

A note on international comparisons of R&D Tax Credit programmes, the inclusion of the humanities and social sciences, and the policy implications

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Abstract

The Organisation for Economic Cooperation and Development's (OECD) Frascati Manual is the internationally accepted methodology for collecting and reporting data on R&D. This study interviewed countries in the OECD that do – and those that do not – permit Social Sciences and Humanities (SSH) R&D expenditure within their R&D tax credit programmes. It finds that how countries choose to adopt the Frascati Manual's definition of R&D is a policy choice led by its domestic technical, financial, and political objectives. The UK, like many OECD countries, claims to use the Frascati Manual to define R&D within its R&D tax credit programme, but despite these claims, it excludes SSH R&D from its definition of R&D. By excluding AHSS R&D from its R&D definition for the purpose of tax relief, the UK government risks ignoring the full value of R&D in the UK economy and risks missing out on incentivising investment in AHSS-related innovation. To the best of our knowledge, this is the first comparative study of R&D definitions for tax relief.

Keywords

R&D, business, arts, humanities, social sciences.

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1. Introduction

Why this research matters

Despite much discussion and debate, Research and Development (R&D) is still typically considered as the domain of hard science and technology (S&T). This means that the contribution of the arts, humanities and social sciences (AHSS) to innovation and economic growth can be marginalised and ignored.

In our recent article for the British Academy, ‘Understanding R&D in the Arts, Humanities and Social Sciences’, we argued that policymakers needed to revise their understanding of R&D to recognise the importance of arts, humanities, and social sciences (AHSS) R&D.¹ The UK, like other members of the Organisation for Economic Cooperation and Development (OECD), claims to use the OECD’s Frascati Manual – the internationally accepted methodology for collecting and reporting data on R&D. But despite claiming to use the Frascati Manual, the UK excludes AHSS R&D from its tax credit programme. We found that industry and policymakers were often unaware that the Frascati Manual formally recognises AHSS R&D. By not embracing the Frascati Manual’s recognition of AHSS R&D, the UK government risks ignoring the full value of R&D in the UK economy and missing out on incentivising investment in AHSS-related innovation.

Arts, Humanities and Social Sciences (AHSS) or Social Science and Humanities (SSH)?

In our previous research we analysed R&D in the Arts, Humanities and Social Sciences (AHSS). In this article, we refer to R&D in the Social Sciences and Humanities (SSH).² This reflects the fact that the OECD reference we ground our work on – the *OECD Compendium of Information on R&D Tax Incentives*³ – asks countries to report on whether they include SSH, not AHSS, within the scope of their tax reliefs. This is despite the fact that the OECD’s own classification of fields of Research & Development (FORD) groups the Arts and Humanities together.⁴ From our interviews it is clear that the Arts are often seen as a core part of SSH R&D. For example, in Austria, a tax official said, ‘The Arts are included in the R&D Tax Credit, as long as it meets the Frascati definition.’ Several of the examples of R&D offered by the Norwegian interviewees were drawn from the Arts.

Although the UK R&D tax credit programme excludes SSH R&D, this is not the case elsewhere across the world. In fact, there are 15 members of the OECD which report to the OECD that they recognise Social Science and Humanities R&D activities in their tax relief. In 2020, the following OECD countries report permitting SSH R&D within their R&D tax credit programme:⁵

Austria	Denmark	Italy	Portugal
Belgium	France	Korea	Russia
Chile	Germany	Mexico	Spain
Colombia	Hungary	Norway	

¹ Bakhshi *et al.* (2021).

² Bakhshi *et al.* (2021).

³ OECD (2020).

⁴ OECD (2015: Table 2.2, p. 59).

⁵ OECD (2020).

This article presents our findings from interviewing two countries drawn from this list (Austria and Norway) and two countries which do not recognise SSH R&D (Australia and the United States of America) to identify the benefits, impacts and lessons for the UK's R&D tax credit.

Scope of the study

This study aimed to analyse a sample of R&D tax credit programmes in the OECD which report to the OECD that they permit SSH, and compare these with countries which do not permit SSH R&D, to enable comparison between the schemes, to understand policy choices and decisions, and to identify the lessons, potential benefits, and recommendations for the UK.

We analysed how countries define SSH R&D, the key features of their R&D tax credit programmes, examples of SSH activities included, and for countries that do not permit SSH R&D, we sought to understand the rationale behind their policy choice. In the country case studies, we do not refer explicitly to the Arts, reflecting the fact that our main source of data for the international reporting of the main features of national R&D tax relief regimes, the OECD's Compendium of Information on R&D Tax Incentives, refers only to the Humanities and Social Sciences.⁶ This is despite the fact that the OECD's own Fields of Research and Development classification of R&D fields (FORD) groups Arts R&D together with the Humanities, with the 'Humanities and the arts' being one of six broad R&D field classifications, containing within it five specific R&D fields (History and archaeology; Languages and literature; Philosophy, ethics and religion; Arts (arts, history of arts, performing arts, music), and Other humanities).⁷

We had intended to interview five countries which permitted SSH (Austria, Belgium, France, Germany and France) and three which did not (Australia, Ireland and the United States of America). In the event, we faced huge obstacles in securing interviews, despite approaches on our behalf from the S&T Indicators Unit within the OECD's Science and Technology Policy Division at the OECD and the UK Delegation at the OECD. We also approached a major accounting firm's national R&D tax experts to request their help in facilitating access to interviewees with policymakers in countries that permit SSH R&D, but without success. No doubt the timing of the Covid-19 pandemic was a contributing factor for some countries, and this was mentioned explicitly in the case of Ireland. As a result of these challenges, we were able to interview tax officials from only four countries: Austria and Norway (which do recognise HSS R&D), and Australia and the United States of America (which do not).

We are unsure why it was difficult to secure interviews with other countries. We contacted at least two tax officials in each sample country, and tried to use our wider networks to facilitate access, but our requests for interviews often went unanswered. It is unclear why there was a lack of engagement, but it could be because officials are too busy to participate in research, there could be a sensitivity to divulge insights into their country's tax policy, or it could be because of other factors.

<i>Permits SSH R&D within the R&D Tax Credit</i>	<i>Excludes SSH R&D from the R&D Tax Credit</i>
Austria	Australia
Norway	United States

⁶ OECD (2020).

⁷ OECD (2015: Table 2.2, p. 59).

Evidently the small sample of countries we could interview placed limitations on what we could draw out on lessons and recommendations for UK policy. As we discuss in our conclusion, further research is needed to develop the evidence base.

Methodology

We used both qualitative interviews and desk research to understand the four R&D tax credit programmes. In total, we conducted telephone interviews with nine officials from these countries, who had responsibility for and/or in-depth expertise about the country's R&D tax credit programme. To supplement our understanding of the different R&D tax credit programmes, we analysed available policy documents. Access to interviewees was facilitated by the OECD's S&T Indicators Unit and the UK Delegation to the OECD in the Foreign, Commonwealth & Development Office, and we are indebted for their efforts in helping identify the appropriate officials.

Summary of key findings

To the best of our knowledge, this is the first comparative study of R&D definitions for tax relief. Notwithstanding the disappointingly small number of interviews, the experience of the four countries generated some interesting findings. The main ones are:

- SSH R&D is genuinely included and valued within Austria and Norway's R&D tax credit programmes.
- SSH R&D makes up only a relatively small part of all R&D tax relief claimed and is dwarfed in scale by Science & Technology R&D.
- Despite most countries stating they use the Frascati Manual's definition of R&D, in reality, countries use parts or elements. It is more accurate to characterise them as using the Manual as inspiration, a guide or an 'anchor' in their R&D tax credit programmes.
- Even in Australia and the United States of America, where SSH R&D is explicitly excluded from the R&D Tax Credit guidelines, in practice some SSH R&D expenditures are included. This raises the possibility that SSH R&D may be more commonly included within R&D tax credits than might be thought based on headline definitions alone.
- R&D tax credits and the definitions they use and the activities they permit have evolved and changed over time.
- We uncovered no evidence in the four countries of knowledge externalities or other market failures specifically from HSS R&D. This is because HSS R&D is not in general identified in business R&D surveys or in data on R&D tax relief. A priority for future data collection should be to collect R&D data by knowledge type.

The next section of this article briefly introduces the Frascati Manual, discusses its definition of R&D, and outlines how different OECD countries report to include or exclude SSH R&D within their R&D tax credit programmes. Section 3 provides case studies on each of our sample R&D tax credit programmes, and the article concludes with reflections on the case studies and the implications for UK tax policy.

2. Overview of R&D tax credits and the Frascati Manual

This section introduces the Frascati Manual, discusses its definition of R&D, and outlines how different OECD countries choose to include or exclude SSH R&D within their R&D tax credit programme.

The Frascati Manual's definition of R&D

The OECD's Frascati Manual is the internationally recognised methodology for defining and measuring R&D. Now in its seventh edition, the Manual is used by policymakers, statisticians, academics, and others, to help define R&D, and the classifications for compiling statistics.⁸ The latest edition of the Frascati Manual defines Research and Experimental Development at its most general as: *'Research and experimental development (R&D) comprise creative and systematic work undertaken in order to increase the stock of knowledge – including knowledge of humankind, culture and society – and to devise new applications of available knowledge.'*

As previous research has noted, over time in successive revisions, the Frascati Manual has evolved to include the role of AHSS R&D. In contrast with previous editions, the most recent Frascati Manual (OECD 2015: 44) acknowledges explicitly the importance of AHSS R&D, stating:

*R&D is found in the social sciences, humanities and the arts as well as in the natural sciences and engineering. This manual gives greater emphasis than past editions to the social sciences, humanities and the arts. This requires no changes in the definitions and conventions but it does require greater attention to the boundaries that define what is and what is not R&D.'*⁹

The UK's use of the Frascati Manual definition of R&D

It is commonly claimed that UK policymakers use the Frascati Manual definition of R&D. For example, the Office for National Statistics (ONS) compiles statistics according to the internationally agreed standards defined in the Frascati Manual.¹⁰ In the UK, R&D is defined in section 1138 of the Corporation Tax Act 2010 as 'activities that fall to be treated as research and development in accordance with generally accepted accounting practice'.¹¹ However, this legislation is subject to any regulations made by Her Majesty's Treasury (HMT), and any detailed guidance provided by the Department for Business, Energy and Industrial Strategy (BEIS). BEIS specifically excludes all AHSS from its definition of R&D: *'Science is the systematic study of the nature and behaviour of the physical and material universe. Work in the arts, humanities and social sciences, including economics, is not science for the purpose of these Guidelines.'*¹² This shows that there is a disconnect between how the Frascati Manual defines R&D, and the definition used by the UK government.

⁸ OECD (2015).

⁹ Bakhshi & Lomas (2017) propose revisions to the constituent definitions of Basic Research, Applied Research and Experimental Development underpinning the Frascati Manual's general definition so that it is more fit for purpose for the arts, humanities and social sciences.

¹⁰ Office of National Statistics (2020).

¹¹ HM Government (2010).

¹² BEIS (2010).

However – as in other OECD countries – it is down to the UK how it adopts the definition for policy purposes. This means that the UK does not use the Frascati Manual definition in its entirety.

Although the Frascati Manual is the main reference point for defining R&D internationally, what is defined as R&D varies in countries and in their tax incentives across the world. As of 2020, 15 countries in the OECD report to permitting SSH R&D activities:¹³

Austria	Denmark	Italy	Portugal
Belgium	France	Korea	Russia
Chile	Germany	Mexico	Spain
Colombia	Hungary	Norway	

The next section discusses how SSH is permissible as R&D expenditure or not, and the consequences arising from this in the four countries for whom we were able to secure interviews with officials.

3. Case studies on the inclusion of SSH R&D in R&D tax credit programmes

Summary of the case studies

<i>Country</i>	<i>Name of R&D Tax Credit programme</i>	<i>Formally permits SSH R&D</i>	<i>Percentage of funded applications that include SSH R&D (as number of applications per annum)</i>
Australia	R&D Tax Incentive	No	Unknown / no data available.
Austria	Research Premium	Yes	2–5% of all applications.
Norway	SkatteFUNN scheme	Yes	2–5% of all applications.
United States	Federal Research and Experimentation Tax Credit	No	No data available.

Australia – R&D Tax Incentive

The tax officials in Australia were keen to discuss the programme and share their insights, making this a longer case study than the others in this section. The current R&D Tax Incentive was introduced in 2011, replacing an earlier R&D tax credit (the R&D Tax Concession), which was launched in 1985. The programme aims to support more R&D than would have happened in the absence of the programme. The Australian officials said that the rationale for the tax credit is to encourage companies to invest in additional R&D in order to alleviate underinvestment as a result of not being able to fully capture benefits from R&D, which spill over to others in the economy, or difficulties in obtaining finance due to uncertainties around the likely success of their R&D projects.

The programme provides R&D tax support to both small and large companies. The tax offset for smaller companies (aggregated turnover of less than \$20 million AUD) is refundable – that is, where the tax offset exceeds tax liabilities in an income year, the remainder can be taken as a cash refund. Larger companies (aggregated turnover of \$20 million AUD or more) receive a non-

¹³ OECD (2020).

refundable tax offset – that is, where the tax offset exceeds tax liabilities in an income year, the remainder can only be offset against future tax liabilities.

There have been some changes to the programme since 2011. Originally, the tax offset was set at 45% for smaller companies, and 40% for larger companies. The offsets were reduced to 43.5% and 38.5%, respectively, from 1 July 2016. From 1 July 2021, the tax offset for eligible R&D conducted is based on a premium on top of the corporate tax rate. For R&D entities with aggregated turnover of less than \$20 million, the refundable R&D tax offset is the corporate tax rate (25%) plus an 18.5% premium. For R&D entities with aggregated turnover of \$20 million or more, the non-refundable R&D tax offset is the corporate tax rate (25% or 30%)¹⁴ plus an incremental premium based on R&D intensity. This premium is 8.5% for R&D expenditure between 0% and 2% R&D intensity and 16.5% for R&D expenditure above 2% R&D intensity. R&D intensity is the percentage of eligible R&D expenditure as a proportion of total expenditure for the year. According to the latest Science, Research and Innovation Budget Tables, the programme delivers, on average, around \$2.5 billion a year (AUS\$) in forgone taxes (non-refundable tax offset) and expenditure (refundable tax offset).

The definition of R&D is based on that in the Frascati Manual. To avoid multiple claims for the same R&D, determining who can claim a tax offset on expenditure on defined R&D activities done by or on behalf of a company, is worked out by weighing up three key criteria, namely who:

- ‘effectively owns’ the know-how, intellectual property or other similar results arising from the R&D entity’s expenditure on the R&D activities;
- has appropriate control over the conduct of the R&D activities; and
- bears the financial burden of carrying out the R&D activities.

Social Science and Humanities (SSH) R&D is not generally permitted. Nor is Arts R&D. The definition of eligible R&D activities explicitly says that ‘core R&D activities’ cannot be research in the arts, humanities and social sciences.¹⁵

The omission of SSH R&D as a core R&D activity has not been raised by businesses as an issue. Despite SSH R&D not qualifying as ‘core’ R&D activities as part of the R&D Tax Incentive, however, it can be registered as ‘supporting’ R&D activities if certain requirements are met. More generally, there is a list of activities that are excluded, and that cannot be claimed as core R&D activities, but that can in principle be claimed as supporting activities if the company conducts them for the dominant purpose of supporting a core R&D activity. One hypothetical example is a company developing a new software application which integrates a sensor to detect brain function with a programme to help people learn languages. If the activities the company conducts to develop the new software and brain sensor are core R&D activities, and the company also does research into learning capabilities and the ability of people to learn languages (which is excluded as a core R&D activity), that research may possibly qualify as a supporting R&D activity. Applicants would need to establish a direct relationship to the core R&D activity and that the main reason they did that research (regarding how humans learn languages) was to support the core R&D activity. For example, to inform the development of the software code and/or the sensor hardware.

¹⁴The corporate tax rate for companies with an aggregated turnover of under \$50m is 25%. The corporate tax rate for companies with an aggregated turnover of over \$50m is 30%.

¹⁵See Income Tax Assessment Act 1997 (ITAA), Sections 355-25 and 355-30.

As noted earlier, the R&D Tax Incentive has not remained fixed over time. For example, successive changes in legal interpretations of various terms have meant that changes have been needed to the scheme to ensure they remain as true to the concepts of Frascati as possible, while remaining effective and sustainable.

The definition of R&D has also evolved over time. The previous R&D Tax Concession defined R&D as ‘Systematic, Investigative and Experimental (SIE) activities with innovation or high levels of technical risk’. There was no dominant purpose requirement for some supporting activities. Under this broad definition, it was possible for applicants to make claims for activities which encompassed the whole of a project. For example, an R&D project could have occurred in a mine, and then a company might have claimed expenditure associated with non-R&D activities by positioning them as supporting activities, such as the construction of a road into the mine. An initial attempt to narrow the definition of eligible R&D activities while developing the R&D Tax Incentive involved changing the definition to innovation and high levels of technical risk. Stakeholders opposed this change and demonstrated examples and magnitude of R&D that would be excluded under such a change. Ultimately, the definition was changed to the current definition, requiring that the outcome of activities cannot be known or determined in advance, determined by a systematic progression of work involving a hypothesis tested by a scientific method, observation and conclusion for the purpose of generating new knowledge. While stakeholders also opposed this change, they were not able to support their objections with evidence.

The 2016 Review of the R&D Tax Incentive found that the programme did not fully meet its stated objectives of inducing additional R&D and encouraging positive knowledge spillovers.¹⁶ As part of the 2016 Review, changing the definition of R&D activities was considered. Ultimately, the Review panel formed the view that it was too soon after the programme’s introduction in 2011 to change the definition. The Review panel also concluded that ‘the definition of eligible R&D broadly aligns with the OECD Frascati Manual, which is regarded internationally as setting the benchmark for identifying R&D activities.’

In May 2018, the Australian Government announced reforms to the R&D Tax Incentive in response to the 2016 Review. With the impact of Covid-19, enhanced reforms were subsequently announced in October 2020 to commence 1 July 2021. The delays in implementing the reforms meant that businesses were not certain what the programme would look like over the longer term. While this might have contributed to a small decline in research and development intensity, this decline mainly reflects structural shifts in the economy away from R&D intensive industries, particularly Australia’s mining sector as it moved from a development to a production phase. The extent to which uncertainty in the programme might have contributed to the decline is not clear.

The officials we interviewed could point to no existing evidence on the extent of knowledge externalities in R&D in Australia. However, a major study using tax data was underway. The emerging findings strongly support the existence of knowledge spillovers from private business R&D, comparable in size to what is found in other countries, but that there are large sectoral variations as per the ISIC (International Standard Industrial Classification) classifications. Interestingly, the ISIC code that corresponds to the arts and recreation service sector is estimated to have relatively high levels of knowledge spillovers from its R&D, but it is suspected that most of that reflects IT-related R&D.

¹⁶Australian Government (2016).

The research is also analysing how the extent of knowledge spillovers varies by field of research. This is possible because applicants for the R&D Tax Incentive are required to assign the principal field of research to the R&D activity they are claiming against. The field of research for ‘social sciences’ in their study aggregates arts, humanities and social science fields economics, commerce, psychology, law, creative arts, language, history and philosophy, education. The emerging findings suggest there is a positive knowledge for this aggregate field of research, not too different in size from the other seven field of research categories considered.

Further details:

- Australian Government R&D Tax Incentive: <https://business.gov.au/grants-and-programs/research-and-development-tax-incentive>
- Australian Government (2016) 2016 Review of the R&D Tax Incentive: <https://www.industry.gov.au/data-and-publications/2016-review-of-the-rd-tax-incentive>
- Alpha & Beta (2020) Australian Business Investment in Innovation: levels, trends, and drivers. DOI:<https://www.industry.gov.au/sites/default/files/2020-02/australian-business-investment-in-innovation-levels-trends-and-drivers.pdf>

Austria – Research Premium

The Research Premium is the Austrian R&D tax credit programme and is managed by the Austrian Research Promotion Agency (Österreichische Forschungsförderung GmbH). The credit is available to all companies of all sizes. Companies can claim no more than 14% of the total cost of their R&D activities. This includes the cost of employees, investments, and all other costs pertaining to R&D.

The Research Premium uses the Frascati Manual to define R&D, and it permits SSH R&D expenditure and activities. The inclusion of SSH R&D was not a strategic or conscious decision; rather, all R&D activities are in scope, as long as they fit the five evaluation criteria (novel, creative, uncertain, systematic and transferable &/or reproducible) set out in the Frascati Manual.

Once the Frascati Manual has been used to assess the eligibility of applications, the next step is an exploration of the aims, what has been achieved before. The Research Premium team looks at the state of knowledge, and if it is extended, and whether it is new to the company, or whether it is new to the market. If there is any uncertainty about whether an application is for genuine R&D, the team look at the examples given in the Frascati Manual, and if needed, they will discuss with wider R&D experts to come up with a solution.¹⁷

Out of all applications received each year, approximately between 2 to 5% of these are for SSH R&D, and this represents less than 1% of total funding relief applied for. SSH R&D receives funding of approximately 900 million Euros each year. There is no data available to show how SSH R&D applications vary by size or type of company and how this compared with non-SSH R&D.

From our interviews, it is not clear why the applications for SSH R&D are in aggregate as small as this. It may conceivably be that the 14% cap on expenditure may be too low for applicants who exhaust tax relief claimed on their S&T R&D, or it may be because companies in Austria are able to satisfy their HSS funding needs from other sources, such as innovation programmes or direct funding specifically targeted at supporting SSH R&D. However, it was not in the scope of this research to explore these alternative sources of R&D funding.

¹⁷Bakhshi *et al.* (2021).

The officials were not able to share examples of SSH R&D from the Research Premium. Illustrative examples provide by officials include market research, education research, or behavioural change R&D to change management processes. And no evidence is available which shows that the R&D supported through tax relief (HSS or otherwise) drives positive externalities.

Further details:

- Österreichische Forschungsförderungs: <https://www.ffg.at/>

Norway – SkatteFUNN scheme

The SkatteFUNN scheme is a government programme to stimulate R&D. It is managed by the Research Council of Norway I and the tax authorities. The Research Council of Norway evaluates every application received and the tax authority pays for the support. It costs the Norwegian government 4 billion NOK (approximately £339 million) per annum.

All branches of industry and all types of companies can apply. To be eligible, the project must seek to develop a new or improved product, service, or production process, through a dedicated R&D project. And the project must develop skills, capabilities and knowledge that are new both in the company and in the wider industry. Projects can last for up to 4 years. Although larger companies can apply, it is typically smaller companies which use the tax incentive, with 50 percent of companies having fewer than 10 employees, and 82 per cent of companies having under 50 employees, and only 5% having over 250 employees.

The cap of project costs per company is 25 million NOK (approximately £2.1 million), and companies receive up to 19 per cent of project costs. Companies can have multiple applications approved, but the total cost for all projects for one company per year, is 25 million NOK.

SkatteFUNN receives between 4,000 to 4,500 applications per year and approves roughly two-thirds of them. In 2020, there were 6,311 projects from 4,673 companies. The average support awarded is just under 1 million NOK (approximately £85,000).

The Norwegians use the Frascati Manual within their R&D tax credit programme ‘as a guide’, but the State Aid definition of R&D takes precedent. The Framework for State Aid, point 75 states: ‘... When classifying different activities according to the relevant category, the Authority will refer to its own practice as well as to the specific examples and explanations provided in the OECD Frascati Manual.’

The R&D Tax Credit does permit SSH expenditure, but with a number of limitations. The guidelines exclude artistic, music, or literacy and film activity. These exemptions have been in place since the fund was created in 2002. At that time, the fund had an explicit technological focus.

Each year some applications are unsuccessful reflecting the limitations above. However, there is a good deal of flexibility baked into assessment of applications against these limitations. In practice this means that if the application is for a commercial product or service and it genuinely requires R&D, it can be supported, despite it being seemingly on the list of projects not supported.

The concomitant of this flexibility is that what is permitted can sometimes cause confusion, as it can be hard to make the distinction between an R&D project within culture, art and media, and a project with a purely artistic goal which will not be covered by SkatteFUNN.

In 2018, SkatteFUNN was evaluated and it was deemed to be working broadly as intended: SkatteFUNN enables investment in R&D for recipients of tax relief, and thereby increases

innovation and productivity. There was some recognition that the scheme could be misused, which had resulted in some minor corrective changes. Those changes are in the documentation requirements for people working on the project, and now, for example, only research can be procured from companies in other countries who have a tax exchange agreement with Norway. In addition, the tax authorities have increased their inspection activity controls and sanctions to prevent and limit misuse.

It is not possible in SkatteFUNN to identify projects based on their SSH expenditure as claims are not classified or tagged in this way. Projects are categorised based on aims and industries, rather than research field. However, the officials suggested that there is a greater share of SSH R&D in media and cultural industries, and in tourism, agriculture, health, ICT, and other services. These projects are often interdisciplinary, and the projects are frequently about developing new services.

The average support for projects labelled as ‘Media and Culture’ (the industry where the officials assume most SSH projects are found) is very close to the average for the payments in total. SkatteFUNN thinks it is positive that all branches of industry have the same opportunities and that there is interdisciplinary collaboration between different types of research. It tries to support collaboration as much as possible.

The officials offered a diverse set of examples of SSH R&D, from within arts, music and literature, craft through to video games development, and new management methodologies using practices drawn from theatre. Specific examples included:

- Peer Gynt School. The 150-year-old Ibsen play will be analysed using modern technology. The result of the project will be a toolbox for use in schools, including an interactive 3D adventure game, which conveys Ibsen’s Peer Gynt and the dilemmas of the piece. The project will be aimed at pupils in upper secondary and secondary schools.
- Law and digital technology. This project will combine law and technology in a new way that enables each user to be their own lawyer to a greater extent. It will offer digital tools that give the user a better understanding of their own legal position, combined with tools that automate the process of preparing necessary documents/agreements.
- Health, music and digital technology. The brain’s perception of sound is directly connected to the subconscious. Therefore, with the strategic use of music therapy programmes, there can be a reduction in people’s anxiety, insecurity and other negative emotions. The goal is to make patients feel better and be distracted from their thoughts while waiting for consultation by creating a comfortable and stress-reducing atmosphere with music programmes designed with music therapy techniques and frameworks. Music therapy programmes will be developed for various health and wellness applications.
- Film and digital technology. This project will explore interactive film and cinematic virtual reality, and develop a new method for the production of interactive VR film with freedom of movement.

Evidence on knowledge spillovers from R&D projects such as these is not available: no evaluation has focused on this.

Further details:

- SkatteFUNN: <https://www.skattefunn.no/>

United States – Federal Research and Experimentation Tax Credit

The Federal Research and Experimentation Tax Credit is available to for-profit companies. Since the scheme was enacted in 1981, R&D fom SSH has been excluded. SSH R&D was initially excluded to prioritise S&T, and its continued exclusion is because it is considered easier to administer and measure S&T R&D.

The programme does not use the Frascati Manual’s definition of R&D. Within the scheme, permitted R&D needs to be exploratory and laboratory, and intended to eradicate uncertainty (which is common with Frascati). The definition of R&D for the tax credit is narrower than that used in the national accounts.

The exclusion of SSH has never been raised as an issue by business, or within government. Measurement has always been a big consideration for the Research and Experimentation Tax Credit: the fact that it is possible to define and physically see the outputs of S&T R&D makes it much easier for the Internal Revenue Service (IRS) to measure it and administer the tax relief.

Companies receiving the tax credit are usually in the manufacturing sector, but there is an emergence of digital technology companies, successfully claiming the tax credit. For example, an online streaming service that produces a lot of content and utilises tech behind its platform, could possibly generate R&D tax credits.

No breakdowns are available on R&D by fields of research, including SSH R&D.

Further details:

- Federal Research and Experimentation Tax Credit: <https://www.nsf.gov/statistics/2018/nsb20181/assets/1038/federal-research-and-experimentation-tax-credit.pdf>

4. Concluding comments

This research aimed to analyse OECD countries which do – and those which do not – permit SSH R&D expenditure within their R&D tax credit programme. We used qualitative interviews and desk research to understand four R&D tax credit programmes. Access to interviewees was facilitated by the OECD’s S&T Indicators Unit and the UK Delegation to the OECD in the Foreign, Commonwealth & Development Office, and we are indebted for their efforts in helping identify the appropriate officials. However, we encountered enormous challenges in securing interviews, and as a result, we only managed to develop four case studies: Australia, Austria, Norway, and the United States of America. These findings should be tested against further interviews if they can be secured. If interview research is problematic, alternative methods could be deployed, such as surveys or focus groups.

Notwithstanding the small sample size, we have found some interesting findings. Fundamentally, by not embracing the Frascati Manual’s recognition of AHSS R&D, the UK government risks ignoring the full value of R&D in the UK economy and missing out on incentivising investment in AHSS-related innovation.

SSH R&D is genuinely included and valued within Austria and Norway’s R&D tax credit programmes. Even in Australia and the United States of America, where SSH R&D is explicitly excluded from the R&D tax credit guidelines, in practice some SSH R&D expenditures are included. In Australia, this takes the form of SSH R&D potentially qualifying as a ‘supporting

activity'. In the United States of America, there are digital technology companies, including streaming services, successfully claiming the tax credit. The implication is that SSH R&D may be more commonly included within R&D tax credits than might be thought based on headline definitions alone.

Across the four case study countries, there is a spectrum of views and attitudes towards SSH R&D and its perceived value. For Austria and Norway which do include SSH R&D, it is just 'standard R&D', inseparable from S&T R&D, and it is just 'R&D business as usual'. This 'inter-disciplinary' view of R&D echoes a key theme in interviews with services businesses in our previous work and is also emphasised in the Frascati Manual. At the other end of the spectrum, for Australia and the USA that do not include it, SSH R&D is viewed as hard to manage and potential compliance risk.

We have found that countries choose how to interpret and adopt the Frascati Manual's definition of R&D. Even those that say they use the full definition, in reality, these countries may use parts or elements. It is more accurate to characterise them as using the Manual as inspiration, a guide or an anchor in their R&D tax credit programmes, rather than envisaging that all countries apply it in the exact same way.

How a country chooses to define and apply the Frascati Manual's definition of R&D is led by its domestic technical, financial, and political considerations. In this way, the definition of R&D is a policy choice and is adapted to suit a country's political ideology, budget, social and cultural context, and objectives. Further work could usefully explore the drivers, and implications, of how the Frascati definition is adopted in different countries. We have found that R&D tax credits and the definitions they use and the activities they permit have evolved and changed over time. This means that there is nothing inevitable in the parameters within which R&D tax relief is fixed and also that there is a lot to learn from other countries' reviews and iterations.

Given the importance of R&D for the UK's innovation strategy, further efforts should be made to connect with tax authorities in other countries which permit AHSS R&D, to understand the impacts, and help inform the design of the UK's R&D tax credit programme. To advance the UK's understanding, formal representations could perhaps be made by HMT or HMRC to their counterparts across the OECD. We hope that we have demonstrated the considerable insight to be achieved from adding to the number of case studies in this paper, assuming that the interviews can be secured or other methods of engaging experts, such as via surveys or focus groups, can be implemented.

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