EDITORIAL

Critically studying openness: A way forward

1 | INTRODUCTION

The goal of this special issue on "Critical perspectives on information systems and openness: Emerging discourses, meanings, models, and implications" is to advance a critical debate in Information Systems research on the theme of openness. Research in information systems on openness has focused on the nature of technology and how openness contributes to the development of new opportunities for technological and institutional enhancements even as it introduces various limitations. However, more often than not, we take for granted the positive potential of openness guided by a market-driven focus, which tends to marginalize potential distortions understood through interpretive, critical, and contextualized social theoretical positions. The aim of this special issue is to move beyond positivist and functionalist approaches, which merely promote rhetoric and hype, and critically and interpretively explore and explain the nature of openness and its enabling and constraining role in our pursuit for technological and institutional innovations. The aim of this special issue is thus to offer a venue for the critical study of the phenomenon of openness and its impact on people, organizations, and societies.

The promises of openness are many, including its economic potential to generate innovations contributing to new industries, enhance transparency, accountability, and democratic processes of citizen participation in governance. Another oft discussed promise of openness concerns raising the accountability and transparency of State processes leading to more evolved democracy. Openness is not a monolithic concept, but is associated with various paradigms and practices which keeps our understanding of the phenomenon in flux, constantly being negotiated and contested, and influencing meanings of core associated concepts of communities and participation.

Openness can potentially give rise to many paradoxes. For example, generating innovations may require openness for collaboration among industrial actors, while the commercialization of the innovation may raise the contrary need to enhance protection by limiting openness. Open international production may weaken local economies and domestic jobs, but at the same time potentially improve the export performance of a country. While open education may significantly empower students at the fringes of society, it may also reconfigure educational institutions to adopt market-driven strategies that arguably could undermine traditional educational values. Furthermore, while open government data is critical for transparency and accountability, it may strike back on a failing regime.

Openness has various dimensions, such as relating to global public goods, software, data, standards, infrastructure, governance processes, content, access, and various others. These dimensions will have different implications in varying domains, for example, transparency may be of primary interest in discussing government processes, while open public facing data is most important in discussing response to public health epidemics. These different dimensions of openness may interact and create effects that can both create synergy in certain settings, yet also may undermine each other in other settings. For example, in the quest for enhancing open data, we may lose attention to the software aspect, and could justify the use of proprietary rather than open software. The increasing attention on open publishing has given rise to large numbers of open journals, with both positive and negative implications for academia and research.

Our summary of the concept of openness emphasizes a number of issues. Firstly, it means different things to different stakeholder groups, and these meanings are situated, contested, negotiated, and evolving. Secondly,

openness has multiple dimensions and domains spanning technical, social, and institutional arenas. Thirdly, different dimensions will have varying degrees of relevance and salience in different settings. Fourthly, there will always be interaction effects between these aspects of openness with indeterminate implications.

Given this richness and relatively unexplored understanding of openness, recent years have witnessed a heightened research interest around this phenomenon, with various publications, special issues, seminars, PhD theses, and research projects emerging. For example, the IFIP Working Group 2.13 on Open Software was established in 2006, and the AIS Special Interest Group on Open Research and Practice in 2014. The European Conference for Information Systems (ECIS) has, since 2013, had a particular track on "Openness and IT," and included publications on, eg, how openness have implications on software products and development. Examples of special issues on the topic of openness include: von Krogh and von Hippel (2003) and Crowston and Wade (2010) on open source software development; Whelan, Conboy, Crowston, Morgan, and Rossi (2014) on open innovation; and Schlagwein, Conboy, Feller, Leimeister, and Morgan (2017) on the relation between openness and IT. Prominent works on openness include the work of Castells (1996) on the role of access to information and communication technologies, Chesbrough (2006) on open innovation, and Benkler (2006) on open networks.

The aim of this special issue is to add to this body of research by *critically discussing* different facets of open and openness, whether they represent hype or reality or both; what promises they hold for creating a better world; and what are the challenges and approaches we face in achieving the promised potential. The three papers contained in this special issue contribute to this based on their perspectives positioned within the critical stream of Information Systems research. Drawing on social theoretical ideas that explicitly adopt a critical and conceptual focus on openness, they all debate and contest the very nature of openness itself, through bringing out both positive and negative facets of the phenomenon and their underlying reasons.

The first paper in this special issue discusses data sharing in the global genetics domain and conceptualizes how to facilitate openness by curbing exclusion and subtractability. On the basis of an analysis of existing information systems research on openness, the second paper questions what the authors see as a dominant techno-centric perspective and suggest a critical narrative approach to unveil and challenge current assumptions. The third paper explores ethical issues related to crowdsourcing and discusses how to establish relevant norms related to this. We elaborate further on these three papers in the next section.

2 | OVERVIEW OF THE PAPERS INCLUDED IN THIS ISSUE

In the first paper, "Enabling openness of valuable information resources: Curbing data subtractability and exclusion," Vassilakopoulou, Skorve, and Aanestad (2018) investigate the openness of data in the global genetics domain. On the basis of a longitudinal study of infrastructures and how data related to two genes influencing women's susceptibility to breast and ovarian cancer are generated, used, and made valuable; they unveil tensions in the genetic data governance area by illustrating conflicting approaches to data sharing.

Distributed among multiple different actors (public and private), genetics data are developed based on processing patient samples in laboratories, samples that are stored in local repositories. Assessing genetic variants is challenging and labour intensive, and to resolve differences in interpretations and avoid work duplication, it is vital to share assessments. Still, communal repositories only have a fraction of the data from the laboratories, and most of the data is stored locally. This is a domain where openness and sharing of data potentially has a societal significance and where information systems research can contribute and produce socially desirable consequences.

With their critical stance and action orientation, Vassilakopoulou et al. (2018) aim to improve our understanding of impediments to global sharing of data as well as identifying and suggesting concrete approaches for moving towards increased openness and more equitable data arrangements. They base their analysis and discussion on a utility perspective of data as nonmaterial "goods," and discuss the openness of data in terms of their attributes of exclusion and subtractability to develop a critique of what they see as the predominant sharing practices. They

illustrate that for nonmaterial goods, exclusion and subtractability are not necessarily given, but are constructed by the involved actors and technologically contingent. While it is challenging to mandate openness, they suggest that it can be pursued based on dispositional and facilitative power to curb exclusion and subtractability through interventions such as data sourcing, quality assurance, and crediting contributors.

In the second paper, "A critical narrative approach to openness: The impact of open development on structural transformation," Bentley, Chib, and Poveda (2018) challenge the existing perspectives on openness in information systems research by questioning what they see as a primary focus on efficiency in open production, open distribution, and open consumption. From a critical standpoint, they argue that these perspectives are technocentric and based on economic liberalism and producing narratives of hypothetical outcomes and at the same time marginalizing alternative perspectives focusing on structural transformations. Their aim is to challenge what they see as the dominant thinking around openness as a straightforward, logical and continuous process. They argue that open discursive formations should be critically analysed and suggest a critical narrative approach to identify both the empowering and disempowering effects of openness and how actors are intentionally shaping the concept of openness in theory and practice.

On the basis of the ideas of Foucault (1980) and Bruner (1986, 1991) and the examination of 20 studies of open development, they establish and discuss a novel critical narrative approach to improve our understanding of openness. They introduce open development as a subset of the field of Information and Communication Technologies for Development (ICTD), and as a field concerned with the transformative nature of openness in developing countries. This area of research and practice is in particular related to openness in terms of protecting and empowering the poor and marginalized. They show the increasing debate and interest as to whether or not open initiatives are contributing positively to human development, whether it be to deliver services, change institutional structures, or to empower beneficiaries. A striking finding, however, is that the articles rarely discuss their contributions in terms of capability and accountability outcomes of open initiatives. While there is a potential of openness to change social and economic structures, information systems researchers seem to ignore radical transformations in their discourses.

Bentley et al. (2018) contribute by developing a perspective based on Foucault's epistemological concerns related to the production of knowledge and Bruner's narrative concepts to unveil how researchers have challenged and confirmed the existing meaning of openness in information systems research. This critical theory brings discourses, structure, and power within open information systems together. They show how their analytical techniques can be used to unpack structural transformation and power by focusing on the interaction between individuals, open artefacts, and open social praxis. Through narrative analysis, information systems researchers may gain a clearer understanding of the limitations and constraints of their thinking on openness.

In the third paper, "Ethical norms and issues in crowdsourcing practices: A Habermasian analysis," Schlagwein, Cecez-Kecmanovic, and Hanckel (2018) explore the ethics in crowdsourcing practices. They motivate their research based on the increasing significance of the crowdsourcing work practice and its competition with more traditional and established practices. The basis of crowdsourcing is crowds of workers making themselves available to work for requesters through IT platforms. They further review the literature and point to the dichotomy between those pointing to how crowdsourcing undermines workers' rights and workplace regulations, and those lauding this practice for increasing workers' autonomy, improving access to job markets. They further show how the ethics of crowdsourcing is more or less absent from prior information systems research.

On the basis of a longitudinal case study of three different crowdsourcing communities, they explore ethical issues and the nature of emerging ethical norms in this field, and discuss how such norms can potentially be established. On the basis of an analysis of empirical data, they identify five major ethical themes related to crowdsourcing, including payment fairness; openness, transparency, and social feedback; meritocracy; autonomy; and boundaries and institutions of crowdsourcing. To support this analysis of a context with diverse values and social norms, they use Habermasian discourse ethics. This approach is process-based and founded on shared values and the assumption that valid ethical norms develop through communication.

Schlagwein et al. (2018) contribute with a rich case study illustrating ethical concerns, and provide normative considerations of how ethical concerns can be identified, discussed, and resolved using the principles of discourse ethics. They further contribute by improving our understanding of ethical issues within crowdsourcing work practices and they suggest normative ethical guidelines on how to address current and future ethical issues.

3 | CRITICALLY STUDYING OPENNESS: A WAY FORWARD

The papers included in this special issue provide an exemplar of the different kinds of openness we are engaged with in contemporary society, the multiple approaches possible for its analysis, and the varying implications, both positive and negative, that emerge. Going forward, we believe it would be relevant to work towards a broader and more normative frame to analyse openness and its implications.

One possible approach to build such a frame, we can find in the writings around Global Public Goods (GPG). GPGs can include institutions, mechanisms, and outcomes that provide quasi universal benefits, covering more than one group of countries, several population groups, and extending to both current and future generations (Kaul, Grunberg, & Stern, 1999). An archetypical example of a "pure" public good are traffic lights. Imagine a busy marketplace where there are many people, traffic, shops, with people moving around to do shopping. Without traffic lights, people and transport would be stuck in gridlock traffic or unable to cross busy streets with the potential for serious accidents. The provision of traffic lights then helps to benefit the public at large. Traffic lights, seen as a public good, satisfy two key criteria. First, they are marked by a high degree of publicness, and are characterized by non-rivalry and non-exclusivity. One person's consumption or use of the traffic lights does not rival the use of the same by another. If one person crosses the street using the traffic lights, then it does not detract from the utility of the lights to other persons. Also, it will be uneconomical and infeasible to restrict the use of the traffic lights exclusively to just one person, making its benefits non-excludable, or if technically excludable, only at completely prohibitive costs. Second, the benefits are quasi universal across groups of people, social groups, places, and also generations. One group or country's enjoyment of such a GPG does not affect (or reduce) its enjoyment by others, and others cannot be excluded from sharing its benefits (Samuelson, 1954). As more people obey the rules encapsulated in traffic lights, its benefits to each individual grows. Frequent use indicates broad public acceptance of the light's role in regulating traffic flows. The lights, their shared meaning, their use, and the behavioural expectations they entail, together, constitute a public good.

We argue that discussions on openness could benefit by being assessed against the normative frame of GPGs and how they contribute to building characteristics of non-rivalry and non-exclusivity. Domains of health care provision, management of environmental resources, provision of education, issues of social security and climate change, all represent public goods which need to imbibe characteristics of non-rivalry and non-exclusivity. Policies, infrastructure, software and data can then be conceptualized as "access goods" which should enable achieving these universal aims of GPGs and shape their implications on openness. Understanding this relationship between access goods and GPGs then becomes an important aspect of our analysis. For example, the way in which open software or open data enables the access of the public to information on epidemics becomes an important focus of analysis. This relationship is not unproblematic and will always be fraught with challenges. Examples abound of market failures as governments try to privatize public goods of education and public health. As Sahay (2019) described, there will always be "distortions" in achieving the GPG ideals of non-rivalry and non-exclusivity. This is similar to Habermas's Ideal Speech Situation (ISS) as a condition for representative democracy. Because of inherent asymmetries existing in society, arising from wealth, gender, power, and various other imbalances, the ISS will always remain an ideal, impossible to achieve in practice. However, the notion of the ISS becomes an important analytical frame to understand what distortions exist, and what measures can be taken to move towards this normative goal. Sahay (ibid) has used this frame to analyse the case of the DHIS2 (District Health Information Software Version 2) platform, being promoted and supported by various global partners as a GPG to enable more equitable and effective provision of public health services

in developing countries. He has then analysed various distortions in the form of "policy-practice gaps" in the form of knowledge, governance, procurement, capacity, and finance. Building strategies to address these gaps then can help provide a road map on how to progress in meeting the normative goals of openness.

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REFERENCES

Benkler, Y. (2006). *The wealth of networks: How social production transforms markets and freedom*. New Haven and London: Yale University Press.

Bentley, C. M., Chib, A., & Poveda, S. (2018). A critical narrative approach to openness: The impact of open development on structural transformation. *Information Systems Journal*, https://doi.org/10.1111/isj.12226

Bruner, J. (1986). *Actual minds, possible worlds*. Cambridge, MA: Harvard University Press.

Bruner, J. (1991). The narrative construction of reality. *Critical Inquiry*, 18(1), 1–21. https://doi.org/10.1086/448619

Castells, M. (1996). *The rise of the network society. The information age: Economy, society, and culture*. London: Blackwell.

Chesbrough, H. W. (2006). *Open innovation: The new imperative for creating and profiting from technology*. Boston: Harvard business press.

Crowston, K., & Wade, M. (2010). Introduction to JAIS special issue on empirical research on free/libre open source software. *Journal of the Association for Information Systems*, 11(11), i–v. https://doi.org/10.17705/1jais.00246

Foucault, M. (1980). *Power/knowledge: Selected interviews and other writings, 1972–1977*. C. Gordon (Ed.) & Trans. New York, NY: Vintage Books.

Kaul, I., Grunberg, I., & Stern, M. (1999). *Global public goods: International cooperation in the 21st century*. New York: Oxford University Press. https://doi.org/10.1093/0195130529.001.0001

Sahay, S. (2019). Free and open source software as global public goods?: What are the distortions and how do we address them? *Electronic Journal of Information Systems in Developing Countries*, Accepted for publication.

Samuelson, P. A. (1954). The Pure Theory of Public Expenditure. *The Review of Economics and Statistics*, 36(4), 387–389. https://doi.org/10.2307/1925895

Schlagwein, D., Cecez-Kecmanovic, D., & Hanckel, B. (2018). Ethical norms and issues in crowdsourcing practices: A Habermasian analysis. *Information Systems Journal*, https://doi.org/10.1111/isj.12227.

Schlagwein, D., Conboy, K., Feller, J., Leimeister, J. M., & Morgan, L. (2017). "Openness" with and without Information Technology: A framework and a brief history. *Journal of Information Technology*, 32(4), 297–305. https://doi.org/10.1057/s41265-017-0049-3

Vassilakopoulou, P., Skorve, E., & Aanestad, M. (2018). Enabling openness of valuable information resources: Curbing data subtractability and exclusion. *Information Systems Journal*, https://doi.org/10.1111/isj.12191

von Krogh, G., & von Hippel, E. (2003). Special issue on open source software development. *Research Policy*, 32(7), 1149–1157. https://doi.org/10.1016/S0048-7333(03)00054-4

Whelan, E., Conboy, K., Crowston, K., Morgan, L., & Rossi, M. (2014). The role of information systems in enabling open innovation. *Journal of the Association for Information Systems*, 15(11), XX–XXX.