilities, notably in Estonia, Finland and France. In the United States, a private sector initiative is leading efforts to propel innovation and technology that improves the quality of life for people with disabilities (e.g. Project Emma) as well as in promoting employment of people with disabilities in innovative businesses.

The last of the demographic pillars, in terms of efforts designated, is that of sexuality. Our research found only one specific mention of efforts aimed at including LGBTQ communities. However, the UK New Action to Promote LGBT Equality in 2017 and the Netherlands New Transgender Law in 2014 are both noted as being broadly relevant to inclusion of the LGBTQ community, though not specific to innovation. As of yet, there are not initiatives in place across the ten countries aimed at the LGBTQ community.

4.1.2. Policy types

There is a marked coherence in the range and type of initiatives and policy instruments employed.

Tables 7 and 8 reveal these synergies, and indicate that across the national case studies, the full range of policies is not used. Instead, the main policy types used take the form of funding, regulation, clusters, networks and institutions, and education and training. In terms of the emphasis of the programmes' aims, efforts are focused on the 'education or workplace/workforce' level. The continuum of typical initiatives on offer across the cases is summarised in Table 9 below.

Table 8. Continuum of typical initiatives (ranging from Education to Workforce)

Computer science, STEM/coding training	Fellowships	Practical training and advice	Regulation/quotas	R&D funding	Grant competition/prizes	Promote role models
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Source: LSE Consulting

Of these seven forms of government effort, the most notable synergies exist in relation to national policies to promote diversity and inclusion through **education, particularly by promoting computer science, coding and STEM more broadly for underrepresented groups**. Across countries, the aim is to address participation rates through education, beginning with primary and/or secondary school, to ensure equality of opportunity. In Finland, the government supports a summer camp which is 'run nationwide, targeted to 12-year olds in order to promote entrepreneurship and innovation'. In the Netherlands, the Minister of Education aims to increase the number of girls in STEM, and as a result, reduce the occurrence of girls making 'stereotype' choices about studies and then careers (Interview 2).

Naturally, the education-focused initiatives are run by Departments of Education while workforce-focused efforts are spearheaded by ministries of science and economy, business development agencies and enterprise agencies as well as targeted efforts by ministries of social equity or social affairs. **The innovation and enterprise agencies tend towards promoting innovation without explicitly addressing issues of diversity and inclusion while ministries of social affairs and equality can focus on workforce policies not linked to innovation.** For example, one interviewee explained that 'the Ministry of Social Affairs primarily focuses on employment policy and social protection policy'. To the extent that innovation is included, it typically refers to innovative solutions and technologies to address social challenges. Some countries, notably Estonia, are embracing this aim with innovation funding schemes to encourage social entrepreneurship and innovation.

The next most predominant synergies are in the funding, competition/prizes and promoting champions and role models. **Competitions** – either in the form of grant competitions or startup pitch competitions – and themed events are often used to **raise awareness for diversity and inclusion** of a specific underrepresented group. Across the ten countries such initiatives are organised on a siloed basis (e.g. Innovate UK's Women in Innovation programme). Often, the targeted focus reflects the remit of the government agency or private initiative responsible, such as the Minority Business Development Agency, in partnership with the National Institute of Standards and Technology, in the U.S., with its Inclusive Innovation Initiative (I3) helping to commercialise technological innovation from federal laboratories to minority entrepreneurs.

At least half of the countries sampled have implemented initiatives with the express aim of working to **help foster and publicise role models** for underrepresented groups. The efforts to promote role models often take the form of case studies of successful members of the underrepresented community, which are then disseminated through a variety of traditional and online media channels. The lion's share of role model efforts focus on providing young women with role models of successful women in technology and as leaders of (innovative) business. In the Netherlands, for example, **Inspiring Fifty** shows that role models work, as if 'she can see it, she can believe it'. The Netherlands also has a programme where successful women in STEM are brought into schools to provide school-age girls with positive role models before they choose their 'academic track' around 14-years old.

In cases where government agencies are working to promote relevant role models for minority groups that predominantly speak another language, these **materials are translated into minority languages** to maximise salience – and as a result, impact – with the target community. Such efforts were particularly highlighted in the cases of Estonia vis-à-vis Russian speakers and Israel with regards to Arabic speakers.

4.2. Gaps

4.2.1. Social media

There is seemingly no 'global hashtag' for inclusive innovation efforts.

The predominant social media campaigns target particular demographic groups, rather than following D&I more broadly. For example, #AllRaise focuses on doubling the share of women as senior investment professionals in the venture capital sector from 9% in 2018 to 18% by 2028 (Crunchbase 2018). #TechSheCan has a similar focus on increasing women in technology (led by PwC with support from UK DCMS, British Science Association and other businesses and charities) while #TechDiversity, and its awards platform, has a broader remit though a geographic focus in Australia. What's more, even within single countries, there are a multitude of hashtags used, rather than one hashtag that brings together disparate efforts. One interviewee remarked that 'each programme will typically have its own social media campaign at some level, but these are highly decentralised.' There was the suggestion that social media will be used further in future, but several interviewees reiterated that other forms of media and in-person events are still the predominant channels for disseminating information and, as a result, raising awareness.

Few countries monitor media coverage as an indicator of activities' impact.

Instead, innovation agencies and government departments used traditional media (newspapers and television) and social media as tools to promote initiatives, often to reach prospective applicants. However, they do not track media coverage as an indicator of programmes' publicity or impact. Media is typically seen as an input rather than as a means of measuring the output of efforts.

Media is utilised as a means for **reaching the target underrepresented groups**, but also, some interviewees explained that the 'main goal is also [to] **raise awareness among employers and public opinion**' more broadly. For example, in Estonia the 'Brain Hunt' is aired through a public broadcasting channel and follows entrepreneurs as they are provided mentorship and develop their business plans and/or technology. This television programme is said to raise awareness of entrepreneurship and innovation, and in so doing, is **helping to normalise the activities associated with being an entrepreneur**. This serves as a representative example of how media is broadly conceptualised as an essential tool for publicising information about programmes to target communities and also raising awareness for the public-at-large in order to shift public opinion.

4.2.2. Range of policies

There is currently a limited range of policies used in relation to broader innovation policy.

In innovation policy more broadly, there is a veritable ‘policy menu’ of eight different instruments available to policymakers (see Klingler-Vidra, 2014). This includes:

1. Funding
2. Taxation
3. Regulation
4. Clusters, networks and institutions
5. Attracting talent and investment
6. Technology, infrastructure and government procurement
7. Stock market access
8. Education and training

In the realm of inclusive innovation policy, the emphasis is on (1) funding, in the form of grants and prizes given in competitions, (3) regulation, mandates and recommendations for involvement of underrepresented groups, and (8) education and training, focusing on promoting particular groups uptake of STEM subjects, coding programmes and practical advice for creating startups.

However, the broader suite of available policy types is not taken up. Though there are regional centres for providing practical training for women and minorities, for example, such centres do not explicitly aim to serve as the bedrock for centres and networks. Coaching and mentoring are provided on a one-to-one basis rather than a more community-centred and/or cluster creating approach. Funding is often only available in the form of short-term fellowships and competition prizes. France is a notable exception in its targeted provision of more substantial financial support, as the Fonds de Garantie à l’initiative des Femmes, offers loan guarantees for women entrepreneurs.

There is a **dearth of effort by national governments when it comes to inclusive innovation policies aimed at the LGBTQ community**. There are not yet policies focused on encouraging inclusion from the LGBTQ community, though the Netherlands recently made a statement about initiating such efforts.

Across the ten countries sampled, there were relatively few initiatives explicitly aimed at bringing people with disabilities into innovation activities. Notable efforts include Estonia’s Special Care and Welfare Development Plan for 2014–2020, which attempts to overcome barriers that keep people with disabilities from finding employment and being included in the innovation/entrepreneurship space and the Finnish government’s 2016 launch of the ‘Entrepreneurship for people with disabilities’ initiative, which aims to have more people with disabilities and people with partial work ability as entrepreneurs. Professionals in the service system will receive complementary training in order to be able to effectively and successfully use the means meant to support people with partial work ability’.

Other efforts aimed at including people with disabilities are either broader than innovation or run by private sector actors. An example of more general promotion of people with disabilities is France’s 1987 legal mandate that companies with more than 20 employees meet a 6% quota of employees with disabilities. Employers failing to comply have to pay a contribution to a fund dedicated to facilitating the professional insertion of disabled people into the economy. On the private-led side is the #GAAD (Global Accessibility Awareness Day) campaign in the U.S. which strives to bring the issue of how technology can be designed and used by people with disabilities.

4.3. Differences

4.3.1. Data collection

There are crucial differences in the ways and extent to which data can be collected on diversity indicators.

These crucial differences particularly apply to issues of race and ethnicity. In France, for example, the collection of this type of data is not available due to legal restrictions, so targeting and evaluating policies according to minority involvement is limited. In other contexts, such as school information reporting in the United States, this type of information is required by all recipients of financial aid, and so readily available at the education (though not workplace) level. In other cases, such as patent filings in the USA, ethnicity data has not been captured in patent filing applications, and so this data is only put together by painstakingly contacting patent holders to learn more about their backgrounds. National application systems could help to improve this type of data by collecting demographic information in such processes.

There are significant differences in terms of the efforts made to institutionalise research and publication of D&I statistics. **Sweden is a leader in formalising D&I research and reporting at the governmental level.** There is a need to better standardise data collection and evaluation methods in order to better understand the performance of inclusive innovation programmes.

4.3.2. Legal mandates and incentives

There is a wide range in terms of efforts being market- or regulation-led.

There is a wide range in terms of efforts being market-led practices (as in Finland and the United States) and regulation-led (Norway most extreme case, with The Netherlands passing legislation that suggests a particular composition) to promote the inclusion of diverse groups. In France, regulations require large companies to accept anonymous CVs from job candidates as a means of promoting diversity and inclusion. In the USA, the MBDA promotes commercialisation of federal lab innovations, though the thrust of inclusive innovation efforts are being driven through private sector-led initiatives such as Code.org. These efforts are funded by the private sector and focus on building technical skills amongst the youth. The UK sits in the middle of this continuum as it utilises regulatory levers, focused on transparency and disclosure, particularly the gender pay-gap reporting requirement, and also has strong private sector collaborations such as Tech She Can and the Tech Talent Charter.

4.3.3. Open versus targeted initiatives

Across a variety of policy types, there are differences in terms of whether initiatives take an open or targeted approach.

This variety is evident in the realm of promoting computer science, coding and STEM education, though these different approaches are appearing at sub-national as well as national difference. In the United States, for example, state governors have promoted computer science education by offering 'computer science for all' in the state-wide curriculum. This has been the case in the state of Arkansas and in the city of Chicago, where computer science studies are a requirement for graduation. In Estonia, an interviewee revealed that 'economic development programmes do not include mechanisms to encourage special groups to partake in innovation or entrepreneurship. The programmes are available for every company on equal basis according to application general criteria'. These approaches either stem from the decision to take an open approach or are the result of ministerial coordination challenges.

4.3.4. Coordination of ministerial efforts

There is currently a bifurcation of ministerial efforts and responsibility in supporting D&I in relation to business innovation.

Interviewees revealed that this bifurcation means that startup and enterprise promotion does not function according to D&I aims, while ministries responsible for equality and welfare do not design policies specifically aimed at innovative activities. One interviewee remarked that ‘innovation is not really linked to the promotion of inclusion and diversity’ while another explained that there is ‘a lot of government support for promoting inclusion and diversity, though targeted actions regarding startups are less developed’. In the Dutch case, for example, the Netherlands Enterprise Agency does not prioritise diversity and inclusion objectives; rather, the Netherlands educational policies target the earlier stage of the pipeline, encouraging education for women, minorities and migrants in the hard sciences. Similarly, in Poland the Polish Agency for Enterprise Development promotes inclusive innovation – particularly the aim of advancing innovation activity in the Eastern part of the country – while the ‘two [other] major innovation agencies, the State Capital Fund (Krajowy Fundusz Kapitałowy - KFK), and the National Center for Research and Development, do not specifically encourage inclusive innovation’.

In contrast, efforts are underway, especially in the last five years, **to consolidate and coordinate innovation promotion**. In Israel, the Ministry of Economy and the Office of the Chief Scientist merged to create the Israel Innovation Authority, with a Societal Challenges Division within the new entity. In Finland, in January 2018, Finpro – the Finnish trade promotion organisation – and Tekes – the Finnish Funding Agency for Innovation – were united as Business Finland. The French programme ‘une nouvelle donne pour l’innovation’ (A New Deal for Innovation) is specifically aimed at reversing the tendency towards siloed efforts and organisation. The first of its four pillars – the ‘Innovation for All’ pillar – strives to mobilise inclusive innovation for all types regardless of origin and educational backgrounds. The programme is designed in a profoundly collaborative way, as the government works with businesses as well as pre-primary schools through to universities.

Another form of bifurcation was mentioned across at least three cases; the inclusion of women is supported at the national governmental level while the promotion of diversity and inclusion vis-à-vis other underrepresented groups was taken out at either provincial government or not-for-profit arenas. Speaking to this, an interviewee in Finland explained that the national government leads – and is quite advanced – in its inclusion of women in innovation while ‘municipalities and third sector are very active in supporting the inclusion of other groups, such as immigrants, young people, and disabled.’

4.3.5. Spatial and industrial aims

There are differences in whether, and the extent to which spatial and industrial aims are posited within the inclusive innovation remit.

In some cases, the diversity and inclusion efforts are primarily, if not entirely, focused on demographic groups such as women, minorities, etc. In other countries, there are clear priorities given to promoting innovation in rural and/or underdeveloped socioeconomic regions. This urban/rural divide is a priority across national regions outside of core innovation hubs, for initiatives such as Code.org in the U.S., while in Poland this manifests as specific initiatives for promoting innovation in the Eastern portion of the country (e.g. the Operational Programme Eastern Poland 2014-2020). The second pillar of France’s A New Deal for Innovation initiative, ‘open innovation’, takes a spatial conceptualisation of inclusive innovation, supporting regions in implementing new innovation governance in a distributed rural approach akin to that in the U.S.

Table 9. Summary of Synergies, Gaps and Differences

Synergies	Gaps	Differences
Inclusive innovation primarily conceptualised as promotion of women.	Initiatives focused on LGBTQ and disability.	Data collection and availability.
Demographic aim (rather than industrial).	Engagement with social media.	Mandating versus incentivising inclusion.
Consistency in policy types.	Size of budget (currently budgets are small and lack public visibility).	Open versus targeted design.
Focus on education policies (aimed at STEM).	Limited range of policies used.	Coherence versus bifurcation of inclusion and innovation efforts.
Use of competitions, prizes and awareness-raising events.	Coherent collaboration across government entities and with private sector.	Existence of industrial and/or spatial aims within inclusive innovation remit.
	Robust data and measurement.	

Source: LSE Consulting

5. Best practices in policy design, implementation and evaluation

5.1. Design

Multiple interviewees were emphatic that Inclusive innovation policies need to be designed with the aim of making **inclusion together with diversity a priority**. One interviewee went so far as to say that ‘inclusion without diversity doesn’t work’. The rationale being that with inclusive innovation we are not only dealing with a broken pipeline, but a leaky one. Efforts need to be made to ensure that a diverse set of participants are involved, and then feelings of inclusivity amongst the most diverse group are to be addressed. So there is need to constantly be striving to conceptualise and practice diversity so as to not only stop some of the leaks. Interviewees pointed to reports published by McKinsey – Why diversity matters (2015) and Delivering through diversity (2018) – to substantiate the importance of both inclusion and diversity, as there is increasing evidence of the economic gains that stem from diverse workforces.

A best practice in policy design is to advance diversity and inclusion initiatives in one of two ways in terms of their method and intended time to impact. They are either policies that target (1) **education**, and strive to include underrepresented groups in innovation-related educational offerings such as STEM, coding, etc., or as (2) **workforce**-focused policies that are motivated by a more immediate aim of reaching working age populations.

A further example of best practice is to conduct **public consultations and working groups** to glean feedback on the programme design from the target communities. For example, in the Israeli case this effort revealed feedback that the criteria for the Ultra-Orthodox promoting programmes were effectively only eligible to men, as they required Yeshiva study and other experiences that only a religious man, rather than a woman, would have. In other cases, such consultation processes revealed that ‘startup companies need to hire a consultant in order to apply for any grants, they have to comply with public procurement rules to use the grants (because it is public money), and the initiatives require too many administrative expenses compared to the amount of money being utilised.’ Findings such as these, that programme guidelines and restrictions are unduly cumbersome, can help inform a more streamlined and user-friendly version, which is particularly important in the spirit of including those who are most vulnerable and often least able to access such application consulting help.

Bring out the collaboration across interested parties. The French ‘A New Deal for Innovation’ strategy is organised in a fundamentally inclusive, collaborative way. The many actors involved in implementing the strategy include BpiFrance, Business France, Caisse des Dépôts, Direction Generale des Entreprises, Direction Generale du Tresor, Commissariat General a l’Investissement, and regional governments (and, it should be noted, that BpiFrance itself represents the result of the merger of disparate existing public investment funds in 2012). In the U.S., the MBDA collaborates with the Federal Laboratory Consortium for Technology Transfer as a way of encouraging commercialisation for minorities.

Partnering with private initiatives, NGOs and/or companies to deliver programmes and to build awareness. Numerous governments in the study are either hiring private firms to deliver training programmes, through requests for proposals, or forming more fluid partnerships for not-for-profit initiatives that strive to provide education and training. In the UK, prominent private awareness campaigns include PwC’s Tech She Can as well as the Tech Talent Charter (TTC), the WISE campaign (campaign for gender balance in science, technology & engineering) and Colorintech. In Poland, efforts

are spearheaded by the government (the Polish Agency for Enterprise Development) and private sector (Google for Entrepreneurs).

There is a tendency for minority business and social welfare programmes and government departments being bifurcated from those focused on startups and innovation. Efforts need to be taken to build bridges across these two orientations, and in so doing, to integrate diversity and inclusion in innovation, and vice versa. The best practice for achieving this is **regular communications and institutionalising collaboration across government departments**. In the U.S., a collaboration across the Minority Business Development Agency (MBDA), the National Institute of Standards and Technology and the Federal Labs Consortium increases opportunities for innovative entrepreneurship for minority populations as breakthrough technologies and discoveries are made available for commercialisation.

An aspirational best practice is to work to ensure that inclusive innovation programmes have sufficient funding: Several interviewees remarked that funding, such as grants and startup equity funding for would-be entrepreneurs, is essential to demonstrating commitment to diversity and inclusion. One interviewee remarked that ‘funding for specific groups is a must’. When asked what more could be done to support diversity and inclusion, a Finnish interviewee explained that although much support was already in place, it would be helpful to offer ‘more loans for women and immigrants in starting entrepreneurial activities.’

At the same time, **several interviewees remarked on the small amount of funding for inclusive innovation, and the growing downward pressure on the limited funding available**. One interviewee asserted that ‘focusing on soft programmes has been more effective and efficient [than grants] —these programmes include training, encouraging partnerships with foreign companies, and engaging experts in target innovation areas’. Budgets for inclusive innovation programmes are remarkably small relative to the size of funding for broader innovation activities. As an illustration of the scale of budget, the U.S.’ flagship initiative in this realm, the Inclusive Innovation Initiative, or I3, has a budget of just \$600,000.

A best practice is to **ensure that policy design confronts the unique challenges and restrictions faced by the target communities**, rather than simply adapting the applicant criteria to target underrepresented groups for the existing/standard programmes. In this Israeli case, for example, more generous funding is given in the grants offered to minority populations upon the realisation that the 50% of project funding was not sufficient for achieving project success given the further challenges that minorities face when raising the remainder of the funding, due to their underdeveloped networks. In this case, the minority-targeted funding provides successful applicants with 85% of the required funding, rather than the 50% that mainstream applicants would receive. In Poland, initiatives targeting women offer design pertinent to the challenges faced by women entrepreneurs: the Network of Entrepreneurial Women matches female investors and female entrepreneurs and the Google programme for ‘momtrepreneurs’ provides childcare, networking sessions, and trainings to encourage mothers to start their own businesses.

Designing policies that **encourage role models** for the respective underrepresented groups or regions. In Israel and the UK, for example, particular care is given to campaigns that share the details of a successful individual or company from an underrepresented group. An example in the UK is the Innovate UK Women in Innovation Getty Exhibition. In the Netherlands there are several good examples of initiatives aimed at promoting role models. There is the ‘Inspiring Fifty’, which is a list of female role models in the tech sector and also the ‘Business Women of the Year’. Further, in 2016, TedXAmsterdamWomen organised an event for black (non-white) women to showcase women role models on one stage and have a brainstorming session, share skills to manage businesses, improve

mindfulness, mental health and mental strength and become economically independent. The Dutch Ministry funded a masterclass on each of these topics.

Social equality and minority promotion departments and ministries are oriented towards redistribution of wealth and opportunity. In the design of inclusive innovation efforts, there is an opportunity to shift the conversation away from only redistribution towards new business creation and value-add rather than redistribution.

5.2. Implementation

A best practice in implementing policies is **to first run pilot programmes** and efforts with a short feedback loop before expanding the policy design and budget. This concept of **'Agile management'** – pilot programmes and studies that are reviewed through surveys and in-person meetings with a variety of stakeholders before a larger initiative is developed – was named across interviews. Regularly reviewing programmes and conducting surveys of both participants and unsuccessful applicants to get a full view into what works and what doesn't is another best practice in implementing programmes. This method was particularly effective in the initial formation of the Swedish programme for Promoting Women's Entrepreneurship 2007-14 and in programmes designed by the Societal Challenges Division within the Israel Innovation Authority.

Another best practice is the **training of evaluators and programme managers** who are the participants that will interact, as evaluators. These evaluators are, of course, numerous and not necessarily informed of the aim of the programme design. This training helps to alleviate issues stemming from **'unconscious bias'**, where perhaps, evaluators would mark down applications from members of the target underrepresented groups as they often do not have the same indicators that evaluators would look for in mainstream efforts. Such biases are in looking for degrees from top universities, familiarity with particular personal and professional networks, etc. Evaluators need to be trained to be sensitive to the alternative indicators of quality at play in underrepresented groups. The implementation of these efforts are to focus both on the evaluators and programme managers who are the 'face' of the initiatives as well as the participants. In the context of promoting women, an interviewee remarked that 'men need to be made a part of the dialogue, movement, events etc.'

Coaching and mentoring was highlighted as an effective policy element, particularly aimed at leadership skills and how to start a business. Regional centres, such as the Minority Business Development Agency in the U.S., offer business skills coaching, and over the last two years, run regional events within the I3 remit to help would-be entrepreneurs work to bring new federal lab developments to market.

Digital marketing is a growing tool to promote diversity and inclusion, and to publicise particular programmes. Yet, many interviewees emphasised that their best practice is to **be physically present** in events and in the communities of the target groups. The in-person contact, according to multiple interviewees, shows target groups that policymakers care, that their inclusion is a priority, and as a result, the in-person interactions help with both the number and quality of applications as there is a 'face' to go along with the government department/agency and the programme. This is done as a complement to government websites and portals that contain – in their best versions – details of inclusive innovation strategies and detailed programme information.

5.3. Evaluation

Evaluation surveys that include both programme participants and those who were not selected helps to identify both ‘what works and what doesn’t work’ in the programme itself, but also in the design, application process, the criteria used, etc. In Israel, the survey inputs from unsuccessful applicants provide essential feedback on the programme design and the extent to which the targeted programmes are having the desired effect of encouraging future activities from the target group. In Finland, surveys are distributed to ‘women participating in the programme asking for concrete impact on their work life’. Such surveys are distributed to participants in various programmes, and then two years after completion of programmes such as the Women Leaders Programme and the Women Mentoring Programme to follow on their performance.

However, it was noted that **telephone surveys are resource-intensive** to administer. One interviewee succinctly stated that his agency ‘uses surveys for participants and interviews to evaluate programme quality—however, these take up a lot of resources’.

A best practice is to consider evaluation in terms of increasing profile and growing the numbers involved, and **not on the performance of the startups/enterprises supported through the programmes**. Evaluation is considered in terms of social objectives, not on government financial return on investment. **Specific key performance indicators (KPIs) mentioned across interviewees include ‘inputs’ and ‘outputs’ such as:** number of applications, target group engagement with services, percentage of applications from underrepresented groups (in ‘open’ programmes), survival rate, [startup] valuation, company failures, company exits (e.g. sale via merger & acquisition (M&A) or initial public offering (IPO)), poverty and employment rates amongst targeted populations and areas, the magnitude of the pay gap, the number of girls/minorities intending to enter STEM fields, women and minorities receiving STEM university degrees, job creation, ‘the ability to grow’ and the quality of applications. In cases where surveys are conducted of participants in programmes two years later, the aim of the evaluation is as much to understand, with greater perspective on the part of the participants, what impact the programme had on them in terms of skills and trajectory rather than how their startups are performing.

Interviews revealed a consistent refrain that **measurement is difficult and changes over the life of an initiative** because hard programmes focus on easily measurable metrics, such as money distributed, companies formed, etc. while some soft programmes ‘are so abstract that it is hard to measure their impact’. The MBDA in the U.S., captures performance data through a CRM system, for the regional business centre services and are now beginning to capture ‘inputs’ such as number of events and attendees in the I3 programme since it is new and as such, output-based metrics are not yet relevant. Awareness campaigns have proven to be particularly difficult to robustly measure. In this vein, a best practice going forward is **to better standardise sets of indicators for various types of inclusive innovation programmes**.

Table 10. Best practices in Design, Implementation and Evaluation

Design	Implementation	Evaluation
Diversity and inclusion objectives together as aims for inclusive innovation programmes.	Pilot studies/agile project management.	National programme focused on demographic data collection and analysis with an aim to promote awareness of D&I.
Use of public consultations and working groups to design policies that are user-friendly.	Training of programme operators and evaluators about 'unconscious bias'.	Conducting surveys of programme participants (during and after programmes).
Partner with private initiatives and/or hiring private firms to deliver specialist training.	Coaching and mentoring to advance leadership and entrepreneurship skills.	Surveying unsuccessful applicants to identify issues emanating from feelings of rejection.
Design that takes challenges and limitations of target groups into account (e.g. further funding abilities, childcare responsibilities, etc.)	Policymakers being physically present within target communities and across programmes.	Metrics focused on social indicators, particularly the number and% of applicants, as well as their quality.
Encourage role models and champions, especially for school-age groups.	Translate programme material marketing and information documents into minority language(s).	Measurement focused on social return on investment, rather than financial performance of programmes.
Collaboration and coordination across government ministries and private sector initiatives.	Promote visibility of the programme budget, wherever possible	Balance of quantitative and qualitative survey to triangulate picture of programme numbers and quality.
Ensure adequate size of budget for programme.		

Source: LSE Consulting

6. Recommendations for future collaboration

Across our interviews we asked for recommendations for future collaboration with Innovate UK and the Knowledge Transfer Network. Here we distil the thrust of the answers provided in response to this prompt and also consolidate actions to be taken forward on the basis of best practices identified in the previous section.

1. **Formalising networks that run regular**, perhaps quarterly, webinars could help institutionalise a community of like-minded individuals. The aim of the network would be to share best practices and collaborate on cross-border programmes. The suggestion of several interviewees was that **such a network be supported by a coordinator or manager** who would ensure that activity was kept fresh and that members were regularly activated. Examples of platforms and networks that ‘got quiet’ were named, including the Innovation Policy Platform. Such a network initiative could build upon, or run in collaboration with, the Taftie network which is already in existence, in which key innovation agency contacts are named for each European country. The aim would be to further activate such a network, and add to the depth of activities and interactions. Section 7 outlines an initial list of potential members of such an emerging network; each of the emerging members of the network listed in Table 11 confirmed their interest in being a part of such an initiative.
2. **Greater use of public-private initiatives.** There is a large – and growing – number of private initiatives that promote high-technology entrepreneurship and computing skills, including Code.org, Tech She Can, the TechFuture Girls programme, Code First: Girls, Girls Who Code, She Codes, Techmums, and others. In some countries, governments have established partnerships, or provide their support, to these initiatives. The Israeli Government’s Ministry of Social Equality recently launched a partnership with She Codes to deliver coding training for young women.
3. **Organising summits with international participants in the inclusive innovation realm** is an idea that received warm support from several interviewees. This could either be a standalone event, or perhaps in conjunction with partners. Code.org and the STEM Equality Congress are both organising large international symposiums in the autumn of 2018, which could be a platform for a policy-focused event. The Global Accessibility Awareness Day (#GAAD) strives to be a global effort, and the UK could play a role in its growth.
4. Interviewees remarked that the UK has had longer, and greater volume of experience, in including immigrant populations and that the expertise gleaned through this experience would be shared across the emergent network. To be sure, several of the **countries sampled would be keen to learn from the UK with respect to inclusive innovation vis-à-vis minority groups.**
5. **Cross-national competitions, missions and fellowship programmes** that send groups of entrepreneurs to other countries, such as the French fellowship that sends participants to Silicon Valley, are a potentially productive future collaboration. Other efforts taking this cross-border character include the USA programme run by the State Department that brought female entrepreneurs from 48 countries together to spend 3 weeks together as well as Innovate UK leading a mission of women innovators to Boston. More broadly, visa and residency schemes, such as Estonia’s e-Residency programme, could be a means of propelling cross-national collaboration at the entrepreneurial level.

6. At the education level (rather than entrepreneur/workforce), there could be greater efforts focused on **STEM study exchange** for secondary school students. Programmes such as the VHTO's Girlsday strives to promote STEM subjects – and as an extension – careers, for young women from the years of 10-15 years old. The UK could champion STEM-focused international study experiences as a means of promoting the studying of STEM subjects by groups normally underrepresented in the domain, such as women and minority groups.

7. **Cross-national collaborations focused on knowledge exchange around inclusive innovation programme design, implementation and, in particular, evaluation.** The countries sampled here could benefit from greater exchange of information on their efforts to encourage diversity and inclusion, and in particular, work together to better standardise approaches for evaluation. This would include coming together to establish appropriate indicators for the various types of programmes (e.g. metrics for competitions and metrics for coding and STEM skills training) and methods for reporting and sharing this information.

7. Emerging network of diversity and inclusion policymakers and personnel

In an effort to help Innovate UK establish a network of policymakers who are leading inclusive innovation initiatives and campaigns as well as academic experts for each country, here we identify three key policymakers and personnel for each of the 10 countries. The identification of these individuals is based upon our desktop research.

Table 11. D&I policymakers and personnel

Country	Stakeholder 1	Stakeholder 2	Stakeholder 3
Estonia	Madis Truupõld Enterprise Estonia	Sigrid Harjo Enterprise Estonia	Urve Palo Ministry of Economic Affairs and Communication
Finland	Marita Paasi Business Finland Tekes	Mr Heikki UUsi-Honko Business Finland Tekes	Mrs Leena Linnainmaa Finland Chamber of Commerce
France	Christian Dubarry Bpifrance	Isabelle Bébéar Bpifrance	Séverine Le Loarne-Lemaire Grenoble School of Management
Israel	Naomi Krieger Carmy Head of Societal Challenges Division, Israel Innovation Authority	Ayman Saif Authority for Economic Development of Minorities at the Israeli Ministry of Social Equality	Amos Zehavi Tel Aviv University
Netherlands	Marlouke Durville Netherlands Enterprise Agency	Suzanne Verboon Netherlands Enterprise Agency	Marian Spier TEDxAmsterdamWomen
Norway	Hilde Hukkelberg Innovation Norway	Ella Ghosh Committee for Gender Balance and Diversity in Research (KIF)	Cathinka Holtermann Research Council Norway
Poland	Karolina Piadlowska-Firlej Polish Agency for Enterprise Development (PARP)	Robert Zakrzewski Polish Agency for Enterprise Development (PARP)	Julia K Szopa Startup Poland
Sweden	Sophia Ivarsson Vinnova	Sylvia Schwaag Serger Vinnova	Karin Ehrnberger KTH Royal Institute of Technology
UK	Emily Nott Innovate UK	Emma Bortnik Knowledge Transfer Network – UK	Debbie Forster The Tech Talent Charter
USA	Adams Nager UNC Public Policy	Edith McCloud Minority Business Development Agency	Pat Yongpradit Code.org

Source: LSE Consulting

Appendix I: Methodology

This project gathered inputs from a set of eight country case studies: the UK, the USA, Finland, France, Norway, Sweden, Poland and the Netherlands. In addition, we added a further two case studies: Israel and Estonia. Israel – the so-called ‘startup nation’ – has become renowned for its high-technology entrepreneurial innovation activities since the 1990s.³ The Israeli advances stem from an egalitarian culture, a diverse population, immigration flows and military programmes focused on technological innovation. However, in recognising that innovation was not sufficiently inclusive, the Office of the Chief Scientist was reorganised into the Israel Innovation Authority in 2016, with explicit aims of increasing participation from underrepresented groups and in bridging technological innovation with societal challenges. Likewise, Estonia has established a solid reputation for innovation and entrepreneurship, facilitated by digitalisation. The ‘e-Estonia’ model has now been in place for two decades, and has witnessed the digital linkage of all government services (legislation, voting, education, justice, health care, banking, taxes, policing) and processes across one platform.⁴ Through its recent E-Residency initiative, Estonia has become the first country offer e-Residency (a government-issued digital ID available to anyone in the world), in order to make it easy to start and run a global business within the EU.⁵ Within Estonia’s startup environment, inclusivity and diversity has played an important role, with the forecast that soon Estonian women will comprise 40% of Estonian CEOs, compared to 10% in France.⁶ We suggested the inclusion of these national case studies, on the basis of their world-leading reputations in the areas of business innovation, diversity and inclusion.

Methodological framework

We looked at four research areas: demographics, strategies and policies, programmes, and evaluation and impact. These four areas provided the direction for the review, and the project team drafted an analytical method tied to each research area of this methodological framework, with specific research questions, sub-questions and methodologies. This approach ensured that our national case studies were approached in a consistent manner, and produced consistent outputs.

Desk research

The desk research for this project was targeted around the ten country case studies, and formed an essential component of our methodology in analysing the global situation regarding strategies, programmes and policies to promote diversity and inclusion in business innovation. The desk research was a starting point for an initial mapping and inventory of strategies and programmes adopted by overseas innovation agencies. To accomplish this task, the team began by reviewing existing statistics and research (academic publications, policy documents and existing impact assessments) relating to the promotion of diversity and inclusion to foster innovation in business. Some of the key resources included:

- Available documentation on the websites of Taftie⁷ and on the website of the Knowledge Transfer Network. This included: information regarding networks and events related documentation, reports, news and blog articles, ongoing Task Forces.
- Horizon 2020 website for detecting projects, networks and partnerships that focus on diversity and inclusion in business innovation

³ See for example, Dan Senor and Saul Singer, *Startup Nation: The Story of Israel’s Economic Miracle* (New York and Boston: Twelve, 2009).

⁴ See <http://e-estonia.com>

⁵ See <http://e-resident.gov.ee>

⁶ Available at: <http://madame.lefigaro.fr/business/estonie-un-etat-digital-numerique-050118-146255>

⁷ See <https://ktn-uk.co.uk/people>

- Studies and reports conducted by international organisations (e.g. ILO; OECD, EU) and the Inclusive Innovation Policy Toolkit – a platform run as a collaboration between the OECD and World Bank – offers policy case studies, insight into policy types available and distinguishes the motivating rationale for efforts.
- Consultancy reports and case studies (e.g. Deloitte; McKinsey; Global diversity Practice)
- National government reports and websites for specifications of the design, implementation and performance of inclusive innovation initiatives
- Academic and research literature: employing search engines for journals/books reports and library catalogues, such as Google Books, Google Scholar and the Web of Science database

The key outputs of this phase of the project are:

- i. **Collection of country-level data.** We collected relevant data relating to diversity and inclusion in innovation in our selected case studies. This covered the country's business environment and landscape regarding innovation, looking at indicators such as the number of underrepresented groups in startups and SMEs; the demographic context of the business environment within our case studies in relation to board representation. Other indicators included collecting information on the number of patent applications in relation to diversity.
- ii. **Understanding the business and policy environment.** We gathered information relating to policy measures and initiatives within the case study countries to better understand how their governments have attempted to foster diversity and inclusion in innovative firms.
- iii. **Identify key experts and stakeholders.** This phase identified the key experts, researchers and stakeholders to be interviewed in Task 2. During this phase of research, the project team carried out a stakeholder mapping session.

Fieldwork Interviews

The interviews were the principal tool of primary data collection in our proposed methodology. The interviews targeted the following groups: (i) representatives from overseas innovation agencies; (ii) academic experts with relevant research expertise in the field of diversity in business innovation and/or inclusive innovation; (iii) using the 'snowballing' methodology of primary interview panelling, we interviewed additional experts and stakeholders as suggested by the representatives from overseas agencies and academics in (i) and (ii) above. Target interviewees were identified during Task 1 ('Desk research'), which provided a preliminary mapping of key individuals and experts in this area.

(i) Representatives from overseas innovation agencies

To identify key representatives, stakeholders and experts from overseas innovation agencies, the TAFTIE website was a crucial resource. The website's 'Members' page identifies and describes the national innovation agencies in twenty-nine countries. Countries were selected according to the country case study focus areas of the project. The team contacted at least two representatives from each agency to facilitate the collection of a broad range of responses to our questions.

(ii) Academic experts with relevant research expertise in diversity in business innovation

We drew on our project team's research expertise in this area, and exploited its members' network of contacts to identify academic researchers (LSE, other UK universities and research centres) with the relevant research expertise in this area. We also used the online resource 'web of science' to identify other relevant researchers working in this area. The team contacted at least 1-2 academic experts per country.

Appendix II. Country case studies

Estonia

Context and demographics	
Business environment and innovation landscape:	<p>Estonia has multiple strengths, including: an excellent business environment, high labour market participation, and an innovative ICT sector (OECD 2017). Estonia has ambition to be the centre of Baltic and Nordic entrepreneurship by 2020, and considers their 'Estonian Entrepreneurship Growth Strategy 2020' to be the 'most important strategic document on the Estonian economy' (Ministry of Economic Affairs and Communications 2014). Approximately 350 startups were headquartered in Estonia in 2014, and the government has outlined their entrepreneurship growth strategies to increase this number to 1000 by 2020 (World Bank Group 2016). The document specifies that encouraging entrepreneurship and innovation is a core part of the economic strategy, but does not specifically mention particular demographics' participation in innovation. That said, Estonia has a relatively high female participation in the work force, at 56.4% in 2016 (World Bank Group 2016).</p> <p>The Estonian government strongly encourages innovation-centric growth strategies, and has gleaned notoriety for its 'e-Estonia' model, which aims at increasing efficiency via a knowledge-intensive, technologically 'smart' economy (E-Estonia). The government has declared access to the Internet a basic human right. Their aim is to increase the share of employment in high and medium-high technology sectors from 3.6% in 2015 to 9% by 2020, primarily through innovation (World Bank Group 2016). The Estonian government has identified information/communication technology and health technology/services to focus on as sectors with the most growth and ROI potential (Ministry of Economic Affairs and Communications 2014).</p>
Composition of the technological innovation sector:	<p>In 2012, women comprised 43% of entrepreneurship in the 'Professional, Scientific, and Technical Activities' and 19% of 'Information and Communication' sectors. (Praxis 2014, p.4). Women comprise 20.3% of ICT specialists in Estonia (Eurostat 2017).</p>
Number of underrepresented groups in startups and SMEs:	<p>The GEM reports that the female total entrepreneurship activity (TEA) rate in Estonia is relatively high compared to the other countries in the sample, at 11.7%, the female-established business activity is 5.7%, and the female-to-male TEA ratio is 0.6 (Global Entrepreneurship Monitor 2017, 58-59). Female entrepreneurship levels are highest among women aged 24 to 34 (~25%) and decrease significantly for women 35 and older (under 10%), although over 50% of women in Estonia believe there are good opportunities for starting businesses in the country (Ibid., p.23). According to a report sponsored by the European Commission, in 2012 there were equal proportions of female and male entrepreneurs in the 25 to 49-year-old age group (relative to the total number of entrepreneurs for each gender), but there was a higher percentage of female than male entrepreneurs among the 65-years-old or older age group for each gender (Praxis 2014, 7).</p>
Demographic context of the business environment:	<p>According to Deloitte, women hold board seats in 8% of a sample of the largest listed company boards (Deloitte 2017, p.50). This is below the EU average of 22.6%. As of the time of this study, there were no government-mandated quotas for women on boards or any other measures to improve gender parity on boards.</p>

Patent application figures:	As of 2016, women comprised 13.3% of inventors in Estonia (OECD 2016). In 2013, 22.6% of patent applicants were female (Statista 2018).
Strategies for promoting inclusive innovation:	<p>Though not specific to innovation, social policy in Estonia encourages female participation in the economy. Estonia has one of the most generous parental leave policies in the world, with women receiving a max of 140 days of leave up at 100% of their income until the infant is 70 days old—after that, both mother and father can split 435 additional days of fully paid leave.</p> <p>Additionally, the Estonian Integration Strategy 2014 promotes including immigration and minorities in the labour market. The Special Care and Welfare Development Plan for 2014–2020 attempts to overcome barriers that keep people with disabilities from finding employment and being included in the innovation/entrepreneurship space.</p>

Policies, programmes and measurement

Policy measures to promote diversity and inclusion in innovative firms:	<p>Initiative 1: Parental Benefit Policy</p> <ul style="list-style-type: none"> ▪ Agency/department responsible: Ministry of Social Affairs ▪ Year launched: Amendments in 2017 ▪ Description: Estonia has one of the most generous parental leave schemes in the world, with mothers receiving 100% of their average income for a maximum of 575 days (435 of which can be split between the parents) to encourage women to have children, a high standard of living, and inclusive growth. In 2017, the Estonian Minister for Social Protection Kaia Iva announced an amendment (that will take effect in 2020) to give an additional 30 days leave for fathers to encourage more fathers to take advantage of the leave system and to allow women more access to the workforce after they give birth. ▪ Budget: Not publicly disclosed. ▪ Results thus far: In 2016, 17,242 parents took paternal leave, but only 9.3% were fathers. ▪ Website: https://www.eesti.ee/en/pensions-and-allowances/benefits-and-allowances/parental-benefit/ <p>Initiative 2: Estonian Integration Strategy 2014</p> <ul style="list-style-type: none"> ▪ Agency/department responsible: Ministry of Culture ▪ Year launched: 2014 ▪ Description: This strategy is aimed at helping immigrants integrate into Estonian society and at increasing tolerance towards different ethnic groups. Measure 2.3 of the Estonian Integration Strategy 2014 is the ‘Promotion of equal treatment on the labour market.’ This measure includes promoting ethnic equal treatment in work collectives, supporting public and private sector organisations with a multilingual staff, and informing non-native Estonian speakers of career opportunities in the public sector. ▪ Budget: Not publicly disclosed. ▪ Results thus far: ‘As a result of the measure, the awareness of organisations on the necessity of decreasing ethnic segregation on the labour market has increased.’ ▪ Website: http://www.kul.ee/en/integrating-estonia-2020 http://www.kul.ee/sites/kulminn/files/integrating_estonia_2020.pdf
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Initiative 3: Special Care and Welfare Development Plan for 2014–2020

- **Agency/department responsible:** Ministry of Social Affairs
- **Year launched:** 2014
- **Description:** This initiative is aimed at creating a strategic framework for more efficient provision of special care and welfare services for persons with special mental needs. One aim is specifically in the ‘facilitation of participation in labour market and employment.’ This intent addresses the barriers to including people with disabilities in innovation/entrepreneurship. Key elements to pursue this intent are social awareness campaigns and increasing support services.
- **Budget:** Not publicly disclosed.
- **Results thus far:** Information unavailable.
- **Website:** <https://www.sm.ee/en/people-disabilities>
https://www.sm.ee/sites/default/files/content-editors/eesmargid_ja_tegevused/Sotsiaalhoolekanne/Puudega_inimetele/special_care_2014-2020.pdf

Initiative 4: Action Plan for Attracting Foreign Specialists to Estonia 2015-2016

- **Agency/department responsible:** Ministry of Economic Affairs and Communications
- **Year launched:** 2015
- **Description:** The intention of this strategy is to attract foreign specialists and skilled workers to support Estonian innovators and entrepreneurs. The initiative includes marketing Estonia as a country with a ‘flexible and entrepreneur-friendly economic environment, brilliant scientists and numerous career possibilities.’ The goal will be to fill the country’s need for 22,500 top specialists by 2022 and to improve Estonia’s international economic competitiveness.
- **Budget:** Not publicly disclosed.
- **Results thus far:** A steering group has been established to monitor the plan’s effectiveness.
- **Website:** <https://www.mkm.ee/en/objectives-activities/economic-development/entrepreneurship-and-innovation#attracting-foreign-specialists12>

Initiative 5: Enterprise Estonia

- **Agency/department responsible:** Ministry of Economic Affairs and Communications
- **Year launched:** 2000
- **Description:** The long-term goal of Enterprise Estonia is to put Estonia among the top twenty countries in the world competitiveness scoreboard by 2020. Enterprise Estonia promotes business through regional policy in Estonia by providing financial assistance, counselling, cooperation opportunities and training for entrepreneurs, research institutions, the public, and non-profit sectors.
- **Budget:** Not publicly disclosed.
- **Results thus far:** As of 2017, Estonia was still ranked 29th by the World Economic Forum’s Global Competitiveness Scorecard (the same score as 2014 and two placements lower than in 2001).
- **Website:** <https://www.eas.ee/?lang=en>

Short-term initiatives:
Initiative 1: Startup Estonia 2014/20 Initiative

- **Agency/department responsible:** Estonian government created Startup Estonia as its own agency.
- **Year launched:** 2014
- **Description:** Four main courses of action for the 2014-2020 strategy include: 1) Strengthening the Estonian startup ecosystem to unite the community; 2) Carrying out training programs for startups to help make them internationally competitive; 3) Working on educating the local investors, attract foreign investors, and start new accelerator funds; 4) Eliminate regulation barriers that complicate entrepreneurship.
- **Budget:** €7 million from the European Regional Development Fund and 'powered' by KredEx.
- **Results thus far:** Between 2014 and early 2018, over 100 new startups have been established in Estonia, with a total number of 450 ventures. Additionally, approximately 1000 potential and current entrepreneurs have participated in the training program.
- **Website:** <http://www.startupestonia.ee/>

Initiative 2: Development Programme for Entrepreneurs

- **Agency/department responsible:** Ministry of Economic Affairs and Communications
- **Year launched:** 2013
- **Description:** This initiative is intended to consolidate support measures for entrepreneurs to encourage them to establish ambitious enterprises. There are two main activities: 1) identification of the development needs of entrepreneurs; 2) supporting the development activities (related to personnel, processes, development of products and services, and sales and marketing).
- **Budget:** Not publicly disclosed.
- **Results thus far:** -
- **Website:** <https://www.mkm.ee/en/objectives-activities/economic-development/entrepreneurship-and-innovation>

Initiative 3: FACE (Failure Aversion Change in Europe) Entrepreneurship

- **Agency/department responsible:** The European Commission and the Spanish communication group Grupo Secuoya
- **Year launched:** 2016
- **Description:** Inspired by the commonality of the 'fear of failure' amongst prospective entrepreneurs, this campaign aims to address common fears that inhibit entrepreneurship engagement. These fears include: financial fears, career-related fears, social perception, self-perception, fear of losing personal freedom, and a 'fear of losing it all'. These fears are compounded by certain factors including age, prior career achievements, having a family, etc. The campaign intends to address these fears by 'tackling the emotional side' of entrepreneurship through peer support networks.
- **Budget:** Not publicly disclosed.

	<ul style="list-style-type: none"> ▪ Website: http://estonianworld.com/business/project-aims-help-overcome-fear-failure-entrepreneurship-estonia/ <p>Initiative 4: Work in Estonia</p> <ul style="list-style-type: none"> ▪ Agency/department responsible: Enterprise Estonia ▪ Year launched: 2015 ▪ Description: Work in Estonia is an information campaign strategy aimed at increasing the number of foreign specialists available to support entrepreneurs in Estonia. The information campaigns are run online through videos, photos, online resources, and other digital media. In 2015, Work in Estonia ran two successful campaigns in Finland and Ukraine. ▪ Budget: Not publicly disclosed. ▪ Results thus far: Filled approximately 200 specialist jobs in 2015. ▪ Website: www.workinestonia.com
<p>Evaluation and monitoring methods:</p>	<p>Key performance indicators vary but include: rankings such as the World Economic Forums' Global Competitiveness Scorecard, the number of startups currently located in Estonia, jobs created (in general and for people in certain groups, such as people with disabilities), the number of enterprises with at least 20 employees, the amount of revenue generated by startups, etc.</p>
<p>Other information:</p>	<p>Comprehensive list of contacts for the Ministry of Economic Affairs and Communications: https://www.mkm.ee/en/contact</p>

Finland

Context and demographics

Business environment and innovation landscape:

Finland is considered one of the most dynamic and attractive business environments in the world (World Bank, 2017) with a high level of innovation capacity (Planes-Satorra and Paunoy, 2017). The WEF's Global Competitiveness Index 2017-2018 ranked Finland as the tenth most competitive nation in the world (WEF 2018). Indeed, Finland exhibits a very positive environment for entrepreneurship with easily available information and advice, low regulatory burdens for starting a business and favourable conditions for financing businesses (OECD, 2017a).

Innovation policy is considered a priority. The Finnish National Innovation Strategy from 2008 sets diversifying Finland's innovation policy as its goal (OECD, 2016). The aim is to enhance the competence-based competitiveness of different regions and the national economy. Indeed, within the current policy framework, the government is pushing for a comprehensive approach aimed at the inclusion of different kind of groups – such as immigrants, young people, people with disabilities, and women – to innovation processes (OECD; 2016; Interview 2).

Whereas the promotion of female entrepreneurship is already well established within policy programmes and initiatives (with associations such as the Centre for Women Entrepreneurs and The Women Entrepreneurs of Finland playing a significant role in shaping policy-making), other areas of inclusion are less developed. In this respect, the inclusion of immigrants and communities in business innovation is now considered a key challenge by the Ministry of Economic Affairs and Employment (Raunio, 2013; Interview 2). As many regions are experiencing considerable losses of working age population, promoting work-based immigration will be increasingly important in the future. For example, the reception and integration of refugees as well as the utilisation of the competence potential of immigrants and promotion of their inclusion is part of the agreements concluded between the Ministry of Economic Affairs and Finnish Municipalities (Ministry of Economic Affairs and Employment, 2016).

Composition of the technological innovation sector:

The employment rate of Finnish women is 68% and very close to that of men (69%). Indeed, gender inequality is very low in Finland, which comes third in the World Economic Forum Global Gender Gap Index 2017, behind Iceland and Norway (WEF 2017a).

The employment gap between men and women aged 15-64 is the second lowest in the OECD. Women are well represented among top politicians, on the board of companies and among entrepreneurs, even though parity is not achieved (OECD, 2018: 23). However, the gender pay gap is wide, partly because of strong gender specialisation across professions, with women being under-represented in well-paid activities like engineering and overrepresented in public sector jobs, notably in health care and education (National Institute for Health and Welfare, 2017). One of the reason is the low rate of women participation in STEM education with only 24% of female students enrolled in science, technology, engineering and mathematics (OECD, 2016b: 90; Interview 1).

Women account for approximately one-third of Finland's entrepreneurs, which is a relatively high share in comparison with other EU countries. Female entrepreneurs more frequently operate as individual entrepreneurs or on a part-time or sideline

	<p>business basis (OECD, 2016c). They often operate in fields providing personal services (such as exercise and fitness, hairdressing and the beauty industry), entertainment and culture, business services, and social welfare and healthcare services. The share of women in these professional groups is over 90%. Correspondingly, the most male-dominated fields and professions are construction, installation and repair of machines and electrical appliances, and lorry transportation, where men account for over 90% of the workforce (National Institute for Health and Welfare, 2017). In terms of access to finance, women are less likely than men to indicate that they can access the financing needed to start a business, with men more than 1.6 times as likely as women to report that they could access the finance to start a business (OECD, 2016c).</p> <p>On average, immigrants perform worse than natives in the labour market. They have 8 percentage points lower employment rates than natives, rising to 14 percentage points for immigrants with tertiary education. Unemployment rates are double that of natives, and particularly high for women (OECD, 2016b). Certain immigrant groups, notably humanitarian immigrants from Afghanistan, Iraq and Somalia, have very low employment rates and earnings, even many years after arrival (Sarvimäki, 2017).</p>
Number of underrepresented groups in startups and SMEs:	<p>Despite Finnish women being more highly educated than men and the country generally considered to be a leader in achieving gender equality in the labour force, few women are involved in self-employment. The gender gap is visible in a lower level of interest in business ownership by female students (18%) compared to male students (25%) (Aarnio, 2015). According to the Finnish Institute of Occupational Health, there are some 70,000 people with disabilities in Finland who are capable of working. However, only 60% of them are employed (Nevala et al., 2015).</p>
Demographic context of the business environment:	<p>In recent years, the number of women directors in Finland has increased circa one percentage point every year. In 2015 the figure was 24% and in 2014 women comprised 23% of board members, whereas in 2013 only 7% of the board members in listed companies were women. This represents a significant change in Finland: in ten years the number of women directors has increased three-fold (Women Directors and Executives Report, 2016). For the latest edition of Deloitte's Women in the Boardroom report, Finland was found to have 24.7% of board seats held by women, 2.6% above the European average of 22.6%.</p> <p>In 12 companies the percentage of women directors was 40-50%, reflecting completely equal representation of both genders on boards. These figures are exceptional if we consider that Finland has not adopted quota legislation like e.g. the Norwegian and French legislators have (Women leaders programme, 2016).</p>
Patent application figures:	<p>According to the European Patent Office (EPO), the number of patents granted by the EPO to companies from Finland increased exponentially in 2016, with a total of 1 081 new patents. For Finnish companies, digital communications remained the central technology area of patent applications (OECD, 2017b).</p> <p>In terms of women patent applications, the share of female Finnish inventors experienced an overall increase of 6.7 percentage points from 1980 to 2013, peaking in 2007, when 11.1% of Finnish patent applications were from women (OECD, 2015). In comparison with EU countries, Finland has among the largest proportion of female inventors (8.57%), preceded only by Denmark, with a proportion of 11,85% of female inventors (Okoń-Horodyńska et al., 2015: 121)</p>

Strategies for promoting inclusive innovation:

In terms of promoting inclusive innovation, Finland has in place a regional development strategy. According to the 'national priorities regional development 2016-2019' (Ministry of Economic Affairs and Employment, 2016), several strategies are put in place with the following objectives there are six main objectives of regional development:

1. To promote the balanced development and national and international competitiveness of the regions;
2. To sustainably support and diversify the business structure of the regions and to promote economic balance;
3. To promote sustainable employment as well as the competence, equal opportunities and social inclusion of the population;
4. To narrow development gaps between and within regions and to encourage the full use of the available resources in a sustainable manner;
5. To enhance regional strengths and specialisation as well as to promote regional culture;
6. To enhance the quality of the living environment and a sustainable regional and urban structure.

At the same time, key elements in building up Finland's competitiveness include not only balancing the economy but also safeguarding the wellbeing of the people. More recently, key actions include measures in the 2017 Budget, the recently launched 'Entrepreneurship Package' and the 26 key projects used as a basis for developing measures to encourage more disadvantaged individuals to startup in business (Finnish Government programme 2017). Several of these projects are relevant for inclusive entrepreneurship policy, including the projects 'Strengthening competitiveness by improving conditions for business and entrepreneurship', 'Youth guarantee towards community guarantee' and 'Career opportunities for people with partial work ability' (see below for further details).

Finally, municipalities and third sectors organisations also run several initiatives and campaigns to address diversity and inclusion such as the TOITA initiative for immigrants or the Women in Innovation initiative (Interview 1; see also short term initiatives section).

Policies, programmes and measurement
Policy measures to promote diversity and inclusion in innovative firms:
Initiative 1: Entrepreneurship for people with disabilities

- **Agency/department responsible:** Ministry of Social Affairs and Health and the Ministry of Economic Affairs and Employment are nationally responsible for the key project. The National Institute for Health and Welfare (THL) and the Finnish Institute of Occupational Health are coordinating the regional pilot projects.
- **Year launched:** 2016
- **Description:** The aim is to have more people with disabilities and people with partial work ability as entrepreneurs. Professionals in the service system will receive complementary training in order to be able to effectively and successfully use the means meant to support people with partial work ability
- **Budget:** Not publicly disclosed.
- **Metrics:** The first phase of the project included a survey on people with disabilities as entrepreneurs and their support. More information is still needed on the

number of entrepreneurs with disabilities and the potential to increase that number. Based on the survey results, concrete measures will be planned and carried out to encourage people with disabilities or partial work ability to become entrepreneurs and to remove barriers to their entrepreneurship

- **Website:** <http://stm.fi/en/career-opportunities-for-people-with-partial-work-ability>

Initiative 2: Models for employment and social inclusion

- **Agency/department responsible:** Ministry of Social Affairs and Health and the Ministry of Economic Affairs and Employment are nationally responsible for the key project. The National Institute for Health and Welfare THL and the Finnish Institute of Occupational Health are coordinating the regional pilot projects.
- **Year launched:** 2016
- **Description:** The aim is to reform the models and culture in services for people with partial work ability so that they would better support the employment and inclusion of people with partial work ability. More efficient operating models will be introduced in regional experiments: (i) Path from exemplary employment to work (ii) Path from studies to work (iii) Activities that support inclusion. It is also foreseen to reform legislation to support the employment and inclusion of people with partial ability for work. As a result, people with partial work ability will have better access to services they need and an increasing number of people with partial work ability will make progress on their path to work
- **Results thus far:** a pilot project started in six regional areas.
- **Website:** <http://stm.fi/en/career-opportunities-for-people-with-partial-work-ability>

Initiative 3: Women Leaders Program

- **Agency/department responsible:** Finland Chamber of Commerce
- **Year launched:** 2008
- **Description:** Women Leaders Programme actively promotes women's access to top positions and aims at securing a more flexible regulatory environment for businesses when quotas are not legislated. Elements of the programme are: women business leaders' studies; mentoring programme; programme website (naisjohtajat.fi); articles, statements; contacts with companies. One of the targets of the programme has been to focus on having more women executives. However, as also confirmed by one of the interviewees, 'directorships are just the tip of the iceberg and the real issue is not dealt with if only directorships and quotas are discussed' (Interview 1). Indeed, one of the key challenge now is that of increasing the number of female graduates in STEM subjects (Interview 1).
- **Budget:** The Programme is part of the regular operations of Finland Chamber of Commerce
- **Metrics:** number of additional women leaders;
- **Results thus far:** availability of data on women leaders available for public authorities, companies, media, researchers, self-regulation accepted as a solution instead of quotas. The Women Leaders Programme has won first prize in the best corporate social responsibility project category at the World Chambers Competition in Torino 2015.
- **Website:** /

Initiative 4: Women Mentoring Programme

- **Agency/department responsible:** Finland Chamber of Commerce

- **Year launched:** 2001
- **Description:** The objective of the programme is to further the possibilities of skilled women in claiming their place in companies' executive roles and as board members. The programme is mainly aimed at women working in middle management positions who wish to develop their expertise or discuss their possible career paths. The goal is to provide future female leaders with the capabilities necessary to work in business leadership positions and eventually in the boards of listed companies. In addition to the one-on-one mentoring sessions, the programme consists of four seminars. The programme also includes company visits, networking events and the access to an online discussion forum.
- **Budget:** The Programme is part of the regular operations of Finland Chamber of Commerce. There is a charge of €2,850 from the mentees (ca. 40 mentees in one cycle). There are sponsors for all seminars and speakers come pro bono to our events.
- **Metrics:** more women mentored

Initiative 5: Immigrants and Innovation economy

- **Agency/department responsible:** Ministry of Social Affairs and Health and the Ministry of Economic Affairs and Employment are nationally responsible for the key project. The National Institute for Health and Welfare (THL) and the Finnish Institute of Occupational Health are coordinating the regional pilot projects.
- **Year launched:** 2017
- **Description:** The project aims at mapping best practices to match immigrants' competences with innovation in business, and in particular regarding internationalisation of firms. To this purpose, a survey was conducted in order to identify best practices that can be implemented in order to promote competences of skilled immigrants. The project helped to unveil and understand entrepreneurship mechanisms to reinforce competitiveness and promote employment.
- **Budget:** €100,000
- **Metrics:** a pilot project started in six regional areas
- **Website:** http://tietokayttoon.fi/hankkeet/hanke-esittely/-/asset_publisher/immigrants-and-innovation-economy-immi-

Short-term initiatives:

InnoLady Camp

The InnoLady camp is an online entrepreneurship training programme developed by the Women's Enterprise Agency that is focused on early-stage business development and connects women entrepreneurs with peers, mentors and business angels.

TOITA: Talents of Immigrants to Activity

The TOITA project promotes employment among immigrants as well as their integration into Finnish society. The immigrants are participating in a three-month course at TAMK, where they study international business. The training includes classroom-learning and practical training to real-world companies. Following this, they will undergo training of a similar length at companies in Pirkanmaa. The project is funded by the European Social Fund.

	<p>Innovation award for women</p> <p>Managed by the Technology Academy Finland, the award is granted to a woman or a group of women for a scientifically significant innovation in the field of technology or economy. Granted for three years (from 2017 to 2019), the award is worth EUR 110,000 and commemorates the anniversary of universal and equal suffrage on 1 June.</p> <p>Loans for Women Entrepreneurs (Finnvera)</p> <p>The loan is addressed to investments required to launch small enterprises and for working capital and other financing needs resulting from business startup and operation. It is granted to startup or existing small enterprise with maximum five employees, in which women are majority shareholders and which is managed by one of the women owners.</p> <p>Talent boost programme</p> <p>Launched in mid-2017, the International Talents Boosting Growth programme is a joint cross-sectoral programme to link together migration, innovation and industrial and business policies and to harness the potential of international talents to support the growth and internationalisation of companies.</p>
<p>Evaluation and monitoring methods:</p>	<p>Key performance indicators (KPIs) include: employment rate different group; number of events held, media coverage, policy briefs, grants allocated, the number of contacts with companies, placements and impact in terms of career advancement for women.</p> <p>In addition, the National Institute of Statistics provides data regarding the inclusion of different groups in the business sector (Interview 2) whereas the Finnish Chamber of Commerce collects information and publishes studies on women inclusion in business innovation (Interview 1).</p>

France

Context and demographics

Note: The collection of data on ethnic origin is illegal in France. This means that the availability of statistics on under-represented groups is mostly limited to gender.

Business environment and innovation landscape:

The World Bank Starting a Business Rating (2017) ranks France 27th out of 190. In the GEM 2017/18 report, France's innovation level is among the highest recorded, at 48.6% (GEM, 2018). Using data collected through the Community Innovation Survey (CIS) 2016, the French National Institute for Statistics and Economics Studies (INSEE) estimates that the share of innovative firms increased from 37 to 53% between 2010-2012 and 2012-2014.

Public policies play a big part in stimulating innovation. More than a third of the companies developing innovative products and processes in 2012-14 benefited from public financing, mostly through the Research Tax Credit (Crédit d'Impôt Recherche, CIR), and other dedicated tax breaks or social security exemptions. That number rises up to 59% in the information and communication sector, and 42% in the industrial sector. Public subsidies (from national or local government agencies, or the EU), loans and advances also benefited 19% of technologically innovative companies (INSEE, 2017a).

Inclusive innovation, by contrast, lags behind. Women's Total Entrepreneurial Activity (TEA) rate (the percentage of the adult working-age population –18-64 years old – who are either nascent or new entrepreneurs) is 3% (GEM, 2018). The female to Male TEA ratio is 0.44, putting France at the 50th rank out of 54 countries. The female/male opportunity ratio is 0.69 (rank 50/54). 70% of firms created in 2010 were created by men, while they represent only 52% of the working population (INSEE, 2015a). Geographical concentration is also an issue: 39.6% of technologically innovating firms in 2012-2014 were located in two regions: Ile-de-France (25.2%) and Auvergne Rhône-Alpes (14.4%) (INSEE, 2014).

In the last two decades, policies aimed at fostering innovation have mainly aimed at tackling geographical disparities (e.g. through the development of regional incubators since the mid-2000s) with attention to social inclusion rising to prominence in recent years. Several pieces of legislation aim to make companies more diverse (this is not limited to innovative businesses). Since 1987, companies with more than 20 employees are legally mandated to a 6% quota of employees with disabilities. Employers failing to comply have to pay a contribution to a fund dedicated to facilitating the professional insertion of disabled people into the economy. Further, since January 2017, large companies are mandated to have a 40% female quota on their boards (see below).

Composition of the technological innovation sector:

According to INSEE (2015b), 78% of companies created in 2010 in the information and communication sector were created by men, while they represented only 52% of the working-age population. That proportion increases to 80% in the industrial sector. 90% of micro-entrepreneurs ('auto-entrepreneurs') in the ICT sector were men.

In terms of employment, while women represent 48% of the working age population, they only account for 29% of jobs in the industrial sector. In 2015, 8.1% of active women were employed in the industrial sector, as opposed to 19.3% of men. 1.7% of active women were employed in the ICT sector, while that sector employed 4% of active men (INSEE, 2017b).

	In SMEs, women held 19% of R&D jobs as of 2012 (BpiFrance, 2014).																		
Number of underrepresented groups in startups and SMEs:	<p>87.6% of startup creators in 2017 were men (French Tech, 2017). This is consistent with findings from a survey (EY, 2014) conducted in 2013, which found that only 9% of startup creators were women. 38% of individual-enterprises were created by women, while this proportion was 33% in 2002. Yet, 83% of individual enterprises in the ICT sector were created by men.</p> <p>13% of SMEs surveyed in a KPMG/Women Equity survey in 2012-2015 were headed by women (KPMG/Women Equity, 2017). Another study from 2012 found that 27% of firms with 10 to 249 employees were headed by women (Chabaud and Lebègue, 2013).</p>																		
Demographic context of the business environment:	<p>According to the World Bank, 39.5% (143,464) of new sole proprietors in France in 2016 were women (World Bank 2017). There were 40% of women on boards of companies listed on the SBF 120 (Deloitte, 2016). 2.7% of board chairs in SBF 120 listed companies were women. 1% of CEOs in these same companies were women. The following table summarises the variation per sector (data from Deloitte, 2017):</p> <table border="1"> <thead> <tr> <th>Sector</th> <th>% of women on boards</th> <th>Trend (since 2015)</th> </tr> </thead> <tbody> <tr> <td>Financial services</td> <td>42%</td> <td>15%</td> </tr> <tr> <td>Energy and resources</td> <td>39%</td> <td>13%</td> </tr> <tr> <td>Consumer business</td> <td>38%</td> <td>11%</td> </tr> <tr> <td>Technology, Media & Telecommunications</td> <td>36%</td> <td>8%</td> </tr> <tr> <td>LSHC Life Sciences & Health Care</td> <td>28%</td> <td>-</td> </tr> </tbody> </table> <p>The legislation on gender quotas in the boardroom applies to companies whose shares are admitted to trading on a regulated market, private companies with revenues or total assets over €50 million with 5002 or more employees (decreasing to 2503 in 2020) for three consecutive years, governmental organisations and bodies, social security organisations, and the cultural and sports sectors. According to Deloitte, these quotas have 'indisputably (...) changed the way boards are composed'.</p>	Sector	% of women on boards	Trend (since 2015)	Financial services	42%	15%	Energy and resources	39%	13%	Consumer business	38%	11%	Technology, Media & Telecommunications	36%	8%	LSHC Life Sciences & Health Care	28%	-
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Patent application figures:	<p>According to the WIPO, 17% of patents were filed by women inventors in France in the 2011-15 period (up from 14% in the 1995-99 period). The share of patent applications with at least one women inventor was 32.4% in 2011-2015, with an annual growth rate of 4.6% (Lax Martinez et al., 2016).</p> <p>This is higher than estimates from the OECD (2017), according to which patenting activity by women inventors as a share of IP5 family patents, across all technology, in 2012-15, was 10.5% (it was 10.1% in 2002-05). The lowest female share was found in the sector of mechanical elements (4.8%), while the highest female share was in organic chemistry (35.2%).</p>																		

	<p>Of relevance when considering ‘industrial inclusiveness’: in 2015, the 20 biggest filers accounted for 41.2% of patents filed, while the biggest 50 accounted for 48.6%. This trend is increasing: the biggest 20 filers amounted to 40.3% of patenting activity in 2014, and only 25.2% in 2004 (INPI, 2015).</p>
Strategies for promoting inclusive innovation:	<p>A new strategy for innovation, called ‘a new deal for innovation’ (une nouvelle donne pour l’innovation) was launched in 2013 by the Hollande government (Gouvernement Français, 2013). It was made of four pillars, the first of which was to promote inclusive innovation (‘innovation for all’). The strategy called for ‘the mobilisation of all forms of innovation and all talents’, through reducing ‘cultural limitations to equality of opportunities’, and by encouraging ‘initiative, creativity, project work and the taste for entrepreneurship at every stage of education and within society’. Innovation must ‘bring together women and men from all origins and all educational backgrounds’. Four main policies were attached to that first pillar:</p> <ol style="list-style-type: none"> 1. Cultivate entrepreneurship among young people and providing them with the means of their ambition, through educating them in project work and collaborative work, in collaboration with businesses, from pre-primary schools (‘écoles maternelles’) to universities. 2. Supporting all kinds of innovation, from technological innovation, disruptive or incremental innovation, to marketing, design, and process innovation. 3. Attracting innovative talents in France through the implementation of dedicated programmes. 4. Allowing all to create a startup whatever their starting point, through the creation of dedicated funds for new entrepreneurs. <p>The second pillar of the strategy, ‘open innovation’, refers primarily to the spatial understanding of inclusion as it strives to support ‘regions in implementing the new innovation governance in various territories, as close as possible to the needs of innovative firms’.</p> <p>Many actors are involved in implementing the innovation strategy, including BpiFrance, Business France, Caisse des Dépôts, Direction Générale des Entreprises, Direction Générale du Trésor, Commissariat Général à l’Investissement, and regional governments. The creation of the national public investment bank BpiFrance in 2012, merging together previously existing public investment funds, was a cornerstone of the innovation strategy implemented during the Hollande administration. Within BpiFrance, another entity, ‘French Tech’, was created in 2013 in collaboration with the Ministry of Finance. French Tech is an investment fund of €200 million for private startup incubators. Several programmes are attached to it: the ‘bourse French Tech’ allocates funding of up to €45,000 to help innovators launch their project; the ‘Pass French tech’ is a programme specifically targeted at hyper-growth startups.</p> <p>Despite the commitment to inclusive innovation, as of 2018, the actors involved in implementing the innovation strategy and those involved in fostering diversity in firms are still somewhat disconnected. The latter (which are numerous) tend to be targeted to specific groups or demographics (catering to e.g. women, disabled people, etc.) and therefore scattered, with limited integration with the actors in charge of the innovation strategy.</p>

To the researcher's knowledge, there are two areas of particular connection between innovation and inclusion (and/or diversity):

1. Within the 'French Tech', the programme 'French Tech diversité' is specifically dedicated to inclusive innovation, aimed at 'accompanying the diversity of entrepreneurial talents' (see below). The 'French Tech diversité' operating team, situated within the Ministry of Finance, is the actor officially linking the issues of innovation and social inclusion (see below).
2. Territorial inclusion is a key component of the innovation strategy. BpiFrance has local antennas all over the country, and collaborates with local antennas of the national government as well as regional governments and local business actors. Programmes like 'French Tech metropoles' aim to create local network of actors promoting innovation at a local level.

Policies, programmes and measurement

Policy measures to promote diversity and inclusion in innovative firms:

Initiative 1: The 'French Tech Diversité' programme

- **Year Launched:** 2017
- **Entity responsible:** French Tech/Ministère de l'Economie et des Finances
- **Description:** The programme aims to promote social diversity in the French startup ecosystem. This is done through identifying and accompanying the best startup projects from underprivileged entrepreneurs, e.g. individuals coming from particular areas identified as disadvantaged in other government programmes ('quartiers politique de la ville'), students on public scholarships, etc. Selection criteria includes: (1) having a business project, under 3 years old, based on a digital innovation (with no restriction of sector or market); (2) A resident in a 'quartier politique de la ville' area (identified as disadvantaged), a student on a public scholarship based on social criteria, a minimum income benefit recipient (RSA, ASS, AAH) or an entrepreneur identifying as coming from a disadvantaged social or cultural background (the situation must be motivated in a personal statement).

Winners are part of a one-year programme and benefit from:

- A 45,000 € grant to cover costs linked to the project (e.g. material, salaries, etc.) up to 20,000€ and external costs (business plans, outsourced services, etc.) up to 25,000€;
- A 12-month position with a partner incubator, where the project will benefit from tailored oversight, with a mid-course evaluation;
- An individual assistance and training programme, with a designated entrepreneur mentor residing in France and counselling from an entrepreneur established abroad, in one of the 'French Tech Hubs';
- A collective assistance and training programme for the cohort of winners (training in 'soft skills', understanding of the ecosystem, master class by established entrepreneurs, etc.).

The programme also creates a networks of 'ambassadors' and 'partners', acting as role model and mentors.

- **Budget:** €4 million (doubled from 2 million in 2018)
- **Results thus far:** In its first year, the programme received 420 applications. 30% of applicants were female. 35 projects were selected.
- **Website:** <http://www.lafrenchtech.com/en-action/french-tech-diversite>

Initiative 2: Fonds de Garantie à l'initiative des Femmes (FGIF) (Guaranteed Fund for Women's Initiative)

- **Year Launched:** 2006
- **Entity responsible:** Agence France Entrepreneurs/France Active/France Initiative
- **Description:** FGIF is a bank loan guarantee scheme for women entrepreneurs. The scheme covers 70% of the loan, up to €45,000. Loans of 2 to 7 years are covered. The state guarantee replaces personal collaterals. Women creating, taking over or developing a business less than 5 years old are eligible. Women benefiting from the scheme can also access a range of business counselling services.
- **Budget:** Not publicly disclosed.
- **Results thus far:** 82% of firms have survived 3 years after the loan. In 2016, FGIF helped 2382 women to create their business. 78% of them were previously unemployed, and 53% had an education level inferior to A-levels (baccalauréat).
- **Website:** <http://www.egalite-femmes-hommes.gouv.fr/dossiers/egalite-professionnelle/entrepreneuriat-des-femmes/fgif/>

Initiative 3: I-Lab, prix 'Pepite-Tremplin' for student entrepreneurship

- **Year Launched:** 2014
- **Entity responsible:** Ministry for Higher Education, Research and Innovation, CDC
- **Description:** The Ministry for Higher Education adopted a plan to foster student entrepreneurship in November 2013. This led to the creation of 29 local student hubs for innovation, knowledge transfer, and entrepreneurship (Pôles étudiants pour l'innovation, le transfert et l'entrepreneuriat, PEPITE), headed by a national organisation, Pepite France. In 2014, the 'Pepite prize' for student entrepreneurship was created. It aims to foster the emergence of innovative business creation projects among students and young graduates (less than three years out of school) and to financially support the best projects. **Eligibility is not limited to technologically innovative projects, but any kind of innovation is eligible.** Recently created innovative firms are also eligible. Students or young graduates must be between 18 and 28 years old to enter the competition. Various prizes are attributed: three prizes of €20,000, 20 worth €10,000 and 30 prizes of €5,000.
- **Budget:** €70 million
- **Results thus far:** in 2017 the prize led to the creation of 125 startups.
- **Website:** <http://www.enseignementsup-recherche.gouv.fr/cid114947/lancement-du-prix-pepite-tremplin-pour-l-entrepreneuriat-etudiant-2017.html>

Initiative 4: the 'Talent des cités' concours

- **Year Launched:** 2002
- **Entity Responsible:** It was originally launched as a collaboration between the Ministry for Social Cohesion, l'Agence France Entrepreneur and BGE, a publicly funded association specialised in inclusive entrepreneurship. It is now run by BGE with support from CDC and the Commissariat Général à l'Egalité des Territoires.
- **Description:** 'Talents des Cités' is a programme that distributes grants to about 40 business creators in areas identified as under-privileged (quartiers politiques de la

ville) each year. 14 regional and 1 national programme are organised every year. Over €150,000 distributed each year. Both emerging projects as well as young businesses are eligible, provided the venture is located in one of the identified areas.

- **Budget:** Not publicly disclosed.
- **Results thus far:** 570 entrepreneurs benefited over 16 years, which represents 330 firms still in activity, and 2650 jobs.
- **Website:** <http://www.talentsdescites.com/>

Initiative 5: The ‘supported job’ scheme for disabled people (‘Emploi accompagné’)

- **Year Launched:** 2017
- **Entity responsible:** Ministère du Travail (Ministry of Work)
- **Description:** The ‘supported job’ scheme aims to help disabled people obtaining or keeping a job. It comprises two main elements: (1) Support for the disabled worker, including medico-social support when employed, and professional insertion support when unemployed. This includes potential mediation with the employer. (2) Support for the employer, mainly in the form of a counselling by a dedicated ‘supported job officer’ who can advise on how to prevent and remedy difficulties arising in the course of the disabled individual’s mission, or about the best way to adapt the work environment.
- **Budget:** €7 million in 2018 (4.5 million from the state, €2 million from Agefiph - development fund for the professional insertion of disabled people, €500,000 from FIPHFP - fund for the insertion of disabled people in the civil service)
- **Metrics:** Metrics include: number of full-time jobs involved in running the scheme, number of non-administrative full-time jobs involved in the scheme, number of disabled people supported, number of disabled people having entered the scheme, number of disabled people having exited the scheme, number of employers involved.
- **Results thus far:** Results for the national scheme are not available yet. A study evaluating 5 experimental schemes focusing on mental disabilities in various regions between 2013 and 2016 found that about 30% of disabled individuals benefiting from the scheme found a job, and about 60% of those who had a job were still employed after 12 months (Nexem, 2017).
- **Website:** <http://travail-emploi.gouv.fr/emploi/insertion-dans-l-emploi/emploi-et-handicap/article/emploi-et-handicap-le-dispositif-de-l-emploi-accompagne>

Initiative 6: Support programme from local CIDFF

- **Year Launched:** varies
- **Entity responsible:** local antennas of the National Women and Families’ Rights Information Centre (CIDFF)
- **Description:** Local antennas of the CIDFF equipped with a business creation service have support programme designed to support female entrepreneurs from information to business counselling and business planning. Some local programmes offer support after the launch of the business, but most focus on informing women about their rights and available tools to overcome specific obstacles and are therefore focused on the early stages of business creation.
- **Budget:** Not publicly disclosed.
- **Metrics or Results thus far:** (no known evaluation strategy)

	<ul style="list-style-type: none"> ▪ Website: http://www.infofemmes.com/v2/p/Emploi-et-creation-d-activite/Les-CIDFF-l-emploi-et-la-creation-d-entreprise/2448
Short-term initiatives:	<p><u>Practical training</u></p> <ul style="list-style-type: none"> ▪ The ‘Grande École du Numérique’ was founded by the government in 2015. It comprises more than 400 training offers, open to all, across the country. The school is dedicated to facilitate the professional insertion of groups that are persistently excluded from both the labour market and education. It does so by providing training programmes adapted to these groups and tailored to the needs of the digital industry. ▪ Website: https://www.grandeecolenumerique.fr/qui-sommes-nous/ <p><u>Awareness campaigns</u></p> <ul style="list-style-type: none"> ▪ The campaign ‘Women for future’, organised by BpiFrance in partnership with private actors, aims to promote female entrepreneurship by attributing prizes to particular role models, such as the ‘female startupper of the year’ prize. Article BpiFrance: http://www.bpifrance.fr/A-la-une/Actualites/Women-for-future-des-entrepreneures-engagees-38153 ▪ The ‘Semaine pour l’emploi des personnes handicapées’ (Week for the employment of disabled people) is organised every year since 1997 and has now become a European-wide event. It aims to raise awareness about the challenges faced by disabled people in accessing the labour market. http://www.semaine-emploi-handicap.com/edition-2017 <p>Public-specific advocacy groups are also present at tech-centred events (e.g. the presence of dedicated actors (e.g. the public association in charge of the fund for the professional insertion of disabled people – AGEFIPH – participates to the ‘digital industry recruitment forum’).</p>
Evaluation and monitoring methods:	<p>A national commission for the evaluation of innovation policies was created in 2014 (Commission d’Evaluation des Politiques d’Innovation), following a 2013 report pointing out the incoherence of the existing system and the need for evaluation in the absence of existing evidence that any of the strategies pursued actually worked (Beylat and Tambourin, 2013).</p> <p>The CNEPI’s mission is to evaluate innovation policies with regard to their economic impact. Their official mission statement does not include a specific mandate regarding inclusiveness or diversity.</p>

Israel

Context and demographics	
Business environment and innovation landscape:	<p>The 'Startup Nation' – the name given to Israel via Singer and Senor's 2009 book – has excelled in creating and internationalising high-technology startups since the 1990s. With firms that operate according to a 'born global' mentality, innovative Israeli startups target large international markets (Almor et al. 2008).</p> <p>However, since the 'Cottage Cheese Protest', which saw social unrest over the cost of living, especially from those not involved in the high-tech sector, the government has exhibited a growing emphasis on expanding the range of participants in and benefactors from Israel's innovation activities. Only 8% of workers are employed in the high-technology industry and the average salary of a worker in high technology is more than twice that of the economy as a whole. The Israel Innovation Authority very succinctly explained 'Israel has become a global focus of innovation over recent decades, however, the prospering high-tech sector has largely remained insulated and the majority of the economy has yet to gain from its benefits. This presents the Innovation Authority with an important mission: to preserve and strengthen world leadership of innovation while increasing the resultant economic-social yield.'</p> <p>The landscape of inclusive innovation in Israel is complex, reflecting its socio-political and demographic context. The government has been active in designing and implementing programmes and initiatives – in a variety of forms – across social, spatial and industrial inclusion aims. Socially, inclusive innovation efforts refer to policies and initiatives that encourage underrepresented group, which include the 'ultra-orthodox', the collaboration of both Jewish and Arab Israelis in innovation activities, Palestinian entrepreneurs and women.</p> <p>Given the imbalance in high-technology activities spatially, the Innovation Authority is also promoting business innovation across the country (diversifying away from the clusters of Tel Aviv and Haifa) and initiating efforts to promote innovation activities in traditional sectors.</p>
Composition of the technological innovation sector and number of representative groups:	<p>Although women account for some 51% of the Israeli population, they account for just 10% of the 4,247 startup founders listed in the database of Startup Nation Central who set up their firms since 2014 (Solomon 2018).</p> <p>Ultra-orthodox Jews comprise 7% of the Israeli workforce, but only 44% of them are working (Kama Tech, 2018). A growing segment of the Israeli population, by 2030 the ultra-orthodox Jewish community is expected to account for 18% of the workforce. Thus national policy strives to increase rates of work in the Ultra-orthodox community, particularly in the high-technology sector.</p> <p>The Arab minority represented only 5.7% of total employment in the high-tech sector and 2% of employment in the R&D sector in 2015, while they accounted for 21% of the country's population (Innovation Israel, 2016). In a 2017 article in The Globe and Mail, Dan Breznitz and Amos Zehavi remarked on the achievements of Israeli policy in including this group, 'take the surprising example of the Israeli Arabs, and the plethora of policies by right-wing nationalist Israel governments, tackling everything from startup incubation to training for job interviews, which resulted in a tenfold increase in Arabs employed in the high-tech sector in less than four years, and a growing cohort of promising Arab-founded startups where there were none before'.</p>

	<p>Industrial inclusiveness – in which traditional sectors do not keep pace with, and/or lose out, to technologically-oriented – is sometimes called a ‘dual economy’. The ‘startup nation’, for Planes-Satorra and Paunov (2017: 13), serves as an example as it ‘has a relatively small yet highly dynamic high-tech sector, which is the major driver of growth in the country, while the rest of the economy consists of traditional industries and service sectors characterised by low productivity and low wages’. The so-called ‘Cottage cheese protests’ were evidence of rising sentiment that this inequality is unpalatable.</p>
Patent application figures:	<p>In Israel, the percentage of patents filed by women is 11.6% as of 2017, according to OECD Science and Technology statistics. The share of women inventors is slightly lower, at 10.8% (OECD Gender Data 2016).</p>
Strategies for promoting inclusive innovation:	<p>The Office of the Chief Scientist – merged with MATIMOP and renamed the Israeli Innovation Authority in 2016 - has played a central role in promoting high-tech activities in Israel since (at least) the 1960s. In recent years, it has stepped up efforts to foster inclusive innovation according to various social, territorial and industrial inclusion objectives. The current strategy is to formulate policy around three core arenas, one of which focuses on increasing the economic value of advanced technology and on expanding the supply of human capital, alongside preservation of system’s strengths (the other two focus on promoting R&D in export industries and the development of further leading innovation systems).</p> <p>A particular focus of inclusive innovation efforts in Israel is to bring more of the workforce into the high-tech sector. As an illustration of this objective, the Israel Innovation Authority’s 2017 annual report opened with the following statement: ‘If there isn’t a dramatic increase in the number of people employed in the hi-tech industry – the Israeli economy will lose momentum. The Israel Innovation Authority’s goal: half-a-million employees in the innovation industry within a decade (doubling the current number).’</p>

Policies, programmes and measurement

Policy measures to promote diversity and inclusion in innovative firms:	<p>Initiative 1: Integration of minorities into the hi-tech sector</p> <ul style="list-style-type: none"> ▪ Agency/department responsible: Israel Innovation Authority’s Societal Challenges Division ▪ Year launched: 2014 ▪ Description: Incentivise companies that have at least 33% of their share capital held by an entrepreneur of a minority group or from the Arab and ultra-Orthodox communities to engage in product development projects by providing grants covering 85% of the project’s budget (up to EUR 480 000). The 85% funding is more generous than the standard funding programmes, acknowledging that underrepresented communities (Arabs and the Ultra-Orthodox) have a more difficult time accessing further funding due to their less expansive networks and experience. So the grant is designed so that they could, potentially, raise the remaining money through bank loans or other methods. ▪ Budget: various as there are several variants of this initiative, run wholly by the Societal Challenges division or in partnership with the Startups Division. ▪ Metrics: The division operates according to the double bottom line principle and takes into account the social profit generated by the project, along with its economic value. Specific metrics include: how many applied, how high was the bar, how much money was distributed, and to a lesser extent, what happened with projects afterwards. Israel Innovation Authority as a whole doesn’t judge their performance according to the success of the individuals/companies they support. Instead, they want to support activity in general, that may not have financial/economic success, as there are social benefits that come from participants gaining experience. They are emphatic that the performance is not judged as an investor would. More broadly
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than the money ear-marked for minorities, the Societal Challenges Division tracks the % of minorities within overall applicants and the success of minorities winning grants.

- **Website:** <http://mfa.gov.il/MFA/InnovativeIsrael/Economy/Pages/Accelerating-the-integration-of-minorities-into-the-hi-tech-sector-7-Sep-2015.aspx>

Initiative 2: Digital Israel Initiative

- **Agency/department responsible:** Initiated by a steering committee composed of Director General of the Prime Minister's Office and ministerial heads, such as the Minister of Social Equality. Now run by the Minister of Social Equality.
- **Year launched:** 2013
- **Description:** According to the Israeli government website, The Digital Israel Initiative is a 'national initiative that focuses on harnessing the potential of the digital revolution to advance information and communication technologies for the benefit of accelerating economic growth, reducing socio-economic gaps and making government smarter, faster, and more accessible to citizens, making Israel a global leader in the digital domain'. The initiative calls for the upgrading of technology infrastructure, improving digital literacy and encouraging the use of technology across SMEs.
- **Budget:** Not publicly disclosed.
- **Results thus far:** Has brought social inclusion and innovation together, and to the fore of discussion. Initially created as an initiative that would bring digital innovation to the public sector, its purpose shifted to policies and awareness around social inclusion. Interviewees suggested that it has made headway on this ambition.
- **Website:** https://www.gov.il/en/Departments/digital_israel

Initiative 3: Kamatech programme to bring the ultra-orthodox into Israeli hi-tech

- **Agency/department responsible:** Joint venture with government and Kamatech (privately founded)
- **Year launched:** 2013
- **Description:** programme focused on facilitating the ultra-orthodox Jews (Haredim) into the Israeli high-tech workforce. Services include: offices, NIS 20,000 grant, professional mentor, law firm and accounting, meetings with leading investors (e.g. through Demo days held in Israel and New York), and training workshops. KamaTech started as a coalition of 30 leading hi-tech companies, innovative startups and venture funds, among them Cisco, Intel, IBM, Google, Microsoft, Amdocs, Checkpoint, CitiBank Innovation Center, Pitango VC, Canaan Partners and more). The Israeli Government then formed a joint venture with KamaTech to establish a national programme for integrating young Haredi professionals into the hi-tech workforce. The national programme will comprise leading academic institutions (Technion, Hebrew University, Lev Institute), foundations and NGO's (Kemach, Atidim, and Karev).
- **Budget:** NIS 20,000 grant for each startup

Initiative 4: Tefen Industrial Parks

- **Agency/department responsible:** iParks/Stef Wertheimer
- **Year launched:** 1985
- **Description:** The industrial parks serve as a centre for the growth and generation of industrial companies, particularly aiming to create a local community of Arab-Jewish entrepreneurs and industrialists through vocational training and entrepreneurship courses. Established by Stef Wertheimer.
- **Results thus far:** 'The six parks built in Israel have attracted over 200 companies, providing over 4,000 high-quality jobs. The Parks have been exceptionally successful in attracting highly productive export industries. Average sales per

worker at the parks are \$220,000, well above the national average, of which 80% are for export.'

- **Website:** <http://www.iparks.co.il/eng>

Initiative 5: Encouraging R&D in Traditional Industries

- **Agency/department responsible:** The Advanced Manufacturing Division of the Israel Innovation Authority in close collaboration with the Manufacturers Association of Israel (MAI)
- **Year launched:** 2005
- **Description:** Fosters innovation in traditional industries which typically are low-tech and do not engage in innovative activities. The programme incentivises firms in those industries to invest in research and development (R&D) through grants covering 50% of projects expenses (including the development of new models, acquisition of intellectual property (IP), training and marketing). Professional counselling is also provided.
- **Budget:** The total budget spent since 2005 amounts to NIS 1 billion (EUR 230 million), granted to 580 firms, with 1,400 projects (a firm may submit several projects over the years). The fund has an approximate NIS 1.5 billion yearly budget.
- **Metrics:** The objective is to reach 80% of the labour productivity of traditional industries in the USA over 20 years.
- **Website:** https://www.gov.il/en/Departments/ministry_of_economy

Initiative 6: Programme for Companies to Establish R&D Centres in the Periphery

- **Agency/department responsible:** Investment and Industrial Cooperation Authority and the Israel Innovation Authority
- **Year launched:** 2010
- **Description:** promotes territorial inclusiveness by incentivising firms to locate innovation activities in less-developed regions. The programme requires large companies to repay the grants offered if commercial revenues are generated as a direct result of the R&D project supported, at a rate of 3% of the grant value per year on successful projects (smaller firms at a rate of 1.5% a year). Grants to large firms, covering 65% to 75% of the expenses of R&D centres created in peripheral regions for 24 to 36 months. Eligible costs covered by the grant are equipment, external expertise (consultants, studies, etc.) and labour costs (including overheads).
- **Budget:** Not publicly disclosed.

Short-term initiatives:

Practical training

- The Ministry of Social Equity has partnered with SheCode to provide coding training to young women.
- Programmes and initiatives such as KamaTech and the Israel Innovation Authority's policies aimed at encouraging Israeli Arab's participation in the high-technology sector offer skills training and mentorship, practice job interviews for members of the ultra-orthodox and Israeli Arab communities
- A number of Israel Innovation Authority programmes offer training for traditional industry managers on how to conduct R&D

Awareness campaigns

- Targeted visits by high-level ministers to underrepresented communities to explain the programmes available and to raise the profile of the aims.
- Programme information aimed at including Arab minority are produced in Arabic.
- The Digital Israel Initiative, run by the Ministry of Social Equality, strives to harness the benefits of the digital revolution for the purposes of equitable, inclusive economic growth.

	<p><u>Surveys</u></p> <ul style="list-style-type: none"> ▪ Dell Women Entrepreneur Cities Index 2017: ranks top 50 global cities in terms of their ability to attract and support high potential women entrepreneurs. Tel Aviv ranked 24th (with New York, San Francisco, London, Boston and Stockholm taking the top five positions, respectively). Cities are ranked according to capital, technology, talent, culture and markets.
<p>Evaluation and monitoring methods:</p>	<ul style="list-style-type: none"> ▪ The Israel Innovation Authority runs telephone surveys when evaluating a programme. They include programme participants as well as applicants who were unsuccessful. The inclusion of unsuccessful applicants in the survey revealed frustration from target communities, about a sense of rejection. The takeaway from the survey was that greater efforts can go into working with target groups as they prepare applications, to ensure that uncompetitive applicants are dissuaded before they put in too much effort, and in helping to improve the quality and fit of applications.

Netherlands

Context and demographics	
Business environment and innovation landscape:	<p>The GII (WIPO, 2017) ranks Netherlands third making it one of the world leaders in innovation. As per The Good Country Index, the country ranks 8th in the category of global contribution to science and technology (Anholt & Hung, 2017); the Number of International Patent Cooperation Treaty applications relative to the size of the economy is one of five contributions to science and technology that is taken into account while developing the rankings and index. The country is a centre for research and development with established partnerships between science, industry and government (PwC, 2017, p. 9). The PwC report (2017, p.9) states that ‘the Netherlands ranks #1 in the EU for its startup business climate, according to the European Digital Forum’s 2016 Startup Nation Scoreboard.’ Amongst the six key categories taken into consideration, the Netherlands ranks no. 1 in overall adoption of the European Digital Forum’s startup manifesto recommendations and has undertaken various policy measure to support a startup atmosphere in the country (Osimo, D., p. 64).</p> <p>The Netherlands is business friendly; it ranked third overall in the Forbes’ 12th annual survey of the Best Countries for Business 2017 (Forbes, 2017). It ranked among the top 25 countries (out of 153 measured) in each of the 15 metrics tracked by Forbes’, except investor protection, where it ranked sixtieth (Forbes, 2017). The Good Country Index also ranks the Netherlands first on an overall level (Anholt & Hung, 2017).</p>
Composition of the technological innovation sector:	<p>A European Commission report states that despite being an innovation leader, the Netherlands spends only 2.01% of its GDP (2015 figures) on R&D (EC, 2017, p. 46); this is lower than Europe 2020 target of 2.5%. Applied research institutes have to look for private funding to compensate. The report suggests that the science base in the country can be made more innovation intensive by increasing investment in the knowledge-based activities. Also, despite having an educated workforce (a determinant of innovation), the rate of graduates in STEM is only 14.7% (EC, 2017, p. 40) which is very low when compared with the EU average of 18% to 19% (EC, 2016, p. 12). A large reason for this is due to fewer women in the field (EC, 2017, p. 40); the share of women who graduate in STEM fields in the Netherlands is only 25% (EC, 2017, p. 40) which is a very low figure compared to the rest of Europe where women represented 32% of all tertiary STEM graduates (EC, 2016, p. 13).</p> <p>A European Commission report (2014, p. 2) states that women entrepreneurs worked mostly in the sector groups of other service activities, human health and social work activities and education. The lowest proportions of women entrepreneurs working in construction, financial and insurance services, and transportation and storage.</p>
Number of underrepresented groups in startups and SMEs:	<p>As per a report by Statistics Netherlands (CBS, 2016), only a quarter of new businesses were started by women; this gender distribution was the same for both Dutch and non-Dutch nationalities.</p> <p>A European Commission report (2014, p. 2) states the following:</p> <ul style="list-style-type: none"> ▪ In 2012 the percentage of female entrepreneurs was around 34% and that they were mostly solo entrepreneurs (81%). ▪ Women constituted 11% and men constituted 18% of the active labour force. ▪ 64% women entrepreneurs worked part-time; their average working week was 20 hours.

	<ul style="list-style-type: none"> ▪ Women entrepreneurs worked mostly in the sector groups of other service activities, human health and social work activities and education. The lowest proportions of women entrepreneurs working in construction, financial and in insurance services, and transportation and storage. ▪ Women entrepreneurs are younger than men entrepreneurs: In 2003 and 2012, the proportion of women entrepreneurs was more in the age group of 25-49 years (than men), while the proportion was lower in the age group 50-64 years. ▪ In 2012, the mean net income for women entrepreneurs (€28,300) was higher than that of men entrepreneurs (€26,700). <p>Nationality of the individual was found to be correlated with the sector in which they start a company (CBS, 2016). Individuals with Dutch, British, German and Spanish nationalities started the largest share of consulting and advertising agencies or software development companies. Those with Polish nationalities started the largest number of construction companies. Turkish or Moroccan individuals started supermarkets, fresh food retail businesses or taxi firms.</p>
Demographic context of the business environment:	<p>A Deloitte report (2017, p. 61) states that of the 81 companies analysed, 21.4% of the board seats are held by women, 4.9% of board chairs are women and 5% CEOs are women. The industries with the highest percentage of women on their board include financial services, manufacturing, technology, media, & telecommunications, and consumer business. Risk committees have the highest percentage of female members while governing committees have the highest percentage of female chairs.</p> <p>A Forbes Insights report on Global Diversity Rankings (2012) ranked Netherlands as 6th on a composite gender diversity index that looked at women in the workforce, female board members and women in government as indicators.</p> <p>After the Dutch Management and Supervisory Act of 2013, there have been many efforts undertaken in the Netherlands to increase the number of women in the workforce. However, the number of women in senior management positions is still the case in only 56% of companies and even in the case of some of the biggest Dutch firms, only 11.7% board members and 16.2% supervisory board members are women (DutchNews.nl, 2018). This is despite the VNO-NCW register indicating that 1,500 women at sub-board levels are ready to move to the next step.</p>
Patent application figures:	<p>As per WIPO data (WIPO, n.d.), the total patent applications from residents in the Netherlands is 9,128 in 2016; this is 8% higher than the previous year.</p> <p>When we look at the absolute figures for the number of international patent applications with women inventors, we see that during 2011-15 6,733 women from Netherlands filed such applications (WIPO, 2016, p. 13). However, despite being a high income country, the gender balance figures in international patent applications for Netherlands are similar with middle income countries such as Brazil and Mexico, though it has 5 times more women investors than Brazil and 15 times more women investors than does Mexico (WIPO, 2016, p. 12). The country also has one of the lowest gender disparity rates in international patenting between the academic and business sector (WIPO, 2016, pp. 15, 17). There were women investors in 50.8% of the international patent applications filed by Netherlands applicants in the five fields of technology with the greatest gender balance (i.e. in biotechnology, pharmaceuticals, organic fine chemistry, food chemistry and analysis of biological materials) (WIPO, 2016, pp. 14-16).</p>

Strategies for promoting inclusive innovation:	<p>The Netherlands adopts many strategies to promote what is referred to as inclusive innovation, though does not always use this terminology. The Government invests in public services (such as improving mobility and smart technology) to boost social goals. It has an ambitious climate policy to reduce CO2 emissions as well as a new climate act. It intends to tackle root cause of migration as well as violence head-on.</p> <ol style="list-style-type: none"> 1. Various financial schemes/support exist (to bring innovative products and services onto the market more quickly). These are meant for: <ul style="list-style-type: none"> - entrepreneurs wanting to expand their businesses quickly, - innovative entrepreneurs - tax benefits, innovation credit and grants 2. Top Sector Alliance for Knowledge and Innovation (TKI) between government, private sector, universities and research centres helps create linkages and networks. 3. Reforms to the tax system, pension system and labour market will make the environment favourable for economic development and encourage entrepreneurship. 4. To provide more educational freedom and improve early years education. 5. Higher investment in research and development to foster an innovative environment. 6. Support development and marketing of new technology, such as the Green Deal approach to stimulate sustainable innovation.
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Policies, programmes and measurement

Policy measures to promote diversity and inclusion in innovative firms:	<p>Initiative 1: Equal Futures Partnership</p> <ul style="list-style-type: none"> ▪ Agency/department responsible: Ministry of Education, Culture and Science and Ministry of Justice and Security ▪ Year launched: 2012-13 ▪ Description: This partnership is a collaboration between 29 member countries and the EU. Netherlands is one of the four founding members of Europe Equal Futures regional subcommittee. Netherlands has committed to focussing domestically on the (i) increased economic participation of women in the political and private sector, and (ii) to counter (domestic) violence against women. To help achieve increased economic participation of women and augment self-regulation, the government is promoting the 'Talent to the Top' initiative, through which private and public organisations have to commit to concrete objectives such as increase the percentage of women on boards of directors in the private sector from 9% to 30% (introduced in 2013). At the start of the partnership, the percentage of women in the Netherlands in Parliament and Cabinet was 42% and 30% respectively. Netherlands had been implementing a three-pronged country-wide coordinated approach involving local municipalities to combat domestic violence - a targeted approach to offenders, strengthening the position of actual and potential victims (through prevention, identification, and the provision of shelter and aftercare), and breaking the generational cycle of domestic violence. ▪ Budget: Not publicly disclosed. ▪ Results thus far: The government has set a statutory target for the ratio of men to women on executive and supervisory boards of large public and limited liability companies; if companies do not meet the target of 30% women on boards, they must provide an explanation in their directors' reports. A recent report (DutchNews.nl, 2018) stated that the number of women in companies is increasing; now three quarters of companies have at least one woman in a senior position in 2018 (increased from 66% in 2017). However, when the number of women at senior
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management positions in companies is considered, the figure falls to 56%. Also, in some of the biggest Dutch firms, only 11.7% board members and 16.2% supervisory board members are women. This is despite a different report (DutchNews.nl, 2018) stating that the VNO-NCW register indicates that 1,500 women at sub-board levels are ready to move to the next step.

The Ministry and Municipalities worked with social media to encourage young voluntary 'changemakers' to sign up and support the We Can Young campaign (We Can End All Violence Against Women) from 2012-14 which was aimed at increasing the sexual resilience of young people; the campaign continued in 2016. A survey conducted by the Netherlands Centre for Social Development, Movisie, found that about 40% change makers felt they experienced change in themselves after having participated in the campaign activities and around one-third felt they learned something, were awareness of the issues, could demonstrate resilient behaviour and had started to discuss issues with others. The positive results meant that the campaign for further funding for another 2 years (VVS 2015 quoted in Plantenga & Remery, 2015, p.17).

- **Website:** <https://www.government.nl/topics/development-cooperation/equal-treatment-for-women-worldwide>, <http://www.equal-futures.org/country/netherlands>, <https://www.government.nl/topics/gender-equality/news/2016/01/15/statutory-target-again-for-gender-balance-on-company-boards>

Initiative 2: Joke Smit award for women's emancipation

- **Agency/department responsible:** Ministry of Education, Culture and Science
- **Year launched:** 1986
- **Description:** The Joke Smit prize is awarded biennially by the government to a person, group or institution who is committed to and has made a fundamental contribution towards improving the position for women or girls in the Netherlands. There are 2 prizes, an oeuvre prize and an incentive prize. The oeuvre prize is awarded to a person or group who for a longer period of time dedicates themselves to a better position for women; this commitment is important for the personal life of women or for Dutch society.
The incentive prize is awarded as an encouragement to a person or group who recently worked for a better position for women in the Netherlands.
- **Budget:** The winner of the oeuvre prize receives a work of art and an amount of €10,000. The winner of the incentive prize receives an amount of €1000.
- **Results thus far:** A jury determines the winner of the oeuvre prize. While, the incentive prize is a public award; an online election determines who wins. In 2017 the Joke Smit Prize was awarded for the 16th time by the Minister of Education, Culture and Science (OCW); the 17th prize giving ceremony will be held during autumn 2019. With the presentation of these prizes, the government underlines the importance of emancipation and the importance it attaches to the promotion of emancipation in Dutch society. The 2017 oeuvre prize were awarded to Gloria Wekker for her long-term struggle (by way of teaching and encouraging students, journalists, activists and other interested parties in the field of gender and ethnicity) to improve the position of black women in the Netherlands and took academic and social debates to a higher level. The Dutch football women have become European Champions and have become a role model for boys and girls across the country.
- **Website:** <https://www.government.nl/topics/gender-equality/joke-smit-award-for-gender-equality>

Initiative 3: Youth Guarantee Implementation Plan

- **Agency/department responsible:** Ministry of Social Affairs and Employment and the Ministry of Education, Culture and Science
- **Year launched:** 2014
- **Description:** The scheme targets young people under 27 years. It aims at increasing the amount of work-based training in vocational education and training programmes; incentives to employers to increase job opportunities for youth ('Work Agreements') and provide more and better quality internships. It works with a range of partners for delivery - labour market regions, the public employment services (PES), municipalities, schools, employers, social partners and young people. Young people can register via three points: schools, the PES and municipalities.
- **Budget:** € 400 million during 2015 (EC , 2017, p.7)
- **Results thus far:** In its 2017 Netherlands report (EC, 2017), the Commission notes that although youth unemployment is falling steadily, it remains particularly high for people born in a non-EU country. Young people (aged 15-24) with a migrant background experience a higher unemployment rate, in particularly when both parents are foreign-born. Despite an overall good performance, there has been a decline in basic skills and an increase in educational inequality.
- **Website:**
<http://ec.europa.eu/social/main.jsp?catId=1161&langId=en&intPagelId=3347>,
<https://ec.europa.eu/info/sites/info/files/2017-european-semester-country-report-netherlands-en.pdf>

Initiative 4: Promoting equal opportunities for women in science

- **Agency/department responsible:** Ministry of Education, Culture and Science
- **Year launched:** 2015 (the current period is 2015-18)
- **Description:** The Netherlands will align its policy and action with the European initiatives and adopt an active policy intended to ensure that the male-female balance is at or above the European average by 2025. The Netherlands Organisation for Scientific Research (NWO) has various talent programmes to specifically encourage female researchers at different phases of their career:
 - (i) Aspasia programme: To ensure promotion of female scientists to higher university positions which are currently strongly underrepresented. It also gets grants from the NOW's Talent Scheme (Vidi and Vici competitions) intended for appointing female candidates. At times universities also get grants for promoting some candidates who did not get a talent grant but are evaluated as very good or excellent during the process for the Vidi and Vici competitions. Those eligible are contacted by the NWO.
 - (ii) Physics/f incentives programme: These are meant to keep more female scientists in the Dutch physics community and include funded individual positions for postdocs (for 3 years), and bridging grants (for max. 5 years) intended to support faculties and research institutes during the appointment of a woman to a tenured position.
- **Budget:** €180 million per year over all for talent programmes. Within this, €150 million is for the NWO Talent Scheme (includes Veni, Vidi, Vici). The budget for Aspasia is €7 million for 2017.
- **Metrics/Results thus far:** In March 2018, the Dutch universities had succeeded in appointing 100 new female professors. The year 2017 marked a century since the first Dutch woman, Johanna Westerdijk, became a professor. To commemorate this

'Westerdijk year', the ministry made additional resources (€5 million) available to appoint 100 female professors.

- **Website:**
<https://www.government.nl/binaries/government/documents/reports/2014/12/09/headlines-vision-for-science/wetenschapsvisie-rijksoverheid-engelse-tekst-2.pdf>

Initiative 5: StartupDelta

- **Agency/department:** Launched by the Dutch government. In 2016, it became an independent public-private partnership between the national government (ministries of Economic Affairs and Education Culture and Science), 8 innovation hubs in the Netherlands, the startup community, and other partners.
- **Year launched:** 2015
- **Description:** A network that provides guidance, information on national and international initiatives to help startups scale up and become sustainable. It provides access to capital, networks, markets, talent and skills, and knowledge and technology all in one single hub.
- **Budget:** Budget for StartupDelta 2020 is 50 million EUR per year with 200 million in total.
- **Results so far:** This idea was so innovative that the 'one single hub' began being adopted elsewhere in the world. The Dutch ecosystem has been linked with the major startup hubs in the world and formed a Circle of Influencers across the globe to know their vision and hear the trends. The conducive and dynamic environment has now been created for startups; the number of innovation hubs has increased to 10. They are helping other countries launch their mentor networks, e.g. Startup Mentor Network Seattle which is to be launched in Jun-2018. The initiative is being continued under the name StartupDelta 2020 to continue supporting startups and make Netherlands more attractive to them.
- **Website:** <https://www.startupdelta.org/about-startupdelta/startupdelta/>

Initiative 6: Startup box

- **Agency/department:** The Ministry of Economic Affairs and Climate Policy
- **Year launched:** 2015
- **Description:** An online tool in English that highlights the most relevant government instruments for startups to help entrepreneurs. The toolbox provides information and application forms for the Founders Visa, financial instruments to stimulate private investments in startups and the R&D tax credit (WBSO). It consists of six public sector support programmes specifically tailored to meet the needs of a startup in each stage of its growth.
- **Budget:** Not publicly disclosed.
- **Results so far:** Not known
- **Website:** <https://english.rvo.nl/topics/innovation/startup-box-funding-innovative-starters>

Initiative 7: Programmes and grant schemes to support business initiatives

- **Agency/department responsible:** Netherlands Enterprise Agency or Rijksdienst voor Ondernemend Nederland
- **Year launched:**
- **Description:** Netherlands Enterprise Agency offers a large range of support for innovation across company formation and growth stages, including science and

innovation parks focused on supporting at the idea stage. Policy offerings include R&D tax credits, reduced wages for startup founders, energy investment allowances, advisory services for SMEs, R&D cooperation, credit guarantee schemes, seed capital, knowledge vouchers, an 'international match making service' and competitive interest-rate loans for growth companies.

- **Budget:** Various
- **Results thus far:** The Starters International Business (SIB) programme of the Netherlands Enterprise Agency was shortlisted for the international Trade Promotion Organisation Network Award 2016 of the International Trade Centre in Geneva. This TPO Network Award is presented each year to national organisations for 'outstanding services' and for using innovative and effective measures to support internationally oriented entrepreneurs and organisations must also offer sufficient possibilities to the SME sector. The SIB programme gives entrepreneurs focused advice to help them take the step towards foreign markets, providing vouchers for individual coaching, trade missions, joint trade-fair presentations and hiring legal and tax advice in the field of export.
- **Website:** <https://english.rvo.nl/>

Initiative 8: Centres for Innovative Skills/Centres of Expertise

- **Agency/department responsible:** National Platform Science & Technology (PBT), education and the business sectors
- **Year launched:** 2011 (with a few pilots)
- **Description:** Centres for Innovative Skills are secondary vocational education centres that help improve the links between education and labour market. For institutions for higher professional education (HBO), these are the Centres of Expertise. The aim is for the centres to develop into international centres of knowledge that attract the most talented students in scientific and technical education and the best teachers. They are formed due to partnerships between educational institutions, companies, government and other public organisations. The goal is not only making careers in science more appealing, but also to introduce educational innovations that will inspire and challenge young people, promote lifelong learning and accelerate and enhance the innovation capacity of companies. They create a link between education and the labour market. Each Centre focuses on a specific sector and on an average involves 35 companies that take part in R&D projects, providing input to the curriculum, join innovation teams and provide guest lectures. The Centres are co-funded by government and industry.
- **Budget:** With an average co-investment of businesses and organisations of more than 65%, the total programme size in 2016 was €125 million with the government investment being €45.5 million.
- **Results thus far:** In 2017 there were 6,000 companies involved. In 2016, over 4500 companies, 83 Universities of Applied Sciences and senior secondary vocational education institutes were involved reaching over 50,000 students and 4000 teachers. 150 fully operational public-private partnerships/Centres called Katapult have been setup till 2016. A 2016 report by an independent expert committee evaluated the impact of the Centre-approach and concluded that the concept is effective and efficient and that it has a positive impact on companies, schools and the innovation system.
- **Website:** <https://www.government.nl/topics/enterprise-and-innovation/closing-the-gap-between-education-and-industry>

Short-term initiatives:

TheNextWomen: A community of entrepreneurs, professionals, and investors that supports increasing the number and impact of female entrepreneurs. It runs 'Elsevier Weekblad', the largest weekly news magazine in the country, that is helping to shape opinions and promoting topical debate in the fields of economics, politics, finance, science and culture in particular. It also manages: TheNextWomen100, TheNextWomen Summit (an Innovation Summit), TheNextWomen Pitch Competition, Women to Watch, and Innovation Alley (a networking event). For more information: <http://thenextwomen.com/summit/>

Inspiring Fifty: Started in 2013, Inspiring Fifty identifies 50 female role models in technology in order to attract, encourage, develop, showcase and retain women in the sector. The role models challenge the prevailing perception of working in technology and show that technology is a field in which women can and do excel and set a shining example for future leaders and entrepreneurs to follow in their footsteps. The nominees are judged by a panel of business and technology influencers from around the world. The organisation partners with the European Commission, Improve Digital, eSkills, Facebook and Atomico. The lists are composed for the 50 most inspiring women in Europe, France, the Netherlands, the Nordics, South Africa and Canada. The organisation has also launched Project Prep, a series of novels for young adults between 10-14 years age to educate and inspire them and retain their interest in technology. For more information: <http://www.inspiringfifty.com/>

B.Building: A space for innovators to work and network. There is a ladies-only coding night that runs on Wednesdays called Girl Code. For more information: <http://b-buildingbusiness.com/amsterdam/creative-business-space/>

Erasmus Competition and Innovation Monitor and Erasmus Innovation Award: Annually the Erasmus Competition and Innovation Monitor is conducted across various industries and includes around 10,000 organisations. It includes investments in Research and Development, Information and Communication Technologies, product and service innovations, social innovations etc. and uses survey data, interviews with managers, desk research including financial data. Then a selection of companies is nominated for the award. The jury comprises respected representatives from various ministries, and employer and employee federations, who annually decide which organisation will be awarded the prize. For more information: /

STEMM Equality Congress: The October 2018 event will offer delegates (researchers, policy makers, equality staff, private sector, academic staff, government representatives and NGOs) from across the globe an opportunity to network, learn and collaborate with thought leaders in equality, diversity and inclusion strategy, policy and practice in STEMM worldwide – sharing successes, practical measures, local challenges, tools used to address them, application of the tools, policy discussions, research results. For more information: <https://stemmequality.com/about/agenda/>

VHTO conducts the 'Smart City Challenge' (project on innovation and STEM, funded by Eurofiber) – where primary school girls get an opportunity to work with people from professional backgrounds and suggest creative solutions to deal with social issues faced by cities using technology. (<https://www.smartcitygirls.nl/>)

VHTO 'Girlsday' programme (organised annually since 2010) attracts the most number of girls. During Girlsday, technical companies, non-governmental organisations, and research institutes open their doors for 10-15 year-old girls, in order to awaken/increase

	their interest in science, technology, engineering and mathematics (STEM). (https://www.vhto.nl/over-vhto/english-page/activities-and-projects/girlsday/)
Evaluation and monitoring methods:	The thrust of Dutch policy efforts aimed at promoting diversity and inclusion are focused on education, rather than workforce participation. Crucial metrics in the context of education include the number of women, people with disabilities and immigrant groups with access to science and technology education.

Norway

Context and demographics

Business environment and innovation landscape:

Norway's business environment is rated highly in the World Bank's Doing Business report (2018), with an overall ranking of 8th out of 190 countries. In terms of the country's innovation landscape, Norway is also ranked highly according to a number of measures and surveys. In the most recent Global Innovation Index rankings (2017), Norway is ranked 19th out of 127 countries. In the European Commission's European Innovation Scorecard, Norway is categorised as a 'strong innovator', but not an 'innovation leader' (European Commission 2017). The EIS found relative strengths of the Norwegian innovation system against the indicators of 'innovation-friendly environment' (broadband penetration and opportunity-driven entrepreneurship), 'human resources' (new doctorate graduates, population with tertiary education, lifelong learning opportunities) and 'attractive research systems' (international scientific co-publications, most-cited publications, foreign doctorate students). Relative weaknesses were found in the country's intellectual assets (PCT patent, trademark and design applications), and against the indicators of 'sales impacts' (medium and high tech product exports, knowledge intensive services exports and sales of new-to-market/firm innovations).

The Norwegian Parliament's standing committees on Education, Research and Church Affairs, Business and Industry and Energy and the Environment preside over research-related issues within these sectors. The Ministry of Education and Research takes responsibility for research policy, while the Ministry of Trade and Industry develops and implements innovation policy at the national level. Innovation policies at the regional level are administered by the Ministry of Local Government and Regional Development. At the government level, research and innovation policy is coordinated by the Government's Research Board and Forum for Government Officials.

Forskningsrådet (The Research Council of Norway, NRC) is Norway's representative within the Taftie network. The NRC is a government adviser, and identifies present and future needs for knowledge and research, in addition to administering research funding. Within the NRC, there is a Division for Innovation, with a staff of approximately 100 out of the total 350 staff within the NRC.

Another key agency responsible for innovation is Innovation Norway, which is more directly comparable with Innovate UK and other national innovation agencies, despite not being mentioned in the Taftie network. However, rather than a non-departmental government body, Innovation Norway is a company owned by the Ministry of Trade and Industry. Innovation Norway develops and administers innovation policies and initiatives at not only a national and local level, but also on a global scale through a network of local offices.

Composition of the technological innovation sector:

Norway ranks as 2nd in the World Economic Forum Global Gender Gap Report 2017, for its excellent record of tackling gender inequality. However, the report notes a slowing of wage equity amongst genders in Norway. Norway has 20% women scientists in the business enterprise sector (EU 2015). Official statistics from the Norwegian Higher Education Department show that women were well represented in tertiary education (56%). This figure slowly falls when post-doctoral research fellowships (45%) or associate professor positions (47%) are considered. Women are significantly underrepresented as full professors (28%). These figures show lower representation of

	<p>women in STEM subjects. In Engineering and Technology 20% of PhD graduates are women and 12% of full professors; in Natural Sciences 38% PhD graduates are women and 18% full professors; in Medicine and Health Sciences the situation is better where women make up 48% of PhD graduates and 40% of full professors.</p> <p>In 2014 the Ministry of Education and Research included mandatory measurement of ethnic as well as gender diversity amongst tenured research staff. A report by the Nordic Institute for Research and Innovation (NIFU) suggests that foreign staff at universities in Norway are comprised of highly skilled academics from the USA, Europe and Australia. There is an under representation of immigrants or descendants of migrants in academia. In fact foreign-born workers are 2.5 times as likely to be under-employed compared to the native population (OECD 2017). The underrepresentation of ethnic minority is less likely to be employed in research.</p>
Number of underrepresented groups in startups and SMEs:	<p>6.9% of foreign nationals run their own businesses (OCED 2010). In 2007 only 4.3% of the women versus 8.6% of men are involved in early stage entrepreneurial activities (GEM 2007). Women made up one third of the new business startups of sole enterprises, and they only constitute one sixth of entrepreneurs of private limited companies. Furthermore, in 2007 women were only 26% of owners of sole enterprises and 27% of owners of private limited companies.</p>
Demographic context of the business environment:	<p>In a study conducted in 2005, Trond, Thomsen, and Oxelheim (2006) found that 12.8% of board members were foreign-born and 20% were females. However currently most Norwegian firms have 38% female board members. This is down to the Norwegian government's boardroom gender quota, which came into force in 2008. Gender quotas meant that all publicly listed companies were required to have 40% of each sex on their boards by 2008. In the most recent edition of Norway's Women in the Boardroom report, Norway was revealed to have 42% of board seats held by woman (Deloitte 2017).</p>
Patent application figures:	<p>The proportion of patents produced by women is 0.1% of total patents (EU 2015).</p>
Strategies for promoting inclusive innovation:	<p>Norwegian legislation stipulates that all public institutions in Norway must take active steps to promote gender equality. The Research Council bears national responsibility for research policy-related activities to analyse and develop gender research, gender perspectives as well as gender equality in research. The Council is also responsible for initiating, implementing and monitoring research activities within this field. Norway policy programme is most clearly influenced by a feminist empowerment paradigm intended to transform and/or tailor the existing support system through various measures. However, Norway's approach has been criticised for prioritising research on societal challenges such as integration, inclusion and diversity and not providing a road map or tool kit to achieve structural changes (OECD 2017). There is a 'translational deficit' in that good research on societal issues such as gender inequality or ethnic diversity are not used to develop practical solutions.</p>
Policies, programmes and measurement	
Policy measures to promote diversity and	<p>Initiative 1: Committee for Gender Balance and Diversity in Research</p> <ul style="list-style-type: none"> ▪ Agency: Norwegian Research and Higher Education Minister ▪ Year Launched: 2004. Expanded in 2014

inclusion in innovative firms:

- **Description:** This is an independent committee which was set up in 2004 with an initial focus on mainstreaming women in science. This committee provided statistics and tools related to promoting women and science. The Committee mandate was extended to include ethnic diversity in academia in 2014. The committee now provides support and recommendations on measures that can contribute to the mainstreaming of gender equality, gender balance and ethnic diversity efforts at the institutions within the university and college sector as well as the research institute sector. The committee contributes to an overall awareness-raising on gender balance and diversity in academia. It also supports a website of resources and information about gender and diversity work in research and academia.
- **Budget:** €400,000 per annum
- **Metrics/Results thus far:** All managers in research projects and institutes have to demonstrate an understanding of gender and diversity issues. The committee is also working to collect Nordic data on gender and diversity in research. It works as a watchdog and highlighted the lack of women in Norway's Horizon 2020 team and also highlighted ways in which the Norwegian Defence College can restructure to promote diversity and gender equality. This led to a change and discussion around issues of gender and diversity.
- **Website:** <http://kifinfo.no/en/content/committee-gender-balance-and-diversity-research-kif-0>

Initiative 2: BALANSE Programme 2013-2023

- **Agency:** The Research Council of Norway
- **Year launched:** 2013
- **Description:** The initiative aims to enhance the proportion of women in research management positions and in top leadership position within academic research. The initiative focuses on funding projects within research institutions, provides support for new knowledge creation and research as well as establishing arenas in various research clusters.
- **Budget:** NOK 118 million
- **Metrics/Results thus far:** All four of the largest universities in Norway have seen an increase in the proportion of women at the professor level in the past 10 years. However, the pace of change is still considered slow and Norway has created a fund to develop centres of excellence which can outline challenges and tools to bring about further change.
- **Website:** https://www.forskningsradet.no/prognett-balanse/Home_page/1253964606519

Initiative 3: NCE Raufoss Women's Arena

- **Agency:** Innovate Norway
- **Year launched:** 2008
- **Goals:** Women Arenas are part of the BALANSE programme (outlined above). The areas targeted include promotion of women to management and on corporate boards, recruitment and retention of female employees and further training and education for women, such as Master's and PhD studies. The overall objectives of the Arena are to increase the percentage of women in the cluster, the number of women in leadership positions and the profitability of the cluster.
- **Budget:** Not publicly disclosed.

- **Metrics/Results thus far:** The proportion of female research fellows increased from 35% for the first group of centres to 53% at the new centres. At the post-doctoral level, the proportion rose from 27% to 44%, and among senior-level researchers from 17% to 23%.
- **Website:** https://www.forskningsradet.no/prognett-balanse/Home_page/1253964606519

Initiative 4: The Gender Equality Award 2007-2013

- **Agency:** The Ministry of Education and Research
- **Year of launch:** 2007
- **Description:** These awards aimed to boost research and higher education institutions to make gender equality central to their work. The annual award of EUR 224,300 is awarded to the Norwegian university making the biggest effort to promote gender balance in research. The programme was discontinued in 2014.
- **Budget:** €224,300 per annum
- **Metrics/Results thus far:** Each university has developed its own action plan for diversity and inclusion. Special emphasis is laid on tackling sexual harassment in the university environment.
- **Website:** <http://kifinfo.no/en/content/gender-equality-award>

Initiative 5: National programme for women's entrepreneurship, 2008-2013

- **Agency:** The Ministry of Trade and Industry
- **Year of launch:** 2008
- **Description:** The action plan includes enhancing business understanding amongst women, strengthening the focus on women entrepreneurs in existing support programmes, as well as more specific measures such as enhanced rights to maternity leave and parents' relief for self-employed persons and increased grants to micro credit-projects.
- **Budget:** Amount not publicly disclosed. Spread across the different departments involved.
- **Metrics/Results thus far:** One of the main objectives is women representing at least 40% of all entrepreneurs by 2013.
- **Website:** /

Initiative 6: Norwegian boardroom quota

- **Agency:** Legislation passed in parliament, effects all companies trading on the Norway Stock Exchange
- **Year of launch:** 2008
- **Description:** This legislation compels large enterprises listed on the stock exchange to have at least 40% women on their boards.
- **Budget:** Not publicly disclosed.
- **Metrics/Results thus far:** All listed companies have to comply to this legislation, if their numbers fall below 40% they have to face regulatory measures. Firms that do not comply face being delisted. This quota applies only to publicly traded and public limited companies, but the legislation has led to 'spin-offs' in terms of new, voluntary programmes amongst smaller firms.

Initiative 7: Outstanding Young Investigators

- **Agency:** The Research Council of Norway

	<ul style="list-style-type: none"> ▪ Year of launch: 2013 ▪ Description: The OYI scheme aims to enable talented young researchers within all disciplines to realise their potential and achieve international excellence in research. This scheme is part of the effort to enhance the quality of Norwegian research and to develop highly competent research leaders. The application process encouraged applications from women and 40% of researchers' who were successful in getting funding were women. The grant is open to the university and university college sector as well as independent research institutes. ▪ Budget: NOK 175 million to fund 20 researchers over a four-year period. ▪ Metrics/Results thus far: Initially women made up 4 of the 20 researchers receiving these awards. Now the figure has increased to 40%. Ensuring 40% women within the pool of successful candidates is part of the commitment to overcome the low percentage of women in leadership positions within research. ▪ Website: /
Short-term initiatives:	<p>Innovation Norway gives priority to women as a target group and their participation in industry as entrepreneurs, innovators, managers and corporate board members. They have also established a women's network comprising representatives of different organisations (Vinnova 2011).</p> <p>Innovation Norway also offers mentoring programmes for women and business and research centres. Traditionally, a senior person (the mentor) is paired with a potential female leader (the mentee) to assist her career progression. They also focus on 'reverse mentoring' to stimulate organisational development and gender diversity. In these programmes, the mentees are often senior (male) executives in companies that are mentored by young (female) employees from different levels in their organisations. This is also applied in private sector firms where senior executives are mentored by younger employees. The younger employee is put in charge of the interaction. Through such programmes senior executive can get insight into their leadership styles as well as acquire the skills and perspective of younger colleagues from more diverse backgrounds.</p> <p>An alternative to mentoring is to provide a 'personal trainer' or coach in the field of innovation and gender who assists an individual coachee or group to integrate a gender perspective into day-to-day operations. Coaching is usually characterised by a more task-orientated approach than mentoring and the coach is usually a gender expert able to foster the necessary skills. A coach works better as gender-aware design is an advanced method and often requires expertise to avoid reproducing societal stereotypes (Vinnova 2011).</p>
Evaluation and monitoring methods:	<p>A Gender-SWOT is a tool used to analyse the strengths and weaknesses of different innovation clusters from a gender perspective (Vinnova 2011). This allows the actors concerned to get a better picture of how to build on opportunities and remove barriers to growth (threats). This involves the use of various instruments such as guidelines, evaluations, dialogues, best practices, process support, workshops and applied gender research. Top-down analyses (of change in performance over time in the innovation milieus) and bottom-up analyses (of how individual projects have contributed to change) need assessing.</p>

The system provides data to determine the extent of goal achievement; facilitates the tracking of performance over time; assesses processes and methods most likely to produce results; compares and benchmarks with other innovation milieus.

Action-oriented research methods, such as search and dialogue conferences, are used to mobilise individuals and organisations to engage in gender equality initiatives. Other methods used by researchers and practitioners are value exercises to make prevailing norms explicit in the innovation milieus.

Poland

Context and demographics	
Business environment and innovation landscape:	<p>According to the government's Polish Innovation Portal, Poland is one of the EU's 'least innovative' countries (Polish Agency for Enterprise Development 2018). The European Commissions' European Innovation Scorecard 2017 classified Poland as a 'Moderate Innovator' by (European Commission 2017). Their innovation performance has only increased by 2% between 2010 and 2016, which is way below the EU average. However, Poland experienced one of the highest rates of increase in their innovation-friendly environment performance between 2010 and 2016, at 38.9% (Ibid. p.62).</p> <p>However, they are taking steps to encourage innovation in their economy. Their Strategy for Innovation and Efficiency of the Economy 2016-2020 document is one of their leading strategies on economic development. This document defines innovation as 'a capacity and a motivation of the economic operators to constantly search for and practically apply the results of research and development, new concepts, ideas and inventions' (Ministry of Economy 2013, p.11). Poland's relative strengths to their innovation system are its human resources and firm investments (Polish Agency for Enterprise Development 2018). According to the World Bank, Poland can improve its innovation by increasing access to financing, access to new markets, availability of skilled personnel, availability of 'soft' skills, and addressing low levels of networking and attitudes toward innovation among owners (World Bank Group 2016). Poland is projected to spend approximately 10 billion EUR between 2014 and 2020; the EU will supply most of this funding, and funding will likely significantly decrease after 2020 (Ibid. p. xiv).</p>
Composition of the technological innovation sector:	<p>Poland does relatively well in terms of employment parity in technology. Employment in the high-tech manufacturing industry is 50% women, while female employment in high-tech knowledge-intensive services is 56.8% (euroStat 2016).</p>
Number of underrepresented groups in startups and SMEs:	<p>The Global Entrepreneurship Monitor reports that in 2016, the female TEA rate in Poland was 8.1%, the female-established business activity was 4.9%, and the female to male TEA ratio was 0.6 (Global Entrepreneurship Monitor 2017, p. 58). The TEA rate has increased significantly (36%) between 2014 (TEA rate = 6.0%) and 2016 (Ibid., p. 80).</p>
Demographic context of the business environment:	<p>According to the Global Entrepreneur Leaders Scorecard, the percentage of women on boards in Poland was 14.6% in 2015 (ACG Inc. 2015). Deloitte's Women in the Boardroom Report 2017 indicates that the composition increased to 15.2% in January of 2017 (Deloitte 2017: 63).</p>
Patent application figures:	<p>As of 2016, women represented 14.1% of all inventors in Poland (OECD 2016). The OECD reports that women held 12.6% of all new technology patents between 2012 and 2015 (OECD 2017).</p>
Policies, programmes and measurement	
Policy measures to promote diversity and	<p>Initiative 1: Mature Entrepreneur</p> <ul style="list-style-type: none"> ▪ Agency/department responsible: Gdansk Municipal Employment Office ▪ Year launched: 2009 ▪ Budget: €240,265 per year

inclusion in innovative firms:	<ul style="list-style-type: none"> ▪ Description: This project provided guidance and financial support to people 50 to 64 years old with intent or desire to start a business. Eligible candidates are the unemployed, pensioners, or those who would like to become self-employment. The initiative selected candidates with the highest chances of success, and applicants had to submit a written application, undergo an interview, and make a short oral presentation about their entrepreneurial plan. Selected applicants were given 150 hours of training and mentoring to develop their business plans. At the end of the training, only the most outstanding participants with feasible business plans were given a one-time grant. There was a competitive element to the programme in that the most successful participants could compete for a grant and a welfare bridge allowance. ▪ Results thus far: Mature Entrepreneur fostered the establishment of 33 new companies in the city of Gdansk and in the Gdansk sub-province, which positively influenced the local economy. All of the newly established companies are still active, with some growing so much that further full-time positions were created. ▪ Metrics: Number of companies and jobs created ▪ Website: / (See: OECD Inclusive Business Creation 2016, p.52, pp.146-149) <p>Initiative 2: Operational Programme Eastern Poland 2014-2020</p> <ul style="list-style-type: none"> ▪ Agency/department responsible: Ministry of Investment and Economic Development ▪ Year launched: 2014 ▪ Budget: Not publicly disclosed. ▪ Description: This project aims at promoting economic development in the underdeveloped regions of eastern Poland. One of the programme's priority axes, Entrepreneurial Eastern Poland, fosters entrepreneurship by establishing incubators, supporting R&D, and developing new business model plans for SMEs. The programme intends to develop a 'culture of innovation' and to remove barriers that prevent young people (defined as people under 35 years old) from engaging in innovation. Innovation centres oversee the incubators, called Start-up platforms. ▪ Metrics: Share of innovation- active enterprises in Eastern Poland ▪ Website: https://www.polskawschodnia.gov.pl/strony/o-programie/dokumenty/program-polska-wschodnia-2014-2020/ <p>Initiative 3: Innovative Entrepreneurs' Club</p> <ul style="list-style-type: none"> ▪ Agency/department responsible: Polish Agency for Enterprise Development ▪ Year launched: (ended in 2012) ▪ Budget: Not publicly disclosed. ▪ Description: This project targeted innovative entrepreneurs in general but included a provision specifically targeted at young people. The Best Master's Thesis Contest for students aimed at encouraging students to become innovators and to make the business environment more attractive to young age demographics. The project was intended to stimulate growth in the number of innovative business enterprises and to provide support for small and medium sized economic entities with implementing and developing innovative solutions. ▪ Website: http://www.pi.gov.pl/eng/chapter_86542.asp
Short-term initiatives:	<p>Initiative 1: Dynamic Poland 2020: Strategy for Innovation and Efficiency of the Economy</p> <ul style="list-style-type: none"> ▪ Agency/department responsible: Ministry of Economy

- **Year launched:** 2013
- **Budget:** Not publicly disclosed.
- **Description:** This strategy is aimed at encouraging significant improvement to Poland's innovation and efficiency. The strategy addresses 'all pillars of innovation,' including research and development, knowledge, education and financing. The strategy's four objectives are: 1) adjustment of the regulatory and financial environment to the needs of innovation, 2) establishing a knowledge-based economy, 3) sustainable use of resources, 4) increase of internationalisation of the Polish economy. One way that they encourage innovation is through the development of a micro-financing system to support innovative entrepreneurship.
- **Website:** <https://rio.jrc.ec.europa.eu/en/library/strategy-innovation-and-efficiency-economy-sieg>

Initiative 2: 'Master of Innovation' Contest

- **Agency/department responsible:** Polish Agency for Enterprise Development
- **Year launched:**
- **Budget:** The competition's main prize is computer equipment worth 3,000 PLN. Two additional prizes of 1,500 PLN each will also be awarded. (Total prize worth 4,500 PLN, or approximately £950.
- **Description:** This initiative is aimed at Polish undergraduate and graduate students with unpublished theses on their innovative solutions to problems. The initiative appears to be aimed primarily at young people, but does not have any age requirements. Its focuses are: 1) eco-innovation, 2) innovation in the service sector, and 3) demand-focused approaches to developing innovative solutions. The grand prize is computer equipment, with two additional cash prizes. The three winners have the opportunity to present and publish their theses.
- **Website:** http://www.pi.gov.pl/eng/chapter_86543.asp

Initiative 3: Regional Innovation Strategy (RIS)

- **Agency/department responsible:** Regional governments, Ministry of Regional Development
- **Year launched:**
- **Budget:** Not publicly disclosed.
- **Description:** This strategy focuses on increasing innovativeness within Poland at a regional level utilising European Union financial assistance. Each region creates a strategy unique to their context and examines the key needs of companies, the potential of the R&D sector, and the capacities of enterprises in terms of implementing modern technologies. The strategy focuses on SME sector competitiveness through collaboration between science and business. The intent is to determine how to use the R&D funds in the most efficient way and to enhance the regional infrastructure for innovativeness support. Most regional strategies focus on: 'building a knowledge based economy, enhancing co-operation between R&D centres and business, support for the cluster development, stimulating business related institutions, and ensuring better access for small and medium-sized enterprises to external financing, including – offered by the funds – seed capital and venture capital.'
- **Website:** http://www.pi.gov.pl/eng/chapter_86528.asp

Initiative 4: National Foresight Programme 'Poland 2020'

	<ul style="list-style-type: none"> ▪ Agency/department responsible: Ministry of Science and Higher Education ▪ Year launched: 2006-2008 ▪ Budget: PLN 1,300,000 ▪ Description: The National Foresight Programme ‘Poland 2020’ was Poland’s first national foresight exercise. It focused on research areas: sustainable development of Poland, information and telecommunication technologies, and security. The intent of this programme was to foster an environment that looks to the future of Poland’s economic development potential. Therefore, its main objectives included: aligning science and innovation policy with the needs of a knowledge-based economy, demonstrating the significance of scientific innovation to economic development, and guaranteeing ‘fast economic growth in the medium and long term.’ ▪ Website: http://www.foresight-platform.eu/wp-content/uploads/2011/02/EFMN-Brief-No.-121_Poland-2020_SocioTrans.pdf
Evaluation and monitoring methods:	Key performance indicators vary but include: rankings such as the European Commissions’ European Innovation Scorecard, the number of innovative SMEs, full-time jobs created, and the percentage of GDP generated by innovative enterprises.
Other information:	Institutions supporting innovation in Poland: http://www.pi.gov.pl/eng/chapter_86527.asp

Sweden

Context and demographics

Business environment and innovation landscape:

Sweden is a world leader in business innovation performance (OECD, 2013). It has an export-orientated business sector and well-developed R&D as well as innovation capabilities. Sectors with high volumes of R&D spending include: machinery and electro/electronics industries (EUR 2.7 billion); the automotive industry (EUR 1.6 billion); and pharmaceuticals (EUR 600 million) (OECD 2013: 32). The World Economic Forum Competitiveness Index for 2017-18 ranked Sweden as one of the most competitive economies in the world. INSEAD Business School's Global Innovation Index 2017 ranks Sweden in second place, after Switzerland. Sweden ranks as number nine, in the 2018 Global Entrepreneurship Index.

Discussion around business innovation focus on Sweden maintaining and building on its achievements, by attracting the best international talent in terms of researchers as well as attracting foreign firms to establish innovation, research and production units (OECD 2013). Sweden's recent innovation policy puts human development at the heart of its initiatives to improve its competitiveness. Along with this the government identifies opportunities to develop larger and more prominent research centres in its universities as another area for growth. Sweden shows commitment to regional development through the creation of more regional knowledge hubs as well as designing innovation policy to forge stronger links between research in universities and SMEs to maximise the economic and social benefits of R&D. Pending challenges for Sweden include skill shortages, international competition and environmental concerns.

Composition of the technological innovation sector:

Sweden is at the forefront of gender equality. It was ranked 5th in the Global Gender Gap Forum 2017, recognising its efforts in closing the gender equity pay gap.

Women are well represented in broad tertiary-level education (OECD, 2013). However, technology, engineering and entrepreneurship remain parts of the labour market where there is horizontal as well as vertical segregation. The percentage of women receiving PhDs in Engineering and Technology (32%) or Mathematics and Science (38%) is less than men. The proportion of women working as researchers (37.2%) is also less than men; in scientific professions a greater proportion of women are found to be working in support or technical roles (EU 2015). Women researchers tend to work in the government sector (they make up 50%), they are less represented in educational researcher roles (44.5%) and also in private sector research roles (25.6%) (EU 2015). Women's earnings in R&D jobs are also significantly less than men (at least 20% difference). Within academic jobs there is a glass ceiling for women and they are less represented in top leadership positions (GCI 1.64).

Although not part of legislation recent policies to promote gender inequality have focused on encouraging businesses to have 40% women on corporate boards (OECD 2017). There is now a larger number of women who are members of boards (55%) but they are still less likely to be leading boards (44%).

Despite Sweden's policy of multicultural accommodation, there is still segregation across ethnic lines in the labour market. Foreign-born or immigrant workers with graduate degrees are usually underemployed and not working in jobs where they can use their qualifications (EUMC 2003). Official statistics on ethnic minority workers in

	<p>Sweden indicates that foreign-born university graduates are usually underemployed. They also face discrimination in the labour market.</p>
Number of underrepresented groups in startups and SMEs:	<p>The 2017 Global Startup Ecosystem Report focused on Stockholm as one of leading cities for startups. However, women made up only 12% and foreign nationals 15% of founders.</p>
Demographic context of the business environment:	<p>In Sweden 30% of businesses are run by women as sole proprietors (OECD 2017). Less than 30% of board members in companies are women (OECD 2017). Women are also less represented in senior management positions (30%).</p> <p>The government corporate board Annual Report 2017 contains information about gender balance on boards of companies trading it found: (1) Women serving on the boards of the largest companies were 36%; (2) Percentage of women on boards was 33.6%; (3) Percentage of elected women board members were 31.6% (31.7% according to Deloitte 2017). Whilst these figures are encouraging, they fell short of the board's code of conduct recommendation that 40% of board members should be women. However, there is a consistent rise in the number of women over the years.</p>
Patent application figures:	<p>In Sweden 6% of patents come from women and the proportion of patents produced by women is 0.1% of total patents (EU 2015).</p> <p>Foreign-born researchers had a 0.0003% ($p < 0.01$) lower probability of patenting than a Swedish born.</p>
Strategies for promoting inclusive innovation:	<p>Several key legislative changes have led to a pluralistic, multicultural commitment to integration. These includes the National Action Plan for Human Rights 2006-2009, the National Action Plan to Combat Racism, Xenophobia, Homophobia and discrimination (2000) and the seminal Government Bill, Sweden, the Future and Diversity: from Immigration Policy to Integration Policy (1997).</p> <p>Sweden's National innovation strategy 2013–2020 and Sweden's National Strategy for Sustainable Regional Growth and Attractiveness 2015–2020 also emphasise the importance of the diversity perspective for innovation and creativity.</p> <p>The Government's research policy bill 2016 also includes targets for greater gender equality in research and innovation. Swedish Gender Equality Agency was launched at the start of 2018 to monitor and assess gender equality in all aspects of life. Sweden has implemented policies related to women and science, committing to gender mainstreaming, creating National Committees on Women and Science, publishing sex-disaggregated statistics, and promoting gender studies and research. This agency is a government body which will work to oversee, provide guidance and support as well as monitor the mainstreaming of gender.</p>
Policies, programmes and measurement	
Policy measures to promote diversity and inclusion in	<p>Initiative 1: Swedish programme for Promoting Women's Entrepreneurship 2007-2014</p> <ul style="list-style-type: none"> ▪ Agency responsible: Swedish Agency for Economic and Regional Growth ▪ Year launched: 2007

innovative firms:

- **Description:** Make women's entrepreneurship and its contribution to the economy more visible. Developing future entrepreneurship opportunities for women at universities and higher education institutions. Making business development more accessible to women. The first phase of this project (2007-2010) focused on building a strategy to promote equal entrepreneurial opportunities. This phase included preparatory studies of women entrepreneurship in different Swedish regions as well as pilot projects to provide an empirical basis on which to build a strategy. 477 programmes were run to give women help and advice to start businesses, this included advisory services, coaching, mentoring, networking, training, and other tools for developing a business. This also included development programmes targeted at women entrepreneurs who run businesses in green industries. Special programmes to encourage women entrepreneurship were also run in universities. This was to raise awareness about the importance of entrepreneurial skills amongst lecturers.
- **Budget:** SEK 65 million per annum from 2011-2014
- **Metrics/Results thus far:** In total 27,000 women were involved in innovation projects. 91% of participants in advisory programmes would recommend them to others. There was an increased take up in entrepreneurial activities by participants of these programmes; 50% of participants started a business and 46% planned on starting one within 5 years. The project also arranged activities to encourage women to participate in networking groups, at the start women constituted only 5% of such networks this had increased to 20% by the end of the programme. The Golden leadership programme and Ambassadors for women entrepreneurship as well as award programmes for women, made women entrepreneurs more visible through public engagement events, networking and media coverage.
- **Website:** <https://tillvaxtverket.se/vara-tjanster/publikationer/publikationer-2015/2015-06-08-8-years-of-promoting-womens-entrepreneurship-in-sweden.html>

Initiative 2: IFS Entrepreneur Association in Sweden (Internationella Företagarföreningen i Sverige)

- **Agency responsible:** Swedish Agency for Economic and Regional Growth (Tillväxtverket),
- **Year Launched:** 1996
- **Description:** Raise awareness and competencies for business amongst migrants; improve the business environment for migrants; and support migrants through the development of networks and providing practical guidance. Their activities include training programmes to support migrants into entrepreneurship. Projects that focus on creating networks between businesses started by migrants and other organisation in Sweden; they work with Almi, the Swedish government's initiative to support business and innovation and provide regional support to migrants looking to start a business in Sweden. This support includes business guidance in different languages, along with mentoring and support in setting up which includes help in developing business plans, applying for funds, permissions, licenses and registration of the business. They also organise an award for entrepreneur of the year for new entrepreneurs from a migrant background.
- **Budget:** Not available
- **Metrics/Results thus far:** Details not available in English but their website suggests that 70,000 migrants own their own business and every fifth new business started in Sweden is owned by a migrant.

- **Website:** <http://www.ifs.a.se/about-ifs/?sp=Engelska>

Initiative 3: Mobility for growth programme

- **Agency responsible:** Vinnova
- **Year launched:** 2007-2014
- **Description:** Previously the Vinnmer programme, it promotes career development of female researchers after the postdoctoral career phase. Aims to promote future women leaders in academia and industry. Priority is given to applications with women researchers leading the team, particularly in research areas or disciplines in which women are under-represented. It focuses on collaborations between centres of research excellence in Sweden and prominent research centres in other parts of the World. It provides funding for researchers to work in overseas centres of research. The grant also supports researchers from overseas to come work in Sweden at the centres of research excellence in Sweden. The programme supports innovation through funding the recruitment of foreign researchers who can contribute to research and innovation. The project also supports national collaboration between centres of research excellence within Sweden and public and private sector industry.
- **Budget:** EUR 35 million
- **Metrics/Results thus far:** Has funded 500 researchers. Interviews with participants have shown value of funding for collaboration to both individual fellows and the centres of research involved. 50 projects have resulted in long-term international collaboration and 30 projects have established longer term national collaboration. 80% of fellows have progressed to higher posts after the end of the fellowship. 22 VINNMER fellows are professors and 15 are working in leadership positions in industry, institutes or the private sector.
- **Website:** https://www.vinnova.se/globalassets/mikrosajter/mobility-for-growth/dokument/vinnmer_eng.pdf

Initiative 4: Applied Gender Research for Strong Research and Innovation Milieus TIGER programmes

- **Agency responsible:** Vinnova
- **Year launched:** 2008
- **Description:** The TIGER project aim was to strengthen innovation capacity by integrating a gender perspective into organisational development and the development of new products and services in key innovation clusters. TIGER is an R&D programme at the intersection of practical gender equality work and gender research. Knowledge gained from the R&D projects funded by TIGER is integrated into innovation milieus supported by VINNOVA under other programmes. TIGER programmes include dialogue conferences and workshops, allying stakeholders with gender researchers. These focus on production innovation and how a gender perspective can help develop the industry. Fiber Optic Valley, Skane Food Innovation Network and Triple Steelix were some of Sweden's lead clusters for innovation in which TIGER projects were introduced. In total 10 projects were funded.
- **Budget:** Not available
- **Metrics/results thus far:** Detailed observation and collection of data within the research clusters by gender researchers focusing a gender perspective. For each project current situation was outlined and a plan of action was suggested to improve gender balance within the cluster. The projects ran for three years

	<p>however research clusters are funded for ten thus the projects continued to have impact after the end of the gender intervention. This was of particular importance as it allowed for adequate time for change.</p> <ul style="list-style-type: none"> ▪ Website: https://www.vinnova.se/en/publikationer/innovation--gender/ <p>Initiative 5: ‘Open up! A National Strategy for Business Promotion on Equal Terms</p> <ul style="list-style-type: none"> ▪ Agency: Tillväxtverket Swedish Agency for Economic and Regional Growth ▪ Year launched: 2015 ▪ Description: The programme focuses on mainstreaming gender, ethnic and age diversity within the business sector. All stakeholders and business promoters that receive public sector funding have to develop and monitor their activities, based on the strategy’s direction. It asks organisations to develop a clear set of SMART (specific, measurable, agreed, realistic, time-bound) goals, based on the strategy’s overarching goal, and based on the organisation’s activities and capacities to ensure it is acting to achieve a level playing field. Main activities included are: 1) business promotion organisations working with regional governments to insure equal access to business opportunities for all; 2) knowledge production through forums and exchanges between regional stakeholders in order to develop a set of tools that are seen to help in the creation of a level playing field; 3) the programme places special emphasis on gender equality in accessing opportunities for business; 4) all stakeholders are required to report back on equal access in terms of gender, age and ethnic background; and 5) all regional development plans are required to include a gender and diversity perspective. ▪ Budget: Not available ▪ Metrics/Results thus far: Not available
<p>Short-term initiatives:</p>	<p>Sweden has been collecting gendered statistics since 1992. It has adopted gender mainstreaming as well as special measures to tackle the gender gap since 1994. The Swedish Research Council has adopted a proactive role in promoting gender equality. Gender equality is seen as a question of equal rights. All research councils and institutions have been directed to include gender in annual reports. This is done by providing data on gender composition and the measures taken by the institution to address the gender gap.</p> <p>The Swedish Agency for Economic and Regional Growth has a think tank and arranges workshops for process leaders focusing on the business case for gender diversity. VINNOVA provides funding for research within the area of Gender and Innovation, including a women’s entrepreneurship programme and the Needs-driven Gender Research for Innovation programme.</p> <p>In 2008, the Agency launched a specific programme, Applied Gender Research for Strong Research and Innovation Milieus (TIGER) which aimed to change processes and increase gender awareness in a number of strong innovation milieus.</p> <p>The global #MeToo campaign has swept through Sweden resulting in sexual harassment becoming a key area of concern within public debate and also within organisations.</p>
<p>Evaluation and monitoring methods:</p>	<p>The Swedish Equality Ombudsman has developed, in collaboration with Nyckeltalsinstitutet, a Gender Equality Index, called JÄMIX, building on nine different</p>

performance indicators that illustrate important elements of equality (such as leadership, career opportunities, salaries, health, part-time work and parental leave).

VINNOVA supports action research in which interventions are evaluated through in-depth analysis by quantitative and qualitative techniques such as case studies, surveys and narrative stories, provides valuable knowledge of the stage of development and which methods to use to achieve visible results and bridge gaps between policy and practice.

United Kingdom

Context and demographics

Business environment and innovation landscape:

The UK's business environment is positioned strongly in the World Bank's 'Doing Business' rankings, where it is placed 7/190 countries for 'Ease of Doing Business' and 14/190 for 'Starting a Business' (World Bank 2018). The UK's innovation landscape is also currently in a strong position by a number of measures. The Global Innovation Index ranks the UK as 5th out of 127 countries (Cornell, INSEAD and WIPO 2017), while the European Commission's 'European Innovation Scoreboard' assesses the UK as an 'Innovation Leader', behind Sweden, Denmark, Luxembourg, Finland, Germany and Belgium (European Commission 2017). The EIS finds that relative strengths of the UK's innovation system are in its human resources (new doctorate graduate, population with tertiary education and lifelong learning), and attractive research systems (international scientific co-publications, most cited publications, foreign doctorate students). However, the EIS finds overall areas of weakness in relation to indicators under 'Innovators', which covers SMEs product/process innovations, SMEs marketing/organisational innovations and SMEs innovating in-house. Of particular relevance to the Innovate UK Global Review is the relatively weak positioning of the UK in terms of 'Finance and support' in the EIS. This is driven by R&D expenditure in the public sector has seen a percentage change of -14.2% between 2010 and 2016 (European Commission 2017). In the latest edition of the Global Entrepreneur (GEM) Global Report (2017/2018), the UK's innovation level is scored at 27.1, or 23rd out of 54 countries (GEM 2018). In the 2017 Global Startup Ecosystem Ranking, London is ranked third, behind Silicon Valley and New York (Startup Genome 2017).

The latest UK Innovation Survey (UKIS) reports that more UK businesses were involved in innovative activities than in the previous survey period of 2010-2012. 53% of businesses were innovative, an increase on the previous survey's 45%. 61% of large businesses were innovative, while 53% of SMEs were innovative. The UKIS also demonstrates the innovative activity has diversified across a number of sectors, with the production sector ranking as most innovative, followed by distribution and services. Cost factors (availability of finance, costs of direct innovation too high, excessive perceived economic risks and costs of finance) were the most commonly reported barrier to innovation.

Research published by innovation think tank Nesta in 2015 reported a good distribution of innovative activity and high-tech employment across the UK, with notably high concentrations in Manchester, Edinburgh and Cambridge (Nesta 2015). The corridor connecting Cambridge, Milton Keynes and Oxford has become strongly associated with innovative activity. Oxford and Cambridge Universities are consistently ranked amongst the top four universities in the world, and this region also contains a high concentration of industrial activity in the sectors of information technology, life sciences, automotive engineering and professional services (NIC 2017).

The 2017 Industrial Strategy recognises the value of innovation, and sets out the key target areas or 'Grand Challenges' for innovative activity in the UK. AI and data-driven economy; clean growth; mobility and ageing. The strategy also makes commitments to launch and implement 'Sector Deals' – partnership between government and industry to increase sector productivity. To date, these include life sciences, construction, AI and the automotive sector. BEIS also pledge to increase investment in innovative and high-potential businesses through establishing a £2.5bn investment fund, incubated in the British Business Bank, in addition to increasing R&D investment to 2.4% of GDP by

	<p>2017, to increase the rate of R&D tax credit to 12% and invest £725m in a new 'Industrial Strategy Challenge Fund' through programmes aimed at fostering innovation (BEIS 2017). For further discussion of policies and initiatives aiming at driving diversity and inclusion, see below.</p>
<p>Composition of the technological innovation sector:</p>	<p>Data from the European Commission Directorate General for Enterprise and Industry (DG ENTR) published in 2014 found that women entrepreneurs comprised 33% of 'Professional, scientific and technical activities' and 25% of the 'Information and communication sectors'.</p> <p>Tech Partnership, an employer network within the digital and technology sector carried out research on diversity in the IT sector. The latest report (2017) found that women are significantly underrepresented in the IT sector. Just 17% of IT specialists working the UK were women as of 2016, which is well below the proportion recorded for the population as a whole (47%) (Tech Partnership 2017, p. 8). This figure is unchanged since 2014. Older people, and disabled people are also underrepresented in this sector at 21%: 31% and 8%:12% respectively. Non-white members of the IT sector workforce, however, were better represented than across the workforce as a whole at 17%:12%.</p> <p>Innovate UK data found that on average 14% of applications for support from the agency were led by women versus 76% led by men. Innovate UK and Ebiquity also surveyed 200 UK-based female entrepreneurs to understand the barriers to entrepreneurship. Almost a third of the interviewees found that their gender had negatively impacted their careers. Securing funding was identified as the single, largest barrier to women entering the UK innovation sector, especially for those in startups. Innovation funding organisations play a crucial role, but these organisations are often viewed as inaccessible and male dominated, and their funding competitions as opaque and irrelevant, with excessively bureaucratic application processes positive discrimination is controversial as a means to encourage and support more female innovators. There is a demand for more substantial, focused support services among female, including mentoring, one-to-one contact and help with funding applications and networking.</p>
<p>Number of underrepresented groups in startups and SMEs:</p>	<p>BEIS data (Longitudinal Small Business Survey 2016) shows that 20% of SME employers were majority-led by women (defined as controlled by a single woman or having a management team of which a majority were women). This represents a one percentage point reduction compared with the previous year's survey. Women-led businesses are more common than average in human health (56%), education (45%) and other services (31%).</p> <p>The same survey reports that 5% of SME employers were in a minority ethnic group – the same proportion as in the previous year's survey (BEIS 2016).</p>
<p>Demographic context of the business:</p>	<p>The UK does not require quotas for women on boards, but has launched a number of initiatives to increase the representation of women in the boardroom. A 2011 independent review of women on boards, commissioned by the UK government recommended that all FTSE 100 companies aspire for 25% representation of women on boards by 2015, a target that was met: there are no longer any all-male boards in the FTSE 100, and only 13 in the FTSE 250 (Deloitte 2017). The renewed gender-diversity targets are recommended in the Hampton-Alexander review, launched in July 2016. This review calls for a voluntary target of 33% women directors serving on FTSE 350 boards by 2020, and recommends increased representation of women at the CEO-level in FTSE 100 companies (BEIS 2016).</p>

	<p>20.3% of board seats are held by women, slightly below the European average of 22.6% and considerably behind other countries discussed in this case study (Norway, 42%). In sector-specific terms, industries within the tech and innovation sectors have around 19% representation by women on boards: Life Sciences and Health Care, Manufacturing and Technology, Media and Communications. Ahead of these industries are Consumer Business (23.3%) and Financial Services (20%) (Deloitte 2017).</p>
<p>Patent application figures:</p>	<p>8.5% of All Technologies (OECD 2017); 9% share of women inventors (OECD 2016).</p>
<p>Strategies for promoting inclusive:</p>	<p>The Industrial Strategy, launched in November 2017, recognises diversity and inclusion as a key enabler of economic success and improved productivity. To encourage wider participation in the labour market, BEIS is supporting working parents of young children by providing free childcare, and have introduced legislation in April 2017 to require all large employers in Britain to report on their gender pay gap. The Race Disparity Audit is tackling the barriers to help black and ethnic minority backgrounds into the workplace. The BEIS strategy also mentions plans to publish a strategy for improving social mobility in England, and to boost the number of disabled people in employment in the UK (BEIS 2017).</p> <p>Another important strategy document in this regard is the UK’s 2017 Digital Strategy, published by the Department for Digital, Culture, Media and Sport (DCMS). The Digital Strategy commits to ‘enabling a more diverse digital workforce’, recognising that ‘[t]his is not only the right thing to do, but it will play an important role in meeting [the UK’s] digital skills shortages (DCMS 2017). The strategy document lists ‘a number of programmes that are doing valuable and innovative work to help more women into tech’, but only one of these, the CyberFirst Girls competition, run by the intelligence agency GCHQ would qualify as a UK Government-backed initiative. The others, which include the TechFuture Girls programme, Code First: Girls, Techmums, and others, are run by third sector organisations or industry.</p> <p>The Digital Strategy commits to ‘supporting further development of the Tech Talent Charter’ (TTC), which was originally an employer-led initiative to encourage change in recruitment and retention best practices within the UK tech sector. The TTC targets firms of all sizes, from startups to multi-nationals in all industry sectors from entertainment to banking (essentially, any industry employing tech talent). By pledging to the TTC, companies support practices in attraction, recruitment and retention to increase diversity, to develop their own specific timelines for change and implementation, and to measure the diversity profile of their UK employees and to (anonymously) share data for collective publication.</p> <p>The TTC now receives some funding from DCMS, and there has been further development in the UK Government’s support for the initiative since 2017. In early 2018, the Digital and Culture Secretary Matt Hancock announced that the entirety of HMG will sign up to the TTC, while Margot James, Minister for Culture, Communications and Creative Industries, will write to major tech firms asking them to pledge to the TTC.</p> <p>Government management and support for the innovation landscape involves a number of organisations, of course notably including Innovate UK. The Department of Business, Energy and Industrial Strategy (BEIS) leads on policies within this area, while Innovate UK (a non-departmental government body) is the national innovation agency reporting</p>

to BEIS. Innovate UK supports the innovation landscape through a number of UK-wide programmes (discussed below), and comprises the following arms:

- **Catapult Centres** – network of technology and innovation centres in specific, targeted areas (Cell and Gene Therapy; Compound Semiconductor Applications; Digital; Energy Systems; Future Cities; High Value Manufacturing; Medicines Discovery; Offshore Renewable Energy; Satellite Applications; Transport Systems. The Catapult Centres encourage business investment in R&D through facilitating access to the means and expertise to test new ideas, funded through public sector grants and business-funded contract research.
- **Knowledge Transfer Network Ltd (KTN)** – a UK-wide network of businesses and academics helping to stimulate innovation by promoting collaboration, best practices and knowledge exchange between industry and academia.

Innovate UK provides targeted, and open funding streams, business support and advice to support the UK innovation landscape. These initiatives, with regard to diversity and inclusion, are detailed below.

In terms of national strategies for promoting diversity and inclusion in innovation, Innovate UK published a ‘Statement of Intent’ on diversity and inclusion in 2016, which sets out its commitments to improving best practices as an investor, partner and employer. The Statement of Intent commits to

- Improve data collection on who applies for and wins investment through Innovate UK
- Gather intelligence related to diversity and inclusion to inform future decision-making
- Learn from previous, successfully diversity and inclusion initiatives to inform future actions
- Review processes for awarding funding with a view to increasing diversity
- Not to engage in positive discrimination, but to support underrepresented groups and to understand barriers to entry in the UK business sector
- Champion diversity in outreach activities
- Develop partnerships with UK organisations and global innovation agencies
- Encourage complementary approaches to encourage diversity and inclusion across the wider Innovate UK family (Innovate UK 2016a).

Below, we identify Innovate UK’s flagship programmes for promoting diversity and inclusion in the UK innovation sector. To date, two historically underrepresented groups have been addressed: women and young people from disadvantaged backgrounds.

Policies, programmes and measurement

Policy measures to promote diversity and inclusion in innovative firms:

Initiative 1: InFocus – Women in Innovation

- **Agency/department responsible:** Innovate UK
- **Year launched:** 2016
- **Description:** Women in Innovation is a funding award for women innovators and the first action under Innovate UK’s ‘infocus’ initiative. Innovate UK has invested £200,000 to promote women innovating in business, and launched the initiative to identify **12 women** to benefit from **a tailor-made package of support, 4 of which** will also receive **£50,000** to contribute to their plans. The initiative is open to any woman in the UK with experience in business innovation, working in any of Innovate UK’s 4 sectors (manufacturing and materials; infrastructure systems; enabling and emerging technologies; health and life sciences).

In March 2018, the programme was re-launched, with a second phase. This will also involve funding and support, with a particular focus on the 4 grand challenges

posed by the government's Industrial Strategy: AI and the data economy, clean growth, future of mobility, ageing society.

In addition to this update, Innovate UK announced that they will soon launch quarterly innovation accelerator workshops for women, and to review their existing programmes to see how they can better promote and inspire diversity.

- **Budget:** Not publicly available.
- **Results thus far:** The award resulted in identifying 15 women to benefit from the award.
- **Website:** <https://www.gov.uk/government/news/women-in-innovation-apply-for-infocus-funding-award>

Initiative 2: #Ideas Mean Business – Young Innovators' Programme

- **Agency/department responsible:** Innovate UK
- **Year launched:** 2017
- **Description:** Launched in 2017, #Ideas Mean Business is the second of Innovate UK's D&I initiatives and is run in collaboration with the Prince's Trust. The collaboration tackles barriers to business innovation in young people from disadvantaged backgrounds. The initiative offers mentoring from 'innovation champions', funding support for activities, resources, training, equipment, office space and IT equipment. In coordinating this initiative, Innovate UK have built directly on the successes of their 'Women in Innovation' campaign.
- **Budget:** Not publicly available.
- **Results thus far:** None – the initiative has only recently been launched
- **Website:** <https://www.gov.uk/government/collections/innovate-uk-diversity-and-inclusion#ideas-mean-business:-campaign>

Initiative 3: CyberFirst Girls Competition

- **Agency/department responsible:** Government Communications Headquarters (GCHQ) and National Cyber Security Centre (NCSC)
- **Year launched:** 2017
- **Description:** One of the key skills gaps related to innovation is in cyber security and other technology-based careers. Cyberfirst is a student scheme open to all, which aims to support and prepare undergraduates for careers in cyber security. One aspect of the scheme is targeted at girls only, in recognition of the underrepresentation of women in the cyber security sector and in technology roles more broadly (only 10% of the cyber workforce is female). The scheme is a competition for schoolgirls, hoping to raise awareness and build capacity for this kind of work.
- **Budget:** Not publicly available.
- **Results thus far:** The 2017 competition attracted 2,171 teams of girls aged 13-15
- **Website:** <https://www.cyberfirst.ncsc.gov.uk/girlscompetition/>

Initiative 4: Tech Talent Charter (TTC)

- **Agency/department responsible:** The TTC is not a government-led initiative, but is supported by the DCMS.
- **Year launched:** 2017
- **Description:** The TTC began as an employer-led initiative by organisations in the recruitment, tech and social enterprise fields. The TTC is a charter to increase the diversity of the technology workforce in the UK, where signatories commit to pursuing a diversity and inclusion agenda in the recruitment and retention of tech talent. Signatories undertake commitments to support attraction, recruitment, and retention practices that are designed to increase the diversity of their workforce; define their own implementation plan for this strategy (this acknowledges that all

signatories have different starting points); monitor and measure the diversity profile of their UK employees and to published anonymised data for improved transparency.

The initiative is now supported by the UK government, through funding via the DCMS. The TTC has also been signed by all departments of HMG as of early 2018. The level of funding by DCMS is not known, and it would be a research priority to find this out, if possible, through interviews. As of March 2018, the Scottish Government signed the TTC.

- **Budget:** Not publicly disclosed.
- **Results thus far:** Organisations to have signed the TTC include HP, CA, BBC, Monster, Global Radio and Nationwide. There are now over 90 signatories. Annual data reports will be published, and the first (for 2017) is expected very soon. The initiative has received national press coverage, most recently in the Financial Times.
- **Website:** <https://techtalentcharter.co.uk/>

Initiative 5: Tech She Can

- **Organisation/department responsible:** Led by private sector (PwC), but supported by DCMS with the British Science Association and other charities and businesses.
- **Year launched:** 2018
- **Description:** Like the TTC, Tech She Can aims to improve the representation of women in the technological innovation sector. Tech She Can is a cross-industry initiative, following research by PwC on 'Women in Tech'. The initiative has been supported by the DCMS, who state: 'We want to be at the forefront of tackling the gender imbalance of the tech workforce and make sure the fantastic opportunities on offer are available to everyone. The whole UK government has recently signed the Tech Talent Charter, which focuses on increasing the diversity of those already working in tech roles, and we welcome PwC's new initiative to target and inspire the talent of tomorrow'.

Signatories of the Tech She Can Charter agree to the following actions: (1) Working with schools to raise awareness of career options in the tech/innovations sector; (2) Supporting social mobility by focusing on schools in social mobility 'coldspots' identified by the UK government; (3) Creating role models through awareness campaigns and via publicity campaigns using the hashtag #techshecan; (4) Ensuring inclusive access to careers; (5) Attracting, recruiting and retaining diverse talent; (6) Sharing best practices.

Through a partnership with the British Science Association, the Tech Talent Charter is forming an All-Party Parliamentary Group on Diversity and Inclusion in STEM, to encourage government, parliamentarians, academics, businesses and other stakeholders to help foster a more diverse and inclusive STEM sector.

- **Budget:** Not publicly disclosed.
- **Results thus far/metrics:** None as such – launched in March 2018
Website: <https://www.pwc.co.uk/who-we-are/women-in-technology/tech-she-can-charter.html>

Initiative 6: Colorintech

- **Organisation/agency responsible:** N/A – Colorintech is an independent, but has a growing relationship with DCMS (see below)
- **Year launched:** 2016
- **Description:** Colorintech is not an initiative backed by the UK Government or organisations within the UK innovation system, but rather an independent, not-for-profit organisation that strives to ‘give the underrepresented access and network opportunities to succeed in the UK innovation economy’. Colorintech collects and tracks data on diversity in the UK tech industry, and runs programs to facilitate diversity and inclusion (both launched 2017). To date, Colorintech runs a fellowship programme (Colorintech Fellows Program) connecting the top undergraduate BAME computer science students with leading European tech companies. The programme offers work experience via a paid internship and structured workshops designed to build capacity for working in the tech sector. The Silicon Valley Immersion Programme is an all-expenses paid summer and winter break that brings undergraduates from partner universities together for a week of personal development, peer-bonding and on-site visits to tech companies in the Bay Area. Partners include De Montfort University, Google, Kapor Capital, Weebly, WeWork, Akstrop and the Citizen Engagement Laboratory (CEL).
- **Budget:** Not publicly disclosed.
- **Website:** <https://www.colorintech.org/>

Initiative 7: Scottish Framework and Action Plan for Women’s Enterprise

- **Organisation/department responsible:** Scottish Government and Women’s Enterprise Scotland
- **Year launched:** 2014; refreshed framework launched in 2017
- **Description:** Women’s Enterprise Scotland (WES) is a not-for-profit Community Interest Company, which advocates for women’s enterprise in Scotland. With the support of the Scottish Government, WES launched the Scottish Framework and Action Plan for Women’s Enterprise. The Framework contains four key actions: (1) Mentoring and networking, (2) role modelling, (3) Growth and finance, and (4) gender aware support and best practice.
- **Budget:** Not publicly disclosed.
- **Website:** <https://www.wescotland.co.uk/framework>

Initiative 8: Returner Programmes

- **Department/Agency responsible:** Government Equalities Office (GEO)
- **Year launched:** 2017
- **Description:** The Spring Budget 2017 (08/03/2017) included £5m funding for ‘returnships’ to help those returning to work after long career breaks. Open to both women and men, returnships provide opportunities for training and professional development to those who have taken lengthy career breaks. In collaboration with business groups and public sector organisations to identify how to boost further the opportunities for women returning to work. Since the launch, the GEO commissioned Women Returners (a consulting, coaching and networking organisation) and Timewise (a social consultancy specialising in the flexible jobs market), to write best practice guidance.
- **Budget:** Not publicly disclosed.
- **Results thus far:** Returner programmes which lead to permanent roles were pioneered in the UK in 2014, and the number has grown from 3 to over 40 in 2017, primarily in the financial services, consulting and STEM sectors.

Short-term initiatives:

Awareness campaigns

Women in Innovation exhibition

- As part of its 'Women in Innovation' programme, Innovate UK ran an exhibition in partnership with Getty Images and UK photographer Amelia Troubridge. The exhibition 'aimed to challenge the perception of what it looks like to be a female innovator in 2017', and ultimately, to increase the low number of women entrepreneurs applying for funding. The exhibition focuses particularly on building role models for women innovators.
- The exhibition profiled 12 of the winners of the women in innovation awards, and also celebrations diversity within this group by focusing on background, age, education, location and approach.
- The exhibition was hosted at the Getty Images Gallery, London, and a photobook was also made freely available online.
- https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/634639/infocus_women_in_innovation_photography_book.pdf

Women in Innovation workshop

- Alongside the 'Women in Innovation' exhibition, Innovate UK ran a 'Girls in Innovation' workshop on 26 July, 2017, at the Getty Images Gallery, London.
- Schoolchildren were able to meet and hear from the female innovators in the fields of robotics, AI and VR applied in a diverse range of industries – education, cosmetics and social media <https://innovateuk.blog.gov.uk/2017/08/01/getty-infocus-event-was-innovate-teen/>

Young Innovators regional events

- As part of its Young Innovators programme, Innovate UK ran regional events to raise awareness and inform target audiences about the campaign in January-March 2018. https://www.princes-trust.org.uk/help-for-young-people/princes-trust-online/young-innovators?utm_source=facebook_nov&utm_medium=social&utm_campaign=innovate_organic

Surveys conducted within Innovation-focused organisations

- Innovate UK undertook their own large-scale study, examining the gender of 8,566 funding applications since 2013.
- The research, published on the Innovate UK's gov.uk webpages, reaffirms the underrepresentation of women in innovation. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/545424/women_in_innovation_research_data_110816.pdf

Publications of research reports to raise awareness of barriers to innovation

- As part of both the Women in Innovation and Young Innovators initiatives, Innovate UK commissioned and published research into these demographics.
- https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/545202/Women_In_Innovation_Ebiquity_Report_August_2016_FINAL.pdf
- https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/664684/Ideas_mean_business.pdf

Evaluation and monitoring methods:

Innovate UK measures and evaluates the impact of its programmes, and monitors its operations with regard to diversity and inclusion (Innovate UK Delivery Plan 2018). No impact assessments relating to diversity and inclusion initiatives are available. The UK government monitors and evaluates innovation through the UKIS (UK Innovation Survey), every other year.

United States of America

Context and demographics

Business environment and innovation landscape:	<p>In the USA, inclusive innovation can be used to refer to promoting diversity in terms of underrepresented demographic groups into entrepreneurship and innovation, particularly women and minorities. The demographic focus extends to further attributes for diversity, including: race/colour, age, disability, nationality, sexual orientation, veteran status, gender and ethnicity/national origin (see Forbes 2012). Our interviews revealed that leading inclusion bodies, such as Code.org, conceptualise diversity and inclusion in terms of the following domains: gender, ethnicity/race, rural, people with disabilities and people from disadvantaged socio-economic backgrounds.</p> <p>The second use of the term inclusive innovation in the U.S. – and efforts to promote diversity in innovation – refers to spatial dimensions. Efforts within this umbrella are aimed at promoting innovation in regions that historically lacked innovation-centric entrepreneurial activity. This comes as Silicon Valley and Route 128 outside of Boston became leading clusters of innovative entrepreneurship from the 1970s, and other regions have been left behind in terms of technological prowess.</p> <p>In the past two decades the rate of women and minority entrepreneurial activities has grown, however dominant centres of high-technology activity, notably Silicon Valley, continue to attract negative headlines for their predominant ‘tech bro culture’, referring to a monoculture of elite white males who hire and work with one another and treat women as second class (Clark 2017). Numerous studies have revealed that women and minorities (except for Asian men and women) are underrepresented in STEM relative to broader demographics. Given that science and engineering jobs are amongst the fastest growing – and highest quality in terms of pay and intellectual character – in the U.S., efforts to promote diversity in innovation-centric entrepreneurship is hoped to ‘reduce the race and gender wealth gaps, to reduce income and wealth inequality, and to increase social mobility’ (Barr, 2015: 2).</p> <p>National, regional and municipal government efforts have been launched, or repurposed, to promote women and minorities in innovative businesses – especially high-technology and/or STEM – in the 21st century.</p>
Composition of the technological innovation sector:	<p>There is spatial disparity in the prevalence of minority entrepreneurship. In 2016, The U.S. Equal Employment Opportunity Commission published a report on ‘Diversity in High Tech’, explaining that jobs creation in computer science and engineering is growing at twice the national average. The promise of this expanding opportunity, according to its 2014 data, is captured primarily by white men ‘Compared to overall private industry, the high tech sector employed a larger share of whites (63.5 to 68.5%), Asian Americans (5.8 to 14%) and men (52 to 64%), and a smaller share of African Americans (14.4 to 7.4%), Hispanics (13.9 to 8%), and women (48% to 36%) (Equal Employment Opportunity Commission 2016). More than overall employment figures, there is an overrepresentation of men in executive positions relative to the national average, with 80% of executive roles going to men in contrast to the overall private sector’s 71% average. The situation is more stark in Silicon Valley in particular, with a ‘30% participation rate for women at 75 select leading Silicon Valley tech firms’ and less than 1% and 1.6% of Silicon Valley’s leading firm workforce being African America and Hispanic, respectively (p. 3).</p>
Number of underrepresenten	<p>The number of minority entrepreneurs has grown over the last 20 years. A preeminent entrepreneurship research group, Kauffman Foundation, conducted a survey in 2017 on</p>

ted groups in startups and SMEs:

rates of minority entrepreneurs in the United States. They found that just over 40% of new businesses are started by minorities. The more detailed picture shows that 24% of new entrepreneurs were Hispanic, 9% were blacks and 7.5% Asians. Similar research conducted in the late 1990s found that only 22% of new businesses were created by minority entrepreneurs (Donelson 2017). This trend is corroborated by data from the 2002 and 2012 national census, there was marked growth in the total number of minority-owned firms, with 3.9 million as of 2002 growing to 8 million by 2012 (Garcia 2017).

Yet, the National Centre for Education Statistics data for 2014-15 (the most recent data available) paint a picture of STEM undergraduate degrees being a predominantly white male activity. 64.5% of STEM graduates are white, with minority groups obtaining the remaining third as follows: black (9.2%), Hispanic (11.6%), Asian/Pacific Islander (11.3%) and American Indian/Alaska Native (0.6%) (NCES 2016). In terms of gender distribution of undergraduate STEM degrees, in 2014-15 436,674 were conferred on men, with women obtaining 198,999 STEM degrees. Though women account for almost 60% of undergraduate degrees awarded, they receive a third of the STEM degrees (Munoz-Boudet, 2017). Within STEM, women obtain approximately 40% of the mathematics degrees but only 18% of those in computer science or engineering.

Growth in the rate of minorities enrolling in science and engineering is faster than the overall rate (of 35%) between 2002 and 2012. Gonzalez and Kuenzi (2012) revealed that Hispanic/Latino enrolment increased by 65%, American Indian/Alaska Native enrolment increased by 55% and African American enrolment increased by 50%.

Demographic context of the business environment:

The issue of the lack of women and minority representation in science, entrepreneurship and venture capital has gleaned increasing public awareness in the 21st century. The 2017 film 'Hidden Figures', about three black women working at NASA, sparked renewed discourse on women in science, technology, engineering and management (STEM).

The film prompted the U.S. State Department to launch a new initiative, called #HiddenNoMore, which invites '50 women from 50 different countries to participate in a cultural and educational exchange aimed at cultivating the efforts and achievements of women in the science, technology, engineering, and math fields' (White, 2017). The efforts – linked to the popular success of the movie – also come on the heels of a 2009 study by the National Science Foundation on the underrepresentation of women of colour in STEM education and employment. The study found that black, Hispanic, American Indian/Alaska Native women are underrepresented – relative to their proportion of the population more generally – while Asian women are not (Burrelli 2009).

In 2011, the National Academy of Sciences published a book on Expanding Underrepresented Minority Participation: America's Science and Technology Talent at the Crossroads, in which policy suggested included 'increased financial support for minority undergraduate STEM students, improved teacher preparation, more and better advanced courses and academic advising for minority K-12 students, improved transition to graduate school for minority undergraduates in STEM fields, and increased availability of research assistantships for minority graduates students in STEM' (Gonzalez and Kuenzi, 2012: 25).

In a 2015 dataset collated by Social + Capital, women only made up 8% of senior investment teams at venture capital firms in the U.S. (Cutler 2015). While the proportion of women in leadership positions in venture capital remains low, according to a

	<p>PitchBook study published in March 2018, since 2006 there has been a rise in the number of VC investments into startups with at least one female founder, from 8.7% up to 20.5% in 2017.</p> <p>In terms of boardroom representation, 14.2% of board seats were held by women at the time of conducting this Global Review (Deloitte 2017).</p>
Patent application figures:	<p>USPTO data is not available by ethnicity. The USPTO instead highlights invention patents filed on a narrative basis through ‘Minority Inventors: America’s Tapestry of Innovation,’ which is available from the agency’s Office of Public Affairs (703/305-8341).</p> <p>According to research by the Institute for Women’s Policy Research, of all U.S. patents filed between 1977 and 2010, only 17.5% had at least one women named as an inventor (though not necessarily the primary inventor) (Milli et al. 2010). When woman file as primary inventors it is overwhelmingly in non-technical activities, with the share of women as primary inventors in Travel Goods and Personal Belongings (26.9%), Jewellery, Symbolic Insignia, and Ornaments (26.7%), and Apparel (25.3%). The most science-focused of the top ten categories for woman’s primary inventor patent grants are Chemistry: Natural Resins or Derivatives (21.9%) and Drug, Bio-Affecting and Body Treating Compositions (15.8%). The report goes on to say that while this share is small, it does represent a five times increase of the share (3.4%) in 1977.</p>
Strategies for promoting inclusive innovation:	<p>The Small Business Administration (SBA), the National Science Foundation, the National Diversity Council and the State Department – Bureau of Culture Affairs are the central bodies responsible for coordinating the multitude of programmes and initiatives aimed at supporting diversity in innovation activities and regional innovation. Within the SBA, the Minority Business Development Administration is leading on programmes and initiatives aiming to increase participation by minority groups.</p>
Policies, programmes and measurement	
Policy measures to promote diversity and inclusion in innovative firms:	<p>Initiative 1: Inclusive Innovation Initiative, called ‘I3’</p> <ul style="list-style-type: none"> ▪ Agency/department responsible: Minority Business Development Agency ▪ Year launched: 2014 ▪ Budget: Funding from Federal Laboratory Consortium and the National Institute of Standards and Technology; currently annual budget is \$600,000. ▪ Description: As part of Startup America initiative, the Inclusive Innovation Initiative (I³) was created to facilitate technology transfer from federal research to minority-owned businesses. Hosts at least five regional events each year to help network minority-owned businesses with federal laboratories, scientists and ideas. This is the MBDA’s flagship initiative for supporting inclusive innovation. ▪ Metrics: At launch, metrics include the number of events held and their attendees. As the programme develops (now only in its second year) that metrics will shift from ‘input’ to ‘output’. ▪ Website: YouTube video to promote the Initiative: https://www.youtube.com/watch?v=mXLljeIF_HA. <p>Initiative 2: Women’s Business Centers</p> <ul style="list-style-type: none"> ▪ Agency/department responsible: Women’s Business Ownership ▪ Year launched: N/A ▪ Budget: Not publicly disclosed. ▪ Description: Both Women’s Business Ownership and Minority Enterprise Development Programme representatives sit within the SBA district offices across

the country. The Women's Business Centers (WBCs) represent a national network of over 100 educational centers throughout the United States and its territories.

- **Metrics:** Number of women receiving coaching and training and quality of services provided.
- **Website:** <https://www.sba.gov/tools/local-assistance/wbc>

Initiative 3: InnovateHER

- **Agency/department responsible:** U.S. Small Business Administration
- **Year launched:** 2015
- **Budget:** \$70,000 in prize money
- **Description:** Innovating for Women Business Challenge and Summit, including a nationwide women's business competition to highlight innovative products and services that help impact and empower the lives of women and their families.
- **Website:** <https://www.sba.gov/about-sba/sba-newsroom/press-releases-media-advisories/sba-names-2017-finalists-innovateher-business-challenge-innovations-empower-womens-lives>

Initiative 4: Emerging Leaders Initiative

- **Agency:** Small Business Administration
- **Year launched:** 2008
- **Budget:** Not publicly disclosed.
- **Description:** The Emerging Leaders Initiative has trained more than 4,000 small business owners in underserved communities since its inception in 2008.
- **Metrics:** Emerging Leaders graduates reported that nearly 70% achieved revenue growth and over 80% created new jobs or retained all existing jobs. Graduates also secured federal, state, local and tribal contract awards of over \$700 million. SBA's Emerging Leaders graduated 775 small business owners in 2016, representing the largest graduating class.
- **Website:** <https://www.sba.gov/about-sba/sba-initiatives/sba-emerging-leaders-initiative>

Initiative 5: Regional Innovation Strategies (RIS)

- **Agency/department responsible:** U.S. Department of Commerce Economic Development Administration (EDA)'s Office of Innovation and Entrepreneurship (OIE)
- **Year launched:** 1980 but then repurposed in 2015
- **Budget:** \$17 million in Federal funding distributed through maximum grant amounts – as of 2017 programme – of \$500K for i6 Challenge and \$300K for Seed
- **Description:** Launched in an effort to address regional disparities in innovation-centric entrepreneurial activity, RIS provides grants to state and local governments, non-profits, universities, and other organisations to help build capacity for entrepreneurs seeking to turn ideas into job creating companies. The RIS has a national headquarters and then regional offices.
- **Metrics:** goals of geographic balance in distribution of programme funds, project types, organisational type, and the overall portfolio of awards

Initiative 6: Minority Business Development Agency (MBDA)'s partnership with PowerMoves USA

- **Agency/department responsible:** U.S. Department of Commerce MBDA

	<ul style="list-style-type: none"> ▪ Year launched: 2014 (and ended by 2017) ▪ Budget: varies across different accelerator programmes ▪ Description: The MBDA partnered with Power Moves for a series of awareness raising events and competitions. As of April 2018 the partnership is no longer active, though PowerMoves does still operate as a private initiative, organising regional competitions. ▪ Metrics: 1,000 jobs created, \$200 M+ capital raised, 200 companies and 26 major cities ▪ Website: http://www.powermovesusa.org/
Short-term initiatives:	<p><u>Practical training</u></p> <ul style="list-style-type: none"> ▪ The MBDA Business Center Network hosts a series of signature events and educational programming alongside federal technology transfer experts to ensure that more discoveries are transferred out of the laboratories by engaging underrepresented populations. ▪ Women Business Centers offer practical advice and training. <p><u>Awareness campaigns</u></p> <ul style="list-style-type: none"> ▪ #HiddenNoMore: launched in 2017 to promote STEM studies and professions amongst women; the first iteration of the initiative brought 48 women from 48 countries around the world to the U.S. to discuss STEM for 3 weeks. The campaign is managed by the State Department Bureau of Cultural Affairs. ▪ #AllRaise: launched in April 2018 by prominent female Silicon Valley venture capitalists with the aim of doubling the% of female investing partners in VC from 9% to 18% by 2028 (Crunchbase 2018). ▪ The National Diversity Council operates a magazine, called 'Tech Diversity Magazine' to raise awareness. It also actively runs the Twitter account, @TechDiversity26, and uses the #TechDiversity hashtag. ▪ Global Accessibility Awareness Day (#GAAD) to promote technology for people with disabilities <p><u>Surveys</u></p> <ul style="list-style-type: none"> ▪ Deloitte's 2017 Human Capital Report is based upon a survey of 10,447 business and human resource leaders globally on issues including diversity and inclusion. 66% of survey respondents in the U.S. said that 'diversity and inclusion' was either important or very important, in comparison with 74% in the UK, 65% in The Netherlands, 61% in Germany and 59% in France. ▪ Business Research and Development and Innovation Survey 2013 conducted by the National Science Foundation's National Center for Science and Engineering Statistics; data on regional disparities in R&D activity
Evaluation and monitoring methods:	<p>Key performance indicators (KPIs) vary across programmes, but include items such as number of events held, number of participants in training activities and visiting centers and events, contract value, jobs created, grants distributed (to particular groups by gender, ethnicity or geographic dimensions).</p>
Other information:	<p>List of Science and Technology Policy Specialists across the U.S. Congressional Research Service (CRS) group: https://www.ipmall.info/sites/default/files/hosted_resources/crs/R42688_141014.pdf</p>

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