

Karta – 1



**Student Name:** Adriana Ilona Rana-Ryng

**Student Number:** 2430426

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**Lecturer's Name:** G1: Soban Sadiq

**Assignment Title:**

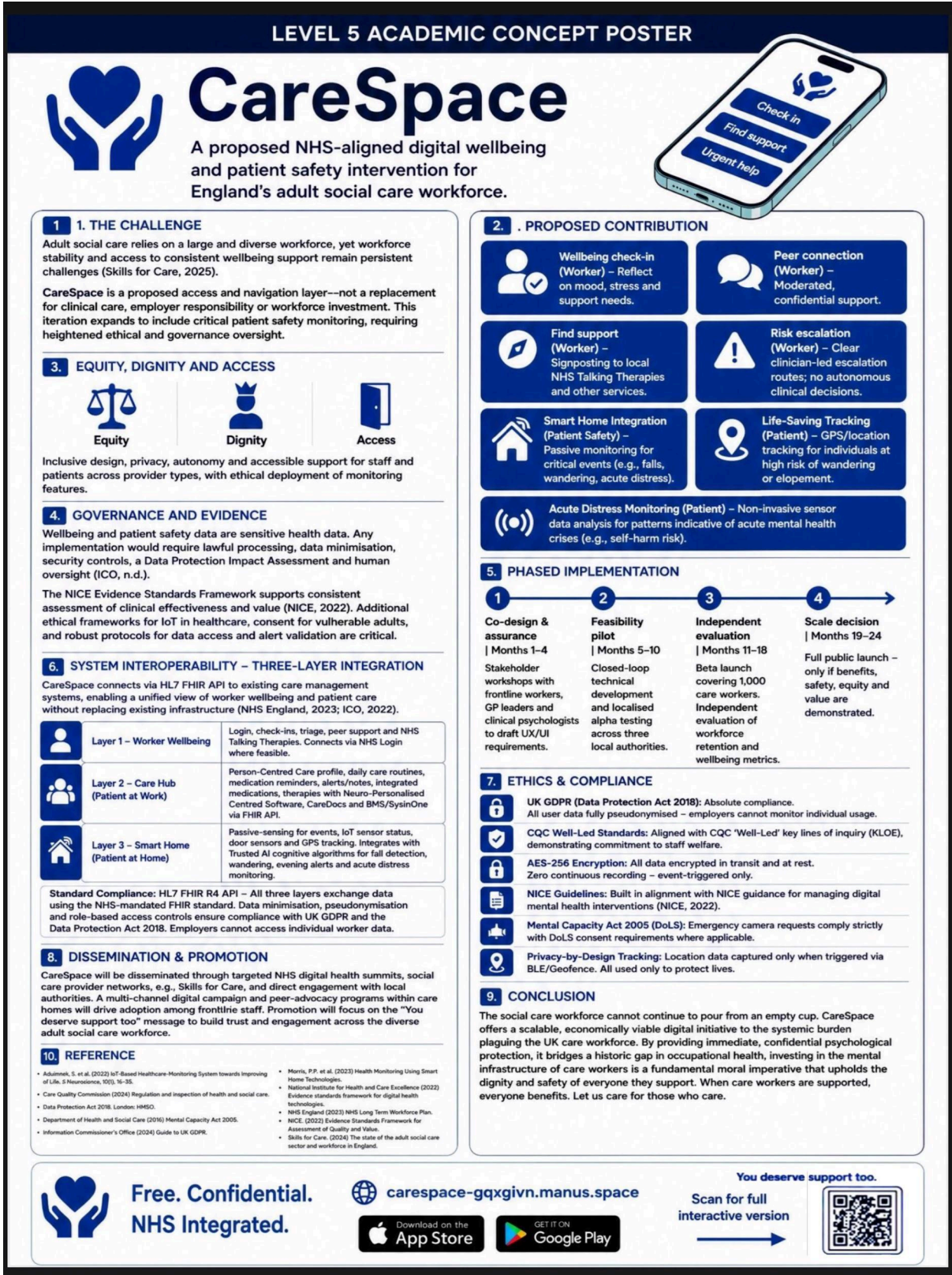
## **Component 2: Written Assignment (Poster and Pitch).**

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Poster: CareSpace.



Link

<https://drive.google.com/file/d/1m-wCkAmGh-vUvqKiGp3UgAwe2RycjNBS/view?usp=drivesdk>

The AI tools were used as assistive technology to enhance clarity and academic rigor, not to replace intellectual work in Poster, helps build QR and websites.

Student: Adriana Ilona Rana-Ryng

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## **Task 2: The Pitch (Written Narrative)**

CareSpace: a digital NHS-compliant approach to patient safety and wellbeing.

### **1. Introduction:**

A proposed digital platform, CareSpace, will deliver national benefits by supporting the psychological well-being of England's front-line adult social care workers through interoperable technology. CareSpace will gather data on occupational health and safety of workers and patient safety surveillance, filling the gap in the NHS occupational health risk management system for the former by NHS England (2023). "Exclusion is the antithesis of what CareSpace is about. It provides an intimate experience with daily check-ins, clinician-driven escalation of concern and AI enhanced signposting. At the same time the technology connects real-time safety monitoring in the smart home to the worker's well-being and safety. "CareSpace is underpinned by infrastructure and clinical governance and data safety, and is built on a single technical stack that addresses the twin challenges of patient safety and staff burnout (WHO, 2021).

### **2. Evidence for support:**

The England system of adult social care is breaking down. Stress factors cause 28% to be precise employees leaving every year (Skills for Care, 2024). Thousands of people. The kicker is - 1.5 million social care workers don't have basic NHS occupational health cover (NHS England, 2023). That kind of gap see reckless. And then you add that kind of pressure to an already stretched group, and no surprise, quality goes down. Last year, the Health Foundation pointed out that overworked people can't do their best, and those who need care are the ones who lose out. The CQC is raising the same concern, stating that burnout is compromising care standards (CQC, 2024). Why is the situation still happening?

All of this becomes what some researchers are calling the “neglect paradox” (Abdulmalek et al., 2022). Those who provide the most crucial support are often overlooked. It is challenging. Even unpaid carers, the invisible army that holds it all together for free, add huge value to the NHS and to the economy. Mental health problems and struggling are everyday life (Carers UK, 2022).

All of these issues should have been fixed by now. The NHS Long-Term Workforce Plan (2023) and the Care Act 2014 both talk a good game about proper mental health support for carers—parity, they say. NICE (2023) even laid out the standards to make it realistic. So what’s the deal?

CareSpace comes in. The reality is that we cannot continue to make temporary fixes to space but we give something new that fits in with the long-term plans of the NHS to meet the requirements of the Care Act. The aging population will transform care by using IoT - smart sensors and real-time data. (Morita et al., 2023).

### **3. Innovation Description: Technical Realities and Hardware:**

CareSpace is an interoperable digital ecosystem with three interdependent layers and a highly evolved hardware/software interface. The first layer, Worker Wellbeing, is a continuous professional self-management reporting tool for work-life balance (mood and stress check-ins (PHQ-9/GAD-7) with AI triage, compliant with ethical AI guidance (WHO, 2021). The second layer is the Care Hub, which connects through the NHS-mandated HL7 FHIR R4 API (HL7 International, 2023) to systems such as Nourish. The third layer is the extended monitoring of the SMSmart home environment. This innovation utilizes a range of IoT sensors (pressure mats, door sensors, and GPS/location sensors) with additional non-invasive audio sensors that can detect patterns in speech that may indicate a crisis. Of critical importance is the recognition that any form of audio or location monitoring must be event-driven only (i.e., not continuous recording) and/or encrypted at the edge to prevent interception. Edge processing is required to reduce latency. The hardware connects via secure gateways to the cloud-hosted backend over AES-256 encrypted channels (NCSC, 2023). This technical reality demonstrates how this innovation is a professional care-enabling toolset that permits real-time life-saving tracking of things like falls and slips and elopement/moving and wandering (missing persons) as part of the professional workstream. By using this toolset, the professional carer has the option to deploy life-saving observation technology as part of their everyday work, but always within the confines of the

'privacy-by-design' paradigm (ICO, 2023). A wearable connected to fixed sensors creates a non-invasive safety net that respects autonomy while at the same time delivering data to the care team in real time to inform actions.

#### **4. Implementation and Deployment:**

The innovation requires a phased deployment in terms of technical infrastructure and in terms of training. The first four months would consist of co-design workshops to ensure fit-for-purpose UX/UI. Technical infrastructure needs to be in place (IoT gateways) in the target home/community environment, compatible with systems such as Tunstall and Legrand, and implement the secure NHS Login and GP systems (EMIS/SystemOne) for triage escalation (NHS England, n.d.). The care workforce will need appropriate training around the data and the tooling. There then needs to be a feasibility pilot (months 5-10) in three local authority areas to test the alert system and API connections prior to the general launch. The innovation also embodies a human-in-the-loop philosophy whereby technology serves to support professional practice, but no aspect of it replaces the role of the human caregiver—non-routine decisions around patient triage or escalation are devolved to the innovation. By adopting this systematic approach to implementation, the innovation can demonstrate real-world viability to the target audience.

#### **5. Data Protection and Regulations:**

The innovation operates within the parameters of the UK GDPR, the Data Protection Act 2018, and the Equality Act 2010. It must conduct a data protection impact assessment given the nature of the processing involved around tracking of persons. The system is fully compliant by design with the Privacy and Electronic Communication Regulations and the Mental Capacity Act 2005 and the Data Protection Impact Assessment (ICO, 2024). The system ensures that worker processing remains fully anonymous for usage analytics, preventing employers from tracking individuals. In terms of the service user, the innovation operates on the principle of the common good, with tracking only initiated in the context of a life-saving emergency. The common good philosophy must always be applied when considering the use of GPS and S, BLE/geofencing technologies that can breach a person's civil liberties. The innovation is fully compliant with the CQC 'Well-led' guidance as well as NICE (2023) standards of evidence-based care and organizational

integrity. Prioritizing data security and ethical AI (ICO, 2023), the innovation demonstrates a commitment to user confidence that is central to successful implementation.

## **6. Impact and Common Good:**

The innovation promotes the idea of common welfare because it supports both the workforce and the service users equally regardless of their individual circumstances. In terms of the workforce, it has the potential to reduce staff attrition, which directly contributes to the workforce strategy of the NHS Long Term Workforce Plan (2023). In terms of the service users, it provides a safety net that protects them from harm (life-saving tracking of elopement, wandering, etc.) while operating within the principle of the common good. For the BAME community and persons with recognized social care needs, the innovation supports reducing health inequalities, which are a priority for the NHS. The innovation has the potential to have a significant impact on a social care sector that currently suffers from the 'neglect paradox.' By supporting the carer, who is the fulcrum of the social care system, the innovation indirectly promotes the well-being of the wider society by supporting the dignity of the carer as well as the cared-for.

## **7. Public and Stakeholder Involvement:**

The innovation has a strong focus on public and stakeholder involvement throughout the development and implementation process. The initial co-design workshops will involve front-line care workers, professionals, and psychologists in terms of UX/UI design to meet the NHS England (2023) requirements for digital health innovation. The public will be engaged through the Skills for Care network and local authority pilots to give feedback around the home/community monitoring elements to operationalize the 'privacy-by-design' principles. The innovation will utilize peer advocacy to encourage uptake by the workforce, building on the support of the local authority partners. Dissemination will occur through targeted NHS digital health summits as well as digital channels targeting the social care sector. These activities will raise awareness among stakeholders around the value proposition of CareSpace. By involving the public, service users, and professionals during the campaign, the innovation will show that it provides effective and suitable care technology that meets the needs of the intended users.

## 8. Conclusion:

CareSpace is a timely innovation that supports a sector in dire need of investment in terms of workforce support and safe, person-centered care. The technical reality of the innovation makes it both viable and a morally correct step into the future for the social care sector in the UK. CareSpace is a necessity for the future of social care in the UK, serving the common benefit by supporting care workers as well as the continuity of care for the vulnerable/service users.

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