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Evaluating the effectiveness and impact of the 'HSE Spark' Innovation Programme: a qualitative study protocol

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ABSTRACT

Introduction According to the WHO, healthcare in Europe requires 'systemic change through innovation' if it is to respond to the demographic, epidemiological, environmental and technological challenges the region is facing. However, top-down methods of innovation in healthcare, driven by the macro levels of the system, have been struggling to impact the healthcare system at the scale that is required to drive meaningful and sustainable change. It has been widely acknowledged that frontline-led, employee-driven innovation will be the main driver to ensure that innovation in healthcare is human-centred and prioritises the needs of the patients.

This study protocol presents a research project designed to evaluate the experiences of frontline innovators supported by the Irish Health Service Executive's HSE Spark Innovation programme. The purpose of this research is threefold. First, the findings will further strengthen the provision of support for frontline healthcare professionals, ensuring that they can continue to address the challenges they experience in providing care. Second, the research will provide insight into the structures required to support frontline innovation within the public healthcare sector, forming a starting point for other public sector organisations interested in establishing their own support system for frontline innovation. Finally, it will highlight the impact supporting frontline clinicians to innovate has on service users, staff and the wider healthcare organisation.

Methods and analysis A qualitative research design, situated in a phenomenological framework, will be adopted for this research. 'Participants' in this study will include staff from the Irish public healthcare system who have obtained innovation support (either funding or human centred design support) from HSE Spark. The participants will be invited to share their experiences of the innovation support they received from HSE Spark, as well as their understanding of the impact of this support on their professional development, their service and the wider healthcare organisation. A stratified purposive sampling approach will be used to ensure the sample provides information-rich representations of individuals' experiences engaging innovation initiatives supported by HSE Spark. One-to-one, semistructured interviews will be conducted with participants. Transcripts from these interviews will be analysed through a thematic approach, using the data analysis software NVivo. Themes will be derived from the data and used to understand the healthcare professionals' experiences of engaging with innovation projects and with the support provided to them by HSE Spark. These themes will be used to identify the unspoken needs of innovators within healthcare, the support they need to continue innovating in this sector, and the impact supporting frontline innovation has on the service users, staff and the healthcare organisation.

We used the Standards for Reporting Qualitative Research (SRQR) reporting guideline to draft this manuscript, and the SRQR reporting checklist when editing.

Ethics and dissemination Ethics approval for this study has been obtained from HSE Regional Ethics Committee (No. 20251650-RDMLRREC) and Maynooth University Social Sciences Research Committee (Approval Number: SRESC-2025-40031). Dissemination of results will be via journal articles, conference presentations and proceedings. Study findings will be disseminated in peer-reviewed journals and through conference presentations. Lay summaries of the findings will also be

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ This study will provide insight into the processes for supporting frontline innovation in the public healthcare sector, and the value this innovation support provides for both individual innovators and the wider healthcare community.
⇒ A wide sample of innovation projects will be examined, including those who did not make it to pilot stage. This will allow for the challenges in frontline healthcare innovation to be accurately captured and suggestions for strengthening innovation supports to be made.
⇒ Findings from this research have the potential to impact support structures required for other public services seeking to develop supports for their frontline staff.
⇒ This research will be conducted by an organisation separate from Health Service Executive (HSE) Spark, the innovation programme under study, to ensure that frontline innovators have the opportunity to share their unbiased experience of the support they received.
⇒ HSE Spark is not the only entity within the Irish HSE that provides support for innovation. As such, we will not have access to all frontline innovators. Equally, innovators may have experiences (both positive and negative) of receiving innovation support elsewhere that influences their opinions on innovation.

prepared for distribution in internal Irish Health Service publications. Other dissemination activities include the preparation of a book of case studies and key findings on the challenges of integrating human-centred design into public services, to be presented to the Irish Department of Public Expenditure and Reform.

INTRODUCTION

Innovation has been described as a 'founding pillar of health system performance and continuous improvement'.[1] Palm and Persson Fischier[2] define it as 'the process of transforming and implementing new ideas into products, services or processes in order to achieve increased value for patients and citizens'. Thankur *et al*'s[3] definition of innovation is similar, seeing it as 'those changes that help healthcare practitioners focus on the patient by helping healthcare professionals work smarter, faster, better and more cost effectively.' According to the WHO,[4] healthcare in Europe requires 'systemic change through innovation' if it is to respond to the demographic, epidemiological, environmental and technological challenges the region is facing. For innovation to address these challenges, it requires management and structure, especially in an organisation with as many stakeholders, challenges and priorities as a national healthcare system.

There are many structures that can facilitate innovation. However, it has long been recognised that the people who work within the system are best placed to both recognise the challenges facing the system and potential solutions to address them.[5–7] Indeed, the then national medical director of the National Health Service in the United Kingdom has stated that: 'Many of the problems we suffer in the NHS are solvable if we use the intellectual capital of the 1.4 million people who work in the service' (cited in reference [8]). Within the healthcare system, Manfrini and Bäckström[9] have recognised that innovation can be driven by the staff within the different layers of the organisation: the macro (senior management), meso (middle management) and micro (frontline staff) levels of the organisation. Traditionally, innovation occurred from the top down, that is, was instigated by the macro layer and filtered down to the micro layer of the organisation. However, this approach to innovation has failed to lead to lasting and impactful change, as observed by the Department of Health.[8 10 11] There has been a distinct shift towards the decentralising of innovation,[8] that is, moving innovation away from the core decision makers and out to more frontline focused staff, leading to the concept of 'frontline innovation'.[12]

For frontline innovation to be sustainable, organisation of the process is required. Mu *et al*[5] have recognised that innovation in healthcare requires collaboration between frontline staff and top management, to ensure that the idea responds to the needs of the patients, but also that it can be implemented within the confines of the healthcare system. Indeed, Belrhiti[12] has explained the 'goldilocks' conundrum of organising frontline innovation: if it is too sporadic, it will not sustain, and if it is too low-level, it will not be possible to capture the benefits of this type of innovation for the whole organisation.

Innovation has been happening nationally and locally in healthcare in Ireland, driven by a wide range of stakeholders across the health and social care system. One such initiative is the HSE Spark Innovation Programme (hereafter referred to as HSE Spark). HSE Spark provides support to frontline healthcare professionals to engage in innovation which contributes to the sextuple aims of healthcare.[13] The programme was initially developed to support, promote and recognise innovation among junior doctors; and to empower them to innovate and improve public healthcare from inside the public healthcare system. In its early stages, HSE Spark provided a series of small initiatives, but it has since expanded its offering. By 2019, HSE Spark developed partnerships with the Office of the Nursing and Midwifery Services Director and the National Health and Social Care Professions Office, broadening their target frontline staff to include nurses, midwives, health and social care professionals. Since then, HSE Spark's reach has grown exponentially. In 2024 alone, HSE Spark recorded 2129 engagements with the various innovation initiatives they organise, including frontline-focused innovation support streams, networking and collaboration opportunities.[14] With an extensive network of innovators now associated with HSE Spark, the programme team have recognised the need to evaluate the experiences of the frontline healthcare staff who engage with the programme to understand the value it provides, to identify the unmet needs of these frontline innovators, and to use these insights to further strengthen the supports they provide.

The proposed research will provide insight into the value of an internally focused innovation programme within the public sector, for both the individuals who engage in it and the wider community. It will unpack the support structures which are necessary to support frontline innovation in healthcare. In addition, it will contribute to the gap in the literature, where the barriers to innovation in healthcare have been identified[15–17] but how they manifest at a deeper level is not investigated. This research will make an important contribution beyond conceptualising the challenges facing innovators; it will provide actionable insights for innovation programmes to further develop their programme and offerings to ensure that they continue to respond to the needs of frontline innovators. Ultimately, this research will help shape the future of innovation in Irish public healthcare. The Standards for Reporting Qualitative Research (SRQR) reporting guideline[18] and the SRQR reporting checklist[19] have been used in the development of this study protocol (online supplemental file 1).

AIMS AND OBJECTIVES

The overarching aim of this research is to gain insights into how internal innovation programmes can support frontline innovators in successfully navigating the innovation

process from end to end, while accurately capturing the value of the HSE Spark programme through the lens of the sextuple aim of healthcare. This will be achieved through a comprehensive case study of the HSE Spark Programme. The research objectives are as follows:

1. Comprehensively map and evaluate the experiences of frontline innovators who have engaged with HSE Spark.
2. Identify barriers and enablers for frontline healthcare innovation.
3. Identify the impact of the HSE Spark programme, including the value it brings to healthcare innovation.
4. Identify and share learnings for supporting innovation in the public sector.

The study objectives above directly informed the development of the semistructured topic guides for each participant group involved in this study. While the overarching objectives and thematic focus were consistent across groups, question emphasis was tailored to participants' roles and stage of engagement with the HSE Spark programme.

METHODS AND ANALYSIS

Design and setting

This research will be conducted by the authors Kessie, Ryan and Hyland, who are based in Maynooth University. The HSE Spark team, Howard, Heffernan and Gormley, will support in the recruitment of research participants for this research. Members of the Maynooth University team will conduct the data collection and analysis for this research. This will help to ensure that the evaluation of the value provided by HSE Spark is objective and unbiased.

In line with the Irish government's 'Action Plan for Designing Better Public Services',[20] the 'Double Diamond Design Framework for Innovation'[21] will be used as the foundational methodology for the design of this research. The first two stages of the Double Diamond (Discover and Define) will be followed for this research and are detailed below:

Stage 1: Discover: One-to-one, qualitative, semistructured interviews will be used to gather data from healthcare staff who have engaged in the initiatives supported by HSE Spark. A stratified purposive sampling approach will allow for the mapping of the opportunities and challenges experienced by healthcare staff who have engaged in the programme. Qualitative research will allow for a deeper understanding of the behaviours of the innovators, and importantly the reasoning that motivates these behaviours. These interviews will take place between July 2025 and December 2025. Research participants sit across the Irish public healthcare service and HSE Spark will assist in recruiting the research participants.

Stage 2: Define: In this stage of the research, the qualitative data collected in stage 1 will be analysed by the Maynooth University researchers. Analysis will be conducted to identify:

1. The impact of the current HSE Spark activities on the frontline healthcare staff: At this stage, multiple factors that influence an individual's ability to engage in innovation will be taken into account (eg, communication, collaboration, creativity, competence, workflow structure/processes) to ensure comprehensive mapping from an organisational culture perspective.
2. User-centred, actionable insights into the contextualised barriers will be identified and provided to HSE Spark. These insights will help HSE Spark iterate their programme offering.

Participants and research procedure

Research participants will be drawn from five distinct groups of frontline healthcare staff who have participated in various streams of the HSE Spark programme. HSE Spark will actively support the recruitment of participants for this research. An initial open invitation will be sent by HSE Spark to current and former HSE Spark participants who meet the inclusion criteria. This invitation will ask if they are interested in participating in the research. To prevent bias and reduce power imbalance, participants will be requested to contact members of the Maynooth University team to schedule an interview. This will mean that HSE Spark will not know the identity of the research participants, allowing for the participants to share their honest and unbiased accounts of engaging with the HSE Spark innovation programme.

On contacting the Maynooth University research team and expressing their desire to participate in an interview, participants will be sent an information sheet which provides comprehensive details about the study, including its purpose, what participants will be asked to do, the voluntary nature of their involvement, confidentiality measures, and how their data will be used and stored. Along with the information sheet, participants will be provided with a consent form. This form will outline specific consents, such as agreement to participate, consent for recording interviews and permission for anonymous quotes to be used in publications. Participants will be asked to read both the information sheet and the consent form carefully and to ask any questions they may have before agreeing to participate. Once a signed consent form is received by the Maynooth University research team, an interview will be scheduled.

A bespoke 'topic guide' has been developed for each group of interview participants to ensure that the nuanced experiences of each group of innovators are captured. Each of these topic guides has been included as supplemental items with this protocol paper (see online supplemental items 2–5). The use of topic guides will allow for consistency between the multiple Maynooth University researchers engaged in the study. Each topic guide was developed following frameworks from general qualitative research methods[22] and the field of nursing studies.[23] A draft semistructured interview guide was developed for each participant group by Kessie, Ryan and Hyland. Each topic guide was then piloted with a participant from the

corresponding research group and then refined based on findings from the pilot testing of the guide.

All interviews will be audio recorded. The researcher will also generate field notes during and after each interview to capture any additional observations or salient points. The interviews will be transcribed and fully anonymised, with each interviewee assigned a corresponding pseudonym by the Maynooth University research team. The fully anonymised transcript will be sent to the interviewee for their review, where they will be invited to remove any statements they do not wish to be included in the data analysis. Interviewees will have the opportunity to withdraw from the study right up to the point of anonymisation of the transcripts. Research data will be retained by the Maynooth University Principal Investigator for 10 years, as required by the Maynooth University data protection protocol. Once these ten years have passed, the data will be permanently deleted.

Participants will not be compensated for participating in this research.

A detailed list of research participants, including inclusion and exclusion criteria, the nature of the research engagement and topics to be covered with participants in each group can be found in table 1.

Patient and public involvement

There was no patient or public involvement in the design of this study.

Sample size

Overall, this study will consist of 110 participants across the five participant groups identified above. As stated by Ahmed,[24] sample size in qualitative research is a frequently debated topic. Indeed, Ahmed has asserted that: "In qualitative research, the goal is not merely to reach a numerical threshold but to ensure that data collection yields rich, meaningful insights." As such, this sample size was determined through expected data saturation points for qualitative research. The number of participants in each stream of the study is presented in table 2.

Table 1 Participant groups and interview structure

Group	Description	Inclusion criteria	Exclusion criteria	Nature of engagement	Interview focus/ topics
1. Past HSE Spark participants–Not piloted	Frontline healthcare professionals funded through HSE Spark who developed innovation concepts but did not pilot them.	Approved for funding through HSE Spark; no pilot project delivered as outlined in proposal.	(1) Projects not funded by HSE Spark. (2) Funding >5 years ago.	One 60 min semistructured interview.	Barriers to piloting; challenges; alternative outcomes; skills or collaborations gained; impact on service area; suggestions to support movement from concept to pilot.
2. Past HSE Spark participants–Piloted	Healthcare professionals funded through HSE Spark who successfully piloted their innovations.	Funded through HSE Spark and completed the pilot as proposed.	(1) Not HSE Spark-funded. (2) Projects >5 years old.	One 60 min semistructured interview.	Factors enabling success; role of Spark support; project impact; improvements to programme design.
3. Participants in large-scale design-led HSE Spark projects	Healthcare professionals and designers involved in large-scale, human-centred design projects supported by HSE Spark.	Direct engagement in large-scale, design-led Spark projects.	(1) No human-centred design approach. (2) Not funded/ supported by Spark.	One 60 min semistructured interview.	Impact of design-led work; key learnings; barriers and solutions; recommendations for scaling design-led approaches.
4. Participants engaged in other HSE Spark activities	Healthcare professionals who have engaged in Spark training or networking events (eg, Spark Connect, Design Thinking workshops, bursaries or Fellowships).	Participation in ≥1 HSE Spark initiative.	No engagement in any HSE Spark activity.	One 60 min semistructured interview.	Experience and perceived impact of activity; barriers faced; suggestions for improvement or expansion.
5. Current HSE Spark participants	Healthcare staff with active Spark-funded projects (2025 call).	Received Spark funding in January 2025.	Applicants not yet funded by Spark.	Three 45 min semistructured interviews (project outset, midpoint, conclusion).	Real-time experience of Spark engagement; project progress and breakthroughs; barriers and mitigation strategies; reflections across project phases.

HSE, Health Service Executive.

Table 2 Number of participants per study stream

Study group name	Number of participants
Spark participants–Not piloted	20
Spark participants–Piloted	20
Participants in Large-Scale Design-Led Spark Projects	30
Participants Engaged in Other Spark Activities	20
Current Spark Participants	20
Total	110

Data analysis

Each interview will be audio recorded, and a written transcript will be produced. Each transcript will then undergo thematic analysis,[25] which is the process of identifying common themes across participants' experiences of the same phenomenon. Line-by-line analysis will be conducted, ensuring that emergent codes are generated from the data, rather than the codes being predefined by the researchers. This will ensure that the insights generated from the data are truly reflective of the experiences of the healthcare staff who engaged in the interviews. Data analysis will be conducted using qualitative analysis software NVivo. The three researchers on the Maynooth University research team will each analyse a small sample (n=3) of transcripts from each of the participant groups independently. They will use line-by-line coding to generate a codebook for their sample. The three researchers will then meet to discuss their codebooks and agree on a master codebook to be used for analysing the remainder of the transcripts under each participant grouping. This will be done five times in total, once for each participant group. This method limits bias and increases transparency in the qualitative data analysis process. This process will allow for common themes to emerge which will provide insight into the value of HSE Spark in the healthcare innovation space.

Following theme generation, the findings will be interpreted through a series of complementary theoretical lenses. The diffusion of innovations in health service organisations framework[26] will be used to guide the analysis of how innovations are adopted, scaled and sustained within a healthcare system. Additionally, the learning organisation framework[27] will be used to inform an exploration of how a culture supporting innovation is developed and maintained among frontline healthcare staff. Using these two frameworks will allow themes to be situated in broader understandings of innovation diffusion and organisational learning, potentially widening the impact of this research. Other relevant theoretical frameworks will be reviewed and applied to interpret the data, where applicable.

From this thematic analysis, a human-centred design approach will be used to derive a series of actionable 'insights.' According to Bucolo *et al*,[28] an insight is "an intimate shared understanding of the unspoken, latent current and future needs of the customer." In the context of healthcare innovation, the actionable insights developed from this research will identify the unspoken needs of innovators, and the support they need in order to successfully engage in human-centred innovation in the changing healthcare landscape.

Data management

The Maynooth University research team will be the data processors and controllers for this research. A comprehensive data management plan will be developed by the data processors to minimise personal data collected and ensure that the team manages the data in line with the General Data Protection Regulations.

Personal data

The data controller will oversee the processing of personal data, which will be managed in a confidential and secure manner. The reasons for the collection of personal data will be outlined to research participants in plain English in the information leaflet. This information will be concise and easily accessible. Data minimisation will be ensured particularly with relation to personal data collected.

Data retention and storage

Raw data (ie, identifiable audio recordings) will be immediately deleted following the transcription of the interview by the Maynooth University research team. Data will be anonymised by removing personal identifiers such as the participants' name, names of colleagues mentioned during the interview, their place of work, the geographical location they live and work in, the name of the innovation they worked on, and any other information which might identify the participant. This process will be completed at the point of interview transcription to ensure only anonymous data is retained. Participants will be assigned a pseudonym which will be used throughout the analysis and dissemination of the results. The use of a pseudonym rather than a participant number ensures that the human centredness of the research approach is maintained throughout all aspects of the research and corresponding dissemination. The principal investigator will be responsible for ensuring that the interview transcripts are completely anonymised before the data are processed.

Only the Maynooth University research team will have access to the anonymised data. This anonymised data will be securely stored on the Maynooth University Principal Investigator's Microsoft Office OneDrive, with access limited to the Maynooth University research team. Data retention will comply with Maynooth University's guidelines, ensuring it is kept for 10 years before being destroyed. At the end of this required period, all data will be destroyed by the principal investigator. Electronic data (such as field notes) will be reformatted or overwritten once the 10-year data retention period has elapsed.

All of the Maynooth University research team have completed General Data Protection Regulation training and Epigeum Research Integrity Training within the past 18 months. Collaborators from the HSE Spark team have completed GDPR training provided by the HSE. This ensures that all parties are aware of their obligations and commitment to these regulations.

ETHICS APPROVAL AND DISSEMINATION

Ethics approval for this study has been obtained from HSE Regional Ethics Committee (No. 20251650-RDMLRREC) and Maynooth University Social Sciences Research Committee (Approval Number: SRESC-2025-40031). The Maynooth University principal investigator will be the contact point for reporting any participant queries or complaints about the research process. Study findings will be disseminated in peer-reviewed journals and through conference presentations. Lay summaries of the findings will also be prepared for distribution in internal Irish Health Service publications. Other dissemination activities include the preparation of a book of case studies and key findings on the challenges of integrating human-centred design into public services, to be presented to the Irish Department of Public Expenditure and Reform.

DISCUSSION

Through an in-depth case study of the HSE Spark programme, this research will provide insights into how internal innovation programmes can support frontline innovators. This research will address the gap in the literature by providing context to the barriers to innovation in the public healthcare sector, the needs of frontline healthcare innovators and appropriate supports required to address these needs. Importantly, the research will develop a nuanced understanding of the impact of supporting frontline staff to innovate on multiple areas, including the individual's professional development, their service users and the wider healthcare organisation. With a greater understanding of the barriers facing frontline innovators, the research will provide actionable insights for innovation programmes to ensure efficient and effective supports within the public healthcare system. In addition, the knowledge gained will increase both the awareness of barriers to innovation within the public sector and highlight the need for human-centred supports to address these barriers.

The findings from this research may lead to follow-up studies to develop, iterate and test improved innovation supports for frontline innovators, and strengthening innovation pathways, including but not limited to education, internal stakeholder management and impact. Further research aimed at quantifying the impact of internal innovation programmes may also be considered to determine the level of direct impact (eg, patient experience, process efficiency, resource management) and indirect impact (eg, time from concept to roll-out, creative problem solving, job satisfaction and retention) associated with supporting internal innovation.

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Competing interests MH, CH and JG are employees of the funder. All other authors have no competing interests to declare.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

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