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Understanding financial auditing from a service perspective

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ABSTRACT

This paper draws from the service science and professional service literatures to conceptualize financial auditing as an economic service. A central characteristic of economic services is the participation of the customer/client in the production process. The necessity of having the customer/client be a co-producer introduces greater heterogeneity to the provision of services relative to the manufacturing of goods which, in turn, creates a tension between service quality and service efficiency. One implication of this tension is that standardization of the audit process may not increase audit quality. We further argue that audit research should give more attention to the idiosyncratic nature of audit engagements and the importance of successful cooperation between the service provider (the audit firm) and the client for improving audit quality. Utilizing research on service networks, we draw attention to a broader perspective than the dyadic relations of service provider and client to show that the possible frictions between the value of co-creation of the service and the independence of the service professional are endemic to the service process, implying that efforts to maximize auditor independence may have unexpected costs that impair audit quality.

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1. Introduction

Since the publication of Simunic (1980) and the resulting groundswell of auditing research based on economic theory, the literature has typically modeled the audit as a type of economic good. An implicit assumption of this approach is that auditing is akin to manufacturing where homogenous products are produced to meet technical specifications as reflected in a production function with a focus on cost minimization (Choi, Kim, Liu, & Simunic, 2008; O'Keefe, Simunic, & Stein, 1994; Simunic, 1980). From this perspective, the audit produces a homogeneous output where appropriate quality is achieved by meeting the demands of auditing standards, the requirements of regulation, and the quality goals of the firm. More specifically, while we now have evidence that audit quality may vary by office (Francis & Yu, 2009) or individual auditor (Knechel, Vanstraelen, & Zerni, 2015), the underlying fee model presumes that each audit firm maintains a uniform level of quality

that is reflected in their brand value.¹ While creating a perception of consistent quality is a reasonable goal for an audit firm, particularly as a marketing strategy, these presumptions have led researchers—and some regulators—to view auditing as a homogeneous production process that is designed to achieve a uniform set of results consistent with an *idealization* of high quality. As a result, a great deal of emphasis is placed on maximizing the dual aspects of audit quality: independence and expertise (DeAngelo, 1981a). Since independence and expertise are often treating as orthogonal constructs (Knechel, 2016), there is a general belief that they can both be simultaneously maximized if the profession can simply get the right processes in place based on an evolving set of “optimal” standards, regulations, policies, and procedures.

As a counter perspective, we introduce a professional service approach to the audit process which allows us to consider the idiosyncratic nature of the client-auditor relationship and the

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E-mail address: w.knechel@warrington.ufl.edu (W.R. Knechel).¹ The assumption of constant audit firm quality is critical to the literature on audit fees and relaxing that assumption can change the interpretation of evidence obtained from audit fee models (Gerakas & Syverson, 2015).

heterogeneous audit outputs produced by this relationship,² as well as their impact on the value, quality, and efficiency of the audit. A service relationship is epitomized by close interaction between the producer of the service and the recipient of the service. This interaction is a critical and explicit element of any service relationship because the service provider cannot provide maximum value to the client without input, assistance, and guidance from the client. The presence of close interaction between service provider and service customer (i.e., client) necessitates a degree of continuous interaction, and even cooperation, between the provider and client. The cooperation between multiple actors defines many of the unique features of services in contrast to goods or products. Production of services can be highly complex, and service quality can be difficult to objectively define or measure. A service perspective suggests that more interactive (cooperative) relationships between the service provider and client should lead to *better* service outcomes, in contrast to the classic audit research paradigm based on agency theory which views cooperation as a threat to auditor independence and audit quality.³

Our fundamental approach is to argue that audit should be modeled as an economic service through a process of abductive reasoning (Lukka & Modell, 2010). We then argue that this perspective provides general insights to the specific context of auditing through a process of deduction. In so doing, we draw from extant audit research to support the validity of our abductive generalizations and the relevance of our deductive inferences. More specifically, the arguments in this paper build from four fundamental insights derived from the service science literature that contrasts services with production-based economic goods:

- (1) Services co-create value through interaction/cooperation by utilizing the unique knowledge and resources of *both* the service provider and service customer (client).⁴ From the service perspective, the customer is not a passive recipient simply waiting to consume what another has produced. Rather, the customer is an active participant in the service process. Together, both parties determine the needs that the service will address and share the knowledge and resources unique to each party. Service quality depends upon the quality of this cooperation.
- (2) Services are not necessarily limited to dyadic relationships between a service provider and their immediate client, but often involve a network of parties with differential knowledge, resources, and interests. As a result, interactive efforts are more complicated because each party in the service

² Most early research has treated the audit as an experience good (e.g., Craswell & Francis, 1999) such that the quality of an audit is considered observable after its completion. This perspective is consistent with the brand-name-equals-quality perspective because individual engagements that deviate from the quality goals of the firm will be revealed and subject to *ex post* enforcement and penalties. More recent research has suggested that audits have significant attributes of a credence good (Causholli & Knechel, 2012; Causholli, Knechel, Lin, & Sappington, 2013) where quality may not be observable, or may be costly to observe. One important implication of viewing auditing as a credence good is that the quality of individual engagements can vary due to idiosyncratic aspects of the client. It is the idiosyncratic aspects of clients that makes a service science viewpoint appropriate for auditing.

³ Viewing auditing as a service also allows us to reconcile two disparate streams of audit literature: the primarily *quantitative* literature which views auditing as more of an economic good and the primarily *qualitative* literature which views auditing as more of a profession. The economic view tends to marginalize the professional service nature of the audit as a constraint on auditor behavior, (i.e., the professional code of ethics as behavioral self-restraint) and makes classic assumptions about behavior by "self-interested" actors in an agency relationship.

⁴ Much depends on how we define "client" in this context. This will be discussed in detail below.

process must integrate the knowledge and resources of multiple parties. Another consequence is that service relationships can lead to a fundamental tension between cooperation and self-serving behavior which can influence the objectivity of the participants.⁵

- (3) Value is ultimately determined by the participants in the service process. Value is a function of what participants actually experience in relation to what they expect to experience. Service quality therefore cannot be defined universally but rather must be understood within the context of the network of service producers, clients, users, customers and consumers.⁶
- (4) Service production leads to a fundamental tension between service quality and service efficiency. Whereas homogenous economic goods produced at scale align product quality and production efficiency, intensive client interaction creates heterogeneity in the service process that makes it difficult to achieve efficiency through standardization. Service providers look for ways to standardize *some* aspects of their operations while still working to integrate the client into the service process, but there are limits to how much processes can be standardized without sacrificing the required integration that maximizes the value of the service. Thus, improved service quality may come at the expense of decreased service efficiency.

Following each of the four general insights, each of the following topics will be discussed in more detail within the context of extant audit research:

- (1) **Auditing is an economic service** (Section II): We argue that the audit possesses many features that suggest it meets the fundamental conditions of a service. For example, the need for the auditor to work closely with the client and client personnel to produce an audit; the direct input of *client* resources into the audit process (e.g., systems and personnel, internal audit); and the heterogeneity of audit processes and outcomes are all hallmarks of a service.
- (2) **Auditing is a collaborative network service** (Section III): Auditors work within a network of participants concerned with the integrity of a firm's financial presentations, i.e., the financial reporting eco-system or supply chain. Auditors work directly with a firm's management and internal staff, as well as with audit committees and regulators. The efforts that auditors make to interact and elicit cooperation with one party can create concerns of independence from the other parties in the service network. Auditing therefore requires successful integration of the knowledge and resources from numerous parties. However, there can be significant variation in both the level and quality of cooperation that is expected and provided across the participants.

⁵ This tension is reflective of potential agency conflicts *within* the service relationship.

⁶ Marketing research separates the consumer from the customer (Gummesson, 2008). A customer may be the entity that purchases a product, e.g., Walmart purchases toothpaste from Proctor & Gamble, while the consumer is the individual that actually uses the product. This simple example illustrates the challenge of defining the role of different parties, i.e., Walmart's "customer" is actually Proctor & Gamble's "consumer". This issue is very complex when placed in the context of professional services in general, and the audit specifically.

- (3) **Audit quality depends upon perceptions within the cooperative network** (Section IV): While audit standards aim for a uniform level of audit quality,⁷ the service perspective argues that quality must be understood in terms of the expectations of the particular parties in a given audit context, including third party users. Departure from a uniform standard may not always be evidence of an audit failure. Rather, such a departure may arise from the idiosyncratic conditions of a client and may even suggest that the uniform standards are inappropriate for the needs and expectations of the participants in a given audit context.
- (4) **Excessive standardization in the audit process may undermine audit quality** (Section V): Since the audit process is idiosyncratic to individual clients, the execution and outcome of the audit process is not readily transferable from one client to another. While audit firms may standardize their audit *methodology* for the sake of efficiency and to produce more uniform audit outcomes, the *execution* of the audit depends on the unique (non-standardized) needs, knowledge, and resources of each party in a given audit engagement. This challenge may be exacerbated by over-commitment to a set of uniform standards.

To illustrate the importance of these observations, consider the incentives of practitioners and regulators who both may have an interest in making audits more homogenous. For audit firms, homogeneity decreases costs and makes it easier to defend themselves in both litigation and regulatory environments. For regulators, homogeneity makes it easier to evaluate audit firm performance and provide evidence of “consistency” for a subset of attributes that are presumed to comprise audit quality. Likewise, audit researchers find it simpler to model the audit along the lines of a manufacturing process where certain inputs should reliably lead to certain outputs, with any deviation being evidence of matters such as inferior audit quality or lack of market competition (Knechel, Rouse, & Schelleman, 2009). From the service (and social) perspective, however, efforts to make auditing more homogenous may inhibit an auditor’s ability to make professional judgments relevant to specific engagements and reduce the incentives of auditors to innovate the core audit process (Gaeremynck, Knechel, & Willekens, 2018). For regulators, a service perspective raises question about the concept of an externally imposed, objectively defined, approach to audit quality.

Audits, however, exhibit one critical difference from most other types of services. Specifically, auditors have an explicit obligation to third-party users of financial information that are not involved in the audit process. This is why it is critical that auditors maintain independence in fact (and appearance) even with the need for cooperation with client personnel. Independence is often interpreted solely in terms of the auditor’s financial incentives regarding the engagement (economic bonding v. litigation/reputation loss), and most often focuses on auditor independence from the objectives of client management. Audit researchers—and

regulators—tend to conclude that auditor cooperation with management is negatively associated with professional skepticism (Bazerman, Morgan, & Loewenstein, 1997; Koch & Salterio, 2017). Yet management and other components of the client are indispensable participants in the collaborative network that is needed to successfully conduct an audit.⁸ So while auditor independence represents a necessary condition for audit quality, client-auditor cooperation may in many respects exert more influence on the eventual quality and efficiency of the audit outcome (Guénin-Paracini, Malsch, & Tremblay, 2015).

In this paper, we will describe the auditee and its various participating components (e.g., management, internal staff, audit committee) as the *client/customer* of the audit firm and describe the external user of financial information as the *consumer* of the audit service. In so doing, we follow the service literature on business-to-business relationships where services are provided both directly (through cooperation with the client/customer) and indirectly (through the consumption of the end user) (Vargo, 2009). The paper’s primary focus is on the service relationship between auditors, internal participants (e.g., managers), and audit committees, as these are the parties who work most closely together in production and can be most properly described as “cooperating” in the audit process, or in the language of the service literature, co-creating the audit outcome. This focus should not be taken to mean that the auditee is the primary beneficiary of the audit service. Modeling auditing as a service process does not reduce the commitment to satisfy the needs of external users of financial information. Indeed, understanding the implications of auditing as a service provides a theoretical basis for analyzing why audits might not deliver the value desired by different stakeholders.⁹ We acknowledge that the separation of the financial statement user from the financial reporting process, as well as the many participants in the audit process who have potentially competing interests, introduces unique challenges to understand auditing as a service process. While prototypical service research often examines contexts in which the customer and the consumer are aligned, simplifying the dynamic of “co-creation, external users of financial information have to contend with whether the participants in the audit service (a) understand their needs and (b) have the proper incentives to meet those needs.

The structure of the rest of the paper is as follows. In section II, we apply a general model of economic services, drawn from the service science literature, to auditing. In section III, we explore audit as a part of a broader collaborative service network, including the tension between independence and cooperation. In section IV, we look at audit quality from a service perspective. Section V discusses issues related to service efficiency in the context of service quality. Finally, Section VI offers concluding thoughts.

2. Auditing as an economic service

Conceptualizing economic activity in terms of services rather than as traditional economic goods leads to unique assumptions and conclusions when compared to common models of production. Manufacturing typically involves standalone production processes that culminate in the production of tangible goods, while services are characterized by interactive processes that provide value

⁷ We appreciate the insight from one of the anonymous reviewers that standards may be thought to aim for a uniform “floor” for audit quality rather than a specific target level (Knechel, 2013). Cost pressures may lead to the floor being also the ceiling.

⁸ The necessity of, and tension associated with, this cooperation is reflected in Demski and Swieringa (1974), which formally models audit production as cooperative and jointly determined by both client and auditor: “[q]uite clearly, then, this elementary and innocuous form of *cooperation* in selecting their respective decisions ensures that the *auditor is not strictly independent*. The auditor and auditee *jointly share* in the consequences they *jointly produce*; and they coordinate these choices to the extent of, other things being equal, not compromising each other (509–510)” [italics ours].

⁹ Audit research notes the variety of consumers of the audit process, often assigning primacy to direct users of financial information—investors—but additionally including a broader array of secondary consumers—e.g., managers, employees, government agencies, the general public, etc. (e.g., DeAngelo, 1981a; Watts & Zimmerman, 1981). This variety of consumers introduces heterogeneity into the value which different consumers assign to the audit output.

through the joint efforts of the service provider and the “client”. Services, especially professional services, are inherently and intimately linked to the specific characteristics and needs of the client. In contrast to a goods-based model of auditing, a service-based model would frame the relationship between client and auditor as a continuous, cooperative interaction over time, one which ultimately facilitates the “co-creation of value.” However, it also needs to be recognized that bringing the client into the service process increases the variability in service outcomes since the results of the service are not solely under the control of the service provider (auditor) and depend to some extent on the conditions of, and interactions with, the client.

Contemporary service science literature explicitly defines a service as a process that involves significant inputs from the client, as opposed to a non-service (manufacturing) process where the customer or consumer only pays for and consumes what has been produced by others (Sampson & Froehle, 2006). The presence of significant client inputs is considered a necessary condition to identify a process as a service:

“Services are production processes wherein each customer [client] supplies one or more input components for that customer’s unit of production. With non-service processes, groups of customers may contribute ideas to the design of the product, but individual customers’ only participation is to select, pay for, and consume the output. All considerations unique to service are founded in this distinction.” (Sampson, 2010).

From this definition, the crucial distinction of what defines a service process is the presence of direct client/customer input to the process of producing value. This idea is reflected by a key element of the nomenclature of service science, “co-creation of value”, which reflects the importance of client/customer and service provider interaction (Spohrer & Maglio, 2008; Vargo, Lusch, & Akaka, 2010).

Parasuraman, Zeithaml, and Berry (1985) identify four common characteristics of services: (1) intangibility, (2) heterogeneity, (3) inseparability, and (4) perishability (collectively, “IHIP”). To illustrate, consider services provided by an attorney to a client accused of a crime. The goal of the attorney is to provide a proper defense for the client but that process does not change the fundamental facts of the case. The activity of defending a client does not create a new or separate physical good/object (*intangibility*) and what the attorney does to pursue the case will vary depending upon the facts and conditions of the client’s case (*heterogeneity*). The value of the service arises from the attorney’s legal knowledge and courtroom skills applied to the client’s unique case (*inseparability*).¹⁰ While an attorney’s *expertise* may carry over to the next case, the *process* will need to be repeated from the beginning when the attorney obtains a new client with their own unique facts (*perishability*). Taken together, what the IHIP characteristics emphasize is that the value of a service is found in the process and not in an outcome that can be evaluated independently of the process. Whether the outcome of the case is consider good or bad depends on the expectations of the participants, i.e., a reduced sentence or extensive delay in sentencing might be considered a desirable outcome by a “guilty” client. In other words, a customer who purchases an economic good may not care much about the production process but the

satisfaction of a service customer could critically depend on how the process is conducted and perceived.

Auditing is properly understood as a service in that it involves significant interactions with the client involving the knowledge and effort of management, internal staff, and other parties associated with the audit client.¹¹ Auditing is part of the larger financial reporting supply chain with a number of components. The role of the auditor in the simplest terms is to produce an audit opinion that reflects the activities of the many other participants in the overall process. The audit opinion has historically been largely boilerplate and is important mainly insofar as it represents the completion of the planning, testing, and evaluation aspects of a process focused on verifying the accuracy of financial information prepared by other components of the financial reporting supply chain (e.g., management and internal accounting processes). An audit produces assurance, a form of risk reduction which is *intangible* and *unobservable* (Knechel, Krishnan, Pevzner, Shefchik, & Velury, 2013).¹² Further, because clients differ significantly from one another, audit activities can be *heterogeneous* across engagements, i.e., different clients require different audit procedures in terms of scope, timing and extent. The audit is *inseparable* from the client in that the auditor tailors the process to the conditions of a specific client and cannot conduct an audit without interaction and cooperation with the client.¹³ An audit is *perishable* because most of the work, and the final report, cannot be transferred to any other client or subsequent time period.

The quality of the audit process directly influences the quality of the audit outcome as reflected in an achieved level of assurance which cannot be directly observed. The quality of the audit also depends on the relative contributions of the participants in the process. Auditors can draw on a wealth of overall experience; their familiarity with standards, regulatory requirements, and customary assurance procedures; and their experience with other clients within the same industry. Client personnel, including management, has knowledge about the operations and transactions of the company that the auditor needs to know. The key point is that both parties have informational advantages that need to be leveraged in order to conduct an effective audit—largely internal with respect to the client and largely external with respect to the auditor. Since informational asymmetries flow in both directions, this creates a potentially compelling rationale for the “co-creation of value” through the audit process, i.e., the need to cooperate in the audit process. This bi-directional information flow also contrasts distinctly with the more typical agency-driven view of the auditor as being at an informational disadvantage relative to the client, i.e., management’s goal is to “fool” the auditor.

These points may be illustrated by considering the implementation of the *Integrated Audit* requirement in the US which specifies that the auditor must evaluate a client’s internal control over financial reporting (PCAOB AS 2 & AS 5 [PCAOB, 2004, 2007]). Given the broad range of material classes of transactions for which internal control needs to be evaluated, expanded expertise was

¹¹ Some inputs that arise from client/auditor interactions are fairly obvious, i.e., client firms produce the economic transactions, operations, strategy and corporate structure that influence the needs and risks of the audit. More specifically, the client produces the financial statements to be audited. They establish the systems and controls that give rise to the financial statements. They produce much of the supporting documentation that auditors rely on to test account balances and internal controls.

¹² Services involve a transformation of client-provided resources (Moeller, 2010), and it is the transformation that is considered intangible. The value of the auditor’s service is the assurance added to their clients’ financial reporting.

¹³ As discussed above, the concept of inseparability, when applied to an audit, could imply that there may exist a theoretical limit to the traditional view of auditor independence in any given engagement (Knechel, 2016).

¹⁰ Originally, service researchers defined *inseparability* as meaning that the production and consumption of a service happens simultaneously. Inseparability is now defined more in terms of the necessity of customer resources being present in the production process (Moeller, 2010). The latter definition is clearly more applicable to the context of the audit.

often required within the audit team, creating new roles and demand for various types of specialists, many technology related. The need to evaluate internal control over financial reporting at the level of detail envisioned by the auditing standard effectively required that auditors be “embedded” deep into the components of the reporting supply chain to observe processes, staff activities, risks, relevant controls, and governance structures. The result was a broad increase in the interaction—and cooperation—between the auditor and other participants, i.e., internal personnel, internal audit, management, and corporate governance.¹⁴ The need to ramp up communication and cooperation amongst the participants became increasingly self-evident as auditors developed more experience with the audit of internal control over financial reporting. The ability of auditors to make sound judgments about internal control arises from experience, maturity and *repeated interactions among stakeholders* (Power, 2003). This leads to our first foundational Proposition¹⁵

Proposition 1. *The more an audit involves the participation of the client and other parties, the more the audit should be characterized as a service process.*¹⁶

Finally, the unique role of the financial statement users in the audit process is critical. While the users of financial information may be considered the ultimate beneficiaries of audit services, it is not clear that these users participate significantly in the audit service process itself. From the service perspective, a party participates in service delivery to the extent that the party's competencies and other resources are necessary and successfully integrated into service delivery (Grönroos, 2011). A fundamental driver of integration is the quality of communication between the customer/client and the service provider (Payne, Storbacka, & Frow, 2008). There is not much evidence that auditors and end-users of the financial statements engage in this communication other than the reports required by standards and regulation. In fact, this is one of the most common criticisms of the audit profession (e.g., see the Kingman (2018) report from the UK). The separation of users from the audit process, however, is not theoretically necessary. Experimental (Mayhew & Pike, 2004) and archival research (Dao, Raghunandan, & Rama, 2012) indicates that simply having shareholders participate in the hiring of auditors appears to encourage auditors to be more sensitive to user needs. It is possible to imagine an audit process that involves richer communication between auditors and users where the users are an active participant in the collaborative network that produces the audit. One benefit of modeling auditing as a service is that it can help us to imagine alternative institutional forms for the practice of audit. This leads to our first positive Proposition:

Proposition 1-1. *The less (more) that end users are separated from the collaborative audit process, the more (less) able the audit process is to meet their expectations.*

Table 1 provides an overview of points made in this paper. The first column lists a number of attributes that distinguish the manufacturing (second column) from the service environment (third column). The remainder of the table illustrates how audit is

conceived differently when considered from the manufacturing perspective (fourth column) versus the service perspective advocated in this paper (fifth column).

3. Auditing as a collaborative (cooperative) network service

The financial reporting supply chain consists of a number of important components. Transactions are captured by the accounting system embedded in internal operations, internal controls within those processes improve the reliability of transaction processing, internal audit monitors the quality of internal processing and transaction authorizations, management oversees internal activities, the board and audit committee provide governance over the entire system, and the external auditor provides assurance over the information that emerges from the entire process. Due to the interactive nature of all of these components, cooperation within the reporting supply chain is highly important to the quality of the information reported to stakeholders and users.

3.1. The nature of the “collaborative” audit process

To better understand the cooperation needed for co-creation between a service provider and a service recipient, it may be helpful to consider different potential levels of cooperation that might occur in a service relationship.¹⁷ A service is not fundamentally limited to one party doing something “for” another party. This view of service could see a service provider as *relieving* the customer from performing some task. While many services do involve the relief of the client/customer from performing an activity (e.g., pool cleaning, mowing the lawn, etc.), a service based on replacing a client's own labor provides a limited perspective on the nature of services, and clearly an audit is something much more than simple “labor replacement.” A richer service perspective emphasizes *enabling* economic activity that might not be possible by the client without the assistance of the service provider (Normann & Ramirez, 1998).¹⁸ A critical element of enabling economic activity is that both the service provider and the client have unique competencies and resources that need to be integrated for the client to obtain the most value from the relationship. That is, the service provider offers a set of skills or knowledge that the client cannot readily reproduce themselves but which only has value in the context of a specific client.¹⁹ An auditor brings accounting, auditing, and tax expertise to an engagement, but the client brings the “facts”. Without a specific set of facts, the auditor's knowledge is simply an academic exercise like a problem in a textbook.

The necessary integration between a client and a service provider with unique and non-overlapping knowledge includes determining expectations for what can be accomplished, each participant's role or responsibilities, and how the risk of

¹⁴ Certain aspects of SOX also had the effect of significantly increasing the interaction of the board of directors, audit committee and external auditor (e.g., see Section 204).

¹⁵ Throughout this paper, we will lay out five foundational propositions that follow from our theoretical discussion of service science in the audit context. Each foundational Proposition will then be followed by one or more related positive/normative propositions.

¹⁶ A complete list of the paper's theoretical propositions can be found in Table 2 at the end of the paper.

¹⁷ A general attribute of a credence good setting is that the seller assists the buyer to determine the level of a good or service that they need (Causholli & Knechel, 2012). Such a view is very consistent with the nature of most service relationships and recognizes the inherently idiosyncratic relationship between a service provider and the customer/client/user.

¹⁸ An audit can be viewed as an “enabling” activity in the sense that companies would have difficulty raising capital, either through borrowings or equity issues, without the existence of a service function similar to the audit. At a subtler level, the auditor also “enables” accurate processing of financial information through the review and evaluation of accounting systems and internal control.

¹⁹ Most service industries are based on some type of specialization that is economically valuable to customers and clients. For example, very few people can afford to own their own plane so airlines exist to transport people between distant locations. Similarly, very few individuals have the time or talent to study medicine, law, engineering, architecture, or accounting, so professional specialists exist in each of these fields.

Table 1
Attributes of auditing from manufacturing and service perspectives.

Attribute	Prototypical Manufacturing	Prototypical Services	Auditing as Manufacturing	Auditing as a Service
Outputs	Tangible product separable from production process.	Value-added activities enhancing customer-provided resources.	1. Audit opinions. 2. Internal control reports. 3. Critical audit matter reports.	1. Assurance (information risk reduction) of financial statements. 2. Advice to management for meeting goals related to financial reporting and operations.
Role of customer in production	Customers have little direct role in production, but may have some customizable options.	Customers are co-producers, providing necessary inputs and helping to tailor the service offering to fit the customers' needs.	Clients (management, internal staff, audit committee) provide unaudited financial statements and other inputs upon request from auditor without significant variation in effort or quality of inputs across engagements.	Clients (management, internal staff, audit committee) work with auditors to create credible financial disclosures, with significant variation in the amount and quality of cooperation across engagements.
Quality	How well output meets predetermined objective specifications.	How well service outcomes meet subjective customer expectations.	How well the audit process satisfies <i>uniform</i> audit standards, regulation, and the inspection regime.	How well the audit process meets <i>idiosyncratic</i> , potentially competing, stakeholder expectations.
Assessment of quality	Quality assessed prior to consumption by inspection of goods (search goods) or after consumption (experience goods).	Quality assessed by experience of service outcomes and by experience of service customer (experience goods) or possibly not at all (credence goods).	Quality assessed by auditor reputation, inspection audit outcomes, compliance with standards and firm policies, and avoidance of "audit failures".	Quality assessed by interactive experiences of client and the auditor, knowledge specialization of the auditor, and auditor reputation.
Efficiency	1. Standardization of production process. 2. Efficiencies of scale.	of 1. Standardization of "back-office" components of production. 2. Efficiencies of scope and resource integration.	Standardization and compliance of the audit process, including standardized audit planning and documentation.	1. Standardization of the audit methodology; nonstandardization of client interactions and actual audit process. 2. Efficiency of Scope: Use of competencies gained through audit to provide additional services. 3. Efficiency of Resource Integration: Auditor acts as relationship manager to integrate competencies of participants in the audit process.

unsatisfactory outcomes will be shared (Normann & Ramírez, 1998). Given the level of cooperation required for integrating service provider and client competencies and resources, service research has identified trust, commitment, and mutual dependency as important elements in the service relationship (Salo, Tähtinen, & Ulkuniemi, 2009). For example, service providers can obtain a number of benefits by "going the extra mile" in trying to anticipate and satisfy client needs. They create economic differentiation in this way, as the knowledge of the client's needs that arises from interaction with the client allows the service provider to tailor its services to the specific situation, i.e., they bring the so-called *knowledge of possibilities* to the engagement (Ploetner & Ehret, 2006). The service provider fosters client loyalty, as clients respond to the perception that the service provider is attentive to their particular needs. Also, they learn to innovate their service offerings by leveraging their existing competencies to address the needs of various stakeholders. In short, both the service provider and the client make intellectual (and sometimes physical) investments that allow the value of the service relationship to be maximized. Given that auditors work with multiple parties within the audit process, most notably management and the audit committee, auditors may experience tension in determining how to "go the extra mile" for all of these parties. Properly balancing these tensions is a relatively unique aspect of auditing when viewed as a service. For example, the ERISA Act of 1974 required many pension plans in the US to be audited and represented an extension of services (i.e., the "audit") to stakeholders (i.e., employees) that may

not have been adequately represented within the collaborative process prior to the passage of the law. At the same time, these fiduciary audits imposed added costs on the company itself in terms of fees and, possibly, increased contributions to the plans.

Proposition 2. *The value that any participant in the audit process brings to the audit will be a function of (a) the competencies and resources of the participant and (b) how successfully those competencies and resources are integrated into the audit process.*

Service researchers have identified various dimensions to the collaborative process that can influence the nature, extent, and quality of interaction and cooperation in the service process (Piller, Ihl, & Vossen, 2011; Roser, DeFillippi, & Samson, 2013; Zwass, 2010). Roser et al. (2013) identify three dimensions of interaction that appear to be particularly relevant to the audit context: (1) purpose, (2) locus and (3) timing. Each dimension raises some interesting questions related to the audit process and how auditors and clients can, or should, interact.

Purpose: The first question to consider involves the *purpose* of cooperation in the audit context. Many parties make up the financial reporting ecosystem and a great deal of the effort that goes into the audit prior to the final report involves interactions with stakeholders that are also the subject (managers, client personnel) or recipient (audit committee) of the audit. Individual participants may have somewhat different goals given their unique perspectives, but the overall purpose of the audit is to provide accurate information to the users of financial information. The auditor

provides incremental assurance that the information is accurate. This overall goal cannot be accomplished without cooperation among the participants. Management is at the center of the financial reporting supply chain because they: are responsible for designing and overseeing the accounting system, business processes, and system of internal controls; make the strategic and operating decisions which result in recordable accounting events; and manage the preparation of the financial reports which are the subject of the audit. Management also has dual and potentially conflicting roles in this process in that they want accurate and reliable information for performing their job (i.e., making decisions and managing subordinates), while simultaneously being the subject of the attention of other stakeholders who rely on the financial statements to evaluate management's performance.²⁰

The potential conflict between management and the auditor will depend to some extent on management's relationship with other participants in the process. For example, if management is concerned with the quality of internal information processing, they may align themselves closely with the auditor and ask the auditor to help improve processes and foster efficient information flows between internal participants (e.g., internal auditors, process owners) and management (Hellman, 2006). Such a dynamic could lead to a more effective audit. If the same managers are concerned about the attitude of the board of directors towards their own performance, management may wish to restrict the information flow to the auditor, potentially inhibiting the conduct of the audit. In fact, an occurrence of accounting fraud would reflect a complete breakdown in the cooperative nature of the reporting supply chain as one element (management) essentially pursued their own self-interest at the cost of other stakeholders and tried to cover up their behavior. A third possibility, which may be all too common, is that managers who consider financial reporting a "distraction" may see the audit simply as a necessary evil. Managers might assist the auditor simply to get the auditor out of the way as painlessly as possible, or they might resist the auditor to minimize disruption in the organization. Given the time demands that audits place on managers and the fact that auditors may uncover managerial mistakes, auditors may need to find creative strategies for maximizing managerial cooperation when managers do not perceive the audit as contributing much value to them directly (Guénin-Paracini et al., 2015). The key point is that a breakdown in cooperation will obviously reduce the quality of service outcomes unless other elements of the collaborative network can find a way to compensate for the breakdown.²¹

This type of dynamic among various stakeholders is likely to influence cooperation among management, the auditor, and other participants on many levels. From the auditor's perspective, the common assumption is that the auditor steps in to verify the financial assertions prepared by management that comprise the financial statements. However, the nature of interactions between management and the auditor may mean that the auditor also serves as a resource for management in the preparation of their assertions. While auditors cannot make accounting decisions directly for a client, their opinion, either offered as advice during the audit or a recommendation at the end of the audit to adjust account balances for perceived material errors, has a direct impact on the quality of financial reporting. Even in the case where the auditor concludes

that the accounts are free of material misstatement, the expectation of the coming interactions with the auditor is likely to influence the behavior of management even before the audit commences.²² Thus, the nature of any cooperation across participants is clearly influenced by the unique conditions of the audit setting.

Locus: Given the essential nature of the collaborative process and the fact that different participants may have different purposes in the process/supply chain, the next question to consider is where in the audit process cooperation (i.e., co-creation) is most important, i.e., the *locus* of cooperation. An obvious point of a collaborative process is in audit planning which deals with setting the scope, timing, and direction of the audit. An auditor's prior knowledge of the client, as well as knowledge of the client's industry, is particularly important to planning. At the same time, a great deal of planning involves gathering current and timely information that is specific to a client that can influence the subsequent conduct of the engagement. Much of that information must be gathered directly from the client and its personnel through numerous, often repeated, discussions and interviews. The purpose of these discussions is to develop an understanding of the client's current business objectives, strategy, accounting processes, internal controls, risks and transactions, all of which reflect knowledge uniquely held by the client.²³ Interactions with the audit committee will help the auditor further understand their areas of concern.

Another point of cooperation is during actual audit testing. While the external auditor is generally responsible for the conduct of audit tests, the reality of the process is that virtually all audit testing involves intensive contact with the client, although the nature of this contact can vary from the client mechanically providing documentation in accord with the auditor's "Items Needed" list, to the client working with the auditor to develop answers to questions that arise from the results of other audit procedures. Some tests may involve internal and external auditors essentially working "side by side".²⁴ Given that some audit tests require higher quality cooperation from management than others (e.g., in assessing fair values), it is plausible that auditors would factor in the expected extent and quality of the cooperation when planning the types of tests to perform. The requirement that an auditor must obtain a representation letter from management at the end of the audit is, essentially, an acknowledgement that some aspects of the audit cannot be completed without the explicit input of management (PCAOB, 2015).

A final point of cooperation is the completion of the audit process and the wrap up of the engagement. Work papers are reviewed to determine if the audit evidence is sufficient and misstatements that have been identified are reviewed for materiality. While most of this work is centered on the audit team itself, communications with management are made concerning deficiencies in controls

²⁰ This dichotomy suggests that managers are simultaneously agents (in relation to shareholders) and principals (in relation to subordinates). This duality creates potentially conflicting goals and incentives for managers.

²¹ A similar situation could arise when lower level employees commit accounting irregularities such as embezzlement. Such an internal process breakdown would also undermine the cooperative nature of financial reporting, and if undiscovered would undermine the outcome of the service (audit) process.

²² A presumed benefit of an audit is the preventive impact it may have on members of the financial reporting supply chain. Simply knowing that the "auditors are coming" may cause process participants to be more careful and diligent, and less tempted to undertake inappropriate actions (Schneider & Wilner, 1990).

²³ AS 12 (US) and ISA 315 (globally) both require an auditor to obtain an understanding of a client's business and environment in order to assess the risk that the client will not achieve its goals.

²⁴ The literature on the role of the internal auditor in the external audit tends to focus on the external auditor's decision on whether to rely on internal audit work. Reliance involves the internal auditor *relieving* the external auditor of work, but audit standards also envision internal audit *enabling* better audit performance by helping the external auditor identify potential weaknesses in controls or financial reporting (e.g., PCAOB, 2015). There is evidence that the coordination of external and internal auditors leads to greater detection and disclosure of material weaknesses (Lin, Pizzini, Vargus, & Bardhan, 2011). The *enabling* dimensions of internal auditors' work may be more important to audit quality than the *relieving* dimensions.

and misstatements that have been identified. A critical element of the final stages of the audit is the discussion of identified audit problems, be they accounting misstatements or system deficiencies, with management and other participants in the financial reporting supply chain (e.g., the audit committee). At an extreme, this discussion becomes a negotiation, with the outcome of the negotiation dependent upon many factors, including the nature of the relationship between the auditor and the client (Gibbins, McCracken, & Salterio, 2010). This discussion is also likely to include the nature of the external report to be issued by the auditor to investors and internal reports to the board of directors and audit committee. Given the sensitive nature of many audit problems and the subjectivity upon which their evaluation is based, a previously cooperative relationship can breakdown over disagreements as to what constitutes an error or system deficiency or what the audit report should say.²⁵

Timing: A final, but related, question is the *timing* of cooperation. Auditors have a certain amount of flexibility when planning the execution of an ongoing engagement during the course of the fiscal year (i.e., when to conduct control testing), subject to deadlines and client wishes related to when they want the auditors (or do not want the auditors) to be around. For smaller, non-public clients, auditors may wait until year end to conduct most of the audit. This would compress, and potentially reduce, the amount of cooperation either needed or wanted between the auditor and other participants because the auditor is less likely to delve deeply into internal processes and controls. For publicly traded clients, and larger private clients, auditors will perform some level of testing throughout the fiscal period. The extent to which the auditor is present alongside/within the firm's operations is likely to affect the nature of the working relationship. The longer the period of fieldwork for an auditor, the more likely there will be substantive interactions between client and auditor personnel at multiple levels. Given the nature and extent of these interactions, research in psychology, economics, sociology and anthropology suggests that individuals cannot work together without being influenced by that interaction. Thus, it seems inevitable that auditors will be influenced by their dealings with management and other participants in the audit process since cooperation is an inevitable, inseparable, and essential part of the audit.

Proposition 2-1. *The extent and nature of cooperation in the audit process will depend on (a) the goals of the audit participants and (b) the stage of the audit process where cooperation is needed.*

3.2. The collaborative network of an audit

The discussion to this point has referred to participants in the financial reporting supply chain with a main focus on management and the auditor. We now turn to a broader discussion of the collaborative network needed to conduct an audit. In the attorney example related earlier in the paper, the service relationship was

essentially dyadic, i.e., the relationship was primarily between two parties. Service science research, however, indicates that services are usually provided within service networks, a system of experts/suppliers/clients who work together to achieve a common objective.²⁶

One implication of modeling a service as a network (as opposed to a dyad) is that the cooperation that characterizes the service process becomes more complicated as multiple competencies and resources need to be integrated into the service offering. The level of integration for a given setting may be unclear, i.e., there is likely to be variation in how any two parties of a service network might interact. Each dyad *within* the network represents a potential place of integration as well as friction. In some networks, all of the parties might have some level of integration. In other networks, some parties may serve as intermediaries ("bridges") between other parties, e.g., much as the audit committee represents the shareholders. Some service providers may be part of an extended and exclusive service network within a single firm, e.g., different offices or different experts within an audit firm. Alternatively, some participants may be independent of the client and the primary service firm, e.g., valuation experts such as an actuary. Such "layers" of participants are likely to occur in the conduct of an audit as the lead auditor manages input from internal audit staff, experts within the same firm, and external contributors to the audit process. Identifying who these parties are (or need to be) in the context of an audit is an important aspect of audit planning.

With business-to-business services, anticipating and satisfying a customer's needs may require understanding the expectations of the "layers" of stakeholders who depend on the service. Different stakeholders may have different needs/expectations and may contribute in different ways to the overall process. Cova and Salle (2008) refer to the layers of potential stakeholders as the "customers of the customer". That is, the "customer" in a service relationship may not be the only "consumer" that is influenced by the service.²⁷ Further, some of the "consumers" may actually be active participants in the service process, i.e., the audit committee that is the recipient of the audit report also helps to plan and scope the engagement in consultation with the auditor. As previously noted, these "layers" of participants make the audit a particularly complex service process.

A very significant challenge of integrating layers of actors is that the goals of one party may not be entirely consistent with the goals of another party within a single service network (Van der Valk & van Iwaarden, 2011). The auditor might be conflicted between the desires of the management to control costs and the desires of investors to receive high audit quality. An important way to promote goal alignment is for all service providers to focus on the end consumer, although this may require some parties in the network to develop interactions with the end consumer that did not previously exist.²⁸ Salo et al. (2009), for example, offers a case study of a telecommunications company that contracted with a university housing organization to provide internet services to students. The

²⁵ The issue of what goes into the audit report has, in the past, been a relatively minor aspect of most audits since the vast majority of audits result in the issuance of a standard, unqualified audit report. However, with the introduction of critical/key audit matters in the audit report as a result of recent standard setting (IAASB, 2015; PCAOB, 2017), the nature of the audit report may become subject to more friction between the auditor and the client.

²⁶ An alternative model that could apply to the frictions that arise in a collaborative network is "distributed agency" which refers to a situation where an outcome is created based on the actions and decisions of a range of different individuals, each of whom has their own motivations for participating in the context. Distributed agency can arise by specific choice or may be the result of unintentional forces (Enfield & Kockelman, 2017).

²⁷ Returning to the previous example of consumer products made by Proctor & Gamble and sold by Walmart, P&G may obtain product design input from both Walmart (the "customer") and the individual consumer (the "customer of the customer"). Walmart may have specific size and packaging preferences that help them with their logistics and shelf-stocking while consumers have preferences for certain product features. P&G is likely to take both into consideration when designing new products or new versions of existing products.

²⁸ One of the benefits of the Sarbanes-Oxley Act was to shift the auditor's focus from dealing primarily with management to interacting much more with the governance structure (i.e., audit committee). This shift essentially moved the auditor's focus closer to the end user of the process (i.e., outside investors and other stakeholders) rather than an intermediate participant in the process (i.e., management).

students complained to the university about the quality of the internet connections. The complaints were not adequately addressed initially because the telecommunications company was performing according to specifications of the contract with the university housing organization. It was not until direct communications were established between the students and the telecommunications company that the internet provider discovered that the specifications of the contract were not sufficient to satisfy the needs of the students (end-users). That is, process performance came down to establishing a collaborative process that included the service provider, the university, and the consumers/users. Within the university it is likely that other separable groups of participants may also have had a role to play who would need to be integrated into the process (e.g., housing office, technology department, and purchasing/contracting office).

Given the organizational complexities and goal misalignments that potentially become greater as service networks become larger, each participant in the service process may have concerns that other parties are shirking their responsibilities or working at cross-purposes to achieve some self-interested outcome. These problems are manifestations of what are generally considered to be agency problems. However, they differ in the extent to which different parties have influence over the process and how much cooperation they will need within the service network in order to achieve their own desired outcomes (Nätti, Pekkarinen, Hartikka, & Holappa, 2014). In network relations, some parties may hold greater power than others, especially parties that are more knowledgeable. Inequality in power can lead to self-serving behavior on the part of the more powerful party and distrust from the other parties (Li & Choi, 2009), to the disadvantage of all. However, it is not always clear, or constant, who holds the most power in a collaborative network given the multitude of participants and that information asymmetries between them do not exist unilaterally (Sharma, 1997). Conversely, greater social interaction between all members of a service network tends to increase trust and commitment to the network (Havila, Johanson, & Thilenius, 2004). Case studies provide evidence that informal social agreements are more important for aligning behavior within a network than legal agreements or formal contracts (Van der Valk & van Iwaarden, 2011), the common solution to agency problems.

Proposition 2-2. *The greater the number of participants in the audit process, the greater the likelihood of (a) goal misalignments and (b) communication limitations between participants.*

3.2.1. An example of the audit collaborative network: audit committees as co-creators

Research on audit committees has shown the value of considering the audit as part of a collaborative network. As part of the board of directors, audit committees facilitate the financial reporting process, which leads them to work with many parties, including the board of directors, management, the external auditor, and internal auditors. Accounting researchers tend to approach the study of audit committees from an agency perspective, which sees the audit committee as a monitor to reduce the likelihood that managers and auditors will pursue their own interests rather than the interests of the shareholders. From a service perspective, however, the audit committee is an important “partner” in the co-creation of credible financial disclosures. Accordingly, a fundamental question is what unique competencies and resources does an audit committee provide, and how are those capabilities integrated into the overall disclosure process? Increasingly, research on audit committees has begun to investigate the integration of capabilities within the process, i.e., the processes and relationships by which audit committees perform their work (Turley & Zaman,

2004). Research shows that the relationships between the audit committee and management (Badoloto, Donelson, & Ege, 2014; Bruynseels & Cardinaels, 2013) and between the audit committee and the rest of the board of directors (Van Peteghem, Bruynseels, & Gaeremynck, 2015) are associated with audit committee effectiveness. These views are fully compatible with a service perspective of the audit process.

Possibly the most critical function of the audit committee is to strengthen the auditor’s ability to resist the biases of management. Research indicates that audit committees can be deferential to management, although the trend over the last fifteen years is towards less deference (Cohen, Krishnamoorthy, & Wright, 2002, 2010). What accounts for that deference? One answer suggested by the literature is that audit committees (and their associated board of directors) are not sufficiently independent, with independence understood in terms of whether committee members are internal or external to management (DeZoort, Hermanson, Archambeault, & Reed, 2002; Turley & Zaman, 2004). Another answer is that audit committee members are more likely to support auditors when they have greater expertise in auditing and internal controls (DeZoort, 1998; DeZoort & Salterio, 2001) or experience as corporate managers (Knapp, 1987). In either case, these results support the idea that a successful cooperative process requires individual participants to bring their own knowledge and resources to the network and not be co-opted by other process participants. One participant with a unique role in the process that fails to fulfill that role, or abdicates to another participant, will undermine the quality of the service (audit) process. The power of one participant then has the potential to offset the misuse of power by another participant, increasing independence across the collaborative network.

Insofar as deference to management is understood to be evidence of a lack of independence, expertise that decreases this deference is important because it supports the service perspective that focuses less on formal systems of control and more on what different parties have to contribute to the service process. Audit committees that have less to contribute, whether it be because of inexperience or lack of time on task, are likely to be more deferential to other parties and thereby less integrated into the disclosure process.²⁹ Audit committees that perform more substantive—as opposed to merely ceremonial—work are not simply more assertive, e.g., willing to confront management. They are also more engaged in shaping activities, such as (1) setting the agenda and developing materials for meetings, (2) being involved in the choice of accounting policies, (3) analyzing managerial accounting estimates, (4) analyzing fraud risks, and (5) overseeing the internal audit process with extensive contact with internal audit personnel (Beasley, Carcello, Hermanson, & Neal, 2009). The integration of the audit committee’s work into the reporting supply chain is also relevant for how the audit committee’s participation affects the work of the other parties in the network. There is evidence, for example, that auditors will increase testing in the presence of weaker audit committees (Cohen et al., 2002).

Proposition 2-3. *The audit committee should be evaluated by the competencies and resources it brings to the process and by how well those competencies and resources are integrated into the process.*

Observing that audits are conducted among a network of participants has interesting implications for the concept of *audit*

²⁹ For example, prior research finds that busy Boards of Directors are associated with weak corporate governance (Falato, Kadyrzhanova, & Lei, 2014; Fich & Shivdasani, 2006). But while busy board members may suffer from inattention, they may also draw upon a richer body of expertise. Findings in this literature stream are not conclusive.

failure. Rather than understanding audit failure as necessarily a failure of the auditor, audit failure may instead be understood more generally as a *network* failure. For example, managers who are minimally cooperative, or audit committees with insufficient financial expertise, might diminish the audit process in a way that could be challenging for auditors to “audit around.” Service research indicates that integrated resources/competencies in a service network can be complementary or redundant with one another (Gummeson & Mele, 2010). Complementary competencies involve unique competencies that need to be combined in order to successfully complete the service process, while redundant competencies establish common ground and confidence among service participants. Redundant competencies may also mitigate the damage to the service process when a participant in the service network has underdeveloped competencies, is not sufficiently integrated into the collaborative process, or lacks independence from other participants. Audit research indicates, for example, that auditors compensate for a weaker management control philosophy and weaker corporate governance with a greater extent of substantive testing (Cohen & Hanno, 2000; Sharma, Boo, & Sharma, 2008). While society may find it necessary to hold auditors accountable for the deficiencies of other parties,³⁰ theoretically, the audit process might fail even when the auditor’s participation is exemplary.

Proposition 3. *An audit failure is a network failure, and does not necessarily imply that the performance of the auditor was deficient.*

To summarize, to say that auditing is a service is to say that auditing is part of a collaborative network, and a rather complex one at that. The emphasis on collaboration follows from the recognition that auditors integrate their unique competencies and resources with the unique, and necessary, competencies and resources of others in the network, particularly management and the audit committee. The emphasis on the network calls to mind that there is both an ultimate service recipient (the external users of financial information) and a set of other parties that participate in the financial reporting and disclosure process. To understand the audit function requires an understanding of how the many competencies and resources are integrated and the challenges and tradeoffs of satisfying all of the different parties in the process. The complexity of this challenge is increased when the heterogeneity of the services process is also considered.

3.3. Collaborative networks and auditor independence

Service networks generate an inherent tension between necessary cooperation (co-creation) and independence, something that is particularly relevant to auditors given their preeminent role in financial reporting. One of the key issues for professional auditors—indeed, listening to many commentators, it sometimes feels like it is the *only* concern of professionalism—has been the issue of auditor independence (Levitt, 2000).³¹ Audit researchers may be tempted to think that independence is an issue uniquely relevant to audit. Service science research, however, indicates that independence and objectivity are issues that arise naturally in all service networks. Each party in the service network has his or her own goals, competencies, and resources to contribute. The structure of a

collaborative service network may give some parties greater access to information, and more power in the network, power which potentially could be used for advantage, typically referred to as *self-dealing*. As previously noted, independence problems can often be counterbalanced by engaged participants leveraging their own unique skill set.

Nätti et al. (2014) examine the structure of a typical service network. In their case study, property owners, property managers, and property maintenance service firms all benefit from a strong working relationship when managing an investment in real estate. Property managers hire a maintenance firm to protect the investments of the owners so the relationship is similar to the simplified triad relationship inherent in the audit (owner-manager-auditor). The close collaboration of any two members of the triad may make the third member worry that those members are working for their own interests, e.g., property owners may fear self-dealing between property managers and property maintenance firms to inflate costs. If two of the three parties lose their independence, especially if this is unobservable to the third party, there is a potential for harm to the third participant. This is all the more important if the harmed party is outside the collaborative network (e.g., an absentee landowner or investor).

This example highlights two important points. First, a collaborative service network and independence are naturally in tension in many economic arrangements. Close working relationships among dyads in the network create potential benefits for all parties in the service network but also potential risks (i.e., collusion). Second, there is a potential for any party in the network to suffer from impaired independence or objectivity.³² Independence is likely to be strongest when one party makes a substantial, unique contribution to the service process that is beneficial for other members of the collaborative network. Parties that are nominally part of the service process but have limited competencies and resources will tend to rely on, or defer to, other parties in the network, reducing their contribution and independence (Lee & Stone, 1995).

Those who are especially concerned about auditor independence tend to focus on the economic dependence between the auditor and the client. Accordingly, efforts to improve auditor independence often strive to decrease that dependence or mitigate the effects of it. As the service literature shows us, however, independence is a natural problem arising from the collaborative practices within any service network. It makes sense then to examine ways in which the independence of a service provider is promoted and protected in service networks. We will focus on two of the ways that are particularly relevant to audit: (a) an auditor’s specialization of knowledge and (b) extensive co-investments between the auditor and the client.

3.3.1. Specialization of knowledge

One form of status that can occur in a service network, particularly in networks involving professional service organizations,³³ is specialization of knowledge, also referred to as “knowledge intensity” (von Nordenflycht, 2010) or “knowledge power” (Sharma, 1997). Technical expertise is the central defining characteristic of

³² In an audit context, it is well-recognized that auditors can have their independence impaired. The service perspective leads us to consider the independence of other parties as well. For example, is there potentially a problem with the independence (objectivity) of managers or the board? Survey research indicates that some managers feel less invested in financial reporting due to accounting standards that reduce their discretion in making accounting choices (Coulton, Ribeiro, Shan, & Taylor, 2016; Dichev, Graham, Harvey, & Raigopal, 2013).

³³ Examples of professional service organizations are advertising agencies, accounting and consulting firms, investment banks, and law partnerships (Sharma, 1997).

³⁰ See, for example, the report from the Dutch Authority for the Financial Markets (AFM, 2018), which places the responsibility for audit “market” failures squarely on the audit firm.

³¹ The desire to avoid economic losses clearly represents a substantial incentive driving auditor behavior, e.g., reputation and litigation risks (DeAngelo, 1981a; Watts & Zimmerman, 1981, 1983).

a profession, be it in the form of knowledge embodied in individuals (“human capital intensity”) or embedded in equipment (high cost assets, e.g., airplanes or hotels), products (e.g., proprietary software), or organizational routines (e.g., proprietary logistical systems) (von Nordenflycht, 2010). Professionals are required to have a grasp of the theoretical underpinnings of their field and the technical expertise to apply theory to practice. The asymmetry of knowledge between professionals and their clients often makes it difficult for the clients to know if a service has been performed adequately, appropriately, or efficiently (Causholli & Knechel, 2012; Mills, Hall, Leidecker, & Margulies, 1983; Sharma, 1997; von Nordenflycht, 2010). An imbalance in knowledge intensity can make the other members of a collaborative network dependent on the specialized expertise of a professional. That is, the more of a knowledge advantage that a professional has over other participants in the collaborative network, the more weight the opinion of a professional is likely to carry in final decision making. For example, research about auditor-client negotiations supports the argument that an auditor who brings more knowledge intensity to the final discussion of accounting adjustments can obtain improved results.³⁴ In short, knowledge intensity and professional status can partially insulate a professional against the loss of objectivity that might accompany economic dependence.

3.3.2. Co-investments between auditor and client

Knowledge asymmetries arise throughout a collaborative network, and it is not only the auditor that has unique knowledge. In fact, the existence and management of such asymmetries in the collaborative network may be the *sine qua non* of professional services. This is why cooperation becomes a vital element in the performance of professional services in general (Boström, 1995), and an audit specifically, and client retention can be critical to maintaining service quality. A continuing relationship of the parties operating in the collaborative network builds trust across the network.³⁵ The longer the professional-client relationship, the more likely it is that the client will accumulate and provide the information that the professional needs, i.e., the client makes auditor-specific investments in the relationship (de Brentani & Ragot, 1996; Sharma & Patterson, 2000). Within an auditing context, for example, shorter auditor tenures may result in less client-specific knowledge (Stice, 1991), client perceptions of auditor negotiating weakness (Iyer & Rama, 2004), and less sharing of important information, all potentially leading to reduced audit quality (Bell, Causholli, & Knechel, 2015; DeFond & Zhang, 2014). The cooperation that is necessary between auditors and their clients reflects the uniqueness of the professional-client relationship that emerges over time (Greenwood, Li, Prakrash, & Deephouse, 2005; Sharma, 1997). Professionals have an investment in the accumulated information about a client that may have little relevance to other potential clients (i.e., recall the concepts of heterogeneity and inseparability). At the same time, clients have developed an understanding of how to organize their own people

and operations to work successfully with the auditor. In combination, these investments can lead to an increasing level of audit quality. While independence in “appearance” can be critical in the auditor-client relationship, independence in “fact” may actually be more sustainable via the continual development of professional expertise *as applicable to a specific client*.

Further, successful cooperation creates switching costs that encourage a continued working relationship, and a continued working relationship helps reinforce the trust needed for successful cooperation (de Brentani & Ragot, 1996; Eriksson & Vaghult, 2000; Sharma & Patterson, 2000). Such switching costs are often considered a “problem” for the auditor, but the client’s switching costs may also help insulate the auditor from undue influence.³⁶ That said, the auditor faces an inevitable tension between cultivating a relationship with the client, which is necessary to provide the auditor with the required audit evidence, and upholding independence of mind (Richard, 2006). While managers have an incentive to give auditors access to information to avoid a qualified opinion, managers may also have ways of frustrating the audit team’s work, including placing limitations on the auditor’s work space, the time available with management, the availability and form of supporting documentation, and the ease of interaction with management or other client personnel (Guénin-Paracini et al., 2015). Overcoming such obstacles may result in some “loss of independence”, as interpreted in the traditional sense, but lead to an increase in quality of the outcome of the process.

In the end, the traditional view is that a collaborative process and independence are contradictory. However, the arguments laid out in this paper suggest a much more complex, rich and nuanced role played by the professional auditor. This view is that *increasing cooperation can contribute to independence through the increase in trust and knowledge intensity*.³⁷ Further, the discussion of independence leads to an ironic conundrum related to the regulation of auditing. The more that the audit is standardized and homogenized, the more the knowledge power and professional status of an auditor may be undermined, and the more susceptible the auditor may be to influence through economic dependence.³⁸ As the effect of economic dependence increases, a negative feedback loop may form where each breach of economic independence necessitates more independence rules to ensure that auditors maintain their appearance of objectivity which, in turn, further undermines the power of their unique knowledge and the trust of the participants in the collaborative network. What is the impression created amongst the participants of the collaborative network when they are told year on year that 30% of all audits are failures?³⁹ Does the drumbeat of such failure undermine the knowledge intensity of the auditor that could offset some of the threat of economic independence? How does such negativity influence the quality of the pool

³⁴ The client-auditor negotiation literature implicitly acknowledges a (dyadic) service science perspective, and thus the need for some degree of cooperation between client and auditor (Gibbins et al., 2001; Salterio, 2012). Ng and Shankar (2010) find that an audit firm’s technical department can strengthen the auditor’s negotiating position. Gibbins et al. (2010) include expertise as a determinant of auditor bargaining power. Much of this literature has focused on negotiating expertise rather than accounting expertise *per se*. Salterio (2012) contains numerous references to client and auditor expertise under the broader aegis of each actor’s “capabilities.”

³⁵ It is often claimed that outside stakeholders distrust auditors when there is a long tenure relationship with a client. This is certainly the opinion held by most regulators. Nevertheless, there is scant evidence that this attitude is held by stakeholders in general.

³⁶ Audit research actually reveals very little about the switching costs of clients other than the effect on fees. This is likely to be a small part of the cost equation, however. In a field study, Fiolleau, Hoang, Jamal, and Sunder (2013) report that the time invested to replace an outgoing auditor can be substantial.

³⁷ For example, audit research provides evidence that auditors act with greater objectivity (Ponemon, 1995) and independence (Lim & Tan, 2008) when they are industry specialists. The common argument is this is because the auditor “knows more” (knowledge intensity) but it also relates to the engagement-specific relationships developed in the collaborative process, i.e., the auditor has higher standing with other participants in the process.

³⁸ Over time, service providers create product differentiation as their service offerings become increasingly tailored to the needs and capacities of the individual client. Reducing product differentiation through standardization increases competition among firms and, therefore, economic dependence. In the extreme, the service may become a simple commodity, e.g., removing snow from sidewalks can be done by any healthy teenager with a shovel.

³⁹ For example, see Chasan (2014) and Tysiac (2014).

of talent desiring to enter the audit profession? At some point, this negative feedback loop could lead to a downgrade in the status of the profession as the source of an economically valuable service.

Proposition 3-1. *Auditor knowledge specialization and service co-investments can increase the client's reliance on the auditor, leading to an increase in auditor independence.*

4. Defining audit quality from a service perspective

4.1. Service quality and expectations

In a manufacturing context, quality might be understood *objectively* in terms of the percentage of items produced that are defective according to pre-established specifications (Parasuraman et al., 1985).⁴⁰ From this perspective, a homogenized, consistent product is synonymous with quality, while an excessively heterogeneous (i.e., defective) product is associated with poor quality. In either case, the nature of quality is judged at the completion of the production process. In a service context, however, quality cannot be understood in this way, because what constitutes a success emerges from the interactions of the collaborative service network (Sampson & Froehle, 2006). For example, what standardized measure could be used to assess the quality of an attorney's work? Would it be success at trial, or success at avoiding a trial? Number of plea deals or number of acquittals? In some circumstances, success might mean informing the client that he should accept a lesser sentence or that a case has been delayed. Each case is different, so the definition of "success" (i.e., assessment of quality) is different for each case as well. How do you assess the quality of an architectural design? Aesthetics, cost, functionality, or energy efficiency? All attributes are relevant but different parties will have different opinions and define quality *subjectively*. In the end it is the process and quality of collaboration followed by the network of participants that ultimately determines service quality, sometimes regardless of the final outcome, which may be uncertain, and dependent on the viewpoint of the participant. Further, much that influences quality may be outside the control of the primary service provider.

To cope with this complexity, service science researchers tend to measure quality by the closeness of the client experience throughout the service process to what was desired and expected, i.e., a form of stakeholder satisfaction. Stakeholder (client) satisfaction is understood to be a function of the service level provided by the service provider but it also reflects the nature of the process and the interactions between the client and service provider. Relying on "satisfaction" as a measure of quality for a service inevitably leads to questions of measurement and calibration since the quality of a service process may be perceived differently across the collaborative network. What is a positive quality indicator to one participant (e.g., measures of *efficiency* of the process) may be less important, or even a negative indicator, for other participants, who may be more concerned about other things (e.g., measures of the *effectiveness* of the process).

Whatever the dimension, when service quality falls short of what is expected by one or more participants or users in the process, an "expectation gap" opens. The "gaps model" is used to analyze ways in which client experience can fall short of expectations (Parasuraman et al., 1985). Examples of expectation gaps in a

service process include: (1) failure to understand what participants value, (2) failure to establish service guidelines to consistently provide that value,⁴¹ (3) failure to maintain the appropriate skill set, and (4) failure to meet client expectations even when the service provider fulfils its obligations. Much of the discussion of the expectation gap in auditing focuses primarily on the fourth cause, often assuming that the first three causes can be remedied through standard-setting, regulation, or internal quality control. In a collaborative service network, the ability to remedy the first three causes is much less obvious. Failure to meet client expectations suggests a breakdown in the communication of the nature of the service and what can be achieved.⁴² Such a problem is unfortunate when the service provider has direct interactions with the client but may be even more complex when the breakdown in communication is between the service provider and external users (i.e., investors). What these gaps make evident is that service quality depends upon a proper awareness and responsiveness to other participants in the process, and not just technical competency in the audit production process (Parasuraman et al., 1985).

The issue of expectation gaps is well known in auditing (Humphrey, Moizer, & Turley, 1992; Liggio, 1974; McEnroe & Martens, 2001; Porter, 1993), suggesting that a service perspective may be helpful—even necessary—in reducing such gaps. In the realm of the audit, the term "expectations gap" is used to refer to the expectation of the users of financial information that audits will provide an unrealistic level of assurance against fraud or material error, especially when evaluated in hindsight after a material misstatement has been revealed. The profession has often treated this gap as a misunderstanding on the part of the users of financial information, to be remedied through better disclosures about the objective of the audit, i.e., to provide *reasonable* assurance about the overall fairness of the financial statements (Reinstein & McMillan, 2004). This perspective makes some sense from a production viewpoint, i.e., the profession "builds" an audit based on professional standards and is subject to limitations as laid out in the caveats of the audit report. The key point here is that the regulatory standards are externally imposed and do not arise from interactions with the participants or the collaborative network that produces the audit. From this perspective, if the auditor fails to meet the external standards, than that is a problem for the *auditor*, but if the user fails to appreciate the meaning of the standards, than that is a problem for the *user*. Members of the audit profession, as well as standard setters, have often adopted the position that moving the auditor's process closer to an idealized standard of high quality would reduce the expectation gap. However, from a service perspective, such an approach is likely to be limited, or even fail, because the expectations of the participants have a larger role to play in determining the nature of quality, and the approach taken by the auditor cannot be driven by external standards alone.⁴³

Proposition 4. *There is no universal standard of audit quality since*

⁴¹ Failure to establish appropriate service guidelines may also reflect technological infeasibility. For example, an audit can never result in zero risk (Knechel et al., 2013).

⁴² The latter problem highlights an inherent friction in economic services. In order to "sell" a service, the supplier may need to embellish the potential benefits, which may then set up an unreasonable expectation amongst other participants in the service process, leading to an inevitable and predictable performance gap.

⁴³ This is not to say that auditors should supplant auditing standards with client expectations, or that externally imposed standards are unusual in other, non-audit, service settings. Rather, the service perspective suggests that standards should be augmented by client expectations when they do not conflict so as to close the gap in expectations related to the service (Knechel, 2013). This is a perspective that is common among audit firms, or at a minimum, is implicit in much of their marketing (see, for example, Deloitte, 2017).

⁴⁰ The audit risk model implicitly adopts a similar perspective with its focus on the relative probability that an engagement arrives at the right answer. Such a view assumes that all potential auditor failures are equivalent, i.e., the auditor comes to the "wrong conclusion" in X% of audits.

a stakeholder will judge audit quality by comparing the performance of participants in the audit process against the stakeholder's performance expectations.

4.2. Differences in perspective for audit service quality

If we think of audit quality in terms of expectations and satisfaction, it is worth considering the expectations (and satisfactions) of those within a given audit service network (e.g., auditors, managers, client staff, and audit committees) as well as the expectations (and satisfactions) of the ultimate beneficiaries of the audit service (e.g., investors). Within the larger financial reporting ecosystem—of which the audit service network is part—there are some parties who are primarily producers of financial information (auditors), some who are both producers and users of financial information (managers and audit committees), and some who are primarily users of information (investors). Insofar as a party is a producer of financial information, we would predict that expectations relate to the quality of the collaborative process itself. Insofar as a party is a user of financial information, we would predict that expectations relate to how well the outcome of that process facilitates the decision-making of those users.

Behn, Carcello, Hermanson, and Hermanson (1997) provide evidence that managers judge satisfaction with their audit firm primarily in terms of the audit firm's client service effort, including the audit firm's responsiveness to client needs (i.e., the collaborative process). When asked what would improve their satisfaction with their audit firm, what these managers wanted most was for the auditor to become more involved in their business by making value-adding suggestions.⁴⁴ Managers tend to evaluate auditors in terms of the quality of the working relationship (Cameran, Moizer, & Pettinicchio, 2010), and there is evidence that audit firms can charge an audit fee premium to firms when they are satisfied with the audit engagement team (Behn, Carcello, Hermanson, & Hermanson, 1999; Hoang, Jamal, & Tan, 2019). Further, many of the non-audit services provided to audit clients are intended to improve the satisfaction of the client with the audit firm as a whole (Cai, Kim, Park, & White, 2016; Ciconte, Knechel, & Mayberry, 2019). In addition to evaluating the audit process, managers may also draw satisfaction from the assistance provided by auditors in helping to maintain the quality of the firm's internal controls (Hellman, 2006). Managers need quality information for their own decision-making and often use the same numbers for both internal purposes and external reporting (Dichev, Graham, Harvey, & Rajgopal, 2013). For small and medium enterprises especially, there is evidence that managers will use higher reputation auditors when organizational complexity is higher (Knechel, Niemi, & Sundgren, 2008).

Audit committees appear to evaluate the external audit based on a number of factors. Audit committees may evaluate auditor competence by the quality of the audit planning (Gendron, Bédard, & Gosselin, 2004), and form their impressions of the quality of the auditors assigned to the audit more from their direct interactions with the auditors than from their beliefs about the general quality of the audit firm (Beasley et al., 2009; Gendron et al., 2004). Audit committees evaluate auditor independence through their discussions with auditors, determining the extent to which auditors align with management and the extent to which auditors understand that the audit committee, in their own opinion, is the "true" client

of the audit firm. This is one reason why auditor-provided non-audit services must now be approved by the audit committee for publicly-listed companies in the US. Audit committees also have private meetings with auditors where the quality of management and the perceived rationale for the accounting choices made by management is discussed. This information helps the audit committee to evaluate the quality of the auditor-manager relationship (Beasley et al., 2009; Gendron et al., 2004).

But are the users of financial information satisfied with auditors, and by extension, the collaborative network? This is harder to determine because there may be little direct interaction with the external users of the financial report. However, there are indirect ways to measure the satisfaction of external users. From the user perspective, a quality audit could be characterized as an audit that provides the level of assurance commensurate with what management and stakeholders expect (Knechel et al., 2013). There is much evidence that stakeholders obtain a significant—if not always sufficient—level of assurance from audits, which benefits firms primarily through a lower cost of capital (Chaney & Philipich, 2002; Hope, Langli, & Thomas, 2012; Kim & Song, 2011; Lennox & Pittman, 2011). Further, users of financial information appear to be responsive to the reputation of the auditor, i.e., Big N firms or industry specialists (Knechel, Naiker, & Pacheco, 2007). Finally, different stakeholders appear to vary in the level of assurance demanded. In situations where external audits are voluntary, firms are more likely to be audited when agency concerns are greater or the cost of capital can be reduced (Abdel-Khalik, 1993; Carey, Simnett, & Tanewski, 2000; Chow, 1982; Lennox & Pittman, 2011). Similarly, there is evidence that firms choose auditors with a better reputation when agency concerns are greater (Fan & Wong, 2005; Knechel et al., 2008).

The idea that audit services are provided through a collaborative network, which is itself part of a larger financial reporting ecosystem, highlights the risk of oversimplification when discussing audit quality. To illustrate, consider the classic definition of audit quality used for almost forty years from DeAngelo (1981a, 186): audit quality is "the market assessed joint probability that a given auditor will both discover a breach in a client's accounting system, and report the breach." This definition is generally divided into two components: (1) auditor *competence* (expertise), or the likelihood that an auditor will detect an error, and (2) auditor *independence* (objectivity), or the likelihood that an auditor will correct or report a detected error. If the audit client is perceived as a component of the collaborative network, then the concepts of competence and independence become both broader and more complex—these dimensions not only vary across different audits, as recognized by prior literature, but also vary across the various actors within a given audit engagement, i.e., not only auditor and client broadly, but in more detail also across different client managers, audit committees, and internal audit functions.⁴⁵

In regard to competence, audit standards and the audit process have always acknowledged that some organizations, because of their internal processes, internal auditing, and management tone at the top, are more effective at generating accurate financial information than others. This is reflected in variations in auditor assessments of inherent and control risk across engagements. The service perspective of audit quality makes this concept more critical

⁴⁴ Managers may seek additional value from auditors either because (a) they do not perceive adequate value from the audit itself or (b) they perceive that audit firms have both the general expertise and specific knowledge of the firm to provide greater benefits than are provided through the basic audit.

⁴⁵ DeAngelo (1981a) notes this complexity in the text and corresponding footnote 6 (185): "Defining audit inputs and output in this manner [i.e., in terms of the auditor alone] simplifies the analysis at the cost of *bypassing* some interesting *auditor-client interactions caused by the jointness of production process*" [italics ours]. Demski and Swieringa (1974) formally model audit production as the jointly determined product of cooperative client-auditor interrelationships.

by extending the issue of “competence” to the collaborative network as a whole, and to the ability of such competencies to be leveraged through cooperative interactions. In regard to independence, we have already argued that the independence in appearance of the auditor may be only one element to be considered, and that links between the auditor and other members of the collaborative network can influence the overall quality of an audit in ways that may not have been previously considered in detail. For example, research that examines social ties between the auditor and the audit committee suggests that this dimension of independence can influence audit pricing and quality (He, Pittman, Rui, & Wu, 2017).

Finally, the DeAngelo definition only admits one perspective of audit quality—that of an external market participant—and disregards the broader roles of the other members of a collaborative network. Viewing audit quality through the lens of a collaborative network suggests that there can be a substantial underappreciation of differences in the role an audit might play in a given client setting across the various parties within the audit. For example, a firm where forward-looking information is relatively more important than historical financial information may demand a lower level of assurance over the historical data. The collaborative participants may recognize the limitations arising from uncertainty about the underlying information and the technological infeasibility of predicting the future to a level of precision that would meet standard definitions of materiality. Another example is a firm where GAAP reporting may not adequately reflect the reality of its economic position and future prospects, e.g., a company with large intangible value (technology) or a very long operating cycle (extraction of natural resources).⁴⁶ In these cases, assurance over traditional historic cost numbers may have less value to the participants in the reporting supply chain than valuation by non-audit experts. In both cases, the members of the collaborative network would likely recognize that the concepts of competence and independence may apply somewhat differently than might be expected in less complex, more traditional conceptualizations of the audit. Thus, the nature of audit quality depends on the relative roles of the members of the collaborative network producing the financial statements, the underlying economic circumstances of the organization, and the impact these have on the expectations of the various parties involved in the audit and using the information.

Service science theory would therefore predict that auditors, operating within a collaborative service network, would provide varying levels of assurance within a reasonable range (i.e., variation in what constitutes low residual risk) in response to the varying conditions of a “client” and reflective of the various actors. The level of assurance provided should not be expected to be constant for an audit firm, an office, or an individual partner. In fact, research demonstrates that this is the case (Francis & Yu, 2009; Knechel et al., 2015). Further, quality may not be constant across time for a company/firm/partner combination given changes in the conditions of a client over time. It might not even be constant across different types of information that are contained in financial reports given variations in subjectivity that occur for some accounts.⁴⁷ Rather than being a market imperfection, service science would view these variations as a rational market response to the

potentially competing demands placed upon the auditing profession by the participants of the collaborative network (and the larger financial reporting network) and not simply an indication of uneven levels of quality in a firm’s personnel.⁴⁸ While professional and regulatory standards suggest that there is an idealized level of assurance that is appropriate to all audits, idiosyncrasies across clients, and the collaborative network that forms around each client, implies that it is appropriate for there to be variations in the assurance process and the assurance provided.⁴⁹

Proposition 4-1. *Insofar as there is an inherent variation in the level of assurance demanded by stakeholders across audits and by the various stakeholders within a given engagement, there should be a corresponding variation in the level of assurance provided by the audit network to the various participants in each engagement.*

5. Service quality versus service efficiency

As has been discussed throughout this paper, fundamental to a service engagement is the need to properly integrate various participants into the process. Recall that in a goods-oriented framework the consumer/customer supplies virtually no inputs to the production process except personal wants or tastes in the broadest sense (i.e., a customer would like to consume toasted bread, thus defining the purpose of a toaster). The producer simply produces a good (a toaster) and the consumer chooses whether to purchase and use the good. The quality and cost of a toaster can be “optimized” given the standardized nature of the product. Suppliers of toasters are unlikely to customize their product to small segments of their consumer base unless the potential demand justifies doing so, e.g., to offer a one-off version of a product that has the school colors of a specific university only makes sense if there is a large fan base to buy the customized version. The relationship between costs and outcomes in a service setting can be much more variable than in a goods manufacturing setting because of the heterogeneity of client needs and inputs, and the differential effort needed to service different customers (Sampson & Froehle, 2006).

Research on auditing as a production process received a major impetus by the seminal Simunic (1980) paper. This paper, and those that followed (see Causholli, DeMartinis, Hay, & Knechel, 2010), have been instrumental in positioning the audit as a production process amenable to study using classic I/O methods. More specifically, Simunic (1980) models audit fees as a cost minimization

⁴⁸ That different stakeholders may have different demands for assurance raises an interesting question of how an auditor can structure an audit to meet those different levels of demand. It seems likely that different stakeholders are looking for assurance about different aspects of the auditee, e.g., a banker may be concerned about liquidity while a shareholder may be concerned about profitability. Even if the auditor plans and executes the audit to the most extreme desired level of assurance, it is possible that the audit might provide more assurance for one stakeholder than another. It is beyond the scope of this paper to indicate the appropriate levels of assurance in these situations. This is not to say that *all* unevenness in the audit process is acceptable. There are clearly conditions where an audit is deficient. The point made here is that not all cases of perceived deficiencies in the audit may reflect actual audit “failures”. The distinction being made is comparable to the on-going debate about how well the findings of PCAOB inspections reflect the more fundamental concept of audit quality (Pecher & Solomon, 2014).

⁴⁹ Whether the variation in audit quality should, or does, go below that established by auditing standards is difficult to evaluate. First, the determination of compliance with auditing standards is almost always made with hindsight and may not reflect what an auditor knew at the time of the engagement. Second, the level of assurance—in terms of residual risk of misstatement—is unobservable. As a result, auditing standards tend to dictate the amount of work that is needed, not the level of assurance that should be delivered (Knechel, 2013).

⁴⁶ The rise of non-GAAP reporting can be viewed as a response to the limitations associated with GAAP reporting, including excess conservatism and an emphasis on comprehensive income (Coulton et al., 2016). Unfortunately, most non-GAAP reporting is unaudited which may result in a net loss of information quality.

⁴⁷ Variations in the quality of types of accounting information lays at the heart of the recent debates by the FASB whether “reliability” should be part of the Conceptual Framework for Financial Reporting (see Statement of Financial Accounting Concepts No. 8, 2010).

problem in which the cost of the external audit is a component.⁵⁰ The cost of the external audit is represented as the product of “the quantity of resources utilized by the auditor in performing the audit” (typically, hours of auditor effort) and “the per-unit factor cost of external audit resources to the auditor” (typically, an hourly billing rate, but cost-per-hour would be more accurate). This representation follows directly from a manufacturing perspective because it assumes the resulting audit “product” is known (or knowable) and not subject to idiosyncratic differences in quality.

While this model has served researchers well, the continuing evolution of auditing research suggests some limits to this approach. For example, one of the implications of this perspective is that there is little consideration of how audit quality might vary from one audit (or auditor) to the next, i.e., audit quality is reflected by the firm brand name. Given recent debates about audit partners signing the audit opinion and the common finding that audit quality proxies can vary systematically by office or audit partner (Francis, Michas, & Yu, 2013; Gul, Wu, & Yang, 2013; Knechel et al., 2015; PCAOB, 2009), this perspective may be less appropriate for future research. Further, the model assumes audit markets are competitive (within a segment) and pricing each period reflects this assumption, i.e., there are no demand effects for essentially identical audits.⁵¹ This means that all audits from a particular auditor are perceived uniformly in terms of quality and are priced efficiently *relative to each other*.

The overall implication of a production view of auditing is that the ability or competency of the auditor is constant across audits, and differences in audit fees from one audit to the next simply reflect auditor effort as driven by risk or complexity. Auditing is thus treated as a homogenous good produced with more (or less) efficiency by a standalone auditor, rather than a tailored, idiosyncratic service of varying quality produced by close interaction between the auditor and a collaborative network. Viewing audit services as a noun, a good (“an audit”), rather than as a verb, a service or activity (“to audit”), has had a profound impact upon how researchers have framed auditing research.

The service science literature, on the other hand, emphasizes the heterogeneity of the service process and as a result its costs. This heterogeneity is due to the variability that arises from the close interaction with the customers. Customers, the service provider, and the other participants in the collaborative network conduct the audit in a specific company environment. With service processes, efficiency is usually inversely related to the degree of customer contact that the service process requires (Chase & Apte, 2007). Sampson (2010) captures this dynamic with the concept of “customer intensity”, which is the extent to which variation in customer inputs causes variation in the service process. In an audit context, heterogeneity arises from variability in client characteristics and the nature of the collaborative audit network. Audit quality depends upon respect for this idiosyncrasy. Through the interaction with the network participants, service providers are able to tailor the service to the needs of the stakeholders. Efforts to make the audit process more uniform, whether for the sake of efficiency or to meet the expectations of regulators, might improve efficiency but could actually impair audit quality.

As has been argued above, quality and collaboration tend to go hand in hand in the provision of services, so the role of the various

participants involved can influence the outcome of the process. Frei (2006) identifies five sources of variability in client inputs to a service process: (1) arrival variability (the timing of client demand may not be uniform), (2) request variability (clients vary in what they require), (3) capability variability (clients vary in their ability to contribute to the service process), (4) effort variability (clients supply different amounts of effort to the service process), and (5) subjective preference variability (clients have different opinions about what constitutes a successful outcome).

All of these sources of variability can affect the cost of conducting an audit. For example, many publicly-traded corporations share the same fiscal year end (December), and the need to audit these financial statements in a timely manner affects “arrival variability” that leads to the traditional “busy season” in the auditing profession. The audit process has evolved significantly over the last fifty years and the auditors have increasingly expanded (and at times retrenched) the range of services provided in response to “request variability” as economic activity has continued to evolve and become ever more complex (i.e., the growth of non-audit services).⁵² “Capability variability” and “effort variability” are inherent in client differences regarding complexity, organizational structure, internal processes and controls, internal monitoring (e.g., internal audit), and corporate governance mechanisms, adding to the idiosyncratic nature of a specific engagement. And, finally, “subjective preference variability” can arise because, as previously noted, different stakeholders in an organization may desire varying levels of auditor assurance, or perceive the delivery of assurance at different levels (Knechel, 2013), which in turn leads to different expectations in terms of outcome.⁵³

Proposition 5. *The relationship between audit standardization and audit quality is non-linear. Very low levels of standardization risk inconsistency in audit performance; very high levels of standardization ignore the idiosyncrasy of the client and the client’s stakeholders.*

In general, efforts to improve service efficiency can take three forms that are potentially relevant to an audit: (1) standardizing service processes, (2) prioritizing customer demand, and (3) exploiting efficiencies peculiar to service processes (Grönroos & Ojasalo, 2002).

Standardizing Service Processes: There are a number of ways that service providers can work to improve efficiency by decreasing the heterogeneity of the service process without decreasing quality. One basic approach is to separate out the elements that truly require customer contact and input from those that do not. This separation is often called “front-office/back-office differentiation” (Sampson & Froehle, 2006). The front office deals with customers directly. The back office serves as support for the front office. As it does not involve customer contact, the back office can strive for efficiency through standardization. For example, the front office of an investment advisor might work with clients in helping them to build a customized retirement portfolio by finding out what

⁵⁰ Simunic (1980) explicitly recognizes the link between internal and external auditing, which could be looked at as a recognition of the need to have an integration of the components of the financial reporting supply chain.

⁵¹ The assumption of perfect competition in auditing has been called into question by a number of recent papers, e.g., DeKeyser, Gaeremynck, Knechel, and Willekens (2016); Gerakos and Syverson (2015); Gerakos and Syverson (2017).

⁵² “Request variability” suggests that the “service bundle” provided to any client will vary to some extent conditional on the expectations and circumstances of the client. For example, observation of inventory is standard for the audit of a manufacturer but is generally irrelevant to the audit of a bank. The bundle of activities that comprise an audit varies from client to client, and has evolved dramatically over time as business, technology and globalization complexities have grown for most organizations.

⁵³ It is interesting to note that many of the five sources of variability have been implicitly built into the audit fee model used to estimate the relative costs of audits, e.g., arrival variability (busy season audits) and request variability (demands for auditing related to corporate governance). What is often lacking from many audit fee analyses are proxies for capability and effort variability, i.e., measures of what the client contributes to the audit process beyond broad measures of internal auditor input or internal control weaknesses (Gaeremynck et al., 2018).

resources they have and their retirement objectives. Essentially, they do the things where direct customer input is critical. The “back office”, on the other hand, executes transactions, prepares statements, and might create on-line tools that will help clients learn about their investment options and track their retirement portfolios, i.e., they do the things where direct customer input is not needed. The more complex the service, the more important the “front office” aspect of the client interaction usually becomes.

Audit firms have attempted to apply some of these same ideas to the audit process. For example, firms use technology centers to develop IT support for the audit process. Some of the products of these efforts are automated workpapers, guidance on audit planning, workpaper reviews, and, more recently, tools for data analysis. A more specific example is the use of offshoring for some types of audit work.⁵⁴ While pioneered by the production of goods, the offshoring of services is rapidly increasing amongst multinational audit firms where labor-intensive elements of the auditing (and tax) process that do not require direct client contact combine with the desire to control costs to provide a powerful rationale to move routine auditing tasks to a low cost setting (Aubin & Chatterjee, 2012; Chan & Moser, 2015; Daugherty & Dickins, 2009; Jones, 2011).

Another example that has emerged is in the development of integrated knowledge management systems. Large audit firms have created databases of workpaper templates, client-specific information, and other documents that auditors can draw upon to assist in documenting future audit engagements (McCall, Arnold, & Sutton, 2008). The knowledge management system increases efficiency by allowing auditors to reuse work done by others that is not sensitive to the current conditions of the client. It can also improve audit quality insofar as the available resources may be superior to what an audit team might create on their own (Hansen, Nohria, & Tierney, 1999). Knowledge management systems are essentially “back office” in nature but do not entirely replace the need for auditor judgment in the “front office”, most especially the fundamental judgments about risk, controls, and the fairness of a client’s financial statements (Malhotra & Morris, 2009). On the other hand, if knowledge management advances too far into the “front” office, professionals may reduce their own judgment and emphasize explicit knowledge that can be documented over tacit knowledge which may be difficult to document (Brivot, 2011), potentially reducing overall audit quality (Dowling, Leech, & Moroney, 2008; Stuart & Prawitt, 2012).

Prioritizing Customer Demand: A second approach to pursuing efficiency concerns the timing of client demand (arrival variability). It is generally better for service providers to work consistently across time and avoid demand bubbles, mainly because it is easier to have a stable labor force of skilled individuals who are neither overworked nor underutilized. For manufacturers, an even level of production can be managed by creating inventory that will be consumed in periods when demand is greater.⁵⁵ For service providers, however, capacity must correspond to demand because the service process is perishable. This issue is clearly pertinent to the audit. One way of trying to mitigate variability in consumer demand is to give consumers incentives to change their consumption patterns. By smoothing client demand over time, service providers can prioritize client demand based on efficiency,

i.e., provide a service with better cost control (Sampson & Froehle, 2006). A number of studies on audit fees have documented that audits during busy season are more costly than audits at other times of the year (Hay, Knechel, & Wong, 2006; Ng, Tronnes, & Wong, 2018). The changing requirements of public company audits in the US have had the salutary effect of spreading audit work more uniformly throughout the year, especially given the PCAOB standards related to the Integrated Audit, audit of internal control over financial reporting, and the review of quarterly financial information (PCAOB, 2003; PCAOB, 2007; PCAOB, 2010).

Exploiting Efficiencies Peculiar to Service Processes: While service providers may not be able to achieve *efficiencies of scale* (spreading costs across clients) due to the heterogeneity of their service offerings, they can achieve *economies of scope* (spreading costs across services) (Normann & Ramirez, 1998). Economies of scope occur when producing multiple services is cheaper than producing or contracting each service separately, i.e. service bundling. Service providers may gain knowledge from initial and subsequent service encounters with a client that allows the provider to develop new service offerings that are unique and valuable to specific clients (Ploetner & Ehret, 2006). Non-audit services are an obvious example in audit firms.

There are also efficiencies related to the integration of service networks. While efficiency in manufacturing is traditionally achieved by a firm having tight control over its production process, participation in a service network requires that firms give up some of the control over their own processes. In place of an efficiency understood as achieving a consistent outcome with the minimization of costs, participants in a service network might seek an efficiency in resource integration, which requires communication and a willingness to be influenced and directed by other parties in the service network (Håkansson & Ford, 2002). This kind of efficiency has the added benefit of promoting service quality (Vargo & Lusch, 2008).⁵⁶

Proposition 5-1. *Auditors can pursue service efficiency through (a) standardizing “back-office” processes, (b) changing the timing of client demand, and (c) economies of scope and resource integration.*

Thus, there are different ways that a service provider may work to improve audit efficiency, but a common characteristic is that auditors may strive to mitigate the heterogeneity natural to the service process where it is least likely to influence overall quality. Insofar as that heterogeneity is a necessary part of the audit process, however, the efforts to improve efficiency have a limit. Further, to the extent that heterogeneity is valued by users and the participants in the collaborative process, and a consequence of their ability to contribute to the audit process, efforts to improve efficiency may adversely affect audit quality (Frei, 2006). Whatever is done to improve audit efficiency, a significant concern that may arise related to auditing is the possibility that standardization or homogenization of processes can lead to deskilling of professionals whose expertise is most critical for achieving high quality outcomes (Arnold, Collier, Leech, & Sutton, 2004; Masselli, Ricketts, Arnold, & Sutton, 2002; Seow, 2011). In other words, there is a fundamental tension between audit quality and audit efficiency that is not apparent when modeling the production of audit services as a manufactured good. Efforts to reduce the heterogeneity inherent in an audit runs the risk that auditors may become inadequately sensitive to the idiosyncratic nature of the conditions of the client and the nature of the collaborative network that

⁵⁴ “Offshoring” is distinct from “outsourcing” in that outsourcing involves sourcing work to an external third party regardless of its geographic location, whereas offshoring describes work which remains within the firm but takes place in a different locale than the client and primary service team.

⁵⁵ Note, that even in a production process, maintaining a stable level of activity involves costs because inventory must be stored, protected, accessed and insured.

⁵⁶ Guénin-Paracini et al. (2015) provide evidence of the importance of auditor flexibility and other “relational strategies” with management in order to obtain the highest level of cooperation from management.

comprises the financial reporting supply chain, potentially decreasing overall audit and financial reporting quality.

6. Final observations and conclusion

Much prior research in auditing has viewed the audit as a manufacturing-style production process that reflects the nexus of various agency relationships, with the primary principal-agent problem captured by the tension between investors/owners (principals) and management (agents) (Wallace, 1981). Typical agency theory views these parties as antagonistic, self-interested strategic actors (Jensen & Meckling, 1976). Managers are presumed to have the ability and incentives to misrepresent their financial performance for their own ends because of their informational advantages vis-à-vis investors, while investors have final power over the employment prospects of management. In this setting, auditors serve as a monitor⁵⁷ to reduce agency costs between the reporting party (management) and an information user (owner) by increasing the credibility of information that flows from one to the other. Since audit quality is exceedingly difficult to observe and assess, this gives rise to another potential agency problem, one involving the behavior of the auditor in relation to other stakeholders.⁵⁸ As in other principal-agent relationships, both the client firm and auditor are assumed to act in a self-interested manner, yet both parties are dependent upon each other, potentially undermining perceived auditor independence due to economic or social bonding between an auditor and client (Bell et al., 2015; DeAngelo, 1981a, 1981b; Simunic, 1984). Thus, classic agency theory, with its emphasis on issues of separation and control, self-interest, and contracting (in)efficiencies, defines participants as coldly strategic actors engaging in discrete transactions marked by information asymmetries, attempting to maximize their own personal benefit through separate actions. This view marginalizes the role of the various participants in what is essentially a complex network of interactions amongst various stakeholders with potentially competing objectives (Knechel & Willekens, 2006). Cooperation by the parties is mainly reflected in the manner in which the relationship is contracted.

From this perspective, the relationship between principals (clients) and agents (auditors) is adversarial and rife with tension.⁵⁹ “Clients” attempt to manipulate financial statements to their advantage, and use economic pressures to undermine auditor independence to potentially compromise audit quality. “Auditors” then execute a highly standardized verification process driven by standards and regulation so as to determine if the financial reports are fairly presented. Framed in this way, audit quality was initially expressed as a function of auditor competence/expertise (the likelihood of detecting fraud) and auditor independence/objectivity (the likelihood of reporting accounting failures) (DeAngelo, 1981b). Audit quality was believed to be determined solely by the auditor, who was seen as susceptible to economic pressure applied by the

client, potentially resulting in compromised audit quality.⁶⁰

More recently, particularly since the reforms introduced to the auditing profession as a result of the 2002 Sarbanes-Oxley Act, our understanding of audit quality has expanded to include a variety of client characteristics associated with internal audit, audit committees, board of directors, and corporate governance in general (see DeFond & Zhang, 2014; Knechel et al., 2013). Increasingly audit quality has come to be viewed as not only a function of auditor expertise and independence, but *client* competence/expertise as well. If audit quality is determined by both auditor and client characteristics, then multiple actors can influence the determination of audit quality, or more generally financial reporting quality, which then depends on the relationship between those actors, i.e., the participants in the financial reporting ecosystem. Consequently, this paper argues that the value of an audit may be enhanced if the interactive/cooperative relationship between client and auditor is acknowledged and factored into the design, management, and regulation of the audit process. This creates a challenging conundrum for the auditing profession, particularly with respect to those who “consume” the outcome of the audit: *audits may be more effective and efficient if the client and auditor appropriately cooperate to overcome their relative information disadvantages, but market participants may not value the audit as highly if they perceive that cooperation as undermining the independence of the auditor.* In short, agency theory may explain the demand for an audit but not necessarily the quality or efficiency of the audit service.

Service science potentially offers an alternative and valuable lens through which to view the audit since it reflects that the audit is not a process that is disconnected from the other stakeholders in the financial reporting ecosystem. Co-creation of value, reflected in necessary cooperation among the participants in the process, is at the heart of the service perspective in that services are understood to involve significant input from both the service provider(s) and the service recipient(s). Both auditors and managers are privy to their own informational advantages. The firm knows its own business, transactions, and internal control system; the auditor harnesses the collective knowledge from a portfolio of clients and skills and expertise with respect to auditing. The unique informational advantage of each party facilitates the mutual dependence that leads to the co-creation of value in the audit (Gibbins, Salterio, & Webb, 2001). Viewing the relationship as ongoing, as opposed to discrete transactions, adds to the cooperative nature of the relationship. Of course, such a view does not remove the potential for conflict among the participants of the audit process. The need for an auditor to maintain independence adds a layer of complexity to the engagement that may not apply as extensively to other professional services.

Audit quality is difficult to directly observe and measure, in large part due to the *intangibility* and *heterogeneity* of the service process, and is further complicated by the variety of stakeholders who consume, to varying degrees, the audit output. A service perspective may have a profound impact on how we perceive and produce high quality audits. To illustrate, as previously discussed, auditor tenure is typically considered a threat to independence because of the incentives that arise if viewed through a traditional agency theory lens. Longer tenure may create greater economic bonding by the auditor, and a longer working relationship between the auditor

⁵⁷ Corporate governance can be considered a monitoring activity. The image of a monitor is someone in a position of superiority who oversees others from a distance. The service perspective, however, replaces “viewing at a distance” with “cooperation among relative equals” (co-creation). Note that auditors consider senior management as part of corporate governance, i.e., auditors treat “monitoring” as something that happens *within* the financial reporting process (Cohen et al., 2002).

⁵⁸ Note, audit firms have their own form of agency problems, either between staff and partners or amongst partners themselves (Huddart & Liang, 2005). Intra-firm agency issues could have a direct impact on how auditors perform and are compensated (Knechel, Niemi, & Zerni, 2013).

⁵⁹ Most agency models deal only with bilateral relationships due to modelling complexity. Such an approach subsumes the question of “who is the client” in such an analysis.

⁶⁰ Agency theory implicitly recognizes the iterative and interactive (if not cooperative) nature of the relationship between agent and principal. For example, the literature on renegotiation of contracts (Hart & Moore, 1988) and flexibility in contracts (Bazerman & Gillespie, 1998) implicitly recognizes that the relationship between the two parties is more complicated than a one-period bilateral game with perfect information.

and management may create a social bond that undermines the auditor's professional skepticism (Lennox, 2014). However, auditor-client tenure could also be examined as an auditor/client competency. Despite frequently expressed regulatory concerns (PCAOB, 2011; SEC, 2017), the literature on auditor tenure has yielded very limited evidence that long tenure represents a threat to auditor independence. Instead, most evidence seems to suggest that long auditor tenure is associated with improved audit quality.⁶¹ Audit researchers generally credit the benefits of auditor tenure to "knowledge spillover," referring to greater knowledge of the client that auditors accumulate over time. The idiosyncrasy of each client requires that auditors have time to make the necessary client-specific intellectual investment to develop an understanding of the client.

The service perspective goes further and recognizes that knowledge spillover likely happens in *both directions*. Longer tenure also allows corporate managers to better integrate their competencies into the audit process. Thus, in addition to the inherent idiosyncrasy of the client, there is an idiosyncrasy to the working relationship between the auditor and management. Further, an awareness of service networks also means a longer relationship between the auditor and other participants in the reporting supply chain (e.g., the audit committee). Presumably, an auditor working with an audit committee over time learns what kind of support the audit committee will provide and how the auditor can leverage that support when needed to plan new audit procedures or challenge management's assertions. Ultimately, the dangers and benefits of longer auditor-client relationships remains an empirical question. Longer tenure may well increase threats to independence while increasing the quality of cooperation. A service perspective would encourage researchers to identify factors that affect this trade-off and ways in which the participants in the audit service network act to mitigate the dangers and promote the benefits.

Another issue that may be perceived differently through a service lens are auditor-provided non-audit services (NAS). Such NAS are viewed with suspicion on the grounds that audit firms receiving large fees from NAS will develop inappropriate economic bonds with the client. Against this concern is the aversion to reputation and litigation-based losses as well as the potential benefits of knowledge spillovers. The former may explain auditor *incentives* to supply a given level of audit quality, while the latter may explain auditor *ability* to supply a given level of audit quality. From a service perspective, audit firms offering NAS is an expected behavior, i.e., it is characteristic of service relationships that service providers use their initial service offerings to a client to develop further service offerings. Service providers develop a knowledge of a client's needs and capabilities, as well as earning trust through the working relationship with the client.

An important question, largely neglected in audit research, is what value auditors provide to their clients through the provision of NAS. As stated earlier in the paper, managers often see the audit as a mandated cost that provides little value. If auditor-provided NAS create genuine value for the client, however, NAS may strengthen the hand of the auditors in their relations with management by creating product differentiation not easily substituted by other audit firms. If, on the other hand, managers purchase NAS that are not commensurate to the value of those services, then

⁶¹ The evidence in favor of longer auditor tenure and improved audit quality is significant (Carcello & Nagy, 2004; Chen, Lin, & Lin, 2008; Geiger & Raghunandan, 2002; Ghosh & Moon, 2005; Johnson, Khurana, & Reynolds, 2002; Knechel & Vanstraelen, 2007; Myers, Myers, & Omer, 2003), but there are exceptions (Carey & Simnett, 2006; Davis, Soo, & Trompeter, 2009).

managers may be using NAS to create an economic bond with the auditor. As an additional consideration, clients that purchase NAS from their auditor may justify that an auditor incur higher idiosyncratic costs for the engagement (i.e., less standardization in the audit process), while also justifying larger client-specific investments in the collaborative process that can increase audit quality. Note, these results would be in addition to the unresolved possibility of knowledge spillovers across bundled services.⁶² As with the issue of auditor tenure, this is an empirical question.

To date there is relatively modest empirical evidence that non-audit services actually undermine audit quality.⁶³ On the contrary there is rather strong evidence that the provision of tax-related NAS actually improves audit quality.⁶⁴ Other research notes the difference between *actual* audit quality and *perceived* audit quality that takes the form of market reactions to NAS disclosures.⁶⁵ This apparent contradiction may reveal that many of the participants in the collaborative network that produces audited financial reports may not understand the nature of such cooperation, or that they are dissatisfied with the nature of the collaborative network as it exists under current practice, standards, and regulations. The latter explanation suggests a larger problem for the auditor if the collaborative network itself is dysfunctional. The exclusion of users from the service network in most engagements may contribute to this impression. Increased involvement by some users in the audit service process may increase an auditor's ability to maintain their independence from other participants. A service perspective may help to resolve the divergence between the empirical evidence and broadly held beliefs about NAS.

The service perspective also helps provide needed insight into the proper balance of information, cooperation, and power in the collaborative network that comprises the audit. Auditing is a service insofar as it involves significant input from various participants in the process. Auditors, managers, internal staff, the audit committee, and the other participants in the financial reporting supply chain bring their respective skills and knowledge together to create a credible financial report. For this reason, financial statements can be described as the co-creation of an idiosyncratic collaborative network that includes the auditor.⁶⁶ Auditors need both cooperation with management and their own professional judgment to provide reasonable assurance over the resulting financial statements. Practitioners, regulators, and researchers could benefit by

⁶² A similar argument could be used to explain the empirical results for audits of large clients where auditors are perceived to have a large economic bond that might undermine audit quality. There is little empirical evidence to support the conclusion that large clients obtain favorable treatment from auditors (Chung & Kallapur, 2003; Craswell, Stokes, & Laughton, 2002; DeFond, Raghunandan, & Subramanyam, 2002; Hope & Langli, 2010; Li, 2009; Reynolds & Francis, 2001) but such clients will likely need larger client-specific investments by the auditor.

⁶³ Other papers that suggest that NAS does not impair audit quality: Ashbaugh, LaFond, & Mayhew, 2003; Callaghan, Parkash, & Singhal, 2009; Geiger & Rama, 2003; Kinney, Palmrose, & Scholz, 2004; Knechel & Sharma, 2012; Larcker & Richardson, 2004; Lim & Tan, 2008; Reynolds, Deis, & Francis, 2004; Ruddock, Taylor, & Taylor, 2006. Papers that suggest that NAS may impair quality: Felix, Gramling, & Maletta, 2005; Ferguson, Seow, & Young, 2004; Frankel, Johnson, & Nelson, 2002; Kinney et al., 2004; Srinidhi & Gul, 2007; Ye, Carson, & Simnett, 2011.

⁶⁴ Tax-related services represent the larger NAS typically provided by auditors, representing about half of total NAS fees, with audit-related NAS close behind (e.g., Paterson & Valencia, 2011, Table 2). If there are any NAS that impair audit quality, they appear to be those associated with other NAS. For example, see Cook, Huston, & Omer, 2008; Gleason & Mills, 2011; Kinney et al., 2004; Paterson & Valencia, 2011; Robinson, 2008.

⁶⁵ See Francis & Ke, 2006; Frankel et al., 2002; Higgs & Skantz, 2006; Krishnan, Sami, & Zhang, 2005; Kurana & Raman, 2006.

⁶⁶ Interestingly, while some may object to this representation of the audit, it is perfectly consistent with the argument that accruals only partially measure audit quality because they reflect the joint decisions of the auditor and management. This "joint-ness" would seem to be unavoidable in the audit process.

Table 2

Propositions on audit as an economic service.

Section II

Proposition 1: The more an audit involves the participation of the client and other parties, the more the audit should be characterized as a service process.

Proposition 1-1: The less (more) that end users are separated from the collaborative audit process, the more (less) able the audit process is to meet their expectations.

Section III

Proposition 2: The value that any participant in the audit process brings to the audit will be a function of (a) the competencies and resources of the participant and (b) how successfully those competencies and resources are integrated into the audit process.

Proposition 2-1: The extent and nature of cooperation in the audit process will depend on (a) the goals of the audit participants and (b) the stage of the audit process where cooperation is needed.

Proposition 2-2: The greater the number of participants in the audit process, the greater the likelihood of (a) goal misalignments and (b) communication limitations between participants.

Proposition 2-3: The audit committee should be evaluated by the competencies and resources it brings to the process and by how well those competencies and resources are integrated into the process.

Proposition 3: An audit failure is a network failure, and does not necessarily imply that the performance of the auditor was deficient.

Proposition 3-1: Auditor knowledge specialization and service co-investments can increase the client's reliance on the auditor, leading to an increase in auditor independence.

Section IV

Proposition 4: There is no universal standard of audit quality since a stakeholder will judge audit quality by comparing the performance of participants in the audit process against the stakeholder's performance expectations.

Proposition 4-1: Insofar as there is an inherent variation in the level of assurance demanded by stakeholders across audits and by the various stakeholders within a given engagement, there should be a corresponding variation in the level of assurance provided by the audit network to the various participants in each engagement.

Section V

Proposition 5: The relationship between audit standardization and audit quality is non-linear. Very low levels of standardization risk inconsistency in audit performance; very high levels of standardization ignore the idiosyncrasy of the client and the client's stakeholders.

Proposition 5-1: Auditors can pursue service efficiency through (a) standardizing "back-office" processes, (b) changing the timing of client demand, and (c) economies of scope and resource integration.

Note: Propositions 1 through 5 are considered foundational based on the theory of service science, while the other propositions are either positive or normative propositions that follow from the related foundational Proposition.

reflecting more on the service perspective of audit. Practitioners should think about the tension between the collaborative network and auditor independence, expertise and incentives, quality and efficiency, all of which are inherent to service processes. While the accounting firm of Arthur Andersen met an ignoble end in 2002, it was on the day of the firm's founding that the man himself espoused the purpose of his new firm, and the profession as a whole: "*We want to measure our contribution more by the quality of the service rendered than by whether we are making a good living out of it ... It has been the view of accountants up to this time that their responsibility begins and ends with the certification of the balance sheet and statement of earnings. I maintain that the responsibility of the public accountant begins, rather than ends, at this point.*"⁶⁷

In line with this view, current practitioners might broaden their approach to collaborative network to include more third-party users in addition to management by becoming more aware of, and responsive to, the desires of third-party users', e.g., related to non-GAAP or non-financial disclosures. Regulators might reflect on how their efforts to streamline audit processes could impair the auditor judgment needed to respond to the idiosyncrasies of each engagement. Regulators might also soften their dogmatic call for more auditor *independence in appearance*, through a recognition of the need to promote an appropriate collaborative network among the participants that might actually lead to a higher level of *independence in fact*. Finally, researchers might benefit from questioning their models that treat auditing as akin to a manufacturing process where given inputs are expected to produce certain outputs. Researchers might also explore the antecedents, moderators, and consequences of cooperation between auditors and the other participants in the process.

In this paper, we have argued that a service perspective may help to better understand the role of the auditor in the financial reporting supply chain. We have also presented a series of propositions that can be derived from this perspective that could be subject to future research. We identify a set of five foundational

propositions drawn from the theory of service science. Each foundational Proposition is then associated with one or more positive or normative propositions. The propositions are summarized in Table 2.

However, we do not believe that the service viewpoint is a panacea. The profession will always have to wrestle with issues related to independence, expectations, and the lack of certainty and observability over the final outcome of the audit. There may be a fine line between participating in an effective collaborative audit service network and abdicating an auditor's responsibilities within the process. Such an abdication could be intentional in the case of extreme economic bonding or may be unintentional due to over-reliance on other participants in the process (e.g., internal auditors, internal staff, or the audit committee). These issues will continue to be worthy of study and viewing auditing through a service lens may facilitate research about what makes a "good" audit.

While the difficulty of measuring audit quality is widely acknowledged, many of the limitations faced by researchers arise from data availability, specifically our inability to observe first order inputs (disaggregated audit costs, audit effort, etc.) to the audit process without access to proprietary data. Research across a variety of institutional contexts, as well as the application of novel data sets remain a source of future investigation that will help researchers examine issues of the collaborative audit network and independence more closely. Qualitative and experimental research offer similar opportunities to explore the motives and incentives of the various participants associated with the audit process. The benefits of interpersonal relationships representative of cooperation across the service network may be difficult to empirically quantify but might be amenable to research in other ways. Regardless, we feel that a service perspective provides some genuinely unique insights into the audit and can serve as theoretical support for a variety of existing empirical findings and broad avenues for future research.

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⁶⁷ <http://encyclopedia.jrank.org/articles/pages/6081/Andersen-Arthur.html>.

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