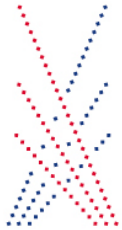

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Procurement Processes Supporting Sustainability Practice: Legalities and Reverse Exchanges in Healthcare

This research investigates reverse exchanges (RE) in healthcare through a study of National Health Services procurement practices. To date, reverse flow literature has focused on manufacturing based supply chains with consideration of service supply chains currently underdeveloped. The manufacturing base also does not sufficiently address legal statutes affecting public sector procurement processes and consideration of sustainability. In considering reverse flows, content analysis of procurement documentation identifies how the procurement process supports adherence to legal regulation and then determines the of role reverse exchanges in sustainability practice. Although sustainability policies clearly aligned to the legal regulation of procurement are identified, examples of RE are limited as it is uncertain how product is recaptured back into the supply chain to support sustainability in practice.

Track: 17 Operations, Logistics and Supply Chain Management

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Introduction

Although consideration of sustainability within supply chain management has increased, challenges are evident as terminology is applied interchangeably (green supply chains, closed loop, reverse flows) (Govindan and Soleimani, 2017; Batista et al., 2018).

The confusion over terminology means often manufacturing definitions are applied, rather than those that are applicable in a service context. There is growing awareness of the limitations of the research base that is focused predominately within manufacturing rather than service related sectors (Esain et al., 2016; Kumar et al., 2016; Mishra et al., 2018) due to recognition in that services, both service and product dimensions are evident (Kumar et al., 2016). Here, a definition by Xie et al., (2016) is applied to reverse exchanges in the context of healthcare products:

> "*when products are returned to source for exchange or final recovery due to product replacement (based on patient needs changing), product maintenance (the functionality of the product parts need to be checked or repaired) or obsolescence (product reaches its natural end of life).*"

Despite a more limited focus on RE in service supply chains, recent work has sought to overcome this. Kumar and Kumar (2016) identify three key dimensions of service recovery in REs: process, employees and customers. Cole et al., (2018) in their exploration of small single-use devices (hearing aids), further break this down. They avoided researching consumers directly but included other supply chain stakeholders such as procurement professionals, healthcare actors and suppliers so to illustrate the complexity and lack of process currently supporting RE which also included a lack of IT. Previously, Diener and Tillman (2015) recognised challenges within RE due to timings, disassembly, collaboration and the use of information technology (IT). Despite these challenges, clear benefits for RE are recognised as REs support value in managing wastes within the supply chain through the recapture of products, which in turn supports the management of scarce resources (Xie and Breen, 2014; Diener and Tillman, 2015; Cole et al., 2018).

A greater focus on smarter procurement in the NHS is regarded as the solution to scarce resources and will facilitate improved public spending (gov.uk, 2016). UK Government policy has linked sustainability to the procurement of goods and services. In 2006, The Sustainable Procurement Task Force sits within the Department of Environment, Food and Rural Affairs (DEFRA) a defined sustainable procurement as being:

> *"a process whereby organisations meet their needs for goods, services, works and utilities in a way that achieves value for money on a whole life basis in terms of generating benefits not only to the organisation, but also to society and the economy, whilst minimising damage to the environment (DEFRA, 2006:10)"*

Procurement in the public sector has been subject to significant legal regulation in the past decade. EU Directives to improve transparency of process, bid-criteria and a level playing field for EU companies came into force in 2014 as a result of Directive2014/24/EU (eur-lex, 2014) and are impacted by spend value which are subject to amendment every two years. The last update was January 2018 (EU, 2016). These EU directives are subsequently transposed into national laws such as Public Contracts 2015 in England and also in Scotland which has its own legal system (separate to the other home nations) and operates within Procurement Reform (Scotland) Act 2014 and Procurement (Scotland) Regulations 2016. Aligned to Directive2014/24/EU, clear bid criteria for the public sector are aligned to traditional supply chain objectives of quality, cost, speed, dependability and flexibility (Harrison et al., 2014) and are also supported by innovation, greener and social inclusivity criteria that are to be met. Greener elements are aligned to sustainability policies (EU, 2016).

Purpose

Given the support for sustainability within legal statutes supporting public sector procurement, two main research questions underpin this study: how do procurement processes support adherence to legal regulation given the focus on sustainability? This will then allow for identifying how reverse exchanges are evident in sustainability practice. Given the different healthcare procurement systems across the UK, this research focuses on National Services Scotland (NSS) which is a dedicated health board where procurement and logistics activities are centralised. This is in comparison to the NHS in England where centralised procurement is only being endorsed post-Carter Review (gov.uk, 2016).

Research Approach

As this exploratory research is in its early stages, the first stage of the research in considering procurement processes, legal regulation and reverse exchanges was content analysis of NSS documentation online in order to determine what role sustainability plays in NSS procurement, through adherence to legal statutes and sustainability is facilitated through reverse exchanges. Documents were drawn from NSS website specifically linked to procurement activities, procurement strategy and training (four documents) with an evaluation of the Procurement Journey (Scottish Government) website and associated resources (toolkits and templates).

Krippendorff (2004) is explicit that content analysis is a qualitative method in discussion of interpretation, context sensitivity and sense-making of the contents of the text. Krippendorff's (2004) approach to content analysis is further supported by Dey (1993) and Elo and Kyngäs (2007) in providing a framework of key areas in qualitative data analysis for sense making. These areas are context, intention, process, and connections inferred which are further related to the research focus (NSS) and how sustainability is supported, as discussed in Table 1.

Table 1: Coding categories for NSS documents

Key areas	**Areas applied to Content Analysis**
What is the context under study?	Context – National Services Scotland where procurement and supply chain activities are centralised to support the NHS in Scotland, a public sector body.
What are the intentions?	Intentions – uncover new insights about a sustainability in procurement and supply chain processes.
What is the process (action/outcomes)?	Process – Drivers of sustainability (legal/regulatory) and evidence of mechanisms supporting this.
Can connections be inferred?	Connections inferred – linkages more explicitly made to activities that can be considered aligned to reverse exchange – repair, reuse, recycle, recovery.

Findings

Context

In NHSS, sustainability is listed as a clear principle (Principle 5) of procurement in NHS Scotland and is aligned to wider Scottish Government and UN Sustainability Goals (NES, 2018). RE is not explicit in the documentation directly from NSS (NHSNSS, 2019), however, the procurement strategy for 2018-2020 may refer to RE as "*Procurement shall have due regard to the "whole life" of the goods or services procured*" (NES, 2018:8).

Intentions

NSS report that previously they had adopted a linear model to supply chain services but are moving towards a circular model in how they will create solutions that will allow them to track and trace a much wider range of items, including medical equipment for recovery, repair, reuse and recycle. This is also reinforced in strategy documentation, as well as procurement reporting. This suggests that although the potential for reverse exchanges is recognised, NSS are still moving towards this, rather than actively facilitating reverse exchanges. Evidence does suggest consideration of the full product life cycle as 'Life Cycle Mapping' is discussed across several documents and training materials. It is also embedded into procurement journey, a Scottish Government website, which supports procurement professionals in working within regulatory frameworks (procurementjourney, 2019).

Process

NSS are bound by the Procurement Reform (Scotland) Act 2014 which is supported by Public Contracts (Scotland) Regulations 2015 and Procurement (Scotland) Regulations 2016. This 2014 Act articulates regulated procurement meaning how procurement contracts are contracted in terms of seeking offers (tenders) and how operators are selected. In Scotland this is supported by Sustainable Procurement Duty.

Clear processes for mapping sustainability to regulatory requirements are evident. To support Sustainable Procurement Duty, Procurement Journey Scotland (2019) have developed a tool kit for use which is to be completed to identify the potential scope of benefits, opportunities and risks of potential contracts linked to sustainability criteria. The 'Sustainability Test' excel file is downloadable and editable with 28 key areas covered in the criteria linked to economic, environmental and social sustainability factors with areas that map to national standards and also internal strategies for these areas (e.g. Energy usage mapped to Carbon management plans, material scarcity linking to Circular Economy strategies, fairly and ethically traded supply chain linking to Human Rights Policy). These are also to be mapped to 15 national outcomes and 55 national indicators (Procurement Journey. Scot, 2018).

Connections Inferred

Only one document discusses actual case studies of demonstrations of sustainability linked to the Sustainability Test, but clear discussion of reverse flows are not explicit in the case studies provided. Work is ongoing with Zero Waste Scotland on sustainability projects and these are reported in strategy documentation. One case study focuses on single use medical devices which is the focus of this project. These medical podiatry products are made of steel which are sourced from China, India and Malaysia. Sustainability concerns in terms of the 'sustainability test' include type of material used, working conditions of those in the supply chain, manufacture and disposal and 10% of the questions for contract scoring were based on sustainability. However, the context of single use devices does not discuss recovery, repair, reuse and recycle. This appears to be a work in progress regards sustainability as discussion of inconsistent approaches to carbon by suppliers are referenced.

Relevance and Contribution

In National Services Scotland, it is evident from documentary analysis that sustainability informs procurement activities and this is clearly mapped to legal requirements within Scotland and also the EU. Procurement Journey is explicit about these linkages and there is guidance and toolkits, including the 'Sustainability Test' to support employees in procurement activities (procurementjourney, 2019). Life Cycle analysis tools will also support the circular economy in considering end of life and regenerative aspects of products being procured (Bernon et al., 2018). There is a clear link to organisational strategy which is questioned in other studies (Larsen et al., 2018). The centralised procurement approach which is not evident elsewhere in the UK, adds novel insights for sustainability management of the procurement processes in healthcare. There has been a lack of RE focus in services and the infancy and potential of initiatives (Cole et al., 2018) may go some way to explain this, given the example of NSS. However the embedding of sustainability in the procurement process and NSS work with agencies such as Zero Waste Scotland is evidence that proactive, cooperative approaches can support future reverse activities (Chan, 2007). However, challenges with suppliers may well manifest as has been evident elsewhere (Brammer and Walker, 2011).

Development of this Paper

Following content analysis of NSS documentation, the researcher attended workshops organised by NSS and Zero Waste Scotland involving procurement teams from NSS and suppliers (February 2019). It was confirmed that work to embed reverse exchanges into the supply chain is only at the starting stage now, with a series of pilot studies due to commence in July 2019. The next steps are following this work up with full interviews with key stakeholders such as NSS staff, suppliers and Zero Waste Scotland and to follow the pilot studies to see where REs are evident in practice.

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