SCOTLAND'S NATIONAL PLANNING FRAMEWORK 4 THINK PIECE – BLOG – DATA DRIVEN TECHNOLOGIES

Introduction

The Scottish Government is keen to bring together views and ideas from a wide range of sectors and to explore the priorities Scotland's fourth National Planning Framework (NPF4) should address.

In the fifteenth in a series of Think Pieces, Professor Chris Speed, Chair of Design Informatics at the University of Edinburgh, sets out his thoughts on Scotland2050 on data-driven technologies. The opinions expressed are that of the author and we hope that they will stimulate debate and discussion.

The issues and opportunities:

Of particular interest at the moment are the implications as we move toward data replacing money as the primary representation of value. As data-driven technologies reach further into our personal lives new forms of products and services will emerge that will change the relationship between the public and social, health and environmental services.

As society moves towards data-driven systems, transactional logics in which personal data are a currency exchanged for products and services will become part of everyday life. Activity within digital innovation is extremely high in two distinct sectors: FinTech and Health&Care Tech. At present these two sectors are offering highly differentiated products and services due to two significant technical and regulatory developments. For FinTech the paradigm of Open Banking is now in full swing, with companies opening on a weekly basis offering financial services that use different forms of AI to better represent the value of money. Whilst the Bitcoin bubble thankfully burst, it has left a generation of programmers and creatives who are now actively involved in new models of designing how value operates within digital economies. Finally, the mandatory adoption of Payment Services Directive 2 (PSD2), all of the major banks are now required to support the public in sharing personal banking data with third parties which is driving new products and services to help the public make more informed decisions about how their money is better spent. For Health Tech, the uptake of personal IoT devices continues as products generalise and become more common place, the personal value of the devices increases as the application eco-system becomes stronger, and the sensing technology expands and is able to track more health conditions. As devices become more sensitive, the user base expands and the data that they provide becomes better, this in turn has led to new Healthcare services that are able to connect through their Application Programming Interfaces (APIs) to provide products in which real-time personal health data is informing their value. National and regional healthcare providers across Scotland, England and Wales are beginning to find ways to reconcile their own trust in data provided from personal health devices and find better 'models' to support patient agency and offer care.

Whilst currently distinct, the convergence of these two sectors is inevitable with data and money being the driving currencies. It is vitally important that user-centred products and services are developed through close co-creation with industrial / civic partners and patients and carers to ensure that personal, social and environmental values become part of the experience. If we are to build trust in services across these, the most personal of data sets, research and development must follow participatory design processes that involve all stakeholders in the design of ethical methods and responsible innovation.

Planning solutions:

Life expectancy in the UK has grown faster than disability free life expectancy, and most older people now live with multiple long-term health conditions. The provision of affordable care and support for older adults to preserve dignity, prevent dependency and maximise health and quality of life, is one of the most enduring policy goals internationally. Some people have sufficient economic capital to supplement or replace state-based care. and others have the necessary social capital to construct informal networks of care provision (e.g. through family members).

However, access to data and associated data-driven services provides new opportunities for citizens and their families to manage their health and care into the future. Health&CareTech provides a means for those with lower socio-economic capital to share data as a route to more affordable or free access to health and care services, both in the near-term and further upstream when their needs may be more significant. Digital platforms underpinned by data pertaining to care needs can provide ways to broker and source informal care for those without the necessary social capital. Data from different sources (a bank, an insurer, a care provider) are brought together to understand need and risk, to offer services of value, and determine monetary value. This poses opportunities for radically new data-driven services that respond to the demands of an ageing population. But they also pose significant challenges around consent, trust and data, and possible clashes between economic value and social and cultural values that could have long-term effects on individuals and their families.

If data sets are to replace money as the primary representation of value, new ‘value logics’ are required to offer fairer models of capital distribution and responsibly integrate these different notions of value. These ‘new’ value logics expand the primarily economic function of value creation and capture to assimilate wider institutional and organisational interrelations or logics (in other words, regulatory, legal, ethical, social etc.). As such, new models of health and care will need to take into account a range of stakeholders who contribute to health and care services, and to involve them in supporting people with limited social and economic capital. Reconciling such value logics within a digital health economy is the CVC’s central concern.

Research is required to lead the development of new user-centred products and services through co-creation with industrial and civic partners, healthcare staff, and patients and carers, to ensure that personal, social and environmental values are part of the user experience. In order to build citizens’ trust in services across health, research and development must follow participatory design processes that involve all

stakeholders in the design of ethical methods for valuing personal data, and managing their flow toward the responsible innovation of new products and services.

Summary:

*Short term (next 10 years) – what **will** happen?*

- Open banking products will emerge that will use AI to elicit new value propositions from peoples personal spending habits.

  For example:

  DigitalSupermarket.com will offer families 18 month contracts with a supermarket because it identifies spending habits and proposes a healthier diet. The 18 month contracts will lock families into one supermarket, but the weekly cost will be 20% lower than the family spend at the moment, and the AI is able to ween the family off unhealthy foods and into a better diet.

*Long term – what **could** happen?*

- By using data to incentivise the sharing of personal data reciprocal practices emerge within communities to form strong bonds toward better social capital.

  For example:

  Banks realise that they are perceived to be the most secure haven for personal data and begin to offer platforms for the public to store not only financial data, but health and social information. Third parties develop apps that allow the public to exchange personal data and a myriad of products emerge that incentivise more people to help with the health and well-being of their community.

*Overall – what **should** happen?*

- Scottish Government collaborates with Health providers, academic institutions, large financial services and SMEs who are leading the disruption to guide responsible innovation of new products and services.

Author Biography

Prof. Chris Speed is Chair of Design Informatics at the University of Edinburgh where he collaborates with a wide variety of partners to explore how design provides methods to adapt, and create products and services within a networked society. Chris has an established track record in directing large complex grants with industry partners, that apply methods to challenges in the banking, international development and cultural heritage sectors.