Under-representation in SLAs for Global IT-centric Services

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Abstract

Service level agreements (SLAs) constitute some of the most important instruments for representing and managing IT-centric services performance and value. However, achieving realistic and effective SLAs can be elusive. The problem is relatively under-researched and normative descriptions of what should be represented, monitored and measured in SLAs tend not to correspond with key events that unfold during the course of the production of services over time. We argue that designing SLAs, or related instruments, that accurately and usefully reflect services as they are enacted can be served by a deeper understanding of the practice of IT-centric services. Based on an ethnographic study of interactions between a large global IT-centric services provider and a global financial services company, this paper presents an approach to researching the problem and some preliminary results which document and analyse dimensions of the service engagement that are under-represented in formal representations but are value-enabling. The study is framed using the relational theory of contract (Macneil 1980).

1. Introduction

The application of Information technology (IT) to the industrialisation and transformation of services has become a major driver of service economy expansion. The substitution of rule-based, computable processes for human activities [1], increases in global bandwidth available, lowered barriers to inter-operability through open standards, and the commoditising and loose coupling of IT functions as services all contribute to this. These changes (amongst others) have facilitated the emergence of new models of businesses as dynamic horizontally integrated complex networks of IT-centric service systems, provided by strategically aligned partners, across heterogeneous domains of control [2]. The spectrum of these IT-centric service systems ranges from commoditised web services through utility services to highly customised and relationship-intensive enterprise services.

Fundamental to the management and governance of these networks of service systems, are service level agreements (SLAs). An SLA is a contract (expressed in natural language or computationally) between a service provider and client. It defines service success in terms of requirements and expectations, key performance criteria and mutual obligations [3]. In complex service systems the primary provider typically has underpinning contracts (also mediated by SLAs) and may also be part of a network of providers engaged in completing the service as experienced and valued by the client. Across the spectrum of IT-centric service systems, SLAs are seen as key to managing costs, risks, quality of service, provider-client relationships, trust, service dependencies, automated contracting of services, business-driven service composition, lifecycle contingencies, change management, resource mapping, pricing, metering and billing, [4-6].

For provider and client alike, determination of value depends in part on how realistically and adequately SLAs and their corresponding metrics represent the key conditions of service enactment. Under-representation in SLAs of emergent conditions that impact value, such as ad hoc operational interventions, ambiguity and assumption [7] or unplanned relational interactions, risks diminishing the effectiveness of the SLA as an instrument for representing and managing performance and determining value over the life of the service. Normative frameworks for SLAs have been developed, and the importance of SLAs in provider-client relationships is well explored. Our study however seeks a detailed understanding of the relationship between the enactment of a service and its canonical representation in the SLA, by examining under-represented practices that nevertheless realise value for provider and client. Such practices may be amenable to optimisation and innovation, through better designed SLAs or related instruments for example, in order to yield greater value for provider and client.

Through a long-term ethnographic study we have observed the interactions over time between a large IT services provider and a large financial services client, both of which are organised as global networks. This paper is a preliminary report on the study and examines the persistence of practices, neither represented nor measured in SLAs or elsewhere, which informally are considered to realise value for both provider and client. Our study is framed by the relational theory of contract [8], to help us better understand the extensive role of social relations in contracts.

The remainder of this paper is set out as follows. In section 2 we discuss the nature of IT-centric services and
provide an overview of previous research relating to SLAs. We proceed to discuss the theoretical foundation for the study in section 3 followed by the ethnographic research project in section 4. Our preliminary findings and their implications are discussed in section 5 and 6. We conclude by discussing the limitations of this research and future work.

2. IT-centric services

In the literature of marketing, economics, management and operations [9] are to be found a variety of definitions of services. Many of these are constructed in terms relative to the production paradigm, i.e. a service is some kind of non-material product. However in an empirical study of service productivity Gadrey [10] argues that definitions of services constructed in that way do not hold true when examined against the evidence of services-in-practice: they neither account for the social relations of a service transaction nor for the transformed target which is the outcome of a service intervention. Importantly, in his view, the immateriality of the target and outcome of a service intervention does not prevent us from examining and understanding it. Gadrey’s view of a service as a result of that study is that:

A service is made up of three elements: the customer (B), the service provider (A) and the reality to be transformed (C). Thus a service is defined as a set of actions carried out by ‘A’ for the benefit of ‘B’ and often with the latter’s participation. The actions carried out by ‘A’ are intended to bring about a change of state in the target ‘C’.

Gadrey’s triangular representation of services in Figure 1 (augmented to show the role of IT in IT-centric services and examples of how service relations might be characterised) gives us a framework in which the socio-technical, co-productive and emergent nature of a service system and its outcome are made explicit. This diagram represents the core dyad of networks of linked services, whose complexity would increase as a function of the number and variety “value creation network” [11, 12]. The figure also represents the argument of service dominant logic: that customers are always co-producers of a service and that the aim or “value proposition” of a service, is to transform a target to a desired outcome [13].

A strength of this representation for our study is that it highlights the possibility of more deeply understanding the nature of service relations [10], e.g. the types of relations, their measurement and participant views of them as we indicate in Figure 1, in achieving a desired outcome.

2.1 SLAs for the ‘web’ of IT-centric services

An SLA is a contract between a service provider and a client and functions as a form of governance of exchange between parties [14]. A high level representation of what is to happen; typically an SLA defines the successful service outcome in terms of requirements and expectations, key performance criteria and mutual obligations. It contains metrics for measuring and monitoring performance and quality (i.e. what the successfully transformed service target will be and how that success will be measured quantitatively), penalties and incentives relating to that performance and forms of reporting and governance [3]. It also refers to formal governance policies and structures that determine how service relations are to take place but only at a high level and in particular instances, as, for example, in formal reports and meetings.

Previous work on SLAs for complex IT-centric services delivery has focused on: developing normative frameworks for SLA construction based on IT-centric service management frameworks such as ITIL [15] and practitioner literature [16]; case studies and surveys of relatively complex and customised outsourced IT-centric services in dyadic relationships highlighting the importance of the provider-client relationship to overall success of a service [17, 18]; and the role of the SLA in shaping relationships in outsourced services [19]. While SLAs are clearly not intended to fully represent the enactment of a service, it is also acknowledged that appropriate mechanisms for constructing effective SLAs are still poorly understood [20]. Detailed attention has yet
to be paid to the actual enactment of SLAs in practice during the life of the service.

SLAs also take on new significance as moves are made towards “the definition, negotiation, deployment, monitoring and enforcement of SLAs to become - in contrast to today’s state of the art - an automated process” [5]. Computationally expressed SLAs and run time composition of services based on SLAs, demand SLAs that are unambiguous and complete [21], there being no possibility for heuristic intervention where computational interactions and interventions substitute for human interaction.

Increasingly too IT-centric service provision involves not a single dyad, but a ‘web’ of service systems: a network of services horizontally integrated across heterogeneous domains of control, often with one provider having contractual responsibility for the integration of end-to-end services without control of the co-providers. The complexity of such a value creation network is not well represented in normative SLA frameworks or templates; most assume a dyadic relationship. But such networks of interdependent services, from the commoditised to the complex, need SLAs which represent them in such a way that realistic agreements about their provision can be made and that compliance with those agreements can be measured.

Improving the effectiveness of computational or natural language SLAs in creating value for providers and clients, calls for a deep understanding of the promises of SLAs and how services are enacted to meet those promises.

3. Relational theory of contract

Macneil’s [8] relational theory of contract provides the theoretical foundation for this research’s aim of better understanding the enactment of a service as a system of interactions, interventions and outcomes. Macneil disputes the classical view of a contract as a discrete and static entity representing the meeting of minds with a view to creating a set of promises, with precise measurements of easily measured objects whose non-performance is remediated with penalties. In his view, the failure of classical contract law to account for the predominantly social or relational properties of contracts produces incoherence, empirical irrelevance and explanatory failures.

Empirical evidence, he argues, shows that contracts as enacted are complex, emergent and context-dependent phenomena. They include measurable, non measurable and un-measured qualities, multiple and differing stakeholder interests; anticipate future cooperative behaviour and problems; share risk; limit binding; and may involve friendship, reputation, interdependence, ethics and problems. His relational theory of contract therefore, defines contracts as “relations among parties to the process of projecting exchange into the future”. Drawing on the fields of law, anthropology, economics and sociology, the theory is now broadly accepted in legal scholarship and practice [22].

He argues that all contracts in enactment have each of the following elements to some degree: type of relations, number of participants, measurement, commencement and termination, planning, future cooperation, sharing of benefits and burdens, obligations, transferability, participant views of the exchange and power. Moreover, the relational intensity of each of these elements, which depends on the context, complexity and duration of the contractual exchange, can be represented on a transactional axis between discrete and relational poles. In addition Macneil identifies a set of common contract norms which describe how parties to a contract can and should behave and which further mediate the enactment of a contract.

Critics have argued [23] that Macneil’s theory is difficult to translate into empirical measures and testable hypotheses and that outside legal scholarship, in marketing in particular, it has typically been operationalised on only one dimension of the taxonomy: that of the ten behavioural norms, (reduced to three in some outsourcing literature). For our purpose, we use the matrix of contractual elements and their relational intensity to help us develop a more nuanced understanding of SLAs and service relations in practice. In this preliminary report of the study we focus on three particular elements of this matrix to help us understand service relations: type of relations, measurement and participant views of the exchange, using them to look at how behaviours indicate the relational intensity of these elements. The discrete and relational poles of these contract elements are described in Table 1 below.

<table>
<thead>
<tr>
<th>Table 1: Discrete and relational poles of selected contract elements</th>
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<tbody>
<tr>
<td>Relation type</td>
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<tr>
<td>Limited, formal, non-unique, simple monetisable economic exchange</td>
</tr>
<tr>
<td>Measurement</td>
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<tr>
<td>Participant views</td>
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4. Project background: research method and introduction to the site.

Ethnography is increasingly used in organisations to focus on qualitative aspects of behaviour in work practices, yielding insights from which both practical and theoretical outcomes may be derived. The use of ethnography particularly in IT studies as a means of breaking down and understanding a complex phenomenon in practice is well established [24-27]. Previous ethnographic research on IT related problems has highlighted the critical gap between the canonical (espoused) view of organisational processes and systems that implement them, and the actual processes, human interactions and interventions needed to provide continuity of service in practice [27-29]. These studies have generated new constructs and contributed to the design of new processes and technologies.

Through detailed, contextualised observation and interaction, ethnography gives us access to unwritten and often unspoken rules and assumptions. It enables an understanding of events in context from multiple participant perspectives and “enlarges the possibility of intelligible discourse between people who are different but connected” [30], designers and users for example, researchers and practitioners, clients and providers. By adopting this approach in our research, we aim for a more descriptive and holistic view of IT-centric service systems. The strength of this approach is that it is necessarily ideographic and qualitative thus providing a novel understanding of the design, implementation, and management of services and their corresponding SLAs to help develop techniques and models for improving service provision.

Over eight months, we have conducted an ethnographic study of a service provided by a global IT services provider for its client, a global financial organisation. The provider delivers a range of services to the client, including end-user computing support, mid-range servers and systems integration. The focus of our study is the end-user computing (EUC) service, which supports (on-site and remotely) the installation and maintenance of desktop hardware and software, local area networks, remote access, and file and print servers. For this service, incidents are logged by email or phone with the Help Desk, where first line support is supplied. Further support is provided by Remote Services where feasible and Desktop Services when on-site attention is needed. Our particular interest is in the provider client relations, mostly undocumented, that contribute to successful outcomes of that service.

As is typical in such sourcing arrangements, there is a network of providers involved in providing the global desktop service (i.e. providers of application, network, hardware, software and human resource services). The main provider is responsible for the outcome of other providers’ activities where they impact on end-to-end service availability, but does not have control over them. Delivering value to the client and provider in this inter- and intra-organisational configuration is complex and challenging [28], involving not just planned and business-as-usual activities, but also activities carried out by ad-hoc event-driven teams, assembled in response to service failures, which cross departments, geographic regions and organisations.

The SLA is determined by the global headquarters of the organisations (with some country specific terms based on local conditions) and the service is delivered and supported in a global and regional matrix. As is standard for this type of service, the SLA is dominated by operational metrics and governance mechanisms. It contains descriptions of what is in scope and out of scope, key performance indicators and metrics, penalties and incentives, reporting requirements, relationship roles and responsibilities, and governance roles and procedures for reviews and meetings. The SLA also has a “sweep clause”, not uncommon in complex service provision, under which the provider must provide any function that the client previously provided, regardless of whether it is stated as in-scope or not.

The project involves a researcher being immersed in the site on a daily basis, observing interactions and gathering first-hand accounts from participants (executive, managerial, operational, technical and administrative) of events that unfold during the course of ensuring that the target of the service: a client’s desktop environment, created, maintained or restored to the desired outcome as specified in the SLA. To contextualise the service, we observe interactions between provider and client, between provider and co-providers, between the provider and its providers as well as interactions within each of these groups on the site. These interactions consist of formal and informal conversations, (face to face, phone, email, instant message, meetings), and exchanges documented in various management tools such as the help desk, incident and problem management systems, shared and individual spreadsheets and other information repositories.

From this predominantly textual data, (in the form of recordings, transcripts, field notes and journal notes) we create a “thick description” [31] of the service relations implicated in coproducing the service outcome, informed by Macneil’s taxonomy of contract elements and their relational intensity.

5. Preliminary findings

In Gadrey’s representation, service relations are interactions that take place between a provider and client to ensure the successful outcome of a service. Our
examination of service relations in the EUC service reveals routine relational practices, of value to both provider and client in creating a successful outcome. These relations however are only informally acknowledged to be of value, are invisible in the record and therefore largely unavailable for analysis and measurement. By mapping examples of these relations to Macneil’s matrix of contract elements by relational intensity, we show that they are a legitimate aspect of complex service contracts, worthy of deeper scrutiny and perhaps amenable to evaluation. In this preliminary report of our findings, we focus on understanding these relations in the successful outcome of the services primarily from the provider’s point of view.

5.1 Service relations, acknowledgment and value

“There is no way in the world we manage by contract alone. We manage on a shared understanding of the service. We go above the contract everyday but how do we inventory it, value it, and have them value it?”, (provider manager).

“Ninety percent of this job is relationships”, (client global governance executive).

“You can’t see how hard we work to keep the SLAs green month after month. I wish there were a way to make this more visible” (provider, quoted in another recent ethnographic study of SLAs, [28]).

The persistence of intensely relational interactions between provider and client that are not accounted for in the SLA but are informally recognised as valuable, emerged strongly in this study. Client and provider participants at each level, from executive to operational, were seen to manage and value the everyday relational interactions that took place at their “touch points”. The following examples show how these interactions evidenced personal, individualised interventions using judgement and influence, depending on the circumstances and people involved.

For example, a provider desktop team leader explains: “at times of escalation I take responsibility and ownership and become a negotiator which is probably the main thing I do, negotiating and calming the situation and trying to please all parties”. Less straightforward is a ‘shoulder tap’: a request for expediting scheduled tasks or executing non-scheduled tasks which bypasses formal processes. For example, a client needing to travel at short notice negotiated precedence with their provider contact, bypassing the normal lead time for the connection of a mobile device of up to ten days. When this was passed down to the desktop team, the team leader then renegotiated the timing of existing requests with his team as well as with the clients waiting for those tasks. In the team leader’s view this was “a free service I provided for the account team”. The actions of both the provider contact and team leader express the value of this service relation to them.

“Enabling the user through explanation” was both reported and observed to be a way in which the Help Desk, Remote Services and Desktop Services team members contributed to successful outcomes in relationally intensive ways. Repeatedly, in observing and listening to Help Desk incident logging and first level support for the EUC, team members were heard to talk users through user documentation and explain user processes. (Some team members created individual information repositories to help them tailor this support). One desktop team member, who made the distinction between “relationship services” and “technical services” was observed to be particularly clear and patient in his explanations and was frequently visited by grateful clients whom he had helped. Ad hoc guidelines were also created by Help Desk team members to further assist users.

The satisfaction reported as being derived from these relations was predominantly internalised. Participants express their motives and satisfactions for carrying out service relations, neither inscribed in the SLA nor their job descriptions: “I do lots of things that I’m not obligated to do that are not in my contract because I want to make a difference and I want the client to get good value” (desktop support team member). “I need to build and manage the relationship, because this is a not a job, this is a service” (desktop support team member). The satisfactions were not without tension though. The constraint of closing calls within sanctioned times and the perceived need to provide advice tailored to individual users in order to provide good service created tension in some Help Desk team members as the time was explicitly measured but the quality of process and outcome was not. For some, carrying out extra-SLA work was driven by the overarching need to keep the client satisfied regardless of the root cause of the dissatisfaction, believing that this investment in relationship building would ultimately return value in subsequent negotiations to find more effective solutions to the problem. For others, it was driven by the inevitability of the primacy of the client relationship. Some interventions were motivated by seeing the opportunity for delivering value to the client simply and inexpensively – e.g. in extra or improved reports. Relations such as these had no reference points in SLAs nor was the potential value of these relations made formally made explicit. Although customer satisfaction (CSAT) surveys are conducted within the client domain, they are perceived by provider team members as being of marginal use in evaluating the value of their relational work as they do not provide any indication of root causes of satisfaction or dissatisfaction, simply an implicit attribution of cause and need for remedy to the provider.
5.2 The perceived value of “the brand”

“The brand is what sells us - everyone knows we go the extra mile” (provider manager). “Everyone knows there is heaps we give away” (desktop services team leader). The need to go the extra mile was well understood as part of gaining and retaining the contract: “every person does two things: maintain relationships and provide technical support” (service delivery team member). In this sense, the value of service relations was acknowledged by the provider and even its economic potential was measured, albeit in gross terms, but they were not referenced in any of the formal documents or explicitly linked to the kind of relations described above.

One reason given by both the provider and client for this lack of evaluation of service relations was that relational interventions were too complex and intangible to attempt to measure adequately. Another reason given for the relational being invisible in the record was the perception that the design and development of the SLA is too remote to adapt to operational conditions, leaving recourse only to heuristic operational intervention. The SLA is also seen to be primarily concerned with issues of governance forms and metrics, and governance is seen as little concerned with understanding operational exigencies as the source of a practice-based feedback loop: “I do think we deliver a really good streamlined service and unfortunately it is being lost in all the nonsense around contracts. They just don’t see the service improvements, they just see one ID not provisioned and all hell breaks lose” (provider manager). Also, while the client acknowledged the value of provider interventions beyond the scope of the SLA and their dependence on them, they expressed a preference for such interventions remaining un-codified lest they become subject to charges by the provider (client liaison manager). Still the paradox is that while both the technical and the relational are seen as valuable, the technical is seen as more amenable to evaluation and improvement and yet the relational is seen as so important to the value of “the brand”.

5.3 Understanding the high degree of relational intensity of service relations in the EUC

By locating examples of these service relations in the matrix of the three of Macneil’s relational contract elements referred to above, we can show how they tend to conform to the relational pole of the transactional axis. Attending to these interactions as such may increase their visibility and offer potential for more explicit management of them.

Table 2: Examples of under-represented service relations

<table>
<thead>
<tr>
<th>Activity</th>
<th>Relations</th>
<th>Measure- ment</th>
<th>Participant view</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incident</td>
<td>Personal and individual e.g.</td>
<td>No formal measurement</td>
<td>Writing user guides and</td>
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</tbody>
</table>

5.2.1 Table 2: Examples of non-represented service relations

| manage -ment at Help Desk for EUC | “Enabling the user through explanation” Individual provider satisfaction internalised | of effectiveness within provider domain but possibly some reflection in CSAT. Also, tension between providing the depth of help needed (unmeasured) and time to closure constraints (measured). | one off instruction is seen as doing the users’ job within the provider’s time budget. |

6. Discussion

The lack of reference points for service relations which are fundamental to achieving successful outcomes in the EUC service has implications enhancing value, improving processes and the design of SLAs and related instruments.

6.1 Service relations: invisible in the record but amenable to evaluation and measurement?

It might be argued that under-represented relational interventions are an indication of immature processes (e.g. the cost of recurring user support could be reduced by investing in better user education or improved user interfaces), or of misrepresentations in SLAs that need remedying (e.g. unrealisable service levels). This in itself is an argument for representing them explicitly, i.e. unrecognised they are unlikely to be accessible to formal process improvement or remediation. However the service relations we observed do not necessarily fall into those categories, they may simply be relational activities important to the provision of valuable outcomes that are not covered by existing instruments. Indeed the provider’s acknowledgment that they “go the extra mile” and that relations beyond those formally specified in the SLA are key to the desirability of the brand indicates that more
value might be derived from making those activities more amenable to evaluation and improvement. Studies show that while revenues come from sales of goods and services the cost side of the relationship is much more complex, and accordingly, “customers induce costs which are not on the invoice” [12]. Understanding the relational intensity of generating successful outcomes in a service such as the EUC is a step towards measurements of cost and other factors.

6.2 Lack of shared information for process improvement or transferability

A risk in the continuance of un-examined highly relational transactions is to the investment in the knowledge and skills of individuals who fill the interstices in the formal contact. Lack of transferability of skills and knowledge is indicated in Macneil’s matrix for highly relational transactions and this study shows the possible exacerbation of this through proliferation of individual information systems in the EUC service. Individualised information repositories also impede access to information for potential process improvement or innovation.

6.3 Implications for design of SLAs or related instruments

References in the SLA to how service relations take place are high level and do not address a significant portion of service relations in practice. In Macneil’s view, a contract’s promise is merely a fragment of the enacted contract and a contract which is limited to promises and fails to account for the relations and other activities that emerge over time will have undesirable consequences. The question arises of how to account for these relations. Possibilities include redesigning or expanding the SLA to include relations not now covered by governance clauses. Or, the problem of under-representation may be beyond such codification and the focus of relationship management may need to lie elsewhere in a form that creates conditions for the more nuanced and complex dimension of human interactions demanded of service relations. Establishing closer alignment between designers and operators of service interactions by formally integrating operational experience into the construction of SLAs and related instruments too may avoid the problem that “contract writers don’t understand the environment. The problem is they are salesmen. People like myself with on-site experience, should be involved” (desktop team leader).

7. Conclusions, limitations and future work

Our research interest was to deepen our understanding of the relationship between SLAs and their enactment, in particular the persistence of practices of service relations, invisible in the record but value yielding, with a view to making them more amenable to evaluation. We identified examples of practices that demonstrated the under-representation of value creating practices and located them towards the relational pole on the transactional axis of Macneil’s matrix of contract elements.

To paraphrase Macneil: the failure of SLAs to account for the conditions of complex service delivery means they are a blunt instrument. From our preliminary analysis we found that the problem of under-representation in SLAs is not trivial to the co-creation of value in service provision; that it involves relatively unexamined effort and that while it might improve client satisfaction in the short term, it is unlikely that it does so in a cost effective way over the longer term. Taking the lead from Macneil’s expansive view of the nature of contracts as encompassing emergent properties and relational elements, which need to be accounted for to avoid unwanted consequences, we suggest the SLA is an instrument that could be either calibrated and developed to leverage value in networks of service providers or perhaps more appropriately complemented by other instruments which are better able to do this.

Limitations of this preliminary report of the study include not addressing all the contract elements in Macneil’s matrix, nor the complexities of the web of services in which the EUC is situated. Possible causes of under-representation are not also discussed and nor are the practices for formulating and agreeing to SLAs. The report has focused on the implications of un-examined value for the provider at this stage and rather than for the client. It has also not addressed the implications of the findings for services in the domains of utility and commoditised services (such as web-services) where the computational expression of SLAs demands completeness of contract.

Future work in this study will develop related themes which also reflect gaps between the SLA and the enacted service. One of these themes is the dynamic expression of “shared norms and harmony of interests” [32] among inter- and intra-organisational actors in ad hoc operational troubleshooting teams, where staff from the client and its multiple provider organisations, collectively provide services on an ad hoc basis during high-severity troubleshooting, service restoration and root cause analysis. These norms do not appear to be reflected in the SLA, yet appear crucial to sustaining or restoring availability of services. Additionally work is planned to address how service relations might be evaluated, and related to this is the potential for applying the principles of “service front stage” to each provider-client dyad in the web of services or complex service systems.
8. Acknowledgements

Thanks are due to the participants from the organisations involved in the project for the generosity and enthusiasm of their contributions.

In addition, we are indebted to an anonymous reviewer who provided extensive, thoughtful and helpful comments on this paper’s draft.

9. References


