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DHCNI

Department of Health

HSC Public Health Agency
Research and Development

Healthcare Innovation Consortium – Northern Ireland Research and Innovation Network – Discovery Phase Current Challenges

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Introduction

Navigating healthcare innovation in Northern Ireland involves grappling with the paradoxical nature of collaboration: both celebrated as a driver of progress and lamented as a significant obstacle. This exploration delves into the complexities of collaboration, adoption, and scaling within the healthcare landscape, shedding light on contrasting perspectives, structural barriers, and systemic inefficiencies hindering cohesive collaboration across departments, sectors, and stakeholders. By scrutinising both internal and external viewpoints, this analysis aims to unravel the intricacies of collaboration and innovation adoption, highlighting the hurdles that need overcoming to foster seamless collaboration and drive meaningful innovation at scale within Northern Ireland's healthcare ecosystem.

What is currently working well and needs to be reinforced?

Stimulating Innovation and Problem Solving

In Northern Ireland, there exists a thriving environment for innovation and collaboration, bolstered by initiatives such as the Medicines Optimisation Innovation Centre (MOIC) and the Connected Health Innovation Centre. These programs not only provide crucial funding but also offer essential support for collaborative projects involving universities, industry partners, and government agencies. Moreover, there is a pervasive culture of collaboration ingrained within the region, demonstrated particularly during the time of the COVID19 pandemic, exemplified by successful endeavors like the Covid Care app, which facilitated broad sector-wide collaboration during the pandemic. The problem-solving ethos inherent among the people of Northern Ireland further amplifies this collaborative spirit, underlining the significance of comprehending health challenges and priorities to effectively drive innovation forward.

Central to this environment is a culture of collaboration and problem-solving deeply embedded within the ecosystem. Stakeholders recognise and embrace this collaborative ethos, noting its pivotal role in fostering innovation and driving progress. As one participant aptly remarked, "A culture of collaboration is encouraged and fostered, and people are very willing to work together within the ecosystem." This sentiment underscores the importance of collective efforts in addressing complex healthcare challenges and driving meaningful innovation initiatives forward. Furthermore, stakeholders point to several successful innovation projects and initiatives that have left a positive imprint on the healthcare landscape in Northern Ireland. For instance, the widespread rollout of a digital app for chronic pain management across all Trusts, spearheaded by the Public Health Agency, stands as a testament to the region's capacity for impactful innovation. Similarly, initiatives such as Patient Flow, initially implemented in the Southeastern Trust but subsequently expanded to other regions, highlight the tangible benefits derived from collaborative innovation efforts.

Cross-Departmental Collaboration and Knowledge Sharing

Acknowledging both the potential and the challenges surrounding collaboration, Cross-Departmental Collaboration and Knowledge Sharing stand out as essential drivers of innovation within Northern Ireland's healthcare landscape. While previous discussions highlighted impediments to collaboration, such as fragmentation and insularity, initiatives like cross-departmental working groups signal a proactive approach to addressing these barriers and fostering collaboration across different sectors. Despite existing challenges, stakeholders recognise the importance of collaborative efforts and are actively engaged in initiatives aimed at bridging departmental divides and promoting cross-sectoral collaboration.

Efforts such as the collaboration between the Department of Health and the Department of Economy on life sciences innovation exemplify a concerted push towards greater collaboration and knowledge exchange. Regular meetings facilitated by individuals like Ian Young, which bring together organisations such as HIRANI and the HSC Industry Engagement unit, underscore the recognition of potential synergies and the commitment to overcoming barriers to collaboration.

Moreover, while acknowledging the need for improvement, stakeholders emphasise the positive impact of collaborative networks and knowledge-sharing initiatives within the healthcare system. Despite past challenges, stakeholders are optimistic about the potential of collaborative endeavours to drive positive change and innovation. Initiatives like HIRANI

serve as critical catalysts in fostering collaboration, bringing together key decision-makers from both the NIHSC and industry. Through these collaborative efforts, stakeholders are working towards a more cohesive and innovative healthcare ecosystem in Northern Ireland, aiming to overcome past barriers and unlock the full potential of cross-departmental collaboration.

What is currently hindering the system?

Understanding Roles and Streamlining Collaboration:

Addressing the underlying challenges hindering innovation and improvement within the healthcare ecosystem in Northern Ireland requires a comprehensive understanding of various factors impeding progress. One significant challenge highlighted is the lack of role understanding and overlaps, which leads to inefficiencies and duplicated efforts. Stakeholders express difficulty in understanding individual roles within the system, citing confusion and redundancy caused by similar roles between different entities. This impacts collaboration and contributes to inefficiencies, underscoring the need for clearer delineation of roles and responsibilities to avoid duplication of efforts and streamline collaboration across entities.

Ensuring Long-Term Sustainability

Another critical concern is the issue of funding and long-term sustainability. Short-term funding for innovation initiatives poses challenges for long-term planning and sustainability, hindering strategic investment in innovation. Lack of clarity on funding allocation further compounds this challenge, impacting long-term sustainability efforts. Stakeholders stress the importance of addressing these funding challenges to ensure the continuity of innovation efforts and long-term impact on patient outcomes.

Culture and Perception of Innovation

Cultural barriers and attitude shift emerge as significant obstacles to innovation and improvement within the healthcare system. Resistance to change and a perception that innovation is an added burden rather than a necessity hinder progress. Stakeholders emphasise the need for a cultural shift towards long-term investment in innovation and a paradigm change in how innovation is perceived and integrated. Additionally, there is a call for a comprehensive approach to problem definition and solution justification to ensure successful implementation and outcomes. Stakeholders stress the importance of focusing on meaningful benefits and outcomes rather than mere activity, highlighting the need for innovation efforts to be aligned with desired outcomes and impacts to drive meaningful change within the healthcare ecosystem.

Clarity of Roles and Streamlining Hand-offs

These challenges intersect with the need for clarity of roles and hand-offs within the system. Inadequate hand-offs between stakeholders lead to disjointed efforts and fragmented initiatives, further complicating the innovation landscape. Addressing these multifaceted challenges requires a coordinated effort involving various stakeholders, including policymakers, healthcare professionals, and industry partners. By fostering a culture of collaboration, promoting clarity of roles and responsibilities, and ensuring long-term sustainability of funding, Northern Ireland can overcome these barriers and drive meaningful innovation and improvement within its healthcare ecosystem.

Challenges to collaboration

Internal Perceptions

Whilst examining internal perceptions of collaboration within the Northern Ireland healthcare system, several key challenges and barriers have been identified by stakeholders, each posing significant hurdles to effective collaboration

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and innovation. These challenges are outlined across various domains, starting with the issue of unclear priorities, where a lack of clarity on healthcare system priorities and resource allocation inhibits strategic decision-making. Additionally, inertia and underutilised resources hinder ecosystem connectivity, while siloed working practices contribute to fragmentation and duplication of efforts. Internal collaboration faces its own set of challenges, including limited engagement with external innovators and insufficient signposting of innovators within the system. Resource constraints further compound these challenges, with a lack of necessary skills and funding. Communication and engagement barriers, along with cultural and operational challenges, add layers of complexity to the collaboration landscape, highlighting the need for comprehensive strategies to address these multifaceted issues and foster a more collaborative and innovative healthcare ecosystem in Northern Ireland.

1. **Unclear Priorities:**
   - *Lack of clarity on healthcare system priorities:*
     - Almost one-third of the participants (29%) expressed uncertainty regarding the priorities of the HSC. This lack of clarity could hinder strategic decision-making and resource allocation within the healthcare system.
   - *Unclear resource allocation for policy priorities:*
     - The majority (57%) agreed that resources for delivering policy priorities are not clearly identified. This ambiguity in resource allocation could lead to inefficiencies and misalignment with strategic objectives.
   - *Misalignment of incentives and funding for innovation:*
     - The majority (68%) agreed that incentives and funding for adoption and scale do not align. This misalignment may discourage innovation efforts and hinder the implementation of impactful solutions.

2. **Inertia and Underutilised Resources:**
   - *Inaction and inertia hindering ecosystem connectivity:*
     - Participants identified inaction and inertia as significant barriers to creating a more connected ecosystem. Despite the availability of resources, the lack of proactive initiatives may impede collaboration and innovation.
     - "The biggest barrier to creating a more connected ecosystem is inaction."
     - "The DHCNI Digital Strategy is clear in terms of priorities, but not much action has taken place to push these priorities forward."
   - *Available funding not utilised effectively for collaboration:*
     - Despite the availability of funding, it remains underutilised for fostering collaboration within the health ecosystem. This underutilisation suggests a need for more strategic investment and utilisation of available resources.
     - "In reality, money has been available in the short and long term to facilitate the innovation ecosystem however this has not been used for this purpose."

3. **Siloed Working:**
   - *Fragmentation and duplication of efforts:*
     - Despite existing elements for collaboration, there is a lack of a cohesive approach to bring stakeholders together. This fragmentation leads to duplication of efforts and inefficiencies within the health ecosystem.
     - "While all the necessary elements for collaboration exist, there is a need for a cohesive approach to bring stakeholders together without duplicating efforts."
   - *Lack of understanding of roles and activities across the system:*
     - Participants expressed a lack of understanding of roles and activities across the system, indicating a need for improved communication and coordination to avoid redundancies and gaps in efforts.
     - "There is a lack of understanding of what different people are doing and what their roles are."

4. **Internal Collaboration Challenges:**
   - *Limited engagement with external innovators:*

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- Despite the potential benefits of collaborating with external innovators, nearly half of the participants (46%) indicated that they do not currently work with innovators external to the HSCNI. This suggests a significant gap in leveraging external expertise and resources.
  - *Insufficient signposting of innovators within the system:*
    - Nearly half of the participants (45%) reported that they do not signpost innovators to other parts of the system, whether internal or external. This lack of navigation assistance within the system could lead to missed opportunities for collaboration and innovation.
  - *Low awareness of key organisations facilitating collaboration:*
    - Approximately 30% of internal participants have never heard of key organisations such as NICRN or HSC Industry Engagement. This lack of awareness suggests a need for improved communication and promotion of existing collaboration facilitators within the health ecosystem.

5. **Resource Constraints:**
   - *Lack of necessary skills for effective collaboration:*
     - Participants highlighted a lack of skills needed for effective collaboration, particularly in harnessing energy from clinicians who are also innovators. This skill gap may hinder the successful execution of collaborative initiatives.
     - "Lack of skills needed to do this collaboration; at the moment we are harnessing energy from clinicians who so happen to be innovators."
   - *Difficulty engaging clinical leads due to financial constraints:*
     - Financial constraints pose challenges in engaging clinical leads, potentially limiting their involvement in collaborative efforts. Identifying suitable personnel and allocating sufficient resources are critical for overcoming this barrier.
   - *Insufficient resources for digital aspects of collaboration:*
     - The majority of internal participants (80%) expressed concerns about insufficient resources to support digital aspects of collaboration.

6. **Communication and Engagement Barriers:**
   - *Siloed approach hindering effective communication:*
     - Siloed thinking and approaches hinder effective communication and collaboration across the health ecosystem. Breaking down silos and promoting synergistic efforts are essential for overcoming communication barriers.
   - *Complex networks and varying needs across jurisdictions:*
     - The complexity of networks and varying needs across jurisdictions pose challenges in collaboration and coordination efforts. Understanding and addressing these differences are vital for fostering effective engagement and collaboration.
     - "…different jurisdictions, different cultures, with varying needs."

7. **Cultural and Operational Challenges:**
   - *Perception of inadequacy and fatigue across the healthcare system:*
     - A pervasive culture of feeling inadequate or not up to speed exists within the healthcare system, despite the presence of ambition and potential at higher levels. This perception may hinder confidence and morale among stakeholders.
     - "There is an overall pervasive culture of feeling like Northern Ireland isn't good enough."
   - *Unclear ownership and responsibility for clinical trials and health technology:*
     - Ambiguity regarding ownership and responsibility for clinical trials and health technology presents challenges in decision-making and implementation. Clarifying roles and responsibilities is crucial for effective collaboration and innovation.
     - "Lack of clarity regarding ownership and responsibility within the healthcare system, particularly concerning clinical trials for pharmaceuticals versus health technology."

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External perceptions:

In examining external stakeholder feedback on collaboration within the Northern Ireland healthcare system, several key challenges emerge. At the forefront is the issue of unclear priorities, where stakeholders express difficulties in understanding healthcare system priorities and the digital strategy, citing a lack of communication and clarity. Siloed approaches and a lack of collaboration within the system compound these challenges, with stakeholders noting fragmentation, insularity, and a need for better engagement between universities, Trusts, and external organisations. Resource constraints, including capacity limitations and personnel turnover, further impede progress. A perceived lack of structure and direction, internal competition, and complex networks compound these challenges. Issues with implementation strategies, engagement, and the procurement process highlight systemic inefficiencies requiring reform for more effective collaboration.

1. **Unclear Priorities:**
   - *Challenges in Understanding Priorities:*
     - External stakeholders expressed difficulties in understanding and keeping up with healthcare system priorities, as well as a lack of communication and clarity in the digital strategy.
     - "Unless you work directly in HSC, it is difficult to know exactly what their priorities and challenges are."

2. **Siloed Approach & Lack of Collaboration:**
   - *Fragmentation and Insularity:*
     - Criticism of the lack of cohesion and innovation infrastructure within the HSC, as well as the perception of insularity and a lack of a front door for decision-makers and new entrants.
     - "There are pockets of excellence but a lot of silos particularly within the HSC."
     - "The way the Trust system works means that there is easily overlap between groups and projects."
   - *Need for Collaboration and Engagement:*
     - Stakeholders expressed a need for better collaboration and engagement between universities, Trusts, and external organisations.
     - "Industry are not engaging with the Trusts in need of help."

3. **Resource Constraints:**
   - *Capacity and Time Constraints:*
     - External stakeholders highlighted a lack of capacity to dedicate time to innovation within the overwhelmed healthcare system. There's a need for creating time and space for innovation pathways to progress, which may take 1-2 years.
     - "A big part of the problem is there isn't currently the capacity to give time to innovation."
     - "Unless space is created for innovation, and for innovation pathways to be created, it will not progress."
   - *Loss of Key Personnel and Digital Literacy:*
     - The departure of key personnel, such as the data lead from HSC, has been noted as a setback. Additionally, while there's a focus on upskilling companies in digital literacy in Northern Ireland, it's not reflected specifically within the healthcare system.

4. **Lack of Structure & Direction:**
   - *Perceived Lack of Structure and Direction:*
     - Stakeholders noted a lack of structure, direction, and clear action plans within the healthcare system. They highlighted the absence of infrastructure like AHSN in NI and praised the collaborative culture in England.
     - Multiple participants suggested that the system lacks structure and/or direction.
     - Multiple participants praised the system in England (AHSN).

5. **Internal Competition:**
   - *Acknowledgment of Internal Competition:*
     - Stakeholders recognise the presence of internal competition due to the scale of operations.
     - "Because of our scale, there is too much competition that we need to acknowledge."

6. **Complex Networks and Overlaps:**
    - *Identification of Overlaps and Synergies:*
        - 43% of participants think there is overlap between the major groups/programs in the system.
7. **Lift and Shift Approach and Fear of Engagement:**
    - *Concerns with Implementation Strategies and Engagement:*
        - Stakeholders criticised the lift and shift approach in implementing initiatives like Encompass across Trusts without adequate research. There's also fear and reluctance to engage with the private sector due to perceived profit-driven motives and regulatory concerns.
8. **Procurement Process and Engagement:**
    - *Challenges in Procurement and Engagement:*
        - Participants highlighted issues with the current procurement process, including its length, and reported unsuccessful engagements with HSCNI in the past.
        - 29% of participants had unsuccessfully engaged with HSCNI in the past.

Overlap between internal and external stakeholders the perceived challenges and blockers:

In examining feedback from both internal and external stakeholders within the Northern Ireland healthcare system, several common themes emerge, reflecting shared challenges and concerns. Strategic clarity and direction represent a significant issue for both groups, with difficulties in understanding priorities and a lack of clear communication hindering strategic decision-making. Collaboration and coordination are also highlighted as critical areas for improvement, with stakeholders from both sides criticising fragmentation and insularity within the system. Resource constraints and procurement challenges are identified as significant barriers to innovation and collaboration, impacting capacity, skills, and funding utilisation. Additionally, concerns regarding engagement and a fear of change are shared, emphasising the need for more strategic and research-based approaches to innovation implementation. Addressing these common themes is essential for fostering a more collaborative and innovative healthcare ecosystem in Northern Ireland.

1. **Strategic Clarity and Direction:**
    - Both internal and external stakeholders express challenges in understanding the healthcare system's priorities, hindering strategic decision-making.
    - There is a perceived lack of clear direction, action plans, and communication regarding policy priorities and resource allocation.
2. **Collaboration and Coordination:**
    - Stakeholders from both groups criticise the fragmentation and insularity within the healthcare system, highlighting a lack of cohesion and collaboration infrastructure.
    - Complex networks, overlaps, and internal competition hinder effective collaboration and coordination efforts across organisations.
3. **Resource Constraints and Procurement Challenges:**
    - Internal and external stakeholders identify resource constraints and lengthy procurement processes as significant barriers to innovation and collaboration.
    - Challenges related to capacity, time, skills, and underutilisation of available funding inhibit innovation efforts within the healthcare system.
4. **Engagement and Fear of Change:**
    - Concerns regarding the lift and shift approach in implementing initiatives and a reluctance to engage with the private sector are shared by both groups.
    - Stakeholders emphasise the need for more strategic, research-based approaches to innovation implementation and engagement.

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Challenges to scale and adoption

Internal perceptions:

In examining internal stakeholder perspectives on challenges to innovation scale and adoption in Northern Ireland's healthcare landscape, several key themes emerge. Firstly, the absence of a clear agenda and joint ministerial buy-in complicates collaboration with external partners and hampers innovation utilisation within the system. Financial, resource, and time constraints, coupled with lower health expenditure compared to England, limit resources available for innovation endeavours and impede effective implementation and scaling efforts. Additionally, while digital innovation receives significant attention, there's limited awareness of non-digital innovation, necessitating a broader understanding to support collaboration and resource allocation. Cultural concerns about job displacement further complicate adoption, while poor processes, lack of structure, and governance issues pose additional barriers.

1. **Lack of Clear Agenda and Joint Ministerial Buy-In:**
   - Absence of a clear, agreed-upon agenda between the health and economy sectors, compounded by the lack of joint ministerial buy-in, poses a significant barrier.
   - "It's currently very hard to use innovations within the system, and it's very difficult for external partners like academia and innovators to work inside the health and social care system within Northern Ireland."
   - "Unfortunately, nothing works effectively at the moment. The lack of government, lack of directions, lack of people in decision making posts coupled with incredible pressure and overwork of clinical academics prevents effective working."

2. **Financial, Resource and Time Constraints:**
   - Northern Ireland allocates significantly less of the funding that England dedicates to health, creating financial constraints that impede innovation initiatives.
   - "Northern Ireland's health expenditure is approximately half, limiting resources available for innovation endeavours."
   - Key challenges include resource constraints and time limitations, which hinder effective implementation and scaling of innovations.
   - Stakeholders emphasised the need for adequate resourcing, funding, and streamlined services to support the digital aspects of the ecosystem.
   - "We need more funding, more streamlined services, and more accountability in terms of the use of public funds."

3. **Limited Awareness of Non-Digital Innovation:**
   - While there is significant expertise in digital innovation, there is a lack of awareness about other forms of innovation, highlighting the need to broaden perspectives and recognise diverse innovation activities.
   - "A comprehensive understanding of innovation efforts, encompassing both digital and non-digital initiatives such as clinical trials, is necessary for effective collaboration and resource allocation."

4. **Cultural Issues:**
   - Cultural issues, such as the perception that digital innovation may take away jobs, further complicate adoption efforts.

5. **Process Improvement and Governance:**
   - Participants highlighted poor processes, lack of structured approaches, and governance issues as barriers to effective innovation adoption and scale.
   - Lack of infrastructure, outdated IP policies, and disincentives due to Trust policies and governance hinder the pathway for innovation adoption and scale.
   - Common answers to current blockers of adoption and scale included "Governance and accountability," and "Poor processes."

External perceptions:

External stakeholders in Northern Ireland's healthcare ecosystem highlight significant challenges to innovation adoption and scale. Regulatory barriers, including diverging UK-EU regulations and difficulties accessing clinical data, hinder progress. The lack of integration and coordination among innovative infrastructure elements leads to systemic inefficiencies. Funding constraints and a risk-averse procurement environment impede innovation efforts. Stakeholders perceive a lack of HSC investment in external service providers' outcomes, potentially driving innovators elsewhere. Scaling early-stage companies faces challenges, risking relocation to other regions. Mixed views on HSC priorities underscore the need for clarity to enhance innovation efficiency and collaboration.

1. **Regulatory Barriers:**
   - External stakeholders cite regulatory barriers as a significant impediment to innovation adoption and scale in Northern Ireland.
   - "Looking to UK government for regulatory environment and as this diverges from the EU this is difficult as NI remain aligned to the EU."
   - "Regulatory barriers also include difficulties in accessing clinical data. There is no secondary use of data legislation."

2. **Lack of Integration and Coordination:**
   - Stakeholders highlight the lack of integration and coordination among various innovative infrastructure elements, leading to isolated operations.
   - "There is an absence of a systemic approach to innovation, as it is not considered core business in Trusts."

3. **Funding Constraints:**
   - Multiple participants identify lack of funding or access to funding as a significant challenge, hindering innovation initiatives.

4. **Risk-Averse Environment:**
   - Stakeholders express concerns about the risk-averse and conservative commissioning and procurement environment in Northern Ireland.

5. **Absence of HSC Investment:**
   - Stakeholders perceive a lack of investment by the HSC in outcomes for external companies providing services.
   - "The HSC isn't invested in the outcome for external companies providing services."
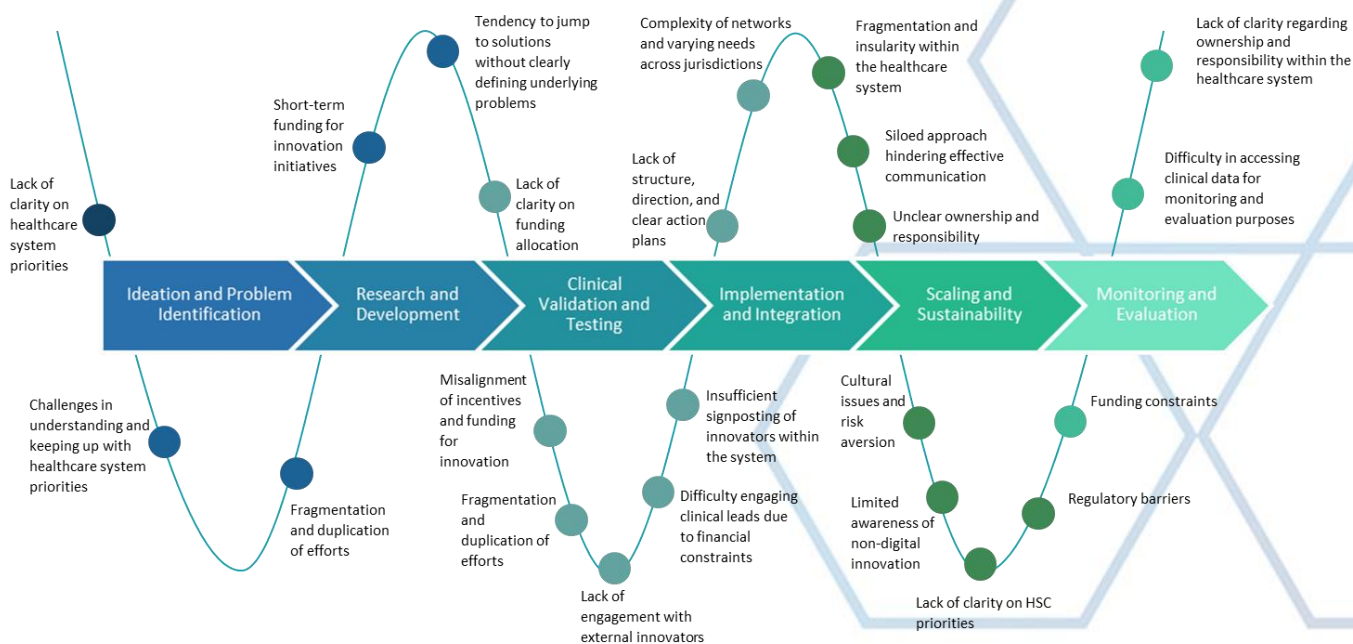
6. **Scalability Challenges:**
   - External stakeholders note the difficulty in scaling early-stage companies, ideas, and spinouts from universities within Northern Ireland, leading to potential relocation to other regions.
   - Quote: "There are currently good early-stage companies, ideas and spin outs from universities, however there is a lack of access at scaling them in NI – so they then take their service / product to USA as it's easier."

7. **Lack of Clarity on HSC Priorities:**
   - Stakeholders express mixed views on the clarity of HSC priorities, indicating a need for better understanding to improve the efficiency of the innovation process.
   - "Unless you work directly in HSC, it is difficult to know exactly what their priorities and challenges are".
   - "Whatever policy is there; it will change in the next 6 months so not much point keeping up with them."

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Barriers to Innovation

Lack of clarity on healthcare system priorities

Short-term funding for innovation initiatives

Tendency to jump to solutions without clearly defining underlying problems

Complexity of networks and varying needs across jurisdictions

Fragmentation and insularity within the healthcare system

Lack of clarity regarding ownership and responsibility within the healthcare system

Lack of clarity on funding allocation

Lack of structure, direction, and clear action plans

Siloed approach hindering effective communication

Unclear ownership and responsibility

Difficulty in accessing clinical data for monitoring and evaluation purposes

Ideation and Problem Identification | Research and Development | Clinical Validation and Testing | Implementation and Integration | Scaling and Sustainability | Monitoring and Evaluation

Challenges in understanding and keeping up with healthcare system priorities

Fragmentation and duplication of efforts

Misalignment of incentives and funding for innovation

Insufficient signposting of innovators within the system

Cultural issues and risk aversion

Funding constraints

Fragmentation and duplication of efforts

Difficulty engaging clinical leads due to financial constraints

Limited awareness of non-digital innovation

Regulatory barriers

Lack of engagement with external innovators

Lack of clarity on HSC priorities

In the ideation stage of innovation within the Northern Ireland healthcare landscape, stakeholders encounter challenges that influence the generation and conceptualisation of innovative ideas. One notable challenge is the lack of clarity on healthcare system priorities, as highlighted by nearly one-third of participants expressing uncertainty regarding the priorities of the Health and Social Care (HSC) system. This ambiguity hampers the ideation process by impeding stakeholders' ability to align their innovation efforts with strategic objectives and areas of greatest need.

Moving to the research and development stage, challenges persist that impact the design and refinement of innovative solutions. One such challenge is the fragmentation and duplication of efforts within the healthcare ecosystem, as stakeholders note a lack of a cohesive approach to bring stakeholders together. This fragmentation not only leads to inefficiencies but also complicates the development process by creating redundancies and gaps in efforts.

As innovation progresses to the clinical validation and testing phase, misalignment of incentives and funding poses a significant barrier. Additionally, limited engagement with external innovators presents a barrier to solution development, with nearly half of the participants indicating that they do not currently work with innovators external to the HSCNI. This lack of external collaboration deprives stakeholders of valuable expertise and resources, hindering the development of innovative solutions tailored to address complex healthcare challenges.

Transitioning to the implementation stage, challenges emerge that impact the deployment and integration of innovative solutions into the healthcare system. One significant challenge is the resistance to change and the perception that innovation is an added burden, rather than a necessity for improvement. This cultural barrier inhibits the adoption of innovative solutions by fostering scepticism and reluctance among stakeholders. Moreover, inadequate hand-offs between stakeholders impede the implementation process, leading to disjointed efforts and fragmented initiatives. Addressing these challenges requires a concerted effort to foster a culture of innovation and collaboration, as well as to establish clear processes and communication channels to facilitate seamless transitions between stakeholders.

Finally, in the evaluation stage, challenges arise that affect the assessment of the effectiveness and impact of innovative solutions. One notable challenge is the lack of comprehensive data and evaluation mechanisms, which hinders stakeholders' ability to accurately measure the outcomes and benefits of innovations. Without robust evaluation frameworks and metrics, it becomes challenging to assess the return on investment and make informed decisions about the adoption and scaling of innovative solutions. Additionally, cultural barriers and resistance to change can impede the evaluation process, as stakeholders may be reluctant to embrace new methodologies or metrics for assessing innovation outcomes. Overcoming these challenges requires the development of clear evaluation frameworks, standardised metrics, and a culture of transparency and collaboration among stakeholders to leverage data-driven insights for driving continuous improvement and innovation in patient care within the Northern Ireland healthcare landscape.

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The stakeholder engagement feedback does suggest that the early stages of innovation within the Northern Ireland healthcare landscape are generally functioning well, with many stakeholders highlighting successful collaboration and innovation initiatives. For instance, there is mention of thriving environments for innovation and collaboration, exemplified by initiatives like the Medicines Optimisation Innovation Centre (MOIC) and the Connected Health Innovation Centre. These programs not only provide crucial funding but also offer essential support for collaborative projects involving universities, industry partners, and government agencies. Additionally, the presence of a pervasive culture of collaboration and problem-solving within the region is underscored, with stakeholders recognising and embracing this collaborative ethos as pivotal in fostering innovation and driving progress.

As represented in the diagram above however, more challenges start to emerge as stakeholders progress along the innovation pathway, following research and development. Resistance to change, inadequate hand-offs between stakeholders, and a lack of comprehensive data and evaluation mechanisms hinder the effective deployment, integration, and assessment of innovative solutions. These challenges suggest that while the early stages of innovation may be functioning well, there are significant barriers to be addressed as stakeholders move further along the innovation pathway.

What works well in other regions?

In exploring strategies for innovation adoption and scale within healthcare systems, it's imperative to consider what works well in other regions. External stakeholders were asked to provide their experiences and feedback of working in regions outside of Northern Ireland, highlighting any valuable insights and potential models for emulation. In England, for instance, a robust ecosystem of regional support organisations exists to assist MedTech innovators, offering consultancy services that facilitate access to decision-makers in NHS England trusts and provide guidance through regulatory pathways. Meanwhile, the Republic of Ireland employs a structured Living Labs approach, featuring a four-step process with dedicated resources and teams for reviewing and implementing innovations. This approach allows companies to thoroughly evaluate and demonstrate the impact of their solutions within the Health Service. Additionally, cultural acceptance and international partnerships play pivotal roles in fostering innovation, as seen in England's greater openness to diverse governance cultures and collaborations, alongside a lower risk aversion compared to Northern Ireland. Furthermore, practices such as emphasising transparency in processes, decision-making, and funding streams, coupled with regular communication, contribute significantly to collaboration and stakeholder engagement in various regions. Lastly, the accessibility of funding and clinician engagement, notably easier payment mechanisms for clinicians to participate in projects, underscores the importance of financial support and stakeholder involvement in driving successful innovation initiatives.

1. **Ecosystem of Regional Support Organisations and Consultancy Services:**
    - In England, there exists an ecosystem of regional support organisations for MedTech innovators. Paid consultancy services facilitate access to decision makers in NHS England trusts and provide guidance through clinical trial design and regulatory pathways.
    - "One example is in England, where there is an ecosystem of regional support organisations for MedTech innovators, as well as the option of (paid for) consultancy who can facilitate access to decision makers in NHS England trusts..."
2. **Living Labs Approach in Republic of Ireland:**
    - Republic of Ireland employs a Living Labs approach to introducing innovation, featuring a structured four-step process with clearly identified resources and teams for reviewing and implementing innovations. This approach allows companies to evaluate and prove the impact of their innovations on the Health Service.
3. **Cultural Acceptance and International Partnerships:**
    - In England, there is a greater cultural acceptance of other governance cultures, willingness to accept failures, and a lower risk aversion compared to Northern Ireland. International partnerships contribute to knowledge exchange and innovation.

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- "I worked in England for 16 years before NI. They were more used to other cultures, were willing to accept that something did not go well and were much less risk averse."

4. **Transparency and Regular Communication:**
    - Other regions emphasise transparency in processes, decision-making, timelines, and funding streams. Regular communication fosters collaboration and keeps stakeholders informed.

5. **Accessibility of Funding and Clinician Engagement:**
    - Funding is reported to be more readily accessible in other regions. Some regions allow easier payment for clinicians to work on projects.
    - "We were able to pay for clinicians to work on projects relatively easily."

Conclusion

Collaboration is often touted as a cornerstone of effective problem-solving and innovation within any system, including healthcare. In Northern Ireland, stakeholders recognise the value of collaboration in generating ideas, sharing expertise, and pooling resources to tackle complex healthcare challenges. However, despite this recognition, several factors contribute to collaboration becoming a double-edged sword, simultaneously celebrated and criticised within the healthcare ecosystem.

Firstly, while collaboration is acknowledged as a strength, there are notable barriers hindering its effectiveness. These barriers include unclear priorities, inertia, and underutilised resources, as well as siloed working practices and internal collaboration challenges. For instance, stakeholders express difficulties in understanding individual roles, leading to inefficiencies and duplicated efforts. Moreover, despite existing elements for collaboration, fragmentation and a lack of a cohesive approach inhibit stakeholders from effectively working together. Additionally, limited engagement with external innovators and insufficient signposting of innovators within the system further impede collaboration efforts. Secondly, the complexity of the healthcare landscape exacerbates these challenges. External stakeholders, such as industry partners and academia, cite regulatory barriers, lack of integration and coordination, and funding constraints as significant obstacles to collaboration and innovation adoption. Moreover, cultural issues, such as risk aversion and perceived inadequacy, create additional hurdles to effective collaboration and innovation adoption within the healthcare system.

Therefore, while collaboration is recognised as a strength, its full potential is often hindered by structural, cultural, and operational barriers within the healthcare ecosystem. Addressing these barriers requires a concerted effort from all stakeholders, including policymakers, healthcare professionals, industry partners, and academia, to foster a culture of collaboration, streamline processes, and overcome systemic challenges. By doing so, Northern Ireland can leverage the power of collaboration to drive meaningful innovation and improve healthcare outcomes for its population.

In conclusion, navigating the landscape of healthcare innovation in Northern Ireland presents a paradoxical journey marked by both promising collaboration and formidable obstacles. As illuminated through this exploration, stakeholders grapple with multifaceted challenges spanning strategic ambiguity, resource constraints, and cultural barriers, hindering seamless collaboration and innovation adoption within the healthcare ecosystem.

Despite these hurdles, there exist commendable initiatives and a resilient culture of collaboration and problem-solving, exemplified by programs like the Medicines Optimisation Innovation Centre and successful ventures demonstrated during the COVID19 pandemic. However, as stakeholders progress along the innovation pathway, challenges intensify, necessitating a concerted effort to address issues of funding sustainability, role clarity, and cultural perception of innovation.

Drawing insights from experiences in other regions, particularly England and the Republic of Ireland, provides valuable lessons and potential models for emulation. From structured Living Labs approaches to a robust ecosystem of regional

support organisations, these examples underscore the importance of transparent processes, clinician engagement, and cultural acceptance in driving successful innovation initiatives.

As Northern Ireland strives to foster a more collaborative and innovative healthcare ecosystem, addressing the identified challenges and leveraging proven strategies from other regions will be paramount. By fostering a culture of collaboration, clarifying roles, ensuring long-term funding sustainability, and embracing innovative practices, Northern Ireland can navigate its healthcare innovation landscape with greater efficacy, driving positive change and improving patient outcomes.

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