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OPINION

WILEY

# Token-based reviewer economies: Proposed institutions for managing the reviewer shortage problem

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## Abstract

This opinion paper presents two proposed token-based systems to fix the information system academy's review system. At present, the review system consumes more human resources than the information systems academy has by an order of magnitude. The cost of this overflow is borne entirely by information systems researchers. I argue this is because the review system is based on a gift economy that cannot handle the currently sized market. Both proposals involve the creation of tokens and a central governing body. The first proposal involves a market built around a review bank (central governing body) that issues review tokens that function as a proxy currency. Journals function as intermediaries between authors and reviewers. Authors pay journals for reviews, and journals pay experts such as reviewers and editors for their services. Reviewers exchange their review tokens on the open market or trade review tokens for favours with institutions like universities. The second proposal involves a gift economy where reviewers transfer their allegiance from peers to the information systems academy. In this proposal, each individual token is unique, like a trading card and an affiliation board tracks the transfer of tokens, linking former possessors of a token together in a review ring. As tokens are regifted, they accumulate history,

and thereby social worth, captured in the form of messages each possessor writes. Former possession of a large number of tokens and of tokens with particular histories confers status benefits. These benefits in turn lock reviewers into the review ring system encouraging them to do further reviews. Economic, social, and other implications of both policies are discussed and questions are posed for the information systems academy to grapple with. Example issues discussed include the effect of the proposals on the political power of reviewers and shifts in political power in the information systems academy.

**KEYWORDS**
gift-giving, markets, reviews, token

## 1 | INTRODUCTION

The information systems academy, like the academies of other disciplines, is increasingly recognising something is wrong with the peer review system. Editors are finding it harder to find reviewers (Bailey et al., 2008; Mooreside, 2020; Treviño, 2008). Editors report invitation to review ratios of declines to accepts of 5:1 or 8:1 (Ghazoul, 2011; Hazen et al., 2016; Parrish, 2022).

Furthermore, the behaviour of those invited to review is often socially unacceptable. Many reviewers do not respond (whether affirmatively or negatively) to invitations to review (Mooreside, 2020). Some reviewers submit late reviews, drop out mid-way, or even ghost the editor that is, cease all communication (Mooreside, 2020).

Increasingly, authors have complained about ethical issues in reviews. There are review scandals where reviewers are (for example) accused of using AI to review (Walden, 2023). When errors arise in review, authors often have little recourse (Sengupta, 2007). Some have even suggested that peer reviewing serves no empirically useful function, arguing that it lengthens articles to no good purpose and introduces mistakes into science that authors are forced to include to placate, mollify, or kowtow to reviewers (Hopewell et al., 2014).

Overwhelmingly, discussions of the issue have focused on human factors. It is explained to reviewers there are tangible rewards to review (Straub & Rai, 2009). Reviewers are considered at fault for their bad behaviour (Mooreside, 2020) and reviewing (and other forms of service) are considered synonymous with academic citizenship (Albia & Cheng, 2023; Dean & Forray, 2018) that is, reviewing is a behavioural issue.

I argue the underlying root cause is not human, but institutional. The current review process was designed for a radically lower level of research production. The observable issues in the review process are symptoms, and not causes, much like how post office systems have become overloaded because they were never designed to carry so much mail (Hildebrandt, 2023; O'Donovan, 2023). The solution is not to blame mail carriers but to develop new ways to distribute mail and goods. Likewise, we need new ways to perform peer review. Here, I propose two potential solutions. First, I detail the design for a market for reviews where authors compensate the review team for their efforts and detail a design for how such a market might work. Second, I describe an anthropological solution to shift reviewer affiliation from personal to institutional ties. This second solution employs review rings, where the review network of who has worked together is explicitly mapped. This allows reviewers to explicitly claim affiliations and their attendant rewards.

This paper proceeds as follows. In Section 2, I break down the current issues with the review process and show it is unworkable in its current form. Further analyses of the problem are presented as Appendix A. Section 3 presents attempts at solving this both within the information systems academy and without. Section 4 presents a proposed market for reviews to alleviate problems with the review process, the strengths and weaknesses of the solution and its potential impact on the information systems academy and the wider research ecology. Section 5 presents the review ring as a proposed solution, the strengths and weaknesses of the solution and its potential impact on the information systems academy and the wider research ecology. Section 6 concludes the work and poses questions for the information systems academy.

## 2 | THE PROBLEM: REVIEWERS SUBSIDISE EXCESSIVE REVIEW DEMAND

The existing information systems research review process is characterised by at least two problems. (1) The information systems academy has, by an order of magnitude, insufficient resources to support the review process. (2) The costs of the broken process are accrued by the review team and hence by the members of the information systems academy. These arise principally because reviewing has traditionally functioned based on a gift economy, which becomes inefficient once the economy becomes too large.

### 2.1 | The review system and the gift economy

It often comes as a surprise that the quality of journal articles was not originally assessed by peer review. Prior to the 1960s, most journals were editorially reviewed (Burnham, 1990; Fyfe, 2015; Sub & Martin, 2009). A long time was needed for peer review to become broadly accepted, and its acceptance was largely driven by editorial workload rather than a belief in the superiority of peer review. The journal *Science*, for example, introduced peer review in the 1950s because the editorial board felt, "the job of refereeing and suggesting revisions for hundreds of technical papers is neither the best use of [our] time nor pleasant, satisfying work" (Baldwin, 2019). Many prominent journals such as Nature only became fully peer reviewed in the 1970s or later (Baldwin, 2015).

At peer review inception, reviewing was viewed as something of a duty. "One of the weird things about peer review as it was conceptualized during the Cold War is that it wasn't supposed to confer any rewards on referees—that is a feature, not a bug. At the 1975 NSF peer review hearings, a lot of witnesses talked about the referee as a selfless person devoted to the good of science" (Harrington, 2018).

The reviewing system of the 1970s functioned on the basis of a gift economy. Gift economies are very different from market economies in that the exchange of goods and services occurs in parallel to an exchange of obligation (Mauss, 1954). Gift economies have numerous advantages over market economies, especially under high uncertainty. Malinowski (1922), for example, describes a gift economy between two villages in the Trobriands, one of which had arable land, while the other had rich fishing sites. Once a year, the people of one village would bring gifts of vegetables/fish to the other village. The villagers would give generously and would not account for how much fish/vegetables were given in the previous cycle in deciding how much to give. Malinowski describes the gift of fish as being so abundant that fish were left to rot on the beach of the agricultural village. The advantage of this system was the villages would not starve so long as one of the two villages had a bountiful harvest/catch. In a market economy, the failing village would have starved because they would have no goods to trade for the other's bounty.

The gift economy also differs from the market economy in that one cannot refuse to participate (Cheal, 1988). To reject the giving or receiving of gifts is to reject the relationship (Mauss, 1954), in effect to surrender all accumulated social benefits of the relationship. Komter (1996) recounts a story of a poor person winning the lottery. The lottery money was quickly distributed among needy friends and family, leaving the original winner no better off. The gift economy is thus an economy of enchainment (Strathern, 1988), where participants are forced to enact ritual gift

giving. Much of popular culture including the concept of the "white elephant" and the fact that gift in German translates as "poison" highlights the obligatory nature of gifting.

The gift economy thus explains why reviewers were willing to review for no profit. Reviewing used to work because of ties of obligation between editor and reviewer, be it mentor–student, co-author, senior–junior at work or otherwise. This in turn guaranteed reviewing would be done. However, the expansion of the information systems academy and the size of journal editorial boards have meant that in many cases, ties of obligation between members of the editorial team are greatly weakened.

I would emphasise this does not mean ties of obligation no longer exist. Instead, the strength of the tie has greatly weakened and this weakening (not abolishment) of ties means in many cases, no obligation is felt, which changes review dynamics. The tie between a mentor and former student is substantively stronger than between two people who have previously met at a conference. It is much harder for the former student to say no, than the conference colleague.

Therefore, one reason our review system today is failing is because it is based on a gift economy, but now, ties of obligation bind the members of the review team less. The market economy, not the gift economy, is an economy that works for exchange when there are few ties of obligation (Diamond, 2012). In the market economy, one can go to a random store and buy something from a shopkeeper whose name one does not know. Journals struggling with the transition from a gift to a market economy can be seen in the description of the AE role at MIS Quarterly, which attempts to enumerate rewards, rather than framing the role as one of duty or obligation (Straub & Rai, 2009).

## 2.2 | The cost to pay back in the review system

In effect, the transformation from an editor-based review system to a review-based review system managed the growth in reviewing by engaging in a form of parallelism- editors transferred the duty of reviewing to a more distributed populace- reviewers. Parallelization of work, however, can at best manage a linear increase in the growth of work (Amdahl, 1967; Gustafson, 1988). Indeed, because of coordination and overhead cost (e.g., associate editors and senior editors must process and reconcile reviews), the actual increase in growth over the previous system our current model supports is less than linear.

However, growth in the review system is actually exponential. We can see this by estimating the review resource requirements for one acceptance (not submission) and computing the amount of reviewing one would need to do to "pay back" for it.

To compute this, we would need to know how many reviews are required before a paper gets published. Unfortunately, a proper answer to this question requires knowledge of journal acceptance rates, which are not public. The Journal of the AIS suggests an acceptance rate of below 12% is normal (Anonymous, undated).

Table 1 presents fair levels of review for various acceptance rates assuming a paper with two to four authors. Figure 1 graphs the relationship between acceptance rates and number of reviews necessary to compensate for one acceptance.

To illustrate, with a 12% acceptance rate, on average, a team of three authors would have to submit 8.333 times to achieve one publication. The labour required to accept a paper is higher than to reject one, because the review team goes through multiple review iterations (revise and resubmit and/or minor revisions). I assume no desk rejections here, because desk rejections imply the paper has very little merit and thus is likely to have a substantively lower acceptance rate.

Assuming 7.3 first-round rejects (four people involved each—a senior editor, an associate editor, and two reviewers), and one acceptance comprising two revise-and-resubmits (4 + 4 + 2 people), this results in a total of 39.3 reviewer units.[1] Each author would therefore need to compensate by doing 13.1 reviews for every accepted

[1]The 8.333 submissions are assumed to comprise 7.3333 rejects where four people were involved. This is $7.333 \times 4 = 29.332$ review labour units and one submission involving two rounds of full review followed by one round involving only the editors (minor revision/conditional acceptance). This is 10 review labour units on the final round for a total of 39.3 review labour units.

**TABLE 1** Number of reviews to compensate for each acceptance.

| Acceptance rate | Ratio of papers submitted/acceptance | Total review hours | Two authors | Three authors | Four authors |
|---|---|---|---|---|---|
| 0.2 | 5.0 | 26.0 | 13.0 | 8.7 | 6.5 |
| 0.19 | 5.3 | 27.1 | 13.5 | 9.0 | 6.8 |
| 0.18 | 5.6 | 28.2 | 14.1 | 9.4 | 7.1 |
| 0.17 | 5.9 | 29.5 | 14.8 | 9.8 | 7.4 |
| 0.16 | 6.3 | 31.0 | 15.5 | 10.3 | 7.8 |
| 0.15 | 6.7 | 32.7 | 16.3 | 10.9 | 8.2 |
| 0.14 | 7.1 | 34.6 | 17.3 | 11.5 | 8.6 |
| 0.13 | 7.7 | 36.8 | 18.4 | 12.3 | 9.2 |
| 0.12 | 8.3 | 39.3 | 19.7 | 13.1 | 9.8 |
| 0.11 | 9.1 | 42.4 | 21.2 | 14.1 | 10.6 |
| 0.1 | 10.0 | 46.0 | 23.0 | 15.3 | 11.5 |
| 0.09 | 11.1 | 50.4 | 25.2 | 16.8 | 12.6 |
| 0.08 | 12.5 | 56.0 | 28.0 | 18.7 | 14.0 |
| 0.07 | 14.3 | 63.1 | 31.6 | 21.0 | 15.8 |
| 0.06 | 16.7 | 72.7 | 36.3 | 24.2 | 18.2 |
| 0.05 | 20.0 | 86.0 | 43.0 | 28.7 | 21.5 |
| 0.04 | 25.0 | 106.0 | 53.0 | 35.3 | 26.5 |
| 0.03 | 33.3 | 139.3 | 69.7 | 46.4 | 34.8 |
| 0.02 | 50.0 | 206.0 | 103.0 | 68.7 | 51.5 |
| 0.01 | 100.0 | 406.0 | 203.0 | 135.3 | 101.5 |

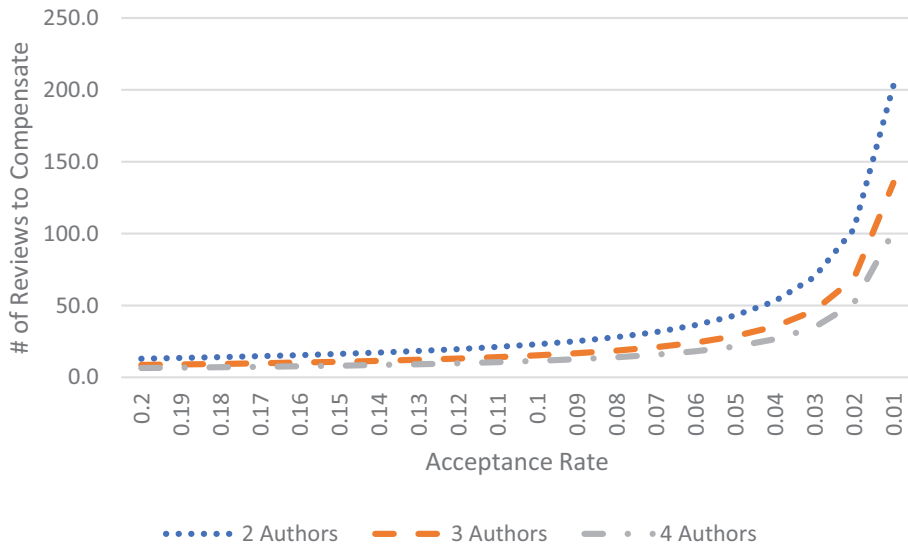


**FIGURE 1** Number of reviews to compensate for each acceptance.

paper. In other words, if one receives one paper acceptance per year, everyone would need to do more than one review a month to compensate.

As Figure 1 demonstrates, in our current review system, the relationship between number of fair reviews to acceptance rate is exponential. As journals become tougher, the obligation on reviewers quickly becomes burdensome. The number of reviews required per author is further beyond what most authors are willing to do (eight) at a higher than 20% for a two-author paper, 20% for a three-author paper, and 15% for a four-author paper acceptance rate (Ware, 2008). Acceptance rates are below 12% (Anonymous, undated). I conclude from this analysis our existing review system is not scalable.

Further calculations exploring the scalability of the review system are presented in Appendix A. The point of these calculations is not just to illustrate the problem, but to allow others to develop methodologies to perform similar analyses. It should be noted the results here and in Appendix A are robust to fairly large violations of assumptions. Any reasonable numeric analysis will conclude the review system is strained, if not broken.

## 2.3 | The implications for information systems

I argue the erosion of ties of obligation and the lack of scalability of the review process means the information systems academy needs to accept two critical truths.

- Reviewing and paper writing will increasingly become separate roles
- Authors will need to pay for reviewing (or it has to be subsidised in some other way)

Specialisation is a natural consequence of social groups getting large (Diamond, 2012). In many of the writing disciplines, such as journalism and book authoring, the division of labour is clear between the person who writes the document, and the person who gatekeeps and provides feedback to improve document quality. Although writing and reviewing are arguably overlapping skills, certain people engage principally as editors/reviewers, while others engage principally in the authoring of documents. Even in certain branches of academia, this is true. The journal *Nature*, for example, has full-time professional editors.

This does not mean an editor cannot be a writer, nor is a writer forbidden from reviewership or editorship. Many famous editors of novels like Judy Lynn Del Rey (Anonymous, 2022b) and Jim Baen (Anonymous, 2022a) authored novels. However, both of them are better known for their roles in institution building than in writing original fiction. Likewise, Frederik Pohl is known principally for his science fiction but was also an agent for Isaac Asimov and editor of the science fiction magazines Galaxy Science Fiction and If (Anonymous, 2023).

My analysis in Section 2.2 highlighted how official acceptance rates require faculty to do more than one review per month. Most reviewers are unwilling to do this, being only willing to review at most eight papers a year (Ware, 2008). Furthermore, review rates are highly variable across individuals and nations (Publons, 2018; Warne, 2016). 44% of reviewers do over 79% of all reviews (Ware, 2008). In other words, substantial numbers of reviewers are doing more reviews than the available number of work hours allow, suggesting that they are eating into their non-work time.

Furthermore, the natural erosion of ties of obligation associated with the expansion of the information systems academy means that obligating members of the academy to review will be increasingly difficult. Reviewers will need to be drawn from a population outside of the pool of authors. Likewise, a replacement for ties of obligation will be required to compensate reviewers for their reviews. Often, this replacement is some form of remuneration.

I do not believe this transition from our current state where all academics perform both authorship and editorship to the state where some academics are principally authors and others principally editors should be immediate. This transition will have to be gradual, where reviewers and editors are allowed to give up other academic tasks and/or compensated as they perform increasingly heavy editorship/review tasks. However, this reduction in other duties carries with it a heavier expectation of performance in their editorial/review duties. Alternately, editors and

reviewers are fairly remunerated for their time reviewing- they are paid a fair rate for any overtime they spend reviewing. Over time, people can choose a life with a higher or lower service load as they choose.

This division of labour will partly be determined by the visibility of work and source of incentives. Authorship work is highly visible to the universities and research centres authors are a part of, who correspondingly can reward authors for authorship. Thus, I expect authorship will continue to be rewarded within universities and research centres. In contrast, editorship and review work is essentially invisible to universities and research centres, but is highly visible to journals. Thus, editorship and review work will become professionalised- journals or other institutions associated with the publication process will pay for the review process. Section 3 demonstrates this is already happening in for example, the sciences and economics.

There are numerous concerns associated with the professionalization of the review process. For one, certain skills associated with the review process (e.g., critiquing others' work teaches authors to write better) are important for the authorship process. Here, I would highlight this is as true for all forms of authorship, including fiction authorship, and non-fiction book authorship. As professionalization occurs, new institutions arise to fill institutional gaps. For the various book authors, for example, there are writers' workshops and mentorship programs. Necessary skills are transferred to these institutions and how they are imparted to new authors gets transformed.

In addition, there is a fairness concern as professionalization restricts labour mobility. Essentially, professionalization means if one is a reviewer, it is harder to become an author. I would suggest the barriers are the cause of professionalization rather than the consequence. It is already hard to be an author, and many existing reviewer non-authors will never be authors. A simple bibliometric analysis of publication frequency will show an inverse exponential relationship between authors and publication frequency. Some authors publish a lot, with the vast majority of authors publishing only one or two articles (Chua et al., 2003). By implication, the vast majority of academics publish nothing. This is true across academic disciplines (de Solla Price, 1963). The real change to mobility will be barriers in moving from author to reviewer or editor as professional standards emerge in these occupational categories. Simply put, being a reviewer will require specialised skills most authors will lack. In addition, as I will show in Section 3, the empirical data suggests remuneration for reviewership and editorship will be substantively lower than authorship making this form of move generally unattractive. Further, constraints to mobility do not mean there will be no mobility. In other forms of publishing, authors can become editors and vice versa. The transition is simply rare.

Finally, there is a concern over whether a reviewer can be effective if they are not authors. For example, reviewers should keep current with their area of expertise. It should be noted that the professionalization of reviews would mean reviewers would read substantially more manuscripts. Thus, reviewers would have a better sense of what cutting edge research (i.e., unpublished research) looks like. Second, professionalization of reviewing would mean standards for reviewing will become stricter. While we cannot fully predict what the new standards would be, the process of writing a review often requires reading or being familiar with the related literature and so a professional reviewer would likely need to keep up to date to meet improved standards of reviewing.

## 3 | PRIOR SOLUTIONS

The reviewer shortage problem is endemic across all academic disciplines, and various solutions have been implemented. Here, I will provide an overview of some solutions, their current status, and the possibility of implementing these in the information systems academy.

### 3.1 | Editor as a full-time career

In several journals, one or more editorial positions are full-time career positions earning a salary. These include prestigious journals in other fields including the journals Science, Nature, Cell, and the British Medical Journal.

Full- or part-time paid editorships help ameliorate the review problem by reducing the total number of editors required to handle papers at a particular journal. In addition, because editors are paid for their work, they can focus

exclusively on the task of editing. In information systems, editorship is a service role, and ritually we expect service to occupy 20% of one's time. Editorship is expected therefore to consume less than 20% of one's work time. A full-time editor is able to handle an order of magnitude more work than a part-time one and one full time editor replaces multiple part time editors. As I show in Appendix A, our most prestigious journals often require 50–100 or more editors to manage the workload. Replacing these with full-time editors could potentially cut the numbers by a factor of 10.

These editorial positions are covered by a fee or charge. Nature, for example, earns revenues from subscriptions and from open access charges, which in part pay for the salary of its staff.

Professional editorship is principally associated with volume of publication. A journal needs an estimated 200 published articles per year to afford one full-time equivalent position (Grossmann & Brembs, 2019). Science and Nature are weekly journals. The British Medical Journal states it accepts about 7% of between 7000 and 8000 submissions, so it publishes roughly 500 articles per year. Cell is a biweekly journal, where a single issue can be over 200 pages.

At present, editorship as a full-time career is infeasible for information systems journals. First, the revenue economics of information systems journals is such that only the publisher obtains revenues. The political negotiations with publishers to pay editors will be difficult because publishers are largely unaffected by the status quo. Second, at present information systems journals do not publish at the volume of these other disciplines. Finally, the market rate of editor salaries is unlikely to be attractive to many IS faculty in the Global North. As of this writing, Nature pays USD 74000 for an Associate Editor and USD 91000 for a Senior Editor (Nature.com, 2024).

## 3.2 | Paying reviewers

In some disciplines, reviewers are paid to review. For example, the American Economic Association pays USD 100 for each timely review (American Economics Association, undated). The Lancet pays some reviewers, but the amount is undisclosed (McNamee, 2000).

Empirical studies of pay for peer review have generally shown reviewers who are paid produce longer reviews at a faster turnaround rate to reviewers who are not paid (Chetty et al., 2014; Hamermesh, 1994; Thompson et al., 2010). Incentives also influence junior faculty more than senior faculty (Chetty et al., 2014).

In practice, commercial organisations have attempted to commercialise reviewing by providing peer review outsourcing (Satyanarayana, 2013). Rubriq, for example, was a company charging USD 600 to match articles with reviewers, paying each reviewer USD 100 (Davis, 2016). As of this writing, Rubriq does not seem to be in active business: its parent company website is active, but the Rubriq subsite is not. While it is difficult to ascertain why, I suspect Rubriq failed for the same reasons that directly paying reviewers has been unpopular. This suggests paying for reviewing is not profitable as a separate commercial concern. However, given several journals, especially in economics and medicine, have successfully instituted the practice, it is viable as a practice in journals.

A substantial number of academics definitely want to be paid for their review. The 450 movement, for example, is a grassroots movement advocating that every reviewer should be paid at least USD 450 for each review (Brainard, 2021; Browne, 2020; Heathers, 2020).

At present, paying reviewers is rare because of the difficult economics of journals. Simply put, the money for reviewers needs to be obtained from somewhere, and in most IS journals, insufficient money circulates to allow for paying reviewers. I am discussing only money in the review process. Journals make money off of library and individual subscriptions and other sources, but little of that money goes into the review process itself.

## 3.3 | Charging authors

Author charges reduce strain on the review process in two ways. First, the monies obtained allow for the paying of editors and reviewers (Sections 3.1 and 3.2). Second, charging authors causes authors to exit the market, reducing total demand for reviewing. This effect can be quite significant. Recall at a 12% acceptance rate, removing one paper

saves the review system approximately 39 h—almost a full workweek. It has been argued author charges allow for the review market to function more economically efficiently (García et al., 2022).

Author charges take various forms. The journals of the American Economic Association charge an upfront submission fee that pays for reviews. Open-access journals charge a fee to publish articles. These fees can often be in the thousands of US dollars.

There are several social drawbacks to fee charging. First, fees disproportionately affect researchers from less wealthy institutions (e.g., departments, universities, or countries) (Beall, 2015; Iyer & Azhar, 2013). Such discrimination, in turn, impacts certain kinds of research, for example, research on information systems in less developed countries. Second, academia is supposed to encourage the production of research, and fees deter such production (Dallmeier-Tiessen et al., 2011). Indeed, fees can often reduce article quality as articles are published based on fees rather than quality (McCabe & Snyder, 2005).

On the surface, information systems academia is opposed to charging author fees. Audience commentary in information systems panels is generally negative towards fees (Chua et al., 2018; Gray et al., 2006). In practice, however, the information systems academy has accepted fees with little objection, manifested in many information systems journals now having publication fees for open access. Other disciplines have highlighted the discriminatory and other effects of such fees (e.g., Anderson et al., 2021; Beall, 2015; Dallmeier-Tiessen et al., 2011; McCabe & Snyder, 2005; Weller, 2014), but to my knowledge, the information systems academy has been essentially silent on the issue.

### 3.4 | Abbreviated or no review

Another strategy for reducing reviewing load is to reduce the number of reviewers or the scope of each review. In mathematics, for example, papers are often accepted or rejected by a single peer reviewer (e.g., Advances in Mathematics, undated). Many open-access journals like PLoS One, similarly, only employ a single reviewer (PLOS One, undated).

Other journals request reviewers to constrain what they examine. Frequently, the instructions are to only examine the rationale and methodology (Horbach & Halffman, 2018; Horbach & Halffman, 2020; Romesburg, 2016). In some cases, this is coupled with a change in the overarching research process, where what in the information systems academy is called the research-in-progress paper is submitted for review (Horbach & Halffman, 2018; Horbach & Halffman, 2020). It is only if this abbreviated review is passed that the actual research commences.

Finally, repository publishing has emerged as a parallel model to journal publishing. In repository publishing, papers are simply added, unreviewed, to a repository, and supposedly the popular and relevant articles will be read (Fitzpatrick, 2009). ArXiv is the most famous of these repositories. Sometimes, repository publishing is coupled with ex-post review, where people comment on the paper after it is published (Horbach & Halffman, 2018; Walker & Silva, 2015).

Abbreviating the scope of review or reducing the number of reviewers affects the supply and demand for reviews in two ways. First, the available pool of reviewers is increased, because the number of researchers required to review a manuscript and the amount of time each reviewer requires is reduced. Second, it increases the acceptance rate of manuscripts. Thus, papers do not undergo multiple reviews at disparate journals before they find a home. Given these strategies increase the acceptance rate of articles, they appear to sacrifice quality of publication for a more manageable review market. Rather than reducing quality, these forms of publication have been argued to allow for a different kind of quality to emerge (Gross & Bergstrom, 2021).

Abbreviated or no-review processes are essentially non-existent in information systems. Even fast-tracked articles face a full review panel upon submission to the journal. The lack of adoption appears associated with work culture differences as these practices are more common in mathematics, medicine, or the hard sciences: disciplines

distant from the social-science and computing-rooted information systems.[2] At a panel in 2017, the author explained these concepts, although a broad understanding at the time was lacking (Chua et al., 2018).

## 3.5 | AI-assisted peer review

AI-assisted peer review has come under recent scrutiny as a way to reduce reviewer involvement (Checco et al., 2021; Kankanhalli, 2024; Sarker et al., 2024; Weber, 2024). In AI-assisted peer review, a machine intelligence performs some review tasks, which may range from prescreening for readability to making recommendations to hypothetically replacing the human reviewer entirely. No legitimate uses of AI for review are currently known. However, within the IS community, it is suspected some reviewers are using it clandestinely (Walden, 2023).

The technology is too emergent to be able to categorically assess what the appropriate role of AI is in the review process. I know of exactly one study that has assessed the capability of AI for review empirically (Checco et al., 2021).

## 3.6 | Market-based review systems

A proposal likely to be accepted by the information systems academy is a market system for peer review. Proposals for such systems have arisen independently several times over the academy's history (Avital, 2018; Gray et al., 2006; Janze, 2017). Outside of information systems, I could only find two similar proposals (Frijters & Torgler, 2019; Meir et al., 2021).

The proposals generally fall into two separate categories: (1) bidding based (Frijters & Torgler, 2019; Gray et al., 2006; Meir et al., 2021) and (2) blockchain based (Avital, 2018; Janze, 2017). Common to all proposals is a lack of detail of how the actual market processes will work.

### 3.6.1 | Bidding based

In bidding-based systems, editors enter the market and bid for something within the review process. Watson proposed a system where reviewers reviewed independently of the journal and then editors would bid for accepted papers (Gray et al., 2006). Frijters and Torgler (2019) suggested a system where reviewers advertise their available skills and editors would bid for reviewers. Meir et al. (2021) suggested a system where reviewers would bid for papers from an existing pool. Watson's proposal was extensively analysed at ICIS 2004, with panellists principally rejecting it on grounds of uncertainty (Gray et al., 2006). The core criticism was the panellists did not trust the market to function all the time. I suspect the other proposals would be rejected on similar grounds.

### 3.6.2 | Blockchain based

Blockchain-based proposals have argued that blockchain can be used as a foundation to build a distributed market where reviewers would be paid for their reviews (Avital, 2018; Janze, 2017). These proposals focus principally on the blockchain technology and do not furnish details on how the market would actually operate and where the

[2]The astute reader would observe *IEEE Access* is an open access journal in a discipline proximate to information systems. IEEE Access sends manuscripts to two or more reviewers. Thus, while it is an open access journal, it does not employ a reduced or no-review strategy.

infrastructure would come from. These proposals are vulnerable to the same criticism as the Watson proposal—they assume an efficient market.

### 3.7 | Implications for information systems reviews

As can be seen, most solutions to the reviewer shortage involve some kind of market system (e.g., paying editors, paying reviewers, charging authors or an explicit market system). Solutions not employing markets involve a radical reconsideration of how quality is assessed (e.g., abbreviated or no review, use of AI peer review).

My position is some exchange system for reviews is a necessary step for the information systems discipline as ties of obligation associated with the current gift economy review system weaken. However, I agree with critics that markets are vulnerable to failure and these failures cannot be overcome with automated mechanisms. We have centuries-old markets like the New York Stock Exchange (founded 1817) and the London Stock Exchange (founded 1571) that are vulnerable to crashes and require periodic government intervention. If these centuries-old markets with their accumulated wisdom on how to make markets work fail, we cannot expect a market that we design with little experience to succeed. Thus, any market design for reviews must incorporate a human regulatory element and the design must consider how this human element can be funded. This will allow the market to incrementally improve itself to be more efficient and effective.

Alternately, if we wish to retain the gift economy, mechanisms need to be emplaced to develop ties of obligation. These will necessarily have to be made to the institution of information systems rather than to particular individuals. The following two sections present alternative proposals, one for a market for reviews, and the second based on a gift economy system.

## 4 | A MARKET FOR REVIEWS

Like several IS authors before me (Avital, 2018; Gray et al., 2006; Janze, 2017), I propose a market for reviews. However, rather than emphasising technology mechanisms, I will emphasise the operational mechanisms to argue while the market will initially need to be subsidised, the hope is it will quickly become self-sustainable and adaptable to changes in the IS and broader landscape.

### 4.1 | The reviewing system: An overview

The proposed reviewing system would utilise a review token (see Section 4.2), a standard unit of currency for reviews and would work as follows. The journal would advertise its conditions to authors, including how many review tokens it would cost to submit a paper. These conditions might include guarantees of quality (e.g., turnaround within a fixed period). The paper would be submitted, and for the paper to proceed with the review process, someone (not necessarily the authors) would have to send the journal the requisite number of review tokens. If the submitter has complementary and normal review tokens (see Section 4.2), the complementary tokens are consumed first.

The journal would contract with its editors, reviewers, and administration where a certain amount of work would result in a number of review tokens. The contract could include conditions on quality level. For example, a reviewer would receive 0.5 review tokens upon submitting a review on time, and 0.5 review tokens if the review were judged clear and useful by the associate editor. In other words, a reviewer who submitted a review late would only receive 0.5 tokens rather than 1.

The journal submits the paper to the review team who perform work. Upon completion, review tokens are transferred to the review team. At this time, any complementary review tokens are converted to normal review tokens. If the verdict is a reject or accept, the journal could opt to refund the remaining review tokens to the payer. Alternately, the journal could opt to retain the tokens, transferring them to its administration account. Journal policies would be managed by the market. A journal perceived as overly profit seeking would be avoided by authors.

If the verdict is revise and resubmit, the revised paper is submitted to the review team, which once more performs reviews and receives review tokens. This repeats until the paper is accepted/rejected, or the journal no longer has review tokens to pay for review. In the latter case, the journal would then force a decision. Without further tokens, the journal would be unable to pay for future reviews. Allowing journals to request more review tokens from authors if there are multiple review cycles would incentivise journals to drag the review process out. Senior editors, associate editors, and reviewers earn for every review cycle.

Enforcing a single payment per journal/paper pair is made possible by the fact journals have different roles from individuals. Specific restrictions can thus be imposed on payments made to and from journals. For example, to enforce that every paper can only be paid once, a rule could be imposed that each payment to a journal be linked to a journal-provided unique identifier, that is, the manuscript number.

To facilitate and regulate transactions, a review bank would be necessary (see Section 4.3). The review bank would not charge a fee for any transaction from a payer to the journal, nor for a reciprocal payment from the journal to the payer. The review bank would charge fees for transactions from the journal to all other parties. This again is made possible by the fact journals have their own roles. When the payer sends payment to the journal, this would be accompanied by the manuscript number. Likewise, the refund to the payer is accompanied by the manuscript number. The review bank knows the refund is occurring, and can differentiate this from a payment to reviewers/editors because for that manuscript ID, the transaction involves the same payer and journal, but reversed.

## 4.2 | The review token

At the heart of the market for reviews is the review token. The intent of the review token is to preserve the properties of money that allow reviewing to function in a market economy but to prevent the use of the review token for abusive transactions like money laundering or avoiding international exchange restrictions. The review token also provides a standardised unit of exchange simplifying the management of international issues like exchange rates and payments in currencies reviewers can accept. Rather than reviewers being paid in USD, CNY, or EUR, reviewers are paid in review tokens that they take to an exchange to trade for the currency of their choice.

The initial unit of account of a review token will reflect one report by one reviewer on one paper. Over time, the meaning of the review token can change depending on the beliefs of market participants (i.e., it will be socially constructed). For example, it may come to mean the value of reviewer effort associated with a first round of review.

The minimum number of review tokens that can be held by an account is 0. The market does not allow an account to be in debt. If an author or journal cannot afford a review, the review is not done. The goal of the market is not to enable wealth generation (e.g., the leveraging of debt to make obscene profits) but to encourage fair compensation to individuals in service roles. This effectively inhibits market liquidity, leading to slower market growth. However, debt also drives huge variances and instability in markets that can negatively impact livelihoods. The market should encourage research in information systems and not (for example) create a situation where a journal goes into bankruptcy because of aberrant behaviour by some other individual or institution. Nick Leesons (Leeson & Whitley, 1996) and Jerome Kerviels (O'Brien, 2012) should not be welcome in the market for reviews.

Two kinds of review tokens are proposed: complementary review tokens and normal review tokens.

*Complementary review tokens* are issued to individual market participants upon account creation. There are four kinds of market participants: individuals, journals, institutions, and the review bank (Section 4.2). The journal and the journal's administration are considered separate entities. The journal administration (e.g., managing editor and the journal as an organisational entity) is considered an institution.

Individual accounts are created only if individuals fulfil four conditions: (1) the individual makes the request. Requests cannot be made on an individual's behalf. This is to prevent fraud. (2) The individual has never previously created an account in the market. (3) The individual is performing at least one legitimate market function. Initially, these are editor, reviewer, and author. (4) The individual has been verified. Verification would require some form of identification and proof of an established link to a legitimate institution (e.g., a university).

How authentication and verification would function is left to others to determine. While authentication and verification is an important problem to consider, it is both a difficult problem to solve and a lack of a perfect solution is not a hindrance to implementing the overall market design. Simply put, most markets requiring authentication and verification have imperfect systems and yet function reasonably smoothly.

For example, verification services like SheerID (http://sheerid.com/) exist to authenticate faculty identities. Harvard Business Publishing Education, for example, employs SheerID to authenticate its customers are teachers before allowing them to access products (see https://hbsp.harvard.edu/registration/educator/verification). Yet, SheerID admits there are certain authentication hacks it cannot manage (Modzelewski, 2012). Nevertheless, Harvard Business Publishing remains a viable business despite these flaws.

Each new account receives enough complementary review tokens to purchase one full review cycle from a journal plus administrative costs. For a multi-authored paper, each author receives these tokens. Therefore, a three-authored paper would receive enough tokens for three full rounds of review. The point of complementary review tokens is to allow new authors to participate in the review process without having to buy normal review tokens. Every author thus gets "one free review cycle," whether they choose to use their tokens on a co-authored paper or otherwise.

A complementary review token may only be employed to pay a journal to perform reviews. The journal in turn uses complementary review tokens to pay individuals (editor, reviewer), institutions (the journal in the form of managing editor), and a review bank (which receives a transaction fee). When a complementary review token is received by an individual, institution, or review bank from the journal, it is transformed into a normal review token.

A complementary review token may be subdivided or aggregated. One review token might be broken into 1000 or more subunits or review tokens can be combined to make two or more review tokens. Divisibility is an essential property of money (Abel & Bernanke, 1992).

Given that complementary review tokens can only be used for reviews, individual account holders cannot abuse the system by (for example) writing a 20-authored rubbish paper, submitting it, and then cashing out their remaining review tokens.

The journal serves as an intermediary between authors and the actual review team to allow for the concept of refunds. For example, a paper is submitted to a journal, which charges 12 review tokens for reviews. The paper is desk rejected by the associate editor of the journal. In effect, the total cost to the journal would be two review tokens (senior and associate editor) plus the administrative cost (the review bank fee plus managing editor cost). I assume that the administrative cost is equivalent to one review token. The journal could elect to refund nine review tokens to the paying author. If the author paid in complementary review tokens, complementary review tokens are refunded, not normal review tokens.

*Normal review tokens* enter the economy in two ways. They are either complementary review tokens paid by a journal to an individual, institution, or review bank for services rendered or they are purchased from the review bank. Normal review tokens have the following properties beyond those of complementary review tokens:

- When a review token is exchanged for another review token it is always at a 1:1 rate. This, again, is an essential property of money (Abel & Bernanke, 1992).
- They may be given away. While within the system this would be treated as a gift, this could involve a monetary exchange that is simply not captured in the system.
- They may be exchanged for something else. This could include money or some kind of other good or service that the system explicitly knows about. For example, that journals pay reviewers for reviews is explicitly tracked (Section 4.3).

For money to be useful, enough of it must circulate through the economy so that a "fair" balance arises between the amount of money and the total amount of production (Abel & Bernanke, 1992). In the review economy, reviews are the unit of production. As the number of reviews rises relative to the number of review tokens, the cost of review tokens will rise. The review bank intervenes in the economy to inject review tokens as the number of papers increases, or as review tokens are taken out of circulation (e.g., reviewers hoard tokens). This is handled by the review bank intervening in the market to sell review tokens to authors or institutions who desire them. The review bank sets the price of its review tokens at slightly above the "fair" market price of reviews. So long as the market is trading below this price, no one will buy from the review bank. However, scarcity arises, the price of review tokens will rise, and tokens bought from the review bank will become an attractive alternative.

This makes review tokens bought from the review bank different from review tokens bought from other market participants. When market participants buy from each other, this causes the review token to circulate in the economy. When market participants buy from the review bank, this causes the creation of review tokens. The review bank may also intervene to buy and destroy review tokens. This should hopefully be a rare event.

There would be a restriction on Individuals and institutions on how many tokens could circulate through them on a particular day, week, or month. The cap on individuals would be lower than the cap on institutions. This would deter money laundering or other forms of undesirable activities. Without this rule, an individual from a country with currency controls could be paid to buy large numbers of review tokens in the controlled currency to sell with an uncontrolled currency. Beyond the concern of breaking national laws, these sorts of activities can be disruptive to the proposed market for reviewers. The money laundering market was estimated to be USD 3.07 billion in 2022 (SNS Insider, 2023), easily dwarfing the USD 160 million information systems review market.[3]

This will naturally limit the kinds of intermediary institutions that will arise in the market. For example, clearinghouses will be unlikely to emerge. Given the point of the market is to enable reviews, I believe it is better to have a slow-growing market than one where institutions arise that can manipulate the market to researchers' detriment.

Journals would be forbidden from trade. The sole purpose of the journal would be to hold review tokens given by authors for review to either distribute to those involved in the review (i.e., editors, institutions, reviewers, the review bank) or to refund unused tokens to authors.

Under the rules, the one paying for the review need not be an author of the paper. It is possible, for example, for a university department (an institution) to buy review tokens to subsidise authors in the department. Similarly, a senior editor who accumulates large numbers of tokens could use these tokens to benefit other members of their university department.

Table 2 presents the various members of the proposed market for reviews and their allowed market roles.

## 4.3 | The review bank

The review bank is the core institution in the review market, serving a number of functions.

### 4.3.1 | Developing and maintaining market infrastructure

The review bank builds and maintains the core market infrastructure including accounts, and the record of review tokens and transactions. It also provides the interfaces for individuals, journals, and institutions to transfer review tokens to each other. It does not maintain the market to trade review tokens nor does it provide the user interfaces. Its chief means of market regulation involves managing the identities of market participants and the

[3]See Appendix A for how the size of the information systems review market was calculated.

**TABLE 2** Market members and allowed roles.

| | Permissible actions with review tokens | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Market member | Buy | Sell | Give | Receive | Use/ con-sume | Pays | Refunds | Paid to | Hold | Issue | Destroy |
| Individual | X | X | X | X | X | | | X | | | |
| Author | X | | | X | X | | | | | | |
| Editor/ Reviewer | | X | X | | | | | X | | | |
| Journal | | | | | | X | X | | X | | |
| Institution | X | X | X | X | | | | X | | | |
| Journal administration | | X | X | X | | | | X | | | |
| Other institutions | X | X | X | X | | | | | | | |
| Review Bank | | X | | | | | | X | | X | X |

*Note*: Buy means to purchase on an exchange; Sell means to sell on an exchange; Give means to transfer review tokens to another member in the review market; Receive means this person obtains tokens. These can either be given, or refunded; Use/Consume means to spend review tokens to initiate reviews. Used tokens are transferred to the journal, which holds the token for payment; Pays means allocating review tokens to someone for work performed. Use/consume and pays are separated to keep reviewer identities anonymous. The author uses the token, but does not know to whom the token is finally paid; Refunds means returning the token to authors if unconsumed; Paid to is the member of the review market receiving tokens for services rendered; Hold is an intermediate state between use and payment. An author consumes a token, but the token is not paid to the reviewer until the review is performed. It is possible this results in a refund if the review is not performed; Issue means to create a new review token on the market; Destroy means to remove a review token from circulation in the market.

quantity and flow of review tokens. The review bank has no technological way to manage the flow of real-world money nor for what purposes review tokens are exchanged, other than ensuring market participants conform to their roles.

### 4.3.2 | Regulating inflation/the supply of review tokens

The review bank manages the supply of review tokens by entering the market to buy or sell review tokens. When it creates and sells tokens, it increases the review token supply, and when it buys and destroys tokens, it decreases it.

### 4.3.3 | Policing the market

The review bank has the capability to track and identify market misbehaviour because all token transactions are stored in a repository owned by the review bank. The main policing power the review bank has is to hard or soft lock accounts. A hard lock prevents the account from performing all transactions. A soft lock prevents all transactions except the giving/selling of review tokens to another party. A hard lock effectively freezes an account, while a soft lock prohibits further exchanges in the market except for the liquidation of review tokens. Such locks can be placed on all accounts, be they individual, journal, or institutional. A hard lock might be placed (for example) because an institution was caught engaging in criminal market manipulation. A soft lock might be placed (for example) because an individual was caught plagiarising material. The individual is barred from further submissions to any journal,

effectively ending their career, but would be allowed to withdraw all tokens earned (e.g., from reviewing). The ability of the review bank to lock accounts is incredibly powerful. It would provide the information systems academy with the ability to police members, journals, and even universities. Universities that enacted policies opposed to the discipline could literally be barred from the information systems research economy. Similarly, the hard/soft lock would enable the information systems academy to police predatory journals by barring them from the review economy. Authors could simply check which journals are allowed in the review economy to identify legitimate outlets.

The review bank is also able to reverse inappropriate transactions. For example, if one party is found guilty of cheating another party of review tokens, the review bank may intervene and transfer the review tokens from the guilty to the innocent party. The review bank's power to do this is constrained in that it can only manipulate review tokens when the party to be transferred from has a positive number of tokens and only when the party to be transferred from is not a journal. The review bank is unable to put an account into debt.

For example, a journal charges an author 10 review tokens for a review. For each round of review, five review tokens are spent: one review token goes into administrative and transaction fees, one review token to the senior editor, one to the associate editor, and two to reviewers. After the second round of review, the journal holds 0 review tokens. If the paper is sent for yet another round of review, the senior editor is unable to be paid because 0 review tokens remain. The review bank will not transfer the money from the journal's institutional account to the senior editor for work done.

The power of the review bank here is intentionally limited because the review bank should not manage contractual disputes. These should be handled by a national legal framework. In this case, a contract has been violated in that the senior editor has performed work that has not been fairly compensated.

If this case is arbitrated in the legal framework, the senior editor wins, and the review bank receives the legal judgement, the review bank can then take a review token from the journal institutional account to pay the senior editor.

The review bank's role is to manage the accounting and movement of review tokens. Thus, if an account hacks into another account, transfers tokens and this is discovered, the review bank can reverse the transaction, restoring tokens to the victim account, so long as the hacker has not yet liquidated the review tokens.

#### 4.3.4 | Security and reliability

The review bank would provide access mechanisms to reasonably protect accounts. Thus, for example, the review bank should institute mechanisms so account transactions cannot be imitated or intercepted by third parties. Accounts would only be able to transact with review tokens in possession.

#### 4.3.5 | Reporting

The review bank provides certain kinds of reports to accounts. An example report the review bank could provide is the total number of tokens earned from journal accounts either in one's lifetime or in a particular year. This would be a proxy for service contribution to the discipline. The review bank could also provide an application programmer's interface to allow read-only queries on one's account.

#### 4.3.6 | Policy advice

Given the review bank has data on how reviews flow, the review bank would also be able to advise the information systems academy on optimal policy.

The construction and initial operation of the review bank would have to be subsidised. However, just like real-world reserve banks, the review bank is hoped to become self-sustaining (Oritani, 2010). The review bank earns revenues from two sources: (1) transaction fees and (2) providing liquidity to the market. The review bank's revenues would thus be proportional to market size. Assuming the current review market size of USD 160 million and the review bank extracts 1% of this as fees, the review bank could earn USD 1.6 million annually from fees alone.

Any profits from the review bank should be surrendered to the institutional owner (e.g., the AIS) to protect against moral hazard (Oritani, 2010). The review bank should never be in a position where it desires to manipulate the market for its own benefit (Crowe & Meade, 2007). The review bank should be subordinate to but independent of the information systems academy (Fischer, 1995; Forder, 2005).

That the review bank can earn substantive revenues in its role should be balanced against the resources required for the review bank to fulfil its role. First, the review bank has costs, both in terms of depreciated capital (e.g., replace servers or pay for outsourced infrastructure) and will need to remunerate employees, both to monitor and regulate the market and to provide and maintain the market infrastructure. Second, protecting against and restoring from market failure can be expensive. Much of the revenues the review bank earns should be set aside to develop protective institutions and as insurance against market failure. In the market for reviews system, losses are privatised. The review bank cannot, unlike real world governments, enact taxes on the population to bail out other financial institutions.

## 4.4 | The reviewing token market

Those receiving review tokens will want to transform them into something of value. Various kinds of markets could arise. For example, reviewers and editors could try to sell review tokens to prospective authors. Reviewers and editors could use their review tokens to submit their own manuscripts. Alternatively, reviewers and editors could advertise how many tokens they have, which would make them attractive to universities who intend to use their accumulated tokens to fund submissions by other authors. If the review token market becomes successful, the review token could become a unit of service payment where SIG and AIS officers for example would receive compensation in the form of review tokens.

Given the large number of possible markets that could emerge, the key concern would be how review tokens could be exchanged in any arbitrary market. Here, there would be three participants: the transferrer, transferee (both of whom could be an individual, institution, or journal), and the review bank.

All transactions would occur as follows: The transferrer initiates communication with the review bank in clear. The review bank then establishes a secure link with the transferrer. The transferrer authenticates itself. Once the transferrer's identity is established, the transferrer instructs the review bank to transfer a certain number of review tokens to the transferee. The review bank verifies the transfer can occur, and then performs the transfer while logging the fact the transfer occurred for audit purposes. In any transfer other than one involving a payee and journal, the review bank takes a percentage of the transferred amount as a transfer fee.

All transactions with journals would include the manuscript ID. When authors submit papers to journals, they are issued a manuscript ID. Authors then send payment to the journal with the manuscript ID attached to the message. This first appearance of the journal/manuscript ID pair signals to the review bank that a new review is taking place. No transaction fee is charged for this. The journal's transactions with all other parties are treated identically to a regular transfer and a transfer fee is charged. When the journal refunds review tokens, the review bank knows this is occurring because the payee, journal, and manuscript ID triplet is the same as with the initial request for review. No fee is charged for the refund.

The review bank does not charge a transfer fee on the initial manuscript submission nor on the refund to avoid "double dipping." The goal is for the review bank to charge the entire review process exactly once, and this is done by charging the same percentage transfer fee for every transaction other than between the payee and the journal.

The system introduces some complexity to journal management, which will increase administrative overhead. Specifically, because convertible virtual currencies are changing hands, journals in most jurisdictions will have to pay

sales tax. It is easier for each journal, headquartered in their own domicile, to manage the tax issues than for the review bank to do so. Accordingly, in the journal pricing, journals should incorporate taxes and administrative fees in their review token submission fee. Journal administrations should then periodically enter the review token exchange market to convert review tokens to money to pay these costs. This means that journals absorb some exchange risk.

Furthermore, each journal would have to pay developers to interface with the review bank. We hope that review system developers like ScholarOne would develop standard interfaces to manage the process. The specific needs of each journal (e.g., the European Journal of Information Systems requires a minimum of three reviewers, while Information Systems Journal requires two) preclude the development of a one-size-fits-all interface.

## 4.5 | Strengths of the market for reviews

The proposed market has a number of advantages, including:

### 4.5.1 | Easy to understand

Unlike other market-based proposals for reforming information systems reviewing (Frijters & Torgler, 2019; Gray et al., 2006; Meir et al., 2021), the proposed market only minimally changes the way the review process works. A system of payment by authors is added at the beginning, there is an accounting for work done by the review team, and authors receive a potential refund at the end. Additional complexities introduced (e.g., taxes) are inherent in market-based systems.

### 4.5.2 | Implementable with proven technologies

The proposed market functions similarly to existing currency markets. Thus, the technologies required to make the system work are in existence and well understood. An implementation would rely principally on reusing and adapting existing technology, as opposed to experimenting with technology that continues to have uncertainty. The proposed market should be implementable with existing online banking technology and security systems. By contrast, for example, with blockchain, vulnerabilities are continuously being discovered (Ohjohan, undated) and various issues like scalability have not yet been solved (Zhou et al., 2020). The fundamental issue here is one of managing risk. The development of a new kind of institution is risky, and a design that minimises non-essential risk (e.g., technology risk) increases the chance for success.

### 4.5.3 | Adaptable

I have tried to design the proposed market with only the essential features with the intent that the market will adapt to emerging norms. Other elements to improve adaptability include the ability to reverse transactions (i.e., undo market error), and that while transactions are automated, a human-driven organisation exists to set policy and direction.

### 4.5.4 | Market expandable

The features incorporated in the proposed market are sufficiently generic; they can be easily adapted to other academic service markets such as conference reviews or paying for service governance appointments (e.g., SIG officer). Thus, for example, journal-review-specific roles like editor and reviewer are not differentiated. Conference reviewing

could be modelled as a simple form of journal reviewing. The author submits a paper, receives a paper number, and pays a certain number of reviewer tokens. The conference submits the paper to reviewers who receive reviewer tokens, and then the editors render judgement. SIG officer appointments would be paid via a yearly transfer of reviewer tokens.

Journals can also set their own payment schedules. Nothing stops a journal from paying a senior editor 1.2 review tokens per review, an associate editor 1.1 tokens, and a reviewer 0.9 tokens. In the end, the market will determine these prices. A journal that sets its payment too low will not get reviewers. One that sets its price too high will not get authors.

#### 4.5.5 | Auditable

All review tokens are processed by the review bank and so a record of the entire review economy can be captured. The high visibility of the economy makes it relatively easy to regulate.

#### 4.5.6 | Resistant to dishonest practices

The proposed market incorporates multiple features to inhibit dishonest practices, whether by parties outside of the information systems academy or within. Notably, all participants have to be authenticated, participants can be banned—potentially for life—and the economy is throttled in that individuals and institutions can only perform a fixed number of transactions per period. This is not to say dishonest practices cannot emerge. It is just that these limits constrain the profits from dishonest practices, make sanctions for dishonest information systems academics very high, and allow for the detection of such practices. Large numbers of transactions at just below the transaction limit are an indicator that odd behaviour is occurring and are something most dishonest market participants will be forced to do to make a reasonable profit.

#### 4.5.7 | Reviews will have shorter turnaround times

At present, we allow reviewers to take substantive periods, frequently from 30 to 90 days, to do reviews. The actual amount of time to do a review is much shorter. The time is given as a courtesy to slot time for review into things of greater import to reviewers. Once reviewers are paid, reviewers and editors can be contractually bound to a deadline. It has been repeatedly demonstrated paying money for reviews reduces turnaround times (Chetty et al., 2014; Hamermesh, 1994; Thompson et al., 2010).

The examples given have revolved around journals setting one fixed price. The proposed market does not stop journals from establishing tiered pricing, where for more review tokens, the journal guarantees fast turnaround. The journal *Scientific Reports* attempted this, but there was pushback because this discriminated against the less wealthy (Cressey, 2015). Since then, other journals have implemented paid fast tracking, including journals by reputable publishers like Taylor and Francis and Elsevier (da Silva & Yamada, 2022).

### 4.6 | Weaknesses of the market for reviews

#### 4.6.1 | Vulnerable to network economics

The proposed market has a relatively high startup cost and risk. Capital would have to be invested to both develop the market and adapt disparate journals to it. For example, journal submission systems would have to be integrated

with the review bank to allow for the trade of review tokens. Similarly, for the market to succeed, a large number of prestigious journals would have to precommit to the market. If this does not happen, journals that precommit would be priced out by journals that do not. I would expect that authors would now have to pay for reviews to initially be a substantive deterrent.

However, if the market takes off, the review bank is likely to become a significant power in the review market. For example, the review bank could hard- or soft-lock a journal that defied review bank policies. Reviewers would then be unwilling to review for the journal, effectively destroying the journal.

#### 4.6.2 | Single point of failure

All transactions are managed by the review bank, so any failure by the review bank, or a failure to connect to the review bank will cause a disruption to the market. By failure, I do not just mean technological failure but also failure in policy or administrative decision-making. The technological limitations can be relatively easily solved by, for example, designing the review bank in a distributed way. Thus, for example, the review bank could have transaction nodes spread across the world that would communicate with each other via a central clearing house. Policy and administrative decision-making limitations are harder to overcome. One could, for example, create oversight boards. However, oversight boards have not managed many rogue organisations, as seen in the failure of Enron (the rogue company) and Arthur Andersen, the supposed organisation that managed Enron's accountability (Fusaro, 2002; Swartz & Watkins, 2003).

#### 4.6.3 | Relatively illiquid

A number of features of the proposed market restrict market liquidity. Accounts cannot go into debt, the number of review tokens that go through each account per unit of time is restricted, and each real-world entity can only hold one account, except for journals, which can hold two. These restrictions on market liquidity will inhibit the growth of the proposed market. I feel this is important to ensure the proposed market exists to facilitate its goal that is, encouraging reviews rather than becoming a profit centre for a small group who game the market. People can make money, but no one will make an obscene amount at the expense of everyone else.

#### 4.6.4 | Requires cultural mindshift

I expect reviewers to be enthusiastic about the proposed market. However, there is likely to be substantial initial resistance from authors. Assuming the economics academy has identified a fair price for reviews, it would cost authors an estimated USD 400 to submit each paper. Economics journals charge USD 100 per reviewer and do not pay editors for their roles (American Economics Association, undated). When Rubriq was in operation, this was similarly the reviewer fee (Davis, 2016). The 450 movement believes a fair wage is substantively higher (Brainard, 2021; Browne, 2020; Heathers, 2020), but an endowment effect exists, where we perceive things we possess to have more value than the market actually demands (Beggan, 1992). Furthermore, the market would be open to all legitimate participants including those from the Global South, PhD students, and PhD graduates unable to find secure employment. These will naturally suppress reviewer wages.

I expect authors will find this price prohibitive. Unfortunately, the review system has subsidised authors since its inception and this subsidy can no longer be sustained.

### 4.6.5 | Irreversible erosion of social norms

A sad phenomenon is a transition from a gift to a market economy is difficult to reverse. When markets fail, the economy transforms into a barter rather than a gift economy, because broken social relationships are difficult to restore (Humphrey, 1985). In other words, the implementation of the proposed market is likely to hasten the transformation of review culture into a more mercenary form. Journals will have to compete for reviewers and pay market wages. Reviewers will likewise increasingly have to conform to market standards like ensuring reviews are submitted on time. Authors, as the principal source of revenue, will have an increased voice, and thus a real danger is journals become profit seeking and publish papers to obtain review tokens rather than because papers are worthy. What journals consider a good reviewer may not be socially desirable. For example, reviewers may become more valued because they accept papers rather than because they give a meaningful review.

The review token also must adequately compensate for the loss of the social relationship. Attempts by journals to pay reviewers backfired when the price was too low. The New England Journal of Medicine was extensively vilified when they attempted to pay reviewers USD 5 per review (Campanario, 1998; Ingelfinger, 1974). Reviewers would rather review for free than receive token amounts, a phenomenon documented in other transitions from a gift to a market economy (Levitt & Dubner, 2004).

### 4.6.6 | State actor participation

Given that money is changing hands, state actors will play a role, at a minimum, by levying taxes. Also, several governments regulate or plan to regulate convertible virtual currencies that is, digital goods that can be converted into legal tender (e.g., US Department of the Treasury Financial Crimes Enforcement Network, 2013).

## 4.7 | Social impacts of the market for reviews

If successful, the proposed market would also change the culture and form of the information systems academy. While the full social impact cannot be ascertained, I can predict certain immediate outcomes.

### 4.7.1 | Change of review demographics

Given that reviewers are driven by monetary rather than social incentives, many existing reviewers will drop out of the market to be replaced by others. For one, the number of reviewers from the Global North will decline, while the number of reviewers from the Global South will rise. The price of reviews will reflect the willingness of the reviewer. Reviewers from the Global South have fewer economic opportunities and will be willing to do reviews for less.

PhD students and people low in social status will also do more reviews. Assuming each reviewer can make USD 100 per review, the reviewer works full time (i.e., 2080 h) and each review takes 5 h, a reviewer can make USD 41600 a year. A reviewer willing to work overtime can earn more. This amount of money is unattractive to the typical tenured faculty member in the Global North but is attractive to PhD students, adjuncts, and PhD graduates who are unable to secure stable employment. Many adjunct professors make less than USD 25000 per year (Flaherty, 2020). Also, given that per-course teaching work is seasonal, PhD students and adjunct professors would find reviewing to be an attractive way to supplement their income during non-teaching months.

A casual reading of this would suggest the review system will be exploitative in that it will leverage on existing underclasses. However, the truth is the opposite because the review system provides opportunities to the underclasses they otherwise would not have had. Indeed, the review system empowers the underclasses, because having

an alternate source of income allows underclasses to challenge the status quo- they can, for example, refuse to teach unless paid a better wage.

This in turn will enable the transition from our current situation of author-editors and author-reviewers to one where members of the information systems academy begin to specialise. If people can earn a fair wage reviewing and editing, they will do less teaching and less research to be editors. The review system does not enable the complete specialisation of reviewing. It does, however, enable the beginning of this specialisation.

One point some may be concerned with is that the review system appears to encourage those who would not succeed as authors to become specialised reviewers and editors. People will become reviewers and editors because that is their best source of income, implying they are unable to earn money as an author or author-teacher, that is, will be denied tenure. This is indeed the case, but I do not see this as a negative thing. Editors and authors require distinct skills at the professional level. An author is typically hyper-specialized in a specific research domain. Editors, in contrast, must appreciate and be cognizant of a breadth of research domains. Editors rely on reviewers to understand each specialised domain. Thus, in the increasingly specialised world, a PhD student begins with a set of specialised skills- encapsulated by their dissertation. Over time, the PhD student chooses to continue pursuit of that specialised domain, becoming an author, or appreciates the wider discourse in the information systems academy, becoming an editor. This will, in part, be driven by whether this PhD student earns more as an author, or by becoming a sought-after reviewer and editor. Of course, paying for reviews provides insufficient money for a full-time editor. However, it is one institution in a possible chain leading to professionalization of editorships.

Another concern is the prediction there will be geographic and other demographic distinctions in authorship and reviewership roles and the associated overtones of Global South exploitation. I would emphasise there is already a geographic distinction in authors. In all academia, there is a distinction between those with a research education, and the "invisible college" of people who actually publish (de Solla Price, 1963). Authors from specific schools with particular mentors receive an education and develop social relationships and norms that help them publish. Certain authors are incentivised by their institutions to publish. It should be emphasised how even trained authors are unlikely to publish if they are physically isolated from centres of research, lack collaborators, resources, are given a workload unconducive to research production, and so forth. Research has documented clear language (Herrera, 1999) and other biases (Godlee & Dickersin, 2003; Lee et al., 2006) in the peer review process. The market system provides a mechanism for a transfer of wealth from authors to reviewers. A new institution (the review market) provides reviewers with new incentives to perform productive research work (reviewing). Granted, reviewers will be incentivised and trained to review, not author. But this is nevertheless a useful research skill with some overlap with authorship skill and as result, the reviewer is made better off and is not being exploited.

### 4.7.2 | Premier journals would see a reduction in submissions

If two journals charge the same price for reviewing, authors would prefer to submit papers to journals they know will accept their paper. In our current system, it is near costless to submit to journals. However, the payoff for acceptance at a premier journal far outweighs the payoff for acceptance at lower journals. Hence, many authors play a game of submitting first to premier journals and then working papers down the journal hierarchy.

In a market system, authors lose money for every journal they get rejected in. Authors will thus prefer to target their papers at journals they believe more likely to accept their papers. Accordingly, the average acceptance rate of papers across all journals should rise and the total volume of submissions should decrease. As per Table 1, Figure 1 and attendant text, this reduces the total demand for reviewing.

This assumes no strong Dunning-Kruger effect (Kruger & Dunning, 1999) and authors can actually evaluate the quality of their own work. It is possible authors of very good papers overestimate their likelihood of getting rejected, thereby submitting papers to lower quality journals while incompetent authors overrate their ability to get published.

### 4.7.3 | A decline in submissions from less wealthy institutions

As the cost of reviewing increases, the total number of submissions overall will decrease. Furthermore, submissions will be increasingly made by those who have the wealth to submit, for example, those who are funded, individually wealthy, or belong to wealthy institutions. Those from poorer universities, and the Global South will constitute a decreasing proportion of submitting authors. We will also see an increase in collaboration between individuals from less wealthy institutions with those from more wealthy institutions because those from more wealthy institutions fund their less financially well-off colleagues, perhaps in exchange for authorship.

Given an academy should aspire to publish good research, this is a major drawback of the proposed market. However, in our current review system, the review team subsidises the article production process. Reviewers spend time to little benefit while authors pay little, earning huge benefits for being authors. The current review market is effectively a transfer of the cost from authors to reviewers.

In other words, the disproportionate decrease in submissions by the less wealthy is because the market system eliminates an existing, unfair subsidy. Preferring the status quo because the less wealthy are disenfranchised perpetuates an injustice on the review team. The correct solution to this would be to pay reviewers and tax the wealthy to provide the subsidy. One way this could be done is some of the money the review bank earns in fees can be employed for grants. However, such subsidies will not address the problem for the vast majority of non-wealthy authors. The real solution would be to create wealth in the Global South, in PhD students, in adjuncts, and others affected by wealth inequality.

### 4.7.4 | Increased authorial power

Authors fund the proposed market. Authors, as a collective, will thus have an increased political clout and will be able to demand more. Given most authors will come from wealthy institutions, this means wealthy institutions will have a larger voice in the information systems academy than they have at present. For example, topics of less interest to wealthy authors (e.g., the use of technology to cure diseases in the Global South) might be neglected in favour of topics of interest to wealthy authors.

Also, because authors fund reviewing, authors begin to have influence over the factors leading to paper acceptance. It has been suggested such regulatory capture has occurred in journals offering multiple tiers of paid review- some journals offer "fast track" peer review where authors pay one price and "regular" peer review at a different price (da Silva & Yamada, 2022).

Furthermore, as the system matures, authors of wealthy institutions might eventually request additional services for a fee. For example, for a fee, reviewers might be expected to (without attribution) edit an author's work rather than simply providing comments.

In other words, given the market for reviews relies on payment through authors, it can potentially incentivise reviewers to enact undesirable self-interested behaviour. This behaviour is observable in other industries. For example, the auditing industry is periodically rocked by scandals where auditors are found to collude with the companies they audit. The auditing industry runs on a similar model as the market for reviews- the audited companies pay for the audit, just like authors pay for reviews (Cunningham & Harris, 2006; Taub, 2005). It should be noted no similar reports have appeared in peer review even though markets for reviews exist. Indeed, reports from existing peer review markets are overwhelmingly positive (Chetty et al., 2014; Hamermesh, 1994; Thompson et al., 2010).

### 4.7.5 | Increased control by regulatory bodies

Anybody with the power to regulate the review bank will likewise have the power to regulate the information systems academy as a whole. Such regulation could be beneficial or detrimental. For example, the presence of the

review bank can make plagiarism or other academic dishonesty costly because the review bank can lock the plagiarist out of the review market. Conversely, a government could impose a law forbidding the use of any currency (virtual or otherwise) for the promotion of certain kinds of topics. If the review system wanted to solicit manuscripts from authors of such a country, the review bank would have to obey that government's law. This could mean it would be illegal to review papers on topics deemed unsuitable by a particular government.

These social impacts would occur with almost any review system based on the market economy. Generally, market economies create more wealth than gift economies but concentrate wealth and therefore power in the hands of a smaller group (Diamond, 2012). In deciding to move to a market economy-based review system, we need to decide:

1. Whether the benefits are worth the costs and
2. Whether doing so is unavoidable given that the gift economy cannot be sustained as the size of the academy grows.

## 5 | A GIFT SYSTEM FOR REVIEWS

Given the obvious problems with market economies, one question that arises is whether an alternate system based on gift economies is possible. Here, I propose one such system, called the Kula system that potentially causes less harm to the information systems academy, but also will have a smaller effect on the problem of review overload. In many ways, this proposal is also more insidious, because it works only by incentivising reviewers and not by disincentivizing authors. Reviewers are pushed to work longer hours to be rewarded by intangible social benefit rather than physical remuneration. In effect, the Kula system will reinforce our current status quo where reviewers work unpaid overtime to maintain the existing institution. This in turn will slow down what I see as a necessary next step in reviewing- the professionalization of reviewing.

To understand how the Kula system works, it is first necessary to understand certain properties of gifts. Over time, gifting cultures enchain their participants (Strathern, 1988)- they tie participants in a web of obligations that are difficult to extricate from. For example, consider the annual large family feast like the American Thanksgiving, European Christmas, Chinese New Year or Muslim Eid-al-Fitr celebrations. These are gifts- someone cooks the food for everyone else. Many people dislike going to these celebrations, for example, because they don't get along with their siblings, but still go, because they are enchained by the tradition.

Also, gifts are always between individuals in the sense they require an exchange between humans. However, gifts and ties of obligation can simultaneously be with institutions, a concept called prestation (Mauss, 1954). For example, warriors in the ancient world pledged loyalty to a specific lord. The modern soldier pledges loyalty to a country, which is independent of a specific ruler. The gift of loyalty is made before a human- some swearing authority. However, the swearing authority represents the country.

The Kula system creates a situation of enchainment to the review institution. To do this, I introduce a gift concept having the following properties:

- *Inalienation* The gift is always tied to the person who created/first owned the gift. Examples of real-life inalienable gifts are great grandma's wedding ring and Faberge eggs. When the groom gives great grandma's wedding ring to his bride, the thing that makes the wedding ring special is that great grandma used to own it. Likewise, what makes Faberge eggs valuable is that they were made by Carl Faberge, most as gifts from Emperor Alexander III of Russia to his wife Empress Maria Feodorovna (Faber, 2008).
- *Regifted* The gift changes hands multiple times. The way regifting is done can either convey positive or negative meanings (Malinowski, 1922; Mauss, 1954). When one regifts a toy one received from Christmas to someone else, there is a negative meaning- the toy wasn't appreciated. However, inscribed trophies are often regifted. A

person wins the trophy 1 year, then inscribes their name and year of victory to give the trophy to the person who wins the next year. Transformability (see below) coupled with regifting creates positive meaning in the gift.

- *Transformability* A transformable gift is regifted where each possessor of the gift alters it in some way, thereby inscribing a little of their identity in the gift (Malinowski, 1922). Examples of transformable gifts are when a neighbour gives you lemons, which you use to make a lemon meringue pie to share with your street. Both the neighbour's and your identity are inscribed in the gift. Trophies acquire positive meaning because of their transformability.
- *Peer Gift* The Kula system is designed so gifts are given one way, rather than being an exchange of gifts. One way gift-giving in a hierarchy is a manifestation of power relationships (Mauss, 1954). One way gift-giving between peers expresses a connectedness to a wider whole. Secret Santa gifts are example one-way gift giving between peers. The person you give a Secret Santa to is not the same person who gives you a Secret Santa. However, all the people participating in a specific Secret Santa exchange are peers and the Secret Santa gift exchange reinforces that everyone belongs to the same community. Such gifts serve as relationship cement to tie people to wider social groups (Komter, 2005).
- *Transparency* Everyone knows the gift exchange took place. Many gift exchange ceremonies, for example, trophy awards, are transparent. Transparency facilitates prestation by demonstrating the wider institution is aware of, and sanctions the gift giving. Trophy awards, and the exchange of wedding bands are examples of transparent ceremonies meant to convey the recognition of the wider institution. The gifts in the Kula system are countable, but unique thus serving to communicate status information to both outsiders (countable) and insiders (unique) (Dodlova & Yudkevich, 2009).

## 5.1 | The gift system: An overview

The proposed system is based on the Kula (Malinowski, 1922), shell necklaces and armbands exchanged between tribal chiefs in the Trobriands. During trade expeditions, the chiefs exchange Kula while subordinates barter more traditional goods like food. The value of the Kula is not in the Kula itself- Kula cannot be traded for other items. Instead, their value lies in their communication of social status. Only tribal chiefs can trade Kula, and being given a valuable Kula is a sign of respect from the other chief- the value lies in being able to say, "Chief so-and-so gave me this Kula in our last trade." Kula are thus valuable to be given away rather than held.

Beyond the basic infrastructure and participants of the reviewing system, the proposed Kula system comprises two additional infrastructural elements: the Kula and the Kula registry. A Kula is simply electronic data. Every Kula is uniquely identified with a visually eye-catching symbol.

### 5.1.1 | Creation and ownership of Kula

Anyone can create a Kula. The creator of the Kula is issued a Kula ID that uniquely identifies the Kula and produces a name and logo for the Kula. The creator can also input text into a text description box linked to the Kula. This text can be a description of the Kula, what the creator believes the rules of gifting for the Kula should be, or some other message. The owner can change the contents of the text description box at any time.

For example, a Kula could be created called "Joke Kula" where the description box asks all possessors to submit a joke. Alternately, a "CryptoKula" could be created where the description box asks all possessors to put in something about cryptography. A series of "journal special issue commemorative Kula" could be created with a Kula created for each paper under review.

The creator of the Kula is the first real owner of the Kula. All Kula have real owners and are explicitly linked to their real owner (inalienability).

Real ownership and possession are two separate concepts in the Kula system (Weiner, 1992). The expectation is the real owner will seldom be in possession of a specific Kula. However, the real owner has the power to confiscate the Kula for any reason. When confiscation occurs, the Kula's possession is transferred to the real owner.

Because of the power of confiscation, the real owner may set rules on the gifting of their own Kula. They can declare to who the Kula can be gifted. Only one such rule will be enforced by the Kula system- how long the Kula can remain in a possessor's possession before being regifted. If a possessor holds a Kula for longer than this time, the system will automatically confiscate the Kula and return it to the real owner. Otherwise, the real owner must enforce rules on gifting by manually confiscating the Kula. The real owner will log into the Kula system and declare the Kula confiscated, whereupon the Kula reverts to the real owner's possession.

Unless the possessor declares an intent to award (see below), only the real owner and the possessor of a Kula know who the current possessor of a Kula is. This is critical because reviewing is normally an anonymous process where even other reviewers on a paper do not know one's identity.

While the creator of a Kula is the default real owner, real ownership can be passed to someone else. For example, the editor-in-chief of a journal could create a set of Kula and then pass real ownership to the next editor-in-chief who can then change the rules of gifting.

### 5.1.2 | Possession and former possession of Kula

Any current possessor of a Kula may do two things in succession: (1) inscribe a message on the Kula and (2) give the Kula away.

Before giving the Kula away, the possessor must inscribe a message on the Kula. It is possible a possessor may possess the Kula several times as the Kula is regifted back. Each time before the Kula is given away, the possessor must inscribe a message. This message can be anything desired. Ideally, the message is aligned with what the real owner wanted. Thus, ideally, jokes would be put in the Joke Kula. However, nothing enforces these rules. I suspect, over time, certain messages will be accepted as standard for possessors who do not want to think too hard about the message to inscribe. "Thank you for your service," would be a likely standard message.

Once the message is inscribed, it cannot be undone, either by the current possessor or the real owner. This is critical, because a possessor can write a message and later have the Kula confiscated. Even in such cases, the message will remain. The message is the real gift the possessor gives. The Kula is the vehicle of delivery. This makes the Kula a transformable gift.

The message is publicly linked to the possessor. Thus, if the possessor writes something shameful, the entire information systems academy knows the possessor said it.

The message is only revealed when either the Kula is confiscated, or the Kula is regifted (see below). Otherwise, the message remains unrevealed. This is because messages are tied to possessor identities and anyone tracking the Kula who sees a new message will be able to ascertain the identity of the current possessor.

When a possessor is first assigned to a review team, the possessor can announce the Kula will be given away to someone on the team (so long as a message has been inscribed). This is called the intent to award. At this time, the Kula is linked to the review system and the specific manuscript under review.

At any time during the review process, the Kula can be gifted to one other person on the review team. Because review team members are anonymous to each other, the possessor specifies the role to be gifted (e.g., senior editor, associate editor, reviewer #1). The Kula system communicates with the review system to determine the actual identity of the receiver and asks the receiver if they accept the gift. If a review team member makes an intent to award and fails to gift the Kula before the end of the review cycle, the Kula is confiscated and returned to the real owner.

A member of the review team can only gift one Kula per review team. However, all team members can gift Kula. It is thus possible for one person in a four-person review team (senior editor, associate editor, two reviewers) to receive three Kula (one from each other member). Thus, Kula are peer gifts.

A member of the review team can refuse a gift of Kula. When this happens, the intent to award is treated as never having been issued. By doing this, the refusing member is effectively announcing their desire to not be associated with the specific review ring that Kula represents. Note this sequence does not immediately cause a confiscation to occur. A confiscation occurs when the intent is announced but never followed through that is, the possessor cannot jerk around the other members of the review team by offering a Kula and then withdrawing it. However, this can set up a chain of events where a possessor is on their last day of possession, makes an intent to award, is refused and because time has run out, their Kula gets confiscated. The ability of a gift to be confiscated means the list of people who inscribed messages on the Kula and those in the review ring may not be identical.

All gifting is done in the review team. Thus, other than by accident, authors never know whether or what Kula are being gifted when their paper is under review. At least initially, gifting may not be performed outside the review team environment. It is possible to extend the Kula system to allow gifting in other service environments.

A person who both receives and gifts a Kula is said to belong to that Kula's review ring. Everyone can display information about their review ring memberships (transparency). This allows a reviewer to advertise a number of facts:

- *How many Kula the reviewer has formerly possessed.* Having been in possession of a large number of Kula demonstrates the reviewer is sought after for a wide variety of topics and thus has knowledge breadth. Presumably, the reviewer has a wide circle of others they know in various fields of expertise. This, for example, signals the reviewer's suitability to be an editor.
- *How many times a specific Kula has been in the reviewer's possession.* When a specific Kula circulates through a reviewer multiple times, it signals the reviewer is highly sought in the review ring represented by the Kula.
- *Other individuals the reviewer has affiliation with by being a reviewer.* Having been in possession of a specific Kula allows the reviewer to claim affiliation with others in the same review ring. Over time, certain Kula will be associated with specific kinds of status. For example, some Kula will be primarily exchanged in top-tier journals. Other Kula will be primarily exchanged by people in a particular knowledge domain. As Kula obtain their own socially constructed meaning via their journey across reviewers, being in former possession of certain Kula will become sought after.
- *One's preferred papers to review.* That a reviewer belongs to certain Kula rings informs others of that reviewer's experience at reviews and hence the kinds of topics, journals, and so forth. the reviewer is competent at. Editors can query the Kula database to find members of a specific Kula ring, who would be ideal for reviewing a particular kind of paper.

### 5.1.3 | The Kula Registry

The Kula registry exists principally to facilitate transparency. It is an information system with an underlying database tracking four kinds of facts:

1. *The description of every Kula.* This would comprise the Kula's ID, picture, name, text description and the accumulated messages written by possessors of the Kula.
2. *The real owner of the Kula.* This is the person to whom the Kula is transferred during confiscation.
3. *The ID and other demographic information of review team members* People must open accounts to participate in the Kula system. The Kula system must be able to contact people to ask them to accept/refuse Kula gifts. People must contact the Kula system to initiate intents to award and gifting of Kula.
4. *The history of all Kula exchanges.* This is called the review ring. The Kula registry tracks every person who has come into possession of a Kula. It is one's belongingness to the review ring that grants rewards and privileges. Current possession of a specific Kula provides no benefit, but having once been in possession of the Kula

provides benefit. While the Kula registry tracks the date of possession, it never announces the date of possession. It simply lists all former possessors of each Kula in random order and lists all Kula that a person has formerly possessed. That the Kula registry does not reveal the dates each possessor held the Kula coupled with the fact belongingness in a review ring is only made known after the possessor exchanges the Kula makes it difficult to determine who gave a Kula to whom, preserving some of the anonymity of the review process.

#### 5.1.4 | Kula system APIs

The Kula system is a public database and can be queried by either the Kula ID or reviewer ID. A member of the public who queries the Kula system by Kula ID can see the entire history of that Kula's messages and identify all former possessors of the Kula. The real owner can also identify the current possessor of the Kula.

A member of the public who queries by reviewer ID will see the list of all Kula that reviewer has formerly possessed as well as the number of times each Kula has been possessed. This allows the person queried to display their reviewership like a set of military campaign ribbons. There is no additional information revealed if the query by reviewer ID is performed by either a current or former possessor of the Kula.

A former possessor can create a display list of their Kula. Kula on each display list can be sorted based on the former possessor's preference, putting certain Kula higher in the display list. This communicates to others which review ring memberships the possessor feels are more important. A possessor can choose to only display certain Kula on a display list, regulating others to a quantity. For example, they might display 10 Kula and then have the system declare "and 150 unique/280 total other Kula." Note the display list is only a report that is, a formatted display of the raw query data. It will always be possible for others to get a detailed breakdown of a reviewer's Kula by directly querying the Kula system.

I envision reviewers to be able to host their Kula displays on their websites by connection to the Kula System API. They can also link electronic curriculum vitae to the API. I also see conference attendees being able to print their Kula displays to be attached to ID badges at conferences.

For the Kula system to work, Kula must be exchanged. Any Kula that remains in someone's possession for a certain period of time (e.g., 3 months) will automatically be confiscated and transferred back to the real owner for reinsertion into the review system. A confiscation does not count as an exchange. Confiscation denies the possessor the opportunity to become a former possessor and incentivizes the possessor to participate in a review to award the Kula to someone else. Because one's affiliation with a Kula only occurs when one both receives and gives away the Kula (i.e., is a former possessor), there is an incentive to participate in reviews twice per Kula- once to obtain a Kula, and once to give it away (enchainment and prestation).

To illustrate the review ring, Person A is an editor-in-chief of a journal and creates a Kula. Person A announces an intent to award and assigns Person B as senior editor. Person C is designated Associate Editor who desk rejects the paper. Person A chooses between Person B and C, ultimately giving the Kula to Person C. A month later, Person C is asked to review a paper at a different journal and announces an intent to award. The paper goes through a review cycle with Person D (senior editor), Person E (associate editor), Person C and Person F. The paper is ultimately rejected. Person C decides to give the Kula to Person E, because Person C appreciated the way Person E summarised the review comments.

The Kula history only displays Person C in the review ring. As the creator, Person A never was given the Kula and thus is ineligible to be in the ring. Person E is not yet eligible in the ring because Person E has not yet given away the Kula.

### 5.2 | The socially constructed meaning of the Kula and review ring

As each Kula changes possession, the socially constructed meaning of the Kula grows. First, the Kula has inalienability (Mauss, 1954; Weiner, 1992). It is inextricably tied to its owner. The creator especially can embed a meaning in

each Kula. This can be via the Kula's title (e.g., Joke Kula), simply the fact of the creator (e.g., these 20 Kula were created by <famous person>), by some public intent (e.g., these 50 Kula were created to commemorate the special issue of…), or by the text declaration (e.g., All who possess this Kula- respect X idea). The owner can inscribe meaning by changing the text declaration.

Next, as Kula are passed on, the possessor can likewise inscribe meaning through their own text description (transformability). For example, the third Kula issued to commemorate a special issue of a journal could be transformed by a possessor to carry a message about Thomas Jefferson, the third US president. The ideals of Thomas Jefferson thus become inscribed on the Kula regardless of the owner's desire.

Third, as Kula are gifted (peer regifting), the previous owners of the Kula are revealed. Stories can then be constructed around membership of the Kula. For example, <famous person> was once the possessor of this Kula and now, so am I.

Finally, the accumulated messages, journey and history of the Kula creates each Kula's unique identity (transparency). Membership in the review ring associated with the Kula likewise carries an identity. One Kula might be associated with research on information systems in less developed countries. Another might be associated with a specific journal. A third might be associated with a specific protest movement. Reviewers that want to affiliate with that Kula would want to review when an intent to award is given. Alternately, collectors would want to review for Kula they never possessed. The symbolic capital created as the Kula matures makes it more valuable and ties members to the symbolism in the Kula and the Kula system (Zionkowski & Klekar, 2009), forcing them, by social obligation, to participate in further reviews.

Social identity is critically important to humans. Humans will exert greater effort for their own group- even when assignment to a group is random (Tajfel, 1981). Kula provides a way for the information systems academy to exploit this characteristic and assert control over reviewers (enchainment and prestation) (Cheal, 1988). Over time, I would expect ritualistic practices to grow around the gifting of Kula, especially if review ring membership becomes a criterion for promotion and tenure. Faculty would teach their PhD students how to properly gift and receive Kula and inscribe messages.

The Kula system is designed to make it difficult for any one person to fully control the socially constructed meaning of the Kula. For example, a real owner could insist the Kula only be gifted when the possessor is reviewing for their journal. But nothing stops the possessor from gifting the Kula outside the journal. The real owner would not know this occurred. Of course, the real owner could confiscate the Kula, but could only do that if they hawkishly tracked progression of the Kula. Furthermore, the real owner would be powerless if just before confiscation, the possessor chose to inscribe a colourful message about the real owner in the Kula.

One question is why a Kula system would be better than (for example) all reviewers being recognised by each journal and having this information recorded in a central database? Indeed, why have a Kula system when empirical studies have demonstrated recognition-based reward systems do not improve and can negatively impact review performance (Zaharie & Seeber, 2018)? The key difference between the Kula system and a recognition-based system is the Kula system empowers the possessor of the Kula. A recognition system reinforces that reviewers are subordinate to editors. Hierarchical gifts that only flow one way carry with them a meaning of a power disparity (Komter, 1996)- you are angry when the boss gives you a pack of candy for Christmas rather than a raise even though you are better off than receiving nothing. Likewise, charity is often more an expression of status inequalities than a genuine effort to uplift the poor (Mauss, 1954; Schwartz, 1967; Weiner, 1992).

In the Kula system, everyone who receives a Kula is empowered to gift the Kula. This gifting is done of the possessor's will. Why the Kula is given, and to whom the Kula is given is the possessor's choice. Kula are special because they are simultaneously gifts between peers and gifts from the review institution. The possessor is thus simultaneously themselves and a representative of the wider information systems academy (Darr, 2003; Mauss, 1954). The Kula has embedded not just the possessor's message, but messages from others in the review ring. Over the long term, the ability of every participant in the review ring to choose and the fact each one makes particular choices is what shapes the social identity of the review ring and simultaneously traps the members of the review ring.

## 5.3 | Implementation considerations

I foresee four key implementation considerations for the Kula system, (1) security, (2) irreversibility, (3) outsiders and (4) cost. I also discuss various issues about the physical implementation here.

### 5.3.1 | Security

There are multiple security issues that must be resolved for the Kula system to work. First, it must be integrated into the review system. Otherwise, there is no way to gift Kula while preserving anonymity of the giver and/or receiver. During the initial implementation of the Kula system, I foresee this being overcome by having the senior editor (who always knows all members of the review team) manually inputting this information into the Kula system.

Second, a determined attacker within the review ring can always reveal the identity of the possessor. A non-possessor simply queries for the review ring twice: once before the Kula is exchanged and once after the Kula is exchanged. The change in membership reveals the last possessor and hence the gift giver.

Note the anonymity of the review team to paper authors is generally protected as all information about the Kula occurs between review team members and/or potential review team members- a potential review team member can be invited into the review team with the potential to earn a Kula. However, the existence of a Kula exchange can be revealed to authors if authors are accidentally invited on the review team. This is probable as authors are frequently experts in the field they submitted their paper in and asking authors to review is not an uncommon mistake. Once authors learn of a Kula, they can extract the possessor's identity using the attack outlined above, thereby breaking the anonymity of the review process.

Another potential issue is that the system must block arbitrary Kula exchanges. Otherwise, it would be possible for a Kula possessor to join a review ring by passing the Kula to a confederate. Indeed, a possessor and a confederate could increase the number of times they exchanged Kula by simply passing the Kula back and forth. This would defeat the use of the Kula system as a way to identify productive reviewers. One way to implement this is to have all Kula exchanges linked to a manuscript ID in a way similar to the market system described in Section 4.

Kula carry embedded messages. Thus, another problem is Kula are innately subject to various forms of injection attacks. Such attacks may target the Kula system or use the Kula to target other systems- recall the point of the Kula API is to display one's Kula on a website or digital curriculum vitae. The coding of both the Kula's image and message display system will have to be done carefully to minimise this threat. Note there have been successful injection attacks using code embedded in images (Shah, 2020).

The Kula system also requires certain information to function, but cannot reveal that information to the world. Examples of such include the sequence of possession (necessary to identify the current possessor), the manuscript IDs associated with Kula exchange and the list of confiscated possessors. The system maintainer of the Kula system will necessarily be in possession of this confidential knowledge and therefore is a security risk.

Finally, the Kula system would have to be secured from third parties as it both holds valuable information that it does not reveal to the public and needs to guard against manipulation by parties seeking to improve their prestige by joining review rings. If belongingness to a review ring is valuable, there is an incentive for individuals to cheat belongingness to a review ring. The demographic data in the Kula system (e.g., names and email addresses) is also valuable.

### 5.3.2 | Irreversibility

Irreversibility is an important characteristic of the Kula system. Once the Kula is given and accepted, the gifter should not be allowed to take the Kula back. Once a possessor's message is inscribed on the Kula, that message cannot be removed. This is important so no individual has control over the Kula's social construction.

In the heat of the moment, there will often be extreme pressures to have messages removed. For example, a possessor could write a derogatory message about a race or gender on a specific Kula, thereby compromising all other members in the review ring. Such pressures need to be resisted. Even in such circumstances, the correct approach is to confiscate the Kula and then have it gifted to someone to write a new, more uplifting message. The old, hateful message should be preserved alongside the corrected message because such an aggregation of messages gives the Kula, and hence the review ring its character. Purely positive characters are bland, and over a long period will be less valuable than Kula with controversial histories.

### 5.3.3 | Outsiders

As a gift economy-based institution, the Kula system is vulnerable to outsiders. Outsiders are more likely to be unwilling and unable to interpret the Kula. If gifted Kula, they would not regift. The messages they would create would change the identity of Kula in unhealthy ways. Once great grandma's wedding ring is sold to a pawn shop, it ceases to be special. Similarly, the value of a Faberge egg would be destroyed if disassembled.

The Kula system has various mechanisms in-built to reduce the harm of small numbers of outsiders. Confiscation is the typical mechanism employed to remove a Kula from an outsider. However, the Kula system is vulnerable to sudden, large influxes of outsiders. For example, such outsiders could deface Kula by writing embarrassing messages while the Kula are in their possession.

Kula vulnerability to outsiders also means starting the Kula system will be difficult. The first owners and possessors of Kula must be trained in how to use Kula. Instruction on how to use Kula must be continuously provided to each new possessor until a culture of Kula regifting becomes internalised in the information systems academy.

### 5.3.4 | Cost

Finally, the infrastructure of the Kula system needs to be developed and maintained and this will require a subsidy. The domain name and servers would need to be paid for, the Kula API would need to be refreshed, security patches would need to be installed, and mechanisms against disaster would need to be created and maintained.

Furthermore, the maintainer would need to be resistant to authority in the information systems academy. As previously mentioned, the Kula system as described is designed to allow Kula to evolve their own socially constructed meaning. Sometimes that meaning opposes authority. Depending on the actual implementation, it would be easy for authority to subvert anti-authority meaning. This should be avoided.

### 5.3.5 | Other issues

Other than the security issues outlined above, implementation of the Kula system should be technologically straightforward. The system could, for example, be implemented as a central database with a collection of application programmer interfaces (APIs) for querying by Kula ID, querying by reviewer ID, creating Kulas and performing a Kula exchange.

Alternately, the system is a candidate for implementation on a blockchain. The need for every Kula to be unique suggests a use case for non-fungible tokens (Entriken et al., 2018). Likewise, the need for irreversibility suggests a blockchain solution, as immutability is an inherent property of blockchain (Narayanan et al., 2016). I would caution that blockchain does not solve many of the fundamental security issues discussed above and also could create other kinds of problems. For example, trying to recover from a hack on the blockchain would be substantively more difficult than if the Kula system were implemented on a central database. A hack might necessitate a fork on the

blockchain, which would then require all Kula system members to upgrade their software (Morris, 2023). Conversely, the equivalent security flaw in a central database would involve a system engineer patching the vulnerability in code and then restoring and/or repairing the database, a process that would be minimally invasive for Kula system members. Similarly, because of immutability, it would be substantively more difficult to reverse hacked membership in a Kula ring on blockchain than in a central database.

As a silver lining, the nature of Kula makes it resistant to theft. There is no value in possessing Kula, only value in giving it away. Hence, monetary damages associated with security violations of the Kula system are likely to be minimal.

I would also emphasise my expectation is the final implementation of a Kula system would differ substantively from what is described here. Gift giving systems are emergent and shaped by communal cultural practices. Over time, the community should adapt the Kula system. However, the specific shape and pattern of these changes is opaque to me.

## 5.4 | Strengths of the gift system

There are a number of advantages of the Kula system.

### 5.4.1 | Does not economically discriminate

The Kula system does not discriminate based on disposable income. Regardless of how poor an IS academic is, they can submit papers, and offer reviews. The token in the Kula system is not a form of currency.

### 5.4.2 | Provides a mechanism for job-related rewards

One problem with recognising reviewing in raises, promotion and tenure is it is difficult to prove one's reviewing contributions. Existing systems rely on self-reports and are normally not institutionally recognised. Because the Kula system is independent of any specific reviewer, its report can be treated as more trustworthy. The Kula system provides an easy way to demonstrate one's review contributions. The number and variety of review rings one participates in is a proxy for how much reviewing one does.

### 5.4.3 | Implementable with existing technologies

The Kula system can be implemented with a relational database and a set of APIs, or as a blockchain-based system. Other than the security issues, there is nothing inherently technologically innovative about this proposed solution making it relatively straightforward to implement.

### 5.4.4 | Adaptable

Because no individual controls what the social construction of a Kula is, the meaning of various Kula will change across time. As new social norms emerge, Kula will adapt to express these new norms.

### 5.4.5 | Service expandable

The Kula system can be expanded to other forms of service. For example, Kula can be gifted for conference reviewing, or for offering to serve on SIG governance boards. Indeed, it would become trivial to demonstrate one was formerly in a leadership position if a tradition for handing leadership Kula from one leader to another was developed. Likewise, the Kula system can be adapted for use in the journals of other disciplines.

### 5.4.6 | Low cost of failure

The Kula system should be relatively straightforward to implement and the gifting of Kula does not involve money. Thus, if it fails, the impact on the information systems academy is relatively low.

## 5.5 | Weaknesses of the gift system

### 5.5.1 | Limited impact on review pressures

The principal way the Kula system addresses review pressures is to provide a reason for reviewers to review more- reviewers want to obtain and give away Kula. However, my initial analysis demonstrated the disparity between review resources and papers that need review was by an order of magnitude. The market-based system managed this disparity by adjusting both the supply and demand for reviews- a shortage of reviewers would raise the price of reviews, deterring authors from submission while simultaneously encouraging reviewers into the market. The Kula based system only partially increases the supply of reviews by encouraging reviewers to work more. It does not shape demand for reviews nor does it substantively improve the pool of reviewers since it works entirely on people within the information systems academy.

Furthermore, rather than disrupting the status quo, the Kula system reinforces it. With Kula, there is an expectation people review. In the market system, reviews are compensated for. The Kula system forces reviewers to work for Kula, effectively forcing reviewers to do more work to achieve the same outcome; promotion and tenure committees can simply add a Kula requirement to an already onerous list.

### 5.5.2 | Slow

The social construction of each review ring arises from the accumulated gifting of its members. It thus takes time for a review ring to become valuable. The problem we have with review shortages occurs now. The benefit from the review ring will occur in the future. Initial possessors of Kula are unlikely to see value in them. It is only when each Kula accumulates a rich history and has many attached messages that belonging to a review ring will become valuable (Zionkowski & Klekar, 2009).

### 5.5.3 | Will require substantial intervention initially

Kula function off ceremony and tradition. Thus, successful use of the Kula requires unnatural behavioural change. A certain percentage of Kula recipients must be encouraged to write messages. Possessors of Kula must be reminded to give their Kula away. Owners of Kula will need to coach possessors in these practices until they become ritualised in the information systems academy. I see this as the fundamental hurdle of the Kula- cultural change is difficult to initiate, but once successfully initiated, it can become self-sustaining.

### 5.5.4 | Can cause social disruption

Kula provide a mechanism for activism. Possessors can inscribe activist messages in Kula. Certain Kula may become associated with activist identity. I would note very little is required to subvert a symbol to become an activist symbol. Pepe the frog, for example, became a symbol of the alt-right despite the objections of its creator Matt Furie (Miller, 2016). Likewise, the Disney version of Winnie the Pooh has been used as a symbol for Xi Jinping causing various related films to be banned in China, and hurting Disney revenue (McDonell, 2017). Furthermore, because activism is a form of social identity, and the Kula system attempts to foster social identity, the Kula system provides no mechanism to suppress activist expressions deemed harmful to the information systems academy.

### 5.5.5 | Weak proxy for review performance

While the Kula system provides a proxy for review performance, it is an erroneous measure. It is possible for a reviewer to participate in dozens of review teams to never get a Kula- each time the Kula is simply awarded to another. Note that almost every indicator of academic performance carries substantial flaws.

### 5.5.6 | No mechanism to exclude undesirables

Membership in a review ring involves a reviewer receiving a Kula as a gift and then giving it away. Nothing about the membership criteria involves screening reviewers for (for example) a bad personality. As a result, there is no mechanism to sanction undesirable members once they are granted membership.

### 5.5.7 | Can cause bad reviewing

A reviewer who participates in a review team to obtain/give away a Kula does so for an extrinsic rather than intrinsic reason. This can introduce potential bias in the review. For example, someone seeking a specific Kula might write their review to please the Kula possessor. This is especially likely to occur after the first round of reviews. For example, the Kula possessor might feel a paper is worthy, and the reviewer desiring the Kula might feel otherwise. To please the Kula possessor, the reviewer writes a more positive review.

Similarly, if successfully adopted, reviewers may come to expect receiving Kula for a review. Indeed, situations could arise where reviewers refuse to review if the Kula available are not prestigious.

## 5.6 | Social impacts of the gift system

Beyond the strengths and weaknesses, the Kula system is likely to change the culture and practices of the information systems academy.

### 5.6.1 | Likely to reinforce the status quo

While I do not know how Kula will travel through the information systems academy review networks, I suspect most Kula will travel along existing social circles. Thus, review rings are likely to reinforce the status quo (Komter, 2005). Gifts "enchain" individuals, because gifts reinforce existing relationships (Zionkowski & Klekar, 2009). Certain

individuals will be able to join premier review rings, while others will be consigned to less prestigious review rings. Membership in review rings becomes transparent, and so, that particular individuals do not belong to prestigious review rings likely means editors of prominent journals will shy away from asking those people to review for them, perpetuating the social hierarchy.

Kula will also delay what I see as a necessary next step in the evolution of reviewing- the professionalization of reviewing. Promotion and tenure committees will likely require Kula as part of their decision making, in effect requiring academics to demonstrate their ability to do research-teaching-service. In other words, people will simply be forced to do more overtime. I argue the necessary next step of the academy is to separate research (authoring) and service (reviewing/editing).

### 5.6.2 | Creation of in-groups and out-groups

Social identity requires humans to be sorted into the in-group and out-group (Tajfel, 1981). The Kula system not only provides a mechanism for the assignment of social identity, but it also makes one's social identity transparent. Social groups with conflicting beliefs often engage in unproductive clashes to signal their belongingness to their social identities (Tajfel, 1981). It is possible review rings possessing Kula associated with incompatible beliefs will come into conflict, eventually creating wider social problems.

This is especially concerning given the information systems academy is a fragmented adhocracy (Banville & Landry, 1989). The links between disparate groups in information systems are tenuous and aggravating differences can encourage conflict in surprising ways. As an example, the Nika riots that nearly toppled the Roman emperor Justinian began because of rivalries between supporters of chariot racing teams (Bury, 1897).

### 5.6.3 | Emergence of transparent review promotion and tenure criteria

Because of the innately quantifiable nature of the Kula system, it is likely it will be added to existing promotion and tenure criteria. For promotion into a secure position (e.g., assistant professor to associate professor), a faculty member might need (for example), to belong to at least 60 review rings (i.e., 10 per year), of which 20 are "elite." This mirrors the common research criterion of six journal publications, two in premier journals.

It could be argued this would be a very classist and exploitative way of assessing promotion and tenure candidates- what separates an elite Kula from a less rare one is a socially constructed perception the elite Kula is more valuable. I would note existing methods of assessing candidates are similarly classist.

The emergence of these criteria will become self-reinforcing. Because candidates must obtain Kula, they will refuse to review when no Kula are offered. Senior editors and associate editors will create Kula when there are none to give. These Kula created under pressure will be less appealing, thereby creating a natural distinction between elite and not-elite Kula. Indeed, I foresee certain reviewers refusing to review for not-elite Kula.

The emergence of new review-based promotion and tenure criteria in turn will create social pressures on possessors of elite Kula to only award them based on certain criteria. For example, reviewers will be socially pressured to only award elite Kula to editors who in turn will select "deserving" reviewers to award the Kula to.

### 5.6.4 | Reviewers will request to review

The Kula system will motivate reviewers to review. Kula are only valuable when gifted, and they expire. To receive the rewards for a Kula a reviewer received on a previous review, the reviewer must review again, this time to gift the

Kula. Hence, reviewers will request to belong to reviews simply to gift their Kula away. They will be enchained to review by the system. In effect, reviewers will increase their overtime because the Kula system will force them to.

### 5.6.5 | New way of understanding IS research

It is remarkably difficult to understand information systems research as a social phenomenon. Scientometric data is very difficult to obtain and scientometricians of information systems often rely on crude measures like publication frequency (Chua et al., 2003) and citation analysis (Grover et al., 2006). Review rings provide an additional source of data. In essence, a review ring is like a tracking collar placed on a migratory animal and would allow for a different way to track networks of relationships in the information systems community. Kula networks are both amenable to quantitative (e.g., number of Kula and number of members in a ring) and qualitative analyses (e.g., analyses of Kula messages).

## 6 | CONCLUSION

In writing this opinion paper, I have attempted to bring multiple streams of understanding together to address the problem of managing reviews in the information systems academy. I first demonstrate that our present review system is unsustainable. We are already in a state where even if everyone is doing their fair share of reviewing, there are not enough hours to do it. The basic mathematics of reviewing means overtime is the only way reviewing can actually be done. We need to change our institutions so that the mathematics makes sense. This requires (1) increasing specialisation where some people are allowed to forego other academic tasks (e.g., teaching and research) to review and (2) a way of funding the review specialisation.

I next presented a number of alternatives suggested and tried in various disciplines. Many of us believe the rest of academia functions according to our rules. They do not, and because they have different rules, their ability to scale to meet review demand is different. For example, the major pure science and medical journals manage an order of magnitude more articles than we do. They scale because they have different notions of what an editor is (e.g., full-time, paid) and what reviews and acceptable review quality are.

Next, I outline two proposed review systems. For each, I worked through several of the policy mechanisms, something most other proposals have not done. In doing so, I outlined how any review system is going to have to deal with a number of issues, social, and otherwise. I begin with a seemingly cruel system- a market for reviews that will shut many of the economically disenfranchised from publishing. I then introduce a (on the surface) gentler system and highlight how by supporting the status quo, this system will enchain reviewers to spend more overtime to review.

I highlight how both these systems could disrupt the information systems academy. I do this for two reasons. First, these are genuine proposals to the information system academy, but second, I would suggest future proposals to the academy likewise similarly work through their mechanics. The devil, as they say, is in the details. The problem being tackled is a wicked problem and there are no good solutions (Rittel & Webber, 1984).

The point of my doing all this is to encourage an intelligent discussion of a very fundamental problem in our discipline. Our review system is strained, if not broken. We need real solutions to this problem. Real solutions are going to be complex and have real consequences. We need to explore these real solutions from a multidisciplinary perspective. Any solution will need to consider technical, social, cultural, economic, historical, legal, and other factors. No matter how we progress, we are going to hurt people and institutions. The question is fundamentally about choosing a solution that overall makes the information systems academy better off, deciding who will get hurt, and hopefully designing policies that reduce or ameliorate the pain.

One outstanding issue is whether I have correctly identified the problem. Is the problem about insufficient review resources to meet demand? Or is the problem about external institutions like national governments and

university promotion committees creating bad incentives such that too many people are submitting bad papers? I feel it is important for us to recognise the level of solution we can address- that of the information systems academy and to define problems so we can address them. The information systems academy cannot address how university or school level promotion committees choose to assess academics. It cannot change the minds of national decision makers. It can influence such decisions through, for example, lobbying, but it cannot directly change them. The information systems academy can determine how reviewers and authors at its journals are incentivised and acculturated. I argue that we cannot rail and fight against external forces but must be trees that bend with the wind.

Another issue is whether the solution can be solved in another way. If tomorrow, AI can review, relieving us of a great burden, so much the better. However, at present, all AI can do is pretend to review, and we need to think of solutions given what we can do now.

Regardless, I observe the information systems academy is uniquely positioned to address a problem of fundamental importance across all of academia. As a field drawing on the knowledge of multiple disciplinary fields, we can propose solutions other fields cannot. Solving this problem and offering solutions to other fields can potentially elevate recognition for our discipline.

However, solving this problem will require the field to grapple with the consequences. For example, one prominent consequence in both proposed solutions is the creation or strengthening of social class distinctions. The proposed market system would see a clear demarcation between the author and review class with the latter being associated with existing underclasses, notably PhD students, adjuncts, and those from impoverished institutions and the Global South. Those without access to wealth would be effectively barred from being authors rather than being (as they are now) severely disadvantaged. The proposed Kula system would create a new underclass- people who do not have access to prestigious Kula. It would also create service pressures on researchers to do reviews because it would make transparent review productivity.

The various proposed systems also create roles that many in our present social milieu would be uncomfortable with. For example, the proposed market system potentially allows for the review-scholar who is partly or wholly financially emancipated from the university. Because this person does not earn money from authoring or teaching, this person challenges our perception of what scholarship is. Is someone who is purely a reviewer or editor a scholar? Likewise, today, we accept people with many publications who do not do reviews to be scholars. This is because we have no way of measuring how many reviews someone does. However, with a Kula system in place, there is more transparency around how many reviews each member of the IS community does. Under a Kula system, will we accept the author non-reviewer as a scholar?

Regardless, a key issue being highlighted is the information systems academy can no longer be sustained based on efforts from selfless reviewers. Some level of professionalization is required, and reviewers need to be paid. The proposed market system pays reviewers in money. The Kula system pays them in status. An unanswered question is what is a fair price for reviews?

The two proposed systems also highlight two critical levers the IS academy must grapple with in deciding how it wants to reform reviewing, reviewers and authors. We must increase the supply of reviews. Do we want to decrease the number of submissions? From a purely economic perspective, the answer is yes, because the number of reviewers cannot match the number of submissions to review. However, from the broader perspective this undermines the concept of scholarship because under any system, many with worthwhile papers from various underclasses will cease to submit.

Also, one problem with new institutions is that while they close existing institutional gaps, they also create their own risks (Beck, 1992; Giddens, 1990). I have discussed some of the risks of the two proposed new institutions here. For example, one risk in both institutions is the danger and consequences of a single point of failure. In debating new institutions to address the reviewer shortage issue, the IS academy must be mindful of and discuss the emergent risks these institutions will create.

Finally, beyond identifying solutions for the reviewing problem, I would highlight one issue with addressing the problem is the lack of transparency in the review process at a disciplinary level. We have to guess at basic pieces of

information like the average acceptance rate, number of people who perform reviews, amount of work required per review, and so forth. This lack of transparency creates two problems. First, it hampers identifying workable solutions for the reviewer shortage problem, and second, it causes people to ascribe blame to individuals rather than to the review institution. Improving transparency in the review process will do much to allowing the information systems academy to better focus on meaningful solutions to what is a wicked problem.

## DATA AVAILABILITY STATEMENT

Data sharing not applicable to this article as no datasets were generated or analysed during the current study.

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## APPENDIX A

This section presents various alternative calculations demonstrating the information systems academy has a shortage of reviewers. I acknowledge the numbers employed are suspect but are the best available- procuring accurate metrics on the review process is quite difficult.

The calculations are presented for three purposes. First, they show readers how to estimate total review load. Readers are invited to employ the base calculations and substitute numbers they believe to be accurate. Second, each number is cited. All numbers are from other expert sources, so any dispute on the accuracy of the numbers should be taken with the cited source. Finally, when taken with other evidence presented in the paper, the calculations are incremental evidence demonstrating we have a review shortage.

### A.1. | Supply and demand for reviews in the information systems academy

The review process is extremely labour intensive. Within the information systems academy, a paper is typically handled by a senior editor, an associate editor, and two or more reviewers (Weber, 2002). Each individual spends considerable time processing the paper, typically between five to 6 h per review (Aczel et al., 2021; Publons, 2018; Ware & Mabe, 2012). This is a conservative estimate. Various authors have suggested eight or more hours per review (Ware, 2008; Weber, 2002)[4] to an hour per page (Jeffε, 2010) as more reasonable.

The typical academic is expected to spend 20% of their time on service. The typical work year is at most 2080 h (40 hours per week × 52 weeks), and 416 h are thus supposed to be dedicated to service. If we assume 1/4 of that time is for journal reviewing (1/2 of the time for in-university service, and 1/2 of the remaining time for other external services like conference reviewing), the average academic should be devoting 104 h to journal reviewing or about 20 (104/5 h per review) papers a year. The literature argues most reviewers review 4–5 papers a year (Aczel et al., 2021; Dance, 2023) and are reluctant to do more than 8 (Ware, 2008).

The number 2080 is a maximum, because one must take into account annual leave. Weber (2002) used 4 weeks annual leave as his basis of calculation. However, Weber's work experience was principally Australian and annual leave varies widely by jurisdiction. Americans, for example, take an average of 7.6 days of annual leave per year including public holidays (Mulroy, 2023). I thus do not include leave in the calculations above. Note this means if the numbers demonstrate a review shortage, this shortage is exacerbated by annual leave.

The AIS comprises approximately 5000 members.[5] At four people per article, times 20 papers, the information systems academy can realistically process at most 25 000 submissions per year.[6] This assumes everyone does their "fair share." Gupta (2017) highlighted that submission rates to journals were generally increasing and expected Information Systems Research to have 450 submissions per year by 2017. Assuming this level for every journal, the information systems academy can support the existence of 55 journals[7] before completely exhausting the review pool. The Australian Business Deans' Council list of journals suggests there are 180 information systems journals (Australian Business Deans' Council, 2022), and the Chartered Association of Business Schools (ABS) list suggests there are 100 such journals (Schools, 2021). In other words, the information systems academy needs between 1.8 and 3.2 times the available resources to reasonably satisfy its own demands for review.[8]

I would emphasise the robustness of the underlying equations to variations in assumptions. By employing different numbers, we can observe to what extent numeric assumptions change our conclusions. For example, If we assume only 50% of IS scholars join the AIS, and therefore the population of IS academics is 10 000 individuals, the information systems academy would be able to process 50 000 submissions. At this point, the academy could handle 111 journals, somewhere in between the number as defined by the ABS and ABDC lists. Please note the assumption here is everyone is doing their fair share. Empirically, a fraction of any research academy does the bulk of reviewing (Ware, 2008), which suggests there would still be a resource constraint with the ABS list.

If we assume every paper is desk rejected by a senior editor/associate editor pair, the number of people per article drops to two and the academy can therefore process 50 000 submissions thus producing a result similar to doubling the size of the information systems academy (i.e., 111 journals). This implies an overwhelming number of desk rejections would be required to maintain 100 journals. Note this is desk rejections across all journals, not just premier journals.

To estimate the percentage of desk rejections, I set the demand for reviews as

$$450\,\text{submissions/journal} \times 100\,\text{journals}\,[10p + 20(1-p)].$$

[4]Ware reports a median of 5 h and a mean of nine (Ware, 2008; Ware & Mabe, 2012).
[5]4895 members in 2021 (Chau, 2021), the last year for which statistics are available.
[6]5000 members/4 members per submission = 1250 review team units. 1250 review team units × 20 reviews per year = a supply of 25 000 review teams.
[7]25 000 review team supply/450 demand per journal = 55.56 journal demand fulfilled.
[8]100 journals/55.56 = 1.80. 180 journals/55.56 = 3.24.

where $p$ is the probability of a desk rejection; 10 means a senior editor and an associate editor each spend 5 h reviewing; 20 is a senior editor, associate editor and two reviewers each spending 5 h reviewing.

The supply of reviews is

$$5000\,\text{AIS members} \times 104\,\text{h to review}.$$

Equating the two together suggests 84.4% of papers are desk rejected across all 100 information systems journals in the ABS list, not just the Basket of 11. Note this does not take into account papers that are accepted, which take considerably longer to review, given they often go through multiple rounds of revision. It does not seem healthy that to support 100 journals, the "average" information systems journal would need to reject over 80% of articles before they even reach the hands of reviewers.[9]

### A.2. | Supply and demand for editorial work

To further illustrate the problem, I perform an analysis of the demand for editorial work versus the supply of editorial work hours. Editorial work is a subset of review work. If I can show the demand for editorial work exceeds the supply, this would demonstrate the brokenness of the review system.

Table A1 presents the number of individuals identified in an editorial capacity according to the websites of the Senior Scholar Basket of 11 journals. I argue the number of journal editorial positions is a proxy for editorial work at a journal. Journals have more editorial positions because they handle more papers. Editorial positions are arguably prestige appointments and journals employ these appointments to award individuals with prestige. However, prestige is only valuable when it is scarce, and when journals have 50–100 editorial positions, as most journals in the list have, the prestige value of the position is significantly diminished.

As a proxy for work, it is not important whether one person fills two separate editorial positions or two people fill those separate positions. The same amount of work is performed. It is just if one person fills both positions, that person does twice the amount of work.

This list only considers "active" members of an editorial panel and excludes managing editors and emeriti. These numbers were obtained by personally reviewing the websites of each journal on January 2, 2024.

Our journals are reasonably isomorphic (DiMaggio, 1988; DiMaggio & Powell, 1983). However, some variation arises in the roles and titles given to various editorial positions. In Table A1 editor(s) in chief refers to individuals who are in overall control of editorial policy. Senior editor refers to individuals who are directly subordinate to editors in chiefs who evaluate articles for quality. Associate editor refers to those subordinate to the senior editor. Finally, editorial boards comprise named individuals who are otherwise involved in quality evaluation. Examples of editorial boards are boards with titles like "editorial advisory board" or "editorial review board." Positions that concern administrative processing (e.g., managing editor) or honorary positions (e.g., emeritus editor) are excluded from the list. "NA" means "not applicable" that is, the journal does not appear to have an equivalent body.

First, many of these 11 journals require more than 50–100 editors that is, a greater labour force than most small businesses, to perform functions. One example is MIS Quarterly, which had only one editor until 1994, when two editorship positions were created (Rai, 2016). MIS Quarterly now has 30 people in senior editorship positions. In 30 years, the number of senior editors at the journal has doubled 4 times. While not a conclusive indicator of faults in our review process, I would argue this fact adds to the preponderance of evidence for the broken state of the review institution- the thesis of this appendix. Second, the Senior Scholar Basket of 11 journals has 1134 editorial positions in total. If one only considers the positions of editor-in-chief, senior editor, and associate editor, it has 752

[9]I am aware desk rejections are focused on ensuring timely publication of quality articles and are not intended as a labour saving device by journals. Nevertheless, one effect of desk rejections is to reduce total reviewer workload.

positions. Again, the information systems academy has roughly 5000 members. Eleven journals therefore consume 22.6% of the information systems academy to staff "leadership" positions, or if only editors-in-chief, senior editors, and associate editors are considered, 15% of the academy. If we consider the entire corpus of information systems journals (between 100 and 180 journals), assuming they have similar editorial structures, bodies are insufficient to fill editorial, much less review positions for every journal without people needing to fill multiple roles. If number of editorial positions is a proxy for amount of editorial work, to staff 100 journals (per the ABS list), each member of the information systems academy would have to be an editor of 6.7 journals. At 104 h total review time, each editor would therefore be able to devote 17.3 h to each journal that is, less than half of one work week, before going into overtime. In terms of papers, editors would be able to handle at most 3.5 papers for each journal they work for before going into overtime. It is reasonable to assume editors handle more than four papers for each journal they work for. The implication here is everyone spends more than their allocated time doing editorial work, leaving no or negative time to do review work. Again, the analysis is robust to the numbers. The number 5000 means every AIS member is drafted into editorial work, whether that member be a PhD student, person presenting at ICIS (AIS membership comes with conference payment), or other. If we assume the information systems academy is double the size of the AIS, and every member of the academy participates in editorial work, each editor is able to devote about 35 h (less than one work week) to each journal or about seven papers. In perspective, this is less than one paper a month. I would argue any reasonable calculation of work done on information systems reviewing would overwhelmingly indicate our review system is strained if not already broken.

### A.3. | Financial implications

An argument might be made that if the review system was so strained, we would observe the effects. I would suggest we do. The strain is manifested in phenomena that are observed, but are not systematically measured. IS academics refuse to review, turn in reviews late, and ghost editors (Mooreside, 2020).

In other words, hidden behaviours must be occurring. The calculations suggest to keep the review process working, desk rejections must be typical and unpaid overtime is routine.

What is the dollar value of the strain on the IS academy? Weber (2002) estimated the total cost of reviewing in 2001 at MIS Quarterly was USD 490000 based on 236 submissions.[10] This was roughly USD 2076.27 per article. Given 450 submissions, the total cost for MIS Quarterly in today's money is USD 1.6 million.[11] Assuming 100 information systems journals per the ABS list, the total cost of reviewing in the information systems academy is at least USD 160 million.

This cost is accrued wholly by the editors and reviewers of our journals in unpaid labour. Arguably, the 20% time allocated for service by university salaries pays for this cost. However, as noted in Section 2.1, these allocated funds pay for, at best, the review of 55 of 100 journals. Thus, at least USD 72 million worth of reviewing cost (the remaining 45 journals) is effectively absorbed by the combined pool of editors and reviewers.

Worse, this cost then causes reviewers to exit from the review market. Reviewing is the second-most frequent activity academics give up when they feel overworked. The first activity is conference attendance (Forrester, 2023).

[10]Weber reported on average 236 submissions to MIS Quarterly per year. Each paper had five members of a review team (senior editor, associate editor, three reviewers). Weber estimated each member to take 1 day to review. Weber concluded this equals 4.91 person-years of effort. At USD 100000 per year of effort (Weber's salary estimate), this equalled USD 490000 worth of reviewing per year.

[11]2076.27 × 450 results in 934322.03. This was plugged into the CPI calculator at https://www.bls.gov/data/inflation_calculator.htm as of January 2002 to produce the value for November 2023, which as of this writing is the last date the CPI calculator can handle.

**TABLE A1** Number of people in editorial roles.

| Journal | # Editors in chief | # Senior editors | # Associate editors | Editorial board |
|---|---|---|---|---|
| Decision Support Systems | 2 | 34 | 77 | 16 |
| European Journal of Information Systems | 1 + 1[a] | 18 | 40 | NA |
| Information & Management | 1 | 2 | 106 | 55 |
| Information & Organization | 1 | 22 | 24 | 22 |
| Information Systems Journal | 1 | 25 | 46 | 33 |
| Information Systems Research | 1 | 37 | 44 | 75 |
| Journal of Information Technology | 2 + 3[a] | 23 | 27 | 28 |
| Journal of Management Information Systems | 1 | 69 | | NA |
| Journal of Strategic Information Systems | 1 | 9 | | 42 + 31 + 39[b] |
| Journal of the Association for Information Systems | 1 | 44 | 20 | 41 |
| MIS Quarterly | 1 | 29 | 39 | NA |
| Total | 17 | 312 | 423 | 382 |

[a]At the time of data collection, the journal had both an editor-in-chief position and a sub-editor-in-chief position.
[b]At the time of writing, the journal has an editorial board, an early career editorial board and an honorary editorial board.