

# RESEARCH BRIEFING

Digital Benefits and Disbenefits Project

## DIGITISATION HARMS

Nº 1

Types of harms causing negative impacts to claimants accessing online remote self-service welfare benefit egovernment systems

The *Digital Benefits and Disbenefits* project explored e-government technology-generated remote self-service encounters in welfare benefit public services. The aim was to identify harms, which are any negative effects impacting claimants themselves (e.g. time, physical, mental, financial), and then to examine how technology might be used to the advantage of claimants and to mitigate harms. The focus of the Human-Computer Interaction (HCI) research was on harms arising from the digital implementation itself, separate to policy choices (e.g. legislation, regulations) or the inherent nature of digital channels (e.g. availability of devices, internet access, ability to use devices and software), both of which have been examined extensively by others. This *Research Briefing Nº1* describes the types of digitisation harms identified during the project. The project was based on data from two of the UK's most-accessed adult cash-based social protection benefits as case studies: the predominantly online-only Universal Credit (UC) to make and maintain a claim, and Personal Independence Payment (PIP) to submit supporting evidence.

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## Introduction

Knowledge about harms was identified gradually through the expert knowledge of claimants and advisors, independent of the central government department providing the services. This analysis confirms there are design decisions during implementation, and the choices made can be more or less harmful to claimants, with these impacts occurring prior to access, during access and after access. The determination of what features are included in digitisation, and how they work, are affected by discretionary decisions about matters not fully defined in legislation, and are thus made independently with different scrutiny and are subject to variability.

## Taxonomy of Harms

The range of harms were checked in each subsequent activity of the integrated research, leading to the definition of several broad categories of harms, referred to as a Taxonomy of Harms:

Category	Subcategory
<b>Expenditure of Resources:</b> Additional resources of individuals and their communities	<b>Startup:</b> The initial resources required to achieve access over and above the existing harms, including financial, skills, knowledge, time and effort
	<b>Operation:</b> Resources required to undertake day-to-day normal use, including time and effort of doing clerical tasks, keeping track, providing assistance to others, and related physical/mental harms
	<b>Upkeep:</b> Periodic use of resources to maintain the effectiveness, efficiency and accuracy, including data, software and hardware maintenance, correcting errors and fixing breakdown and damage
<b>Loss of Agency:</b> Loss of individual agency by changes that affect the extent and nature of access	<b>Control:</b> Disempowerment of an individual due to involvement of other people, organisations and systems, including reduced or complete loss of influence, inability to dictate direction or behaviour, and changes to accountability
	<b>Independence:</b> Becoming dependent, reliant, disconnected, side-lined or disengaged by the introduction of other people, organisations and technology into the system
	<b>Capability:</b> Loss of existing knowledge and skill capabilities, loss of self-efficacy, and reduced or removal of opportunities to learn/develop new capabilities, now or in the future
<b>Accrual of Risk:</b> Possible adverse prospective impacts	<b>Reputation:</b> Damage to an individual as perceived by other citizens and as perceived by the state and other parties, and reputation of the systems where this would affect other individuals/communities
	<b>Obsolescence:</b> Deterioration and failure, for example due to others' lack of maintenance, insufficient resources, damage, depreciation or retirement; also effort wasted if threshold to achieve access is not met
	<b>Abuse:</b> Misuse of citizen information, identities and money, including surveillance, fraud, financial loss, identity theft, unauthorised personal data access or use by third parties and the state itself
<b>Service Specific:</b> Inherently related to the policy implemented by the particular service, and accompanying consequential effects on individuals/communities, when the intent is reduced, delayed or not achieved	

## Derived outputs

Subsequent to the research, and to help disseminate the findings, a practical tool has been created for those designing and implementing e-government services. Digital Benefits and Disbenefits Cornucopia (DBD Cornucopia) helps welfare benefit e-government implementation teams review their work to identify where and how harmful effects can arise, using gamification. The tool's content is based on data collected from participants of the Digital Benefits and Disbenefits project, the above Taxonomy of Harms, the project's design recommendations and implications (*Research Briefing N°2*), and the author's own professional knowledge and experience.

DBD Cornucopia is in the form of a deck of playing cards. It is based on Colin Watson's well-established OWASP Cornucopia, which was originally created in 2012 to help software teams undertake application security threat modelling review, and is now widely-adopted. DBD is used to review the whole or part of a system to identify how digitisation choices (things not defined explicitly in legislation and regulations) affect claimants adversely (harms). It is technology agnostic, and can be used with many different methods of working e.g. during sprints, for test cases, at gateway reviews, in specifications, audit plan definition.

Each card describes a threat from choices made during service implementation and has links to related information: the 19 design implications from the project (*Research Briefing N°2*), and almost 200 examples of harms to assist understanding, which in turn are mapped to categories in the Taxonomy of Harms. As an illustration, the focus of one card (PO-9) is transferability. The threat is written as:

*Muhammad conceives no way for claimants to selectively transfer, export, send or otherwise move data already in the system to someone or somewhere else, and/or the data is only made available in unstructured formats*

The examples of harms for the PO-9 card, which describe harms in the Expenditure of Resources: Operation and Service Specific categories, are:

- *Claimants cannot copy Journal messages to someone else, making it difficult to get help from a third party*
- *Claimants cannot export their complete JobSearch history, needed to help prepare for their next employment interview*

To use the tool, the target of review must first be selected: this might be part or all of an existing or planned e-government service, or a change. A group of those involved with the service, and know it intimately, play any card game with some or all of the deck (a trump trick-taking card game is described in DBD Cornucopia's instruction leaflet). Each turn, the player has to consider the threat and identify how that might arise in the target of assessment. Thus, gradually all threats are reviewed as the game is played.

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DBD Cornucopia's cards include welfare benefit and UK-specific terminology. The deck could be adapted for different digitised welfare benefits, non social protection/social security e-government services, or for non UK jurisdictions.

DBD Cornucopia is free to use. It is licensed under the [Creative Commons Attribution-ShareAlike 3.0 license](https://creativecommons.org/licenses/by-sa/3.0/), so anyone can copy, distribute and transmit the work, and anyone can adapt it, and use it commercially, but all provided that they attribute the work and if they alter, transform, or build upon this work, they may distribute the resulting work only under the same or similar licence.

Further information and downloads are available at <https://www.digitalbenefits.uk/cornucopia/>



## Research Briefing Nº1: Digitisation Harms

This is one of five documents describing outputs from Colin Watson's doctoral human-computer interaction (HCI) research project *Digital Benefits and Disbenefits*, undertaken 2019–2023 at Open Lab, Newcastle University, UK. These research briefings draw on findings, analysis and discussion published in his thesis *Understanding and Reducing the Negative Effects of Digitisation on Claimants' Access to Online Social Protection Services through the Design of Citizen-Controlled Digital Tools*, supervised by Dr Ahmed Kharrufa (Open Lab, Newcastle University) and Professor Ruth McAreavey (Sociology, Newcastle University). Colin Watson qualified for the award Doctor of Philosophy in the School of Computing on 18 March 2024.

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## Imprint

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