



# What does the concept of an ecosystem offer to social care? A narrative review of the ecosystem literature

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## SUMMARY

This paper provides a narrative literature review of the concept of ecosystem. It considers how the concept has been applied to public services and the contribution this conceptual framework could make to our understanding of social care. In this narrative review we focus on adult social care, defined as support for people with age-related frailty, disability or mental health conditions and unpaid carers.

## INTRODUCTION

The planning and delivery of social care for older and disabled people involves a multiplicity of actors, institutions and resources and can be described as a system. Features of a system are interconnectedness and feedback loops, which mean that linear models of cause and effect may not apply (Halmi, 2003). Despite the interconnectedness of actors across the social care system, there has been a tendency for research on social care to separate out the components of the system and study them separately. This may entail a focus on the experiences of people drawing on services (e.g. Flakk Nordang and Halvorsen, 2022; Stephan et al., 2018), unpaid carers (e.g. Keating et al., 2021; Yeandle and Buckner, 2017), providers (e.g. Davies et al., 2022), commissioners (e.g. Davies et al., 2020; Hughes et al., 2013) or the social care workforce (e.g. Backhouse and Ruston, 2021; Kadri et al., 2018). Such work is valuable in highlighting the factors that can influence the delivery and experience of social care, ensuring that it reflects unpaid care as well as paid care services. However, going beyond this to explore the interdependencies between actors, institutions and resources can develop our understanding of the social care system. It can also improve our predictive insight into how policy reforms may (or may not) improve the functioning of the system.

Systems approaches to understanding public services have become an increasingly common way to make sense of the complex interaction of actors and institutions (Braithwaite et al., 2018; Edgren, 2008; Neville et al., 2019; Carey et al., 2015). The term ecosystem is rooted in ecology and biology, and is a metaphor or heuristic that can also be applied to social organisations (Pickett and Cadenasso, 2002, p. 6). The ecosystem metaphor has been used to denote 'networked social structures in which units are linked by loose or tight ties that enable or enhance the interactions and exchanges among diverse organizations and actors' (Mars et al., 2012, p. 382). Ecosystems are sets of multi-level series of nodes, across which information and resources flow (Mars et al., 2012). Understanding this flow requires a complexity-informed approach (Levin, 1998), recognising that no actor has perfect knowledge of how the component parts of an ecosystem relate to one another. Therefore, change within the ecosystem can be difficult to predict and is likely to be emergent, i.e. surfacing from interactions across the multiple components of the system (Engelseth et al., 2021). Positive or negative feedback loops assist actors' learning and adaptation to interdependencies across the ecosystem (Lips and Eppel, 2022). Interactions may lead to equilibrium (i.e. a stable balance) but can also generate inertia and resistance to change (Mars et al., 2012) limiting the ecosystem's response to external shocks or more gradual external change.

To consider the relevance of this work to social care, this paper provides a narrative literature review of the concept of ecosystem. It considers how the concept has been applied to public services and the contribution this conceptual framework could make to our understanding of social care. In this narrative review we focus on adult social care, defined as support for people with age-related frailty, disability or mental health

conditions and unpaid carers. This support may be provided by the state, the market, the family or the community, or some combination of these. The narrative review of the literature is underpinned by two questions:

1. *How has the concept of an ecosystem been applied to public services, including social care?*
2. *What are the key insights (descriptive, theoretical, methodological) of the ecosystem literature that can be applied to social care?*

The literature on ecosystems in public services share several key themes which we discuss in this narrative review. The themes include descriptions of what happens in an ecosystem, how ecosystems develop and change, and the wellbeing of public service ecosystems. We also consider how these themes can be applied to develop our understanding of social care.

## METHODS

A narrative review is an appropriate approach for a conceptually driven enquiry (in our case, what it means to conceptualise social care as an ecosystem). It is directed towards identifying and summarising what has been previously published to develop an authoritative argument that contributes to our understanding of a topic (Greenhalgh et al., 2018). To undertake the review, search strategies were designed for six social science and humanities bibliographic databases: PsycInfo; EMBASE; Medline; Health Management Information Consortium; Social Policy and Practice; and Social Sciences Citation Index. The search strategies have been included in appendix A. Following Greenhalgh and Peacock's (2005) guide to narrative reviewing, a flexible approach was used to find additional relevant literature (including practitioner literature). This included searches of health and social care related organisations including the Social Care Institute for Excellence's (SCIE) library, and web publications by the King's Fund, Nuffield Trust, and the Health Foundation. Hand searches were performed on the reference lists of included publications. A search was also performed on Google Scholar and the first 10 pages of results were screened for inclusion.

A preliminary search identified that the terms 'ecosystem service' and 'service ecosystem' were often found in academic publications and so these terms were incorporated in the search strategies along with the general term 'ecosystem'. The first of these – 'ecosystem service' – is used in environmental studies to refer to the benefits of the natural environment (Braat and de Groot, 2012), for example the potential reduction in stress levels from spending time in nature. This was included in the searches in case the concept was employed to describe the outcomes gained by ecosystems in a public service context. However, through the search process we did not find any articles relevant for understanding social care as an ecosystem and we do not discuss the natural environment further in this review.

The second term incorporated in the search strategy was 'service ecosystem'. The service ecosystem conceptual framework was initially developed in the marketing literature and later adapted by public service management scholars

(Trischler and Charles, 2019; Osborne et al., 2021b; Osborne et al., 2022; Strokosch and Osborne, 2020). It incorporates a group of actors who exchange services, or skills and competencies, for mutual benefit and wellbeing. The value of the exchange is co-created by multiple actors collaborating to bring resources together to generate a perceived benefit, a process referred to as resource integration (Vargo and Lusch, 2016; Vargo and Lusch, 2011). The concept of service ecosystem has been widely applied to the study of public services and so the term was included in our search strategies to identify areas of potential learning which could be applied to the analysis of social care.

Key search terms included ecosystem; service ecosystem; ecosystem service; and a range of methods. The terms health; public service; public sector; local government; local authorities; public health; and social care were also added to the search strategies to focus the search on ecosystems involved in the delivery of public services. Searches were limited to the years between 2000 and September 2022. Brozović and Tregua (2022, p. 468) date the introduction of the concept of service ecosystem to 2010, while Adner (2017) notes that the previous 20 years had seen an increased use of the term ecosystem, both in practical application, as well as in the business strategy literature. Establishing the search from the year 2000 onwards captured this development while also allowing the search to include earlier discussions of the concept of ecosystem.

A three-stage selection process was used to screen included publications. The first stage involved screening based on title, before then screening based on the abstract with the final stage involving a full-text review. The following inclusion and exclusion criteria informed the selection of publications that were included within this review.

## INCLUSION CRITERIA

- Conceptual publications using ecosystem / service ecosystem / ecosystem service to study health and other public services. AND/OR
- Empirical studies which have applied the concept of ecosystem / service ecosystem / ecosystem service to health and other public services. AND/OR
- Methodological discussions on the application of the concepts of ecosystem / service ecosystem / ecosystem service to health and related public services.
- AND
- Studies conducted internationally or nationally.
- Published from 2000 to September 2022.
- Available in English.

Publications were excluded if they met any of the following criteria.

## EXCLUSION CRITERIA

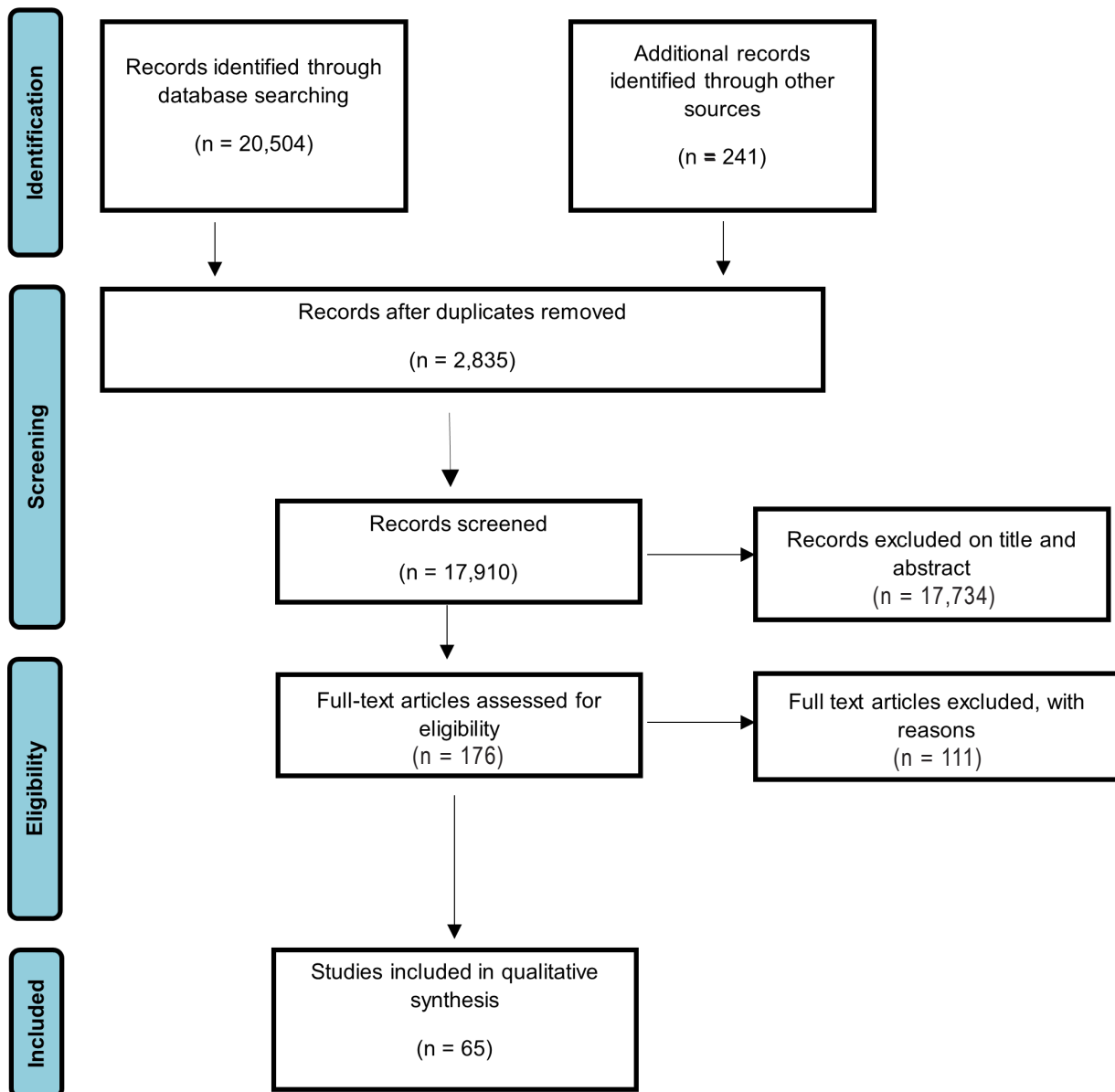
- Publications discussing ecology and environmental management, or cultural ecosystem services as discussed with reference to the environment.
- Publications discussing ecological models or Bronfenbrenner's ecological model of human development.
- Publications which have the individual as the primary unit of analysis without wider discussion of interactions between the multiple ecosystem levels.
- Publications which focus on the relationship between the individual and the natural world.
- Literature which does not meet contribution or credibility requirements.
- Studies where the full text article could not be accessed.

Dixon-Woods et al. (2006) discuss quality assessments when undertaking interpretative synthesis and suggest that publications should be assessed according to their credibility and contribution (which should be assessed throughout the synthesising process). Credibility was assessed by considering the publisher or journal (e.g. was it in a peer reviewed journal or published by an established academic publisher or think tank). Contribution was based on content: included publications were deemed relevant if they furthered our understanding of how ecosystems have been conceptualised in public services.

The search highlighted that the concept of ecosystem is sometimes used as a collective noun for a group of actors and/or institutions without a discussion of what this term means or how the components of the ecosystem interact. For example Edmiston et al. (2022, p. 1) use the term 'local ecosystems of support' in relation to 'a wider range of local state and third sector actors that mediate social security policy'. This use of the term ecosystem to simply mean the totality of actors in an area does not engage with any elements of system properties (e.g. interconnectedness and feedback loops) and such publications were excluded from the review. Discussions that focused on the conceptual development of the term ecosystem without an application to public services were also excluded. Publications discussing the ecological model within the social work literature were excluded as these described a therapeutic intervention for a family rather than the multi-actor ecosystem that is our focus here.

As noted in Figure 1 - the PRISMA diagram (Page et al., 2021) - initial searches generated 20,745 entries and 2,835 duplicates were deleted. Full-text reviews were conducted on 176 studies. The large reduction of sources was due to the initial search including studies which were focused on ecology and environmental management. Any uncertainty as to whether a publication should be included was resolved by discussion between the authors. In total, 65 records are included in this narrative review - these are listed in appendix B.

Figure 1: PRISMA flow diagram (Page et al., 2021)



Data from the 65 included publications were extracted by the first author using a standardised template, including: aim of the publication, review, study setting, conceptualisation of ecosystem, discussed benefits and limitations of the ecosystem concept, research methods, and findings. The data extraction sheets were then reviewed by both authors and key themes agreed to develop the structure and focus of this narrative review.

## FINDINGS

The included publications highlight the broad application of the term ecosystem to the study of public services. First we consider how ecosystems have been studied, setting out the methods used in the included studies. Second, we consider what the concept of ecosystem means when used in the context of public services (and particularly social care), highlighting the important contribution of the 'service ecosystem' literature in this regard. The subsequent sections continue to draw heavily on this service ecosystem literature to discuss how an ecosystem comes into being, what happens within an ecosystem, change within an ecosystem and ecosystem wellbeing. The final section discusses how to make use of the concept of ecosystem within social care research.

## 1. METHODS FOR STUDYING ECOSYSTEMS

Publications with an empirical focus used a range of methods to study service ecosystems. There was no single agreed way to study ecosystems in public services empirically. Often empirical studies reported using mixed methods as an approach to respond to the multiple levels of an ecosystem (Spena and Cristina, 2019; Cash et al., 2019; Borrmann et al., 2020). There were frequent examples of case studies being used to explore conceptual discussions around service ecosystems (Simmonds et al., 2021; Ciasullo et al., 2017; Spena and Cristina, 2019; Aitken et al., 2021; Beirão et al., 2017). Focusing on a single case allowed the boundaries of a service ecosystem to be defined and to focus analysis on a particular occurrence or series of interactions within a service ecosystem.

Qualitative interviews were often used to explore how ecosystem actors made sense of their own roles and how they interacted with the wider system. There were examples of where interviews were used as the sole research method (Eriksson et al., 2021b; Hardyman et al., 2022; Sebastiani and Anzivino, 2021; Beirão et al., 2017; Kinder et al., 2022; Taffurelli et al., 2021) and others where interviews were part of a wider suite of methods (Aitken et al., 2021; Borrmann et al., 2020; Kleinaltenkamp et al., 2018). Additional methods could include document analysis of information on websites, internal documents and articles in the national and international media (Simmonds et al., 2021; Botti and Monda, 2020; Leite and Hodgkinson, 2021b), as well as observations, often of staff meetings, in order to gain further understanding of the complexity of the ecosystem (Kleinaltenkamp et al., 2018; Ayandipo et al., 2020; Laihonon, 2012).

Some studies were concerned with mapping the breadth of services within an ecosystem (Hussey et al., 2021; Furst, 2022; Furst et al., 2021). Others focused on particular perspectives within an ecosystem, such as the people who were using services (Mickelsson et al., 2022). Methods used to map user-defined ecosystems included observation (Gutierrez and Ochoa, 2021), or personal narratives of the experience of people's illness (Sudbury-Riley and Hunter-Jones, 2021). They also included case studies of the experience of care from the perspective of a patient and unpaid carers, with Cruz and McGhee (2021) analysing patient diaries and records of appointments. A small number of publications used methods which were focused on mapping the services accessed by an individual or unpaid carers, or their experiences of accessing or providing care (Cash et al., 2019; Gutierrez and Ochoa, 2021; Sudbury-Riley and Hunter-Jones, 2021). Action research was also suggested as a methodology which could be used by practitioners to generate potential improvements to the functioning of a health ecosystem (Engelseth et al., 2021), however, no examples of this methodology in use were found within this review.

There were limited examples of modelling within the included publications. Park et al. (2022) use network analysis to map stakeholders across the provision of digital health care services in South Korea. Belso Martinez et al. (2020) used social network analysis to capture processes of cooperation and coordination between organisations in response to COVID-19, and Reggi and Dawes (2022) used this method to map the development of open government data systems. Examples of modelling approaches which could be applied to social care include soft systems methodology (Augustsson et

al., 2019) and systems dynamics (McKelvie, 2013). However, it is notable that these examples focus on the potential, rather than the application of these methods. Edvardsson et al. (2018) and Rouse (2021) discuss the challenges of exploring innovation in services in dynamic contexts and note that the use of computational models offers a way to respond to complexity. As an example of modelling within the study of public services ecosystems, Kalton et al. (2016) applied agent-based modelling to explore the possible benefits of introducing care coordination technology across providers of mental health services. While some examples of formal modelling approaches were found, it was notable that these were focused on health services rather than social care, suggesting that this is an area for further development.

## 2. WHAT IS AN ECOSYSTEM?

The term ecosystem is often used to denote the scope of organisations involved in the delivery of health and public services (Furst et al., 2021; Furst et al., 2019; Ayandipo et al., 2020; Hussey et al., 2021; Cruz and McGhee, 2021; Cash et al., 2019; Belso-Martinez et al., 2020; Borrmann et al., 2020; Koh and Cheah, 2015; Singhal and Levin, 2020). It is also used in the context of discussions on care coordination (Dessers and Mohr, 2020) and public health policy (Nurse and Edmondson-Jones, 2007). Further examples of usage include developments in ehealth (Rojas-Mendizabal et al., 2013), and the facilitation of ambient assisted living to support independence (Camarinha-Matos et al., 2014; Carroll et al., 2016), including the role of robotics in providing care services (UK-RAS Network, 2017). Applications of the concept of ecosystem to health services often described the range of service interactions within the ecosystem. For example, Laihonon (2012) discusses the strengthening of service delivery within the Finnish health system through the management of knowledge flows between health organisations. Three of the included publications discussed data ecosystems (Reggi and Dawes, 2022; Heijlen and Cromptvoets, 2021; Shah et al., 2021) referring to 'the interactions between...data producers and data users, infrastructure or processes related to data management, and formal or informal institutions' (Heijlen and Cromptvoets, 2021, p. 2).

Care coordination, the action of organising care so that it is easier for patients and unpaid carers to navigate, is another focus of the health ecosystem literature. Aitken et al.'s (2021) study of the community care ecosystem and patient flow identifies a series of lessons to support improved coordination. Sudbury-Riley and Hunter-Jones' (2021) work on inter-professional working across palliative care teams, including social workers and care workers, considers the influence of institutional arrangements. In these health-oriented studies it is notable that social care tends to be viewed as a secondary element of the delivery of health services.

The ecosystem was often seen as encompassing multiple systems, or groups of interacting actors, that are arranged on three levels: the micro (provider and user interactions), meso (regional or local agencies) and macro (national agencies). Frow et al. (2016), in depicting the healthcare ecosystem, also draws on a 'mega' level which encompasses the factors that shape the ecosystem, which may be cultural, historical, and political (see Figure 2). Whilst this is a health system diagram, its delineation of the micro, meso, macro and mega has relevance for other public services, including social care.

Figure 2: A health care ecosystem



Source: Frow et al. (2016, p. 27)

Although the 'mega' level is a key contextual factor in shaping ecosystems, it is important to note that ecosystems need not be regulated by an overarching governance structure. Dessers and Mohr (2019, p. 20-21) note that an ecosystem is not generated from 'an intentional effort, it is always already there'. Furthermore, actors do not need to acknowledge or recognise their contribution to the wider purpose of the ecosystem in order to have an effect on the interdependencies within an ecosystem (Dessers and Mohr, 2019). These are important insights in relation to social care, as a reminder of the universality of care in human communities (Tronto, 1993): care ecosystems are shaped by public policy and statutory services but predate and exist beyond them. This universality does not of course entail that their form - e.g. the gendered distribution of care - should be taken as somehow naturalistic and beyond contestation.

There can be a normative dimension in the use of the term ecosystem. In a commentary piece, Welbourne (2011) positions the concept of an ecosystem in health services in distinction to silo thinking within the UK's National Health Service. There is the encouragement to consider the links and connections between different parts of the health service and the perceived benefits of integrating health and social care (Aitken et al., 2021; Sudbury-Riley and Hunter-Jones, 2021; Dessers and Mohr, 2020). Here the concept of ecosystem is positioned as a 'fix', a way to shift thinking in order to address a perceived problem of a lack of interaction between the components parts of the health and care landscape.

Some of the literature focused more explicitly on social care, particularly in relation to technology. Carroll et al.'s (2016) study conceptualises the provision of technology as an ecosystem to support people living with long-term conditions, identifying the drivers for innovation. The important role of unpaid carers and home care is acknowledged within this technology ecosystem. In addition, Gutierrez and Ochoa (2021) considered the caregiving ecosystem focused on the care needs of older adults and the experience of unpaid carers. The findings were applied to explore the functionality requirements of technological platforms which could be used to improve the experience of unpaid carers. However, where social care was included in the studies it tended to be viewed as a component of a wider health or technology ecosystem, rather than being of interest in its own right. Often this literature lacked a clear account of agency, change and continuity within the ecosystem, limiting the scope to offer descriptive, theoretical or methodological insights for social care.

More informative for developing these insights was the literature which focused on the 'service ecosystem'. This is a well-developed body of work, located within public management, which has advanced the conceptualisation of ecosystems in public services, moving beyond simplistic accounts to a more developed understanding of the dynamics of change and continuity. Value co-creation is a key concept within this literature. Actors across a service ecosystem collaborate to generate (or 'co-create') value through

combining their resources. This could mean involvement in a provider engagement forum where the local authority gives updates on relevant matters and providers can share best practice. A further example might be co-location where different health and social care practitioners are situated in the same site to promote joined-up working. Until it is realised via interactions, value exists as a potential (described in the literature as 'value propositions'), which are the explicit or implicit messages which can encourage actors to collaborate (Eriksson et al., 2021a). The different practices that inform value co-creation are discussed later in the narrative review (Table 1 on p. 8).

Value co-creation is shaped and coordinated by institutions (formal and informal rules, meanings, and norms) and institutional arrangements, or the configuration of these institutions (Vargo and Lusch, 2011; Vargo and Lusch, 2016). Processes of value co-creation can also feedback and inform institutions (Trischler and Charles, 2019). Service ecosystems are emergent as actors' attempts to integrate their resources, influencing the conditions in which actors collaborate in future and the overall pool of resources that actors can access (Frow et al., 2016). Therefore, value is only realised in conjunction with other actors, and it can be difficult to predict the outcomes of particular actions. For example, in Frow et al (2016)'s work, value in the cardiac ward is co-created by staff and patients through shared decision-making and multi-disciplinary ward meetings which shape personalised treatment.

services, Frow et al.'s (2016) study of a cardiac clinic develops a typology of eight forms of value co-creation and how these practices can be recognised and measured. Summarised in Table 1, these practices are concerned with actions that strengthen relationships between actors within the ecosystem, including institutional arrangements, practices that influence perceptions and shared meanings, practices that develop value propositions (explicit or implicit messages that can encourage collaboration between actors), as well as the intentional actions to destruct value and generate instability within the ecosystem.

### 3. WHAT HAPPENS WITHIN AN ECOSYSTEM?

A key part of applying the ecosystem concept to social care is understanding what happens within an ecosystem. Using the service ecosystem approach, Beirão et al.'s (2017) study of electronic health records in the Portuguese health ecosystem identifies five factors which allow actors to integrate resources and inform the creation of value (known as value co-creation). Resources are the broad assets which are used to allow an individual to achieve an objective and may include access to funding, knowledge, the workforce, and wider infrastructure. Beirão et al. (2017, p. 229) note that the value of resources is only realised when resources are used and combined (known as resource integration). The five factors that influence resource integration are: 1. Resource access; 2. Resource sharing; 3. Resource recombination; 4. Resource monitoring; and 5. Governance and institutional formation. The access, sharing, and recombination of resources occur across the multiple levels of the service ecosystem – micro, meso and macro. Resource monitoring occurs at the meso and macro levels and concerns the monitoring of service delivery by both health organisations and the government. Governance and the formation of institutions occurs at the macro level and involves the development of a common language, shared norms, and definition of rules (Beirão et al., 2017, p. 242) which can influence practices across the other levels of the ecosystem. Beirão et al.'s (2017) study highlights that value co-creation can shift according to the level of the service ecosystem and provides a framework in which to understand the forms that value co-creation can take. To understand how to operationalise this within specific public

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Table 1 – Value co-creation practices – Adapted from Frow et al. (2016, pp. 30-35)

<p><b>Practices that endow actors with social capital</b></p> <ul style="list-style-type: none"> <li>• Includes bridging (developing deeper bonds between actors), bonding (linking distant actors) and linking relationships (developing connections with other actors who may have higher influence or scarce resources who may be outside of the immediate ecosystem).</li> <li>• Can be measured via the density (number of interactions, duration of interactions, and the patterns of connections) of an actor's relations; the type of interactions between actors; and the relative proximity of actors to each other.</li> <li>• In the cardiac care setting, these practices may be exemplified by the role of the receptionist as gatekeeper to services and bridge between patients and clinicians.</li> </ul>
<p><b>Practices that provide an ecosystem with a shared language, symbols, signs and stories.</b></p> <ul style="list-style-type: none"> <li>• Practices that build relationships between actors through the sharing of symbols that encourage specific practices and shared understanding. These practices may also weaken relationships between actors and contribute to a fragmented ecosystem.</li> <li>• Measured via the dissemination of 'stories, symbols and signs'.</li> <li>• This could be through studying the use of storytelling to build alliances in an online patients' forum.</li> </ul>
<p><b>Practices that shape an actor's mental model (of their role)</b></p> <ul style="list-style-type: none"> <li>• Practices that influence how actors interpret their place and contribution within an ecosystem. These practices can encourage further involvement in co-creation practices. An actor's position in the ecosystem will affect the extent to which they are able to influence others.</li> <li>• Measured by changes to actors' perceptions of their role in relation to others; changes in how individuals undertake their role; and the adoption of a service-user, or patient-centred 'orientation'.</li> <li>• For example, an institutional commitment to person-centred support may shape the way that a clinician responds to patients and their families.</li> </ul>
<p><b>Practices that impact the ecosystem, created or constrained by the physical structures and institutions that form their contexts</b></p> <ul style="list-style-type: none"> <li>• The development of structures and institutions (rules and procedures) that inform how actors integrate resources.</li> <li>• Measured by changes in rules and procedures over time, including working practices such as coworking.</li> <li>• The design of a hospital for example may influence the extent to which families feel that they are able to spend quality time with patients.</li> </ul>
<p><b>Practices that shape existing value propositions and inspire new ones</b></p> <ul style="list-style-type: none"> <li>• Value propositions inform the development of relationships and the integration of resources between actors. Different value propositions can encourage actors to integrate their resources in different ways.</li> <li>• Measured by considering changes in value propositions over time, including the ways in which the value propositions are communicated more widely.</li> <li>• E.g. patients may take more responsibility for monitoring physical symptoms at home, reducing trips to the hospital.</li> </ul>
<p><b>Practices that impact access to resources within an ecosystem</b></p> <ul style="list-style-type: none"> <li>• Co-creation practices can affect the ability of an actor to access resources in future. These practices can redirect attempts to integrate resources and generate new opportunity to cocreate value with other actors in the ecosystem.</li> <li>• Measured via the extent that actors extend the opportunity to share resources, as well as the degree to which actors share resources.</li> <li>• For example, pharmaceutical licencing can limit access to affordable treatments.</li> </ul>
<p><b>Practices that forge new relationships, generating interactive and/ or experiential opportunities</b></p> <ul style="list-style-type: none"> <li>• Value co-creation practices can affect existing relationships between actors, as well as providing the opportunity to develop new relationships between actors within an ecosystem.</li> <li>• Measured by extent of opportunities to develop relationships between actors and their involvement in new co-creation practices.</li> <li>• For example, doctors present at conferences to share and acquire beneficial knowledge for patients.</li> </ul>
<p><b>Practices that are intentionally co-destructive creating imbalance within the ecosystem</b></p> <ul style="list-style-type: none"> <li>• Awareness of co-destruction in an ecosystem can encourage actors to take steps to challenge these practices.</li> <li>• Measured by the number of actors that exit the ecosystem and may integrate resources within other ecosystems.</li> <li>• For example, limited access to affordable state healthcare – which may lead to increased charitable activity.</li> </ul>



By setting out these practices, Frow et al. offer a way to study how value is generated and shared within ecosystems. Practices are the product of choices made by actors, however, there can be both intentional and unintentional dimensions to the implications of these practices. Value co-destruction

– Frow et al.'s final criterion – highlights that ecosystems need not always tend towards positive co-creation of value. Co-destruction is also discussed by Engen et al. (2021) in their study of two Swedish government agencies. They discuss how value co-destruction can occur both 'randomly and ad hoc' (p. 897) as a result of either intentional or unintentional resource misuse. Value co-destruction occurs when 'interacting parties fail to integrate resources in a mutually beneficial manner' which leads to a decline in value for at least one of the parties (Engen et al., 2021, p. 890). Four forms of value co-destruction are identified arising from the interactions between members of the public and service providers, including: 1. Lack of transparency of service provision, 2. Mistakes, 3. Bureaucratic incompetence (meaning a lack of knowledge of processes and rules), and 4. Inability to serve (people are unable to access service due to staff capacity or technical difficulties) (Engen et al., 2021, pp. 895-897).

The work of Frow et al. and Engen et al. directs us to consider that the co-creation or co-destruction of value can be both intentional and unintentional and to consider how context and institutional arrangements can influence the realisation of value. As identified by Cui and Osborne (2022), value co-destruction does not only occur via the actor-centric relationship between provider and service-user but may also have wider roots within the broader context – what they call the 'multi-layered architecture of processes, institutions, institutional norms and values' (p.2) of a service ecosystem. In other words, interactions between the provider and service user will be conditioned by this 'architecture' which may facilitate or inhibit value co-creation by affecting how actors can integrate resources. For example, if someone misses an appointment this may be due to the lack of inclusive and affordable travel or technology which lies beyond the control of the individuals involved.

#### 4. HOW DOES AN ECOSYSTEM CHANGE?

The service ecosystem lens can also be used to explore change and innovation within public service ecosystems, in response to external shocks or gradual contextual changes. Insights into ecosystem change and emergence offer a route for practitioners to instigate service improvement within the social care ecosystem. Hardyman (2022, p. 332) notes how discussions of innovation in the public sector often imply that actors have the unrestrained agency required to instigate and maintain change management projects in practice. The service ecosystem lens invokes a more developed account of agency, recognising that the actor can be both constrained and enabled by institutions and institutional arrangements (Kleinaltenkamp et al., 2018). Institutions have been defined as formal and informal rules, meanings, and norms and institutional arrangements (the policies and processes which combine institutions). Institutions coordinate actors' decisions and actions. The emergent quality of an ecosystem means that there is the potential for continual adaptation to endogenous and exogenous forces, although there are also elements of path-dependence and inertia (Boulton et al., 2015). Actors' decisions and (in)action have an effect throughout the multiple levels of the ecosystem, although

not in ways that can be planned or predicted in a linear way and not all actors will be equally well positioned to shape or accommodate change (Frow et al., 2016, p. 2664; Barile et al., 2016).

Daymond et al. (2022) draw attention to the role of ecosystem architects, those who focus on nurturing 'the ongoing expansion and development of an ecosystem as a whole' (p.4). The authors make a distinction between ecosystem architects in the private sector, who are noted to be focused on the creation of conditions to foster competition, and public sector ecosystem architects, who aim to initiate and encourage collaboration between ecosystem actors. To Daymond et al., as public sector ecosystems emerge, architects focus on 'creating conditions for coalescence' (p.12) to develop robust relationships and trust between actors, which can lead to the ecosystem's strengthening and evolution and facilitates the 'recycling and net inflow of a growing volume of resources' (p.18).

#### 5. ECOSYSTEM WELLBEING

The service ecosystem lens enables us to think about how the component parts of the ecosystem combine to generate its overall strength. Frow et al. (2019, p. 2667) develop the following conceptualisation of ecosystem wellbeing:

*Service ecosystem well-being is a holistic, dynamic, positive state that is contextually determined and is characterized by: practices that achieve aligned configurational fit; institutional arrangements that are purposefully guided by a shared worldview; levels of the ecosystem that are iteratively reinforcing, co-evolving and self-adjusting; resilience and an ability for the ecosystem to adapt to disruptions; emergence through the adoption of flexible, resource integrating practices; and resulting in shared value co-creation.*

Wellbeing here is understood in terms of the adaptability of the ecosystem to change and respond to crisis and strain (Brodie et al., 2021). The discussion of wellbeing emphasises the contribution of practices and institutions (Frow et al., 2019) and indicates that actors have the potential to affect the conditions which inform ongoing interactions to support ecosystem wellbeing. While actors can influence ecosystem wellbeing, they are immersed within a wider context in which their actions will both affect, and be affected by, the workings of the ecosystem (Frow et al., 2019). Wellbeing in the sense of ecosystem durability also needs to be differentiated from the wellbeing of people who are located within the ecosystem. For example, a set of care arrangements may be durable due to relying on an established gender distribution of labour or low paid migrant labour, but may not enhance the wellbeing of the people providing care in this way.

Ecosystem wellbeing is often discussed in terms of responding to exogenous shocks and crisis, such as COVID-19 (Brodie et al., 2021; Belso-Martinez et al., 2020; Sebastiani and Anzivino, 2021; Eriksson et al., 2021b; Leite and Hodgkinson, 2021a) and 'megatrends' affecting the environment in which service ecosystems operate (Kleinaltenkamp et al., 2018). The uncertainty generated by a crisis has the potential to be either beneficial or disruptive to the wellbeing of the ecosystem. Uncertainty may create further opportunities to integrate and recombine resources. In other words, shocks may create new pathways that encourage resource integration

(combining resources to produce a perceived benefit) and new opportunities for value co-creation which may influence ecosystem wellbeing. Leite and Hodgkinson's (2021b) discussion of the use of telemedicine within health services during COVID-19 notes the contribution of multi-level co-design activities to support ecosystem resilience and further suggests how measures to support ecosystem wellbeing can be 'designed' into the service ecosystem.

Developing ecosystem wellbeing requires a multi-level approach sensitive to how changes at one level will reverberate throughout the ecosystem. The service ecosystem literature highlights that managers - those tasked with the administration and monitoring of the various functions of a public service ecosystem - should attempt to generate 'alignment' (Frow et al., 2019, p. 2659) across the multiple levels of an ecosystem. They should establish processes to support knowledge exchange and effective resource integration throughout the service ecosystem (Brodie et al., 2021). However, there is little engagement in this literature with the ways in which concepts such as alignment, value and resource integration may be contested within an ecosystem and whose interpretation comes to prevail.

## UTILISING THE ECOSYSTEM CONCEPT TO STUDY SOCIAL CARE

This narrative review has identified a range of publications which have used 'ecosystem' in relation to public services. Empirical papers were mainly focused on the delivery of health services, with limited application to social care (Parahoo and Al-Nakeeb, 2019; Engen et al., 2021; Hodgson et al., 2017). This focus might relate to the relative invisibility of social care, much of which takes place in the home and delivered by unpaid carers, and also the relative generosity of health research funding compared to social care. In the descriptive health-oriented accounts, there was often limited discussion of how the multiple levels of actors interact and how these interactions may reverberate throughout the ecosystem. The emergent quality of the ecosystem was often underexplored within these publications. There was a lack of attention to the difference between ecosystem wellbeing and resilience, failing to bring out the difference between the ecosystem being durable and the ecosystem being able to contribute to the flourishing of people within it. Conceptual papers focusing on the co-creation of value and development of system wellbeing often lacked specificity on how these elements would be deployed in service contexts, and on what is meant by value. In this section we consider how to take the learning from the ecosystem narrative review and apply it to research in social care.

Phillips and Ritala (2019) develop a framework to inform methodological choices when analysing a complex adaptive system, highlighting three dimensions:

1. the conceptual dimension, i.e. the boundaries of the ecosystem and the perspectives that will be studied;
2. the structural dimension, i.e. the hierarchy and power relationships within the ecosystem;
3. the temporal dimension, i.e. how the ecosystem shifts over time.

Applying this framework to the conceptualisation of a social care ecosystem directs us to consider who, or what, is included within the ecosystem's boundary (Lawer, 2017). We can use the three dimensions to draw attention to:

*Conceptual:* what is incorporated within the social care ecosystem, and whose perspective is foregrounded? Social care is a complex arena comprising multiple actors. The service ecosystem frame, with its focus on value co-creation, directs attention to the conditions, institutions, and practices that facilitate resource integration between actors. In social care, this requires a focus on how the resources available to people receiving support are shaped by interactions with and between actors in the formal care infrastructure (e.g. commissioners, the social care workforce, care providers) and those in informal settings (e.g. unpaid carers, wider family, community groups).

*Structural:* Is it a single social care ecosystem or multiple ecosystems? Each nation state or local municipality could be treated as a bounded ecosystem. Alternatively, we could identify each person being supported as having a care ecosystem sitting around them (Brozović and Tregua, 2022, p. 473). Chandler and Vargo (2011, p. 44) recognise the potential for multiple service ecosystems, using the language of a 'service ecosphere', to encompass the many ecosystems within a given area. In a care context, we need to also acknowledge the intersections with related services such as health, housing, education, employment and immigration. We need to acknowledge the different levels of the ecosystem (the mega, macro, meso and micro as set out in Figure 2 on p. 6) and the interplay between them. Making ecosystem research feasible requires limits on what is in scope, without losing awareness of the broader 'ecosphere'.

*Temporal:* how is the social care ecosystem changing over time? Ecosystems can be relatively open or closed to actors' entrance and exit (Jacobides et al., 2018) due to the formal and informal rules which can structure relationships within the ecosystem. Situating the social care ecosystem in its temporal context helps to describe the factors which have influenced who joins and leaves the ecosystem and how they interrelate with existing elements (Pickett and Cadenasso, 2002).

The service ecosystem literature encourages a focus on the co-creation of value. Much of the discussion in relation to social care is about insufficiency and depletion, which we could characterise as value co-destruction. Yet there is also a policy and practice focus on asset-based approaches and strengths-based practice which recognises how much value exists within families and communities, which is often ignored or diminished by formal services (Caiels et al., 2021; Graybeal, 2001). Given the challenges facing social care, including workforce recruitment and retention, funding gaps and increasing demand for services, there is an urgent need to understand the sources of value, and how value can be co-created and sustained (NHS Confederation, 2022; Gov.uk, 2022; Care Quality Commission, 2022; Levelling Up Housing and Communities Committee, 2022). Doing so also requires attention to how power relations can inform the structure and operation of an ecosystem (Kok et al., 2021) and the different interpretations of what value is within social care (Osborne et al., 2021a; Alford and O'Flynn, 2009). Power and

inequality are important lenses to bring to considerations of value within social care. It is important to consider how the operation of a service ecosystem can be influenced by power relations in a way that may embolden or constrain the agency of some actors within the social care ecosystem.

We suggest that the next steps for operationalising the concept of an ecosystem within social care are to understand what are the mechanisms of value co-creation and co-destruction with the micro and meso levels of care systems (individual service provision and local service arrangements within a municipality). Limiting analysis to the micro and meso levels is a way to make research manageable and avoid the overly generalised accounts required by macro and mega studies. From this we can develop an understanding of the role and interaction of actors and institutions in relation to resource integration across an ecosystem.

A way into assessing local ecosystems is to use Frow's (2016, pp. 30-35) eight point conceptualisation of value co-creation practices that inform how actors can integrate resources, which we set out in more detail in Table 1 on p. 8. Taking a social care focus, we can frame these as:

1. What practices endow actors with social capital within social care?
2. What practices provide a social care ecosystem with a shared language, symbols, signs and stories?
3. What practices shape actors' mental model (of their role) within social care?
4. What physical structures and institutions shape the context of the social care ecosystem?
5. What practices shape existing social care value propositions and inspire new ones?
6. What practices impact access to resources within a social care ecosystem?
7. What practices forge new relationships, generating interactive and/ or experiential opportunities within social care?
8. What practices are intentionally co-destructive creating imbalance within the social care ecosystem?

From this starting point we can assess how far this gives us a sufficient focus on the actors, institutions and interdependencies within local care ecosystems. We can consider what are the key conceptual, structural and temporal factors that explain responses to these questions. We can also assess the extent to which these health-inspired criteria are appropriate for social care, or require adaptation based on differences such as professional norms and funding streams.

## CONCLUSIONS AND LIMITATIONS

In response to the first research question, the narrative review has identified how the concept of 'ecosystem' has been applied in the public service literature. The conceptual lens of 'service ecosystem' – which emphasises the contribution of value propositions, co-creation practices and the influence of institutions on resource integration – offers a helpful framework in which to respond to the complexity of social care service provision. Employing this conceptual lens can be one way to address a tendency in social care research

to isolate elements of the system without paying adequate regard to the interactions between the parts of the system. It also takes us beyond the naturalistic insight that an ecosystem is something that is 'already there' (Dessers and Mohr, 2019, p. 20-21), to enable us to make it observable, researchable and potentially reformable. It enables us to separate out the durability of the ecosystem from the wellbeing of the people within, whilst recognising that this generates further questions about the measurability of individual and collective wellbeing (Joseph and McGregor, 2019).

The second research question sought to explore the key insights from the ecosystem literature which could be applied to social care. Applying a service ecosystem lens to the analysis of social care directs us to consider the value co-creation practices that inform how actors integrate resources and the institutional arrangements, both formal and informal, which influence the context in which actors collaborate. We can also consider the impact these practices may have on ecosystem wellbeing. There is scope for this approach to make not only an academic contribution but also provide a framework which may support social care practitioners to appreciate both the wider impact of their role and how their role is affected by the wider interactions within the social care ecosystem.

As a narrative review, this paper is subject to the limitations of the included publications. Many of the included publications drew from the service ecosystem literature. Including concepts associated with service ecosystems, such as resource integration and value co-creation, within the search strategy may have highlighted publications which were not included. Furthermore, the review may have missed insights regarding the conceptualisation of ecosystems by limiting the search to health and public services. For example, Finsterwalder and Kuppelwieser (2020) discuss the impact of COVID-19 on service industries. Maintaining a division between public and private sectors within the search strategy may have prevented the review from picking up findings which may have proved beneficial for our understanding of the broader concepts. This omission may be a significant given the high proportion of private providers delivering social care services in the United Kingdom. The review only included articles published in English which did mean that a small number of results were not included as part of the review. Furthermore, searches of the practitioner literature were quite limited with only a few publications originating from outside of traditional publishing routes.

Nevertheless, the broad range of articles developed for this review does develop our understanding of what the concept of ecosystem offers to the analysis of public services. From it, we have derived an understanding of the nested levels of a public service ecosystem (micro, meso, macro and mega), and the importance of considering conceptual, structural and temporal elements. We have surfaced the concepts of value co-creation and value co-destruction as a way of studying resource integration within ecosystems, and highlighted the need to explore who defines and controls what is valued. We have generated a set of questions through which to interrogate local social care ecosystems which enable us to move from the abstraction of some of the ecosystem literature to important insights about enhancing the wellbeing of the social care ecosystem and, relatedly, the people who make up the ecosystem.

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APPENDICES

APPENDIX A: SEARCH STRATEGIES

Database	Search Strategy
EMBASE	<p>exp health\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR public service\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR Public Sector/ AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR local government\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR local authorit\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR exp Public Health / AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR exp Social Care / AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR exp health\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab. OR public service\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab. OR Public Sector/ AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab. OR local government\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab. OR local authorit\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab. OR exp Public Health / AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab. OR exp Social Care / AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab.</p> <p>Limit year 2000 to current</p>
Health Management Information Consortium (HMIC)	<p>ti,ab. OR public service\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR local government\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR local authorit\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR exp Public Sector/ AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR exp Public Health / AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR exp social care / AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR exp health\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab. OR public service\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab. OR local government\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab. OR local authorit\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab. OR exp Public Sector/ AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab. OR exp Public Health / AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab. OR exp social care AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab.</p> <p>Limit year 2000 to current</p>
MEDLINE	<p>Exp Health/ AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR Public service\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR exp Public Sector/ AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR exp Local Government AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR local authorit\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR public health.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR social care.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR Exp Health/ AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab. OR Public service\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab. OR exp Public Sector/ AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab. OR exp Local Government AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab. OR local authorit\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab. OR public health.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab. OR social care.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab.</p> <p>Limit year 2000 to current</p>



**APPENDIX A: SEARCH STRATEGIES (CONTINUED)**

Database	Search Strategy
Psycinfo	<p>exp health\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR public service\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR local government\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR local authorit\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR exp Public Sector/ AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR exp Public Health / AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR exp Social Services / AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. OR exp health\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab. OR public service\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab. OR local government\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab. OR local authorit\$.ti,ab. AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab. OR exp Public Sector/ AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab. OR exp Public Health / AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab. OR exp Social Services / AND ecosystem\$.ti,ab. OR ecosystem service\$.ti,ab. OR service ecosystem\$.ti,ab. AND method\$.ti,ab.</p> <p>Limit year 2000 to current</p>
Social Policy and Practice	<p>Health\$.mp. AND ecosystem\$.mp. OR health\$.mp. AND ecosystem\$.mp. AND method\$.mp. OR ecosystem\$.mp. AND public service\$.mp. OR ecosystem\$.mp. AND public service\$.mp. AND method\$.mp. OR ecosystem\$.mp. AND public sector.mp. OR ecosystem\$.mp. AND public sector.mp. AND method\$.mp. OR ecosystem\$.mp. AND local government.mp. OR ecosystem\$.mp. AND local government.mp. AND method\$.mp. OR ecosystem\$.mp. AND local authorit\$.mp. OR ecosystem\$.mp. AND local authorit\$.mp. AND method\$.mp. OR ecosystem\$.mp. AND public health.mp. OR ecosystem\$.mp. AND public health.mp. AND method\$.mp. OR ecosystem\$.mp. AND social care.mp. OR ecosystem\$.mp. AND social care.mp. AND methods.mp.</p> <p>Limit year 2000 to current</p>
Social Sciences Citation Index	<p>health AND ecosystem OR public AND service AND ecosystem OR public AND sector AND ecosystem OR local AND government AND ecosystem OR local AND authorit* AND ecosystem OR public AND health AND ecosystem OR social AND care AND ecosystem</p> <p>Limit year 2000 to current</p>
Google Scholar	<p>Search 1: health AND ecosystem OR public AND service AND ecosystem OR public AND sector AND ecosystem OR local AND government AND ecosystem OR local AND authorit* AND ecosystem OR public AND health AND ecosystem OR social AND care AND ecosystem</p> <p>Search 2: health AND ecosystem AND methodolog* OR public AND service AND ecosystem AND methodolog* OR public AND sector AND ecosystem AND methodolog* OR local AND government AND ecosystem AND methodolog* OR local AND authorit* AND ecosystem AND methodolog* OR public AND health AND ecosystem AND methodolog* OR social AND care AND ecosystem AND methodolog*</p> <p>Limit year 2000 to current</p>

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## KEY FINDINGS

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1. The concept of an 'ecosystem' is often applied to public services, including social care, but with little precision about what it means.
2. The lens of 'service ecosystem' offers a helpful framework and set of tools for understanding the complexity of social care provision.
3. In service ecosystems, people integrate resources in ways that can create or destroy value.
4. Given the challenges facing social care, there is an urgent need to understand the sources of value, and how value can be co-created and sustained.

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## ABOUT THE RESEARCH

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