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Conceptualising Knowledge Governance for Development

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Abstract
Through examining conceptions of the interface between development and knowledge, and conceptions of the notion of knowledge governance, this article provides a conceptual framing for the items published in this *AJIC* "knowledge governance for development" thematic issue.

Keywords
knowledge governance, development, sustainable development, intellectual property (IP), access to knowledge (A2K), human security, human rights

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1. Introduction

The decision by *The African Journal of Information and Communication (AJIC*) to publish a series of thematic issues (this being the first) on the theme "knowledge governance for development" has its roots in the evolution of both the conceptual terrain and the journal itself.

As we have stated previously (Armstrong & Schonwetter, 2015), one of the most significant dimensions of the African information and communication ecosystem is the conceptual and practical paradigm known as "access to knowledge" or "A2K". Emergent at global level in the late 1990s and early 2000s, the A2K construct is focused on identifying pro-development approaches to intellectual property (IP) that enhance access dimensions. *AJIC* has to date produced three thematic issues with an A2K orientation: in 2006, 2009/2010 and 2015.

For the 2006 and 2009/2010 A2K-oriented *AJIC* thematic issues, the IP focus was on copyrights. The 2006 "Special Issue on Intellectual Property Rights and Creating an African Digital Information Commons" – published when *AJIC* was still called *The Southern African Journal of Information and Communication (SAJIC)* – carried articles on copyright term extension; fair use versus fair dealing; technological protection measures (TPMs); the first sale doctrine; Creative Commons licensing; the piracy narrative; and model language for exceptions and limitations (*SAJIC*, 2006). The 2009/2010 thematic issue, on "Scholarly Communication and Opening Access to Knowledge", included items on open access publishing; research "productivity-visibility-accessibility"; access to learning materials; the digital divide between universities; and publishing of IP from publicly funded research (*AJIC*, 2010).

AJIC's third A2K-oriented thematic issue, in 2015, had a broader focus in respect of IP. Entitled "African Intersections between Intellectual Property Rights and Knowledge Access", the issue included articles on farmer access to patented plant materials; strategic patenting in relation to life-saving drugs; the human rights dimension in IP policymaking; knowledge appropriation by micro and small enterprises (MSEs); technological absorption by MSEs; licensing of government open data portals; filmmaker rights to use of excerpts from copyrighted works; graffiti and copyright; and open licensing of scholarly and educational materials (*AJIC*, 2015). Not only were both patents and copyrights dealt with; there was also engagement in this thematic issue with informal modes of knowledge appropriation and distribution.

The diverse range of submissions received for the 2015 thematic issue prompted *AJIC* to consider whether a wider frame could be found for future thematic issues, i.e., a frame that would still have A2K and IP matters at or near its core, but that would, simultaneously, provide space for contributions shedding light on knowledge dynamics not necessarily intimately linked to formalised IP or to the concerns of the A2K movement. The theme *AJIC* decided upon was "knowledge governance for

development", and this current issue is the first output based on that theme.

But, one might ask, what are *AJIC*'s conceptions of "knowledge governance" and "development", and the fusion "knowledge governance for development"? This is a fair question. Our response, as the editors responsible for this and future *AJIC* issues on the knowledge governance for development theme, is that while our conceptions of "development" are relatively well-formed, our understanding of "knowledge governance" is less settled. The notion of knowledge governance does not have a long conceptual history, and thus its conceptualisations are still formative. Indeed, we regard the fluidity of this conceptual terrain as one of its strengths, as it offers many opportunities for conceptual innovation and expansion.

In Section 2, we provide an indication of how we conceptualise knowledge from a developmental orientation, and we also give a sense of what we regard as the current conceptual terrain in respect of knowledge governance. In Section 3, we introduce the 10 items that follow in this thematic issue.

2. The fluid knowledge governance for development terrain

Developmental conceptions of knowledge

In our previous contribution to *AJIC* (Armstrong & Schonwetter, 2015), we expressed our view that matters of socio-economic development in Africa and elsewhere in the developing world are central to A2K conceptualisations of IP. But at the same time we also acknowledged the malleability of the concept of development in IP debates:

> [t]he *development* conceptual frame is central to the push for better-balanced, more equitable international IP norms and policies. It is also a highly contentious frame, because proponents of TRIPS-style strong IP rights also typically see their approach as pro-development, […] (Armstrong & Schonwetter, 2015, p. 9, italics in original)

We cited the work of Correa (2000), Drahos and Braithwaite (2002), and Sell (2003) as providing persuasive critiques of the damaging elements of the WTO Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement regime for the progress of developing nations. In the words of Sell (2003), "[t]he industrialized countries built much of their economic prowess by appropriating others' intellectual property; with TRIPS, this option is foreclosed for later industrializers" (Sell, 2003, p. 9). Also informing our developmental conception of knowledge is the report of the UK Commission on Intellectual Property Rights (CIPR), which persuasively argued in 2002 that development had yet "to be integrated into the making of IP rules and practice" (CIPR, 2002, p. 8).

An early sign that the developmental conception of how knowledge should be

governed was gaining official momentum came in late 2001, when the Fourth WTO Ministerial Conference adopted the Doha Declaration on the TRIPS Agreement and Public Health (WTO, 2001) aimed at ensuring that the TRIPS dispensation did not threaten poor countries' access to essential drugs. Then in 2004, the governments of Brazil and Argentina tabled a proposal in the World Intellectual Property Organisation (WIPO) General Assembly for a WIPO "development agenda" (WIPO General Assembly, 2004), and A2K activists from civil society activists and academia issued the Geneva Declaration on the Future of WIPO (Geneva Declaration, 2004). In 2007, the WIPO General Assembly adopted an official Development Agenda (WIPO General Assembly, 2007), with implementation of the Agenda's 45 recommendations to be overseen by a permanent WIPO Committee on Development and Intellectual Property (CDIP). CDIP first sat in 2008. In attendance were representatives from roughly 100 WIPO Member States, as well as numerous NGOs and inter-governmental bodies (Armstrong & Schonwetter, 2015; De Beer, 2009).

In the academic sphere, as we pointed out in our 2015 article (Armstrong & Schonwetter, 2015), a key set of recent conceptualisations of the developmental dimensions of knowledge are contained in the Cimoli, Dosi, Maskus, Okediji, Reichman and Stiglitz edited 2014 volume, *Intellectual Property Rights: Legal and Economic Challenges for Development*. In their concluding chapter, Cimoli et al. (2014) forcefully review the ways in which "the historically unprecedented international harmonization of IPRs, 'upward' […] is harmful for the development process in general and for developing countries in particular" (Cimoli et al., 2014, p. 508). Cimoli et al. write that for developing countries, the international IPR regime

> not only fails to enhance the process of accumulating technological capabilities by domestic firms – which is at the core of the development process […] – it also hinders learning by putting serious limits on access to knowledge (and thus presents impediments to closing the knowledge gap) so essential if firms in developing countries are to catch up with the more technically advanced countries. (Cimoli et al., 2014, p. 508)

Accordingly, Cimoli et al. (2014) put forward a wide range of policy proposals for consideration by both rich and poor countries, and by international norm-setting bodies, to make IPR regimes help, rather than hinder, developing countries. Cimoli et al. (2014) make clear the interdependence of the developed and developing worlds in respect of knowledge and innovation flows, because "all innovations build on previous innovations, and by making the fruits of existing innovations less accessible, the progress of science and technology may be inhibited" (Cimoli et al., 2014, p. 503). Cimoli et al. (2014) also make clear the centrality of knowledge, and of developed/developing-world interdependence,

to "global public goods", using the example of the fight against climate change. They write that

> concerns about having to pay large rents to developed countries that control access to emission-reducing technologies is one important impediment to reaching a global climate accord. At the same time, without some incentives to undertake risky innovation, there may be fewer emission-reducing technologies available. (Cimoli et al., 2014, p. 504)

In the same vein, Cimoli et al. (2014) persuasively argue for recognition that rich and poor countries have an interdependent "humanitarian interest in avoiding unnecessary suffering" by ensuring access to, inter alia, essential medicines and seeds for agricultural production, and, accordingly there is an interdependent developed/developing-country interest in ensuring an international IP regime that facilitates "both innovation and access, without imposing unnecessary impediments, as the current system does" (2014, p. 504).

We agree with Cimoli et al.'s (2014) conceptions of the developmental dimensions of knowledge, including the manner in which their conceptions provide for consideration of matters of human rights and human security. In respect of human rights, we concur with Rens and Pfumorodze (2015), who succinctly lay out IP's human rights dimension, grounded in the 1966 International Covenant on Economic, Social and Cultural Rights. We are further persuaded by the 2003 report of the UN Commission on Human Security and the work of Ramcharan (2013). The UN Commission report foregrounds the urgency of matters of "ownership and application of knowledge for human health and security", referencing concerns over TRIPS patent provisions and applauding the developmental, access-to-medicines orientation of the 2001 Doha Declaration (UN Commission on Human Security, 2003, p. 103). And Ramcharan (2013) convincingly posits that

> [t]he human security framework can help the international community arrive at equitable balances between the regime of international intellectual property law and the needs of developing countries and indigenous peoples on the ground. (Ramcharan, 2013, p. x)

In our view, among the clearest (and starkest) manifestations of the developmental aspects of knowledge access and control are the issues of: (1) access to essential medicines; (2) access to climate change mitigation and adaptation technologies; and (3) access to learning materials. The access-to-medicines issue was, as outlined above, central to the origins of the A2K movement in Africa and globally, and to the 2001 Doha Declaration and the UK CIPR report (CIPR, 2002). When lives are potentially put at risk by application of patent procedures, then the socio-economic dimensions of knowledge are clear.

In respect of the second issue just listed, access to climate change mitigation and adaptation technologies, the socio-economic dimensions seem also clear. There can be little doubt that the rate and modes of transfer of patented green technologies between rich and poor countries will be central to the ability of the world's poorest nations to play a role in mitigating climate change and, even more crucially, in adapting to changing environmental conditions. Abdel-Latif, Maskus, Okediji, Reichman and Roffe (2011) correctly draw the parallel between the need for access to green technologies to combat climate change and the need for access to essential medicines, because "in both public health and climate change, there is a sense of moral urgency to address public policy objectives that requires going beyond the 'status quo' and 'business as usual' practices, including in the IP system" (2011, p. 3).

The third issue cited above, access to learning materials, indisputably goes to the heart of the quest for socio-economic progress by poor-country enterprises, households and individuals, as we made clear in the opening chapter of the 2010 edited volume *Access to Knowledge in Africa: The Role of Copyright* (Armstrong et al., 2010).

Benkler (2006) summarises the link between knowledge access and development as follows:

> Agricultural knowledge and biological innovation are central to food security. Medical innovation and access to its fruits are central to living a long and healthy life. Literacy and education are central to individual growth, to democratic self-governance, and to economic capabilities. Economic growth itself is critically dependent on innovation and information. For all these reasons, information policy has become a critical element of development policy and the question of how societies attain and distribute human welfare and well-being. Access to knowledge has become central to human development. (Benkler, 2006, p. 302)

Thus, our conception of the development paradigm in relation to knowledge is oriented towards the socio-economic imperatives of the world's low-income and middle-income countries, and of the governments, enterprises, households and individuals in those countries, while at the same recognising, in line with the statements cited above from Cimoli et al. (2014), the interdependence of the developing-world and developed-world quests to develop and harness knowledge to pursue socio-economic progress.

Conceptions of knowledge governance

One way to conceive of knowledge governance is as a set of knowledge phenomena generated by instruments and processes produced by public institutions that govern, i.e., produced by national governments/agencies, and regional and international bodies/agencies such as the WTO, WIPO, and the European Patent Office (EPO).

And such a conception also needs to take into account the influence exerted by the private sector and civil society players who interact with the national governments/agencies and international intergovernmental bodies/agencies, and who are often direct participants in governance modalities. Several of the works cited in the previous sub-section on "development" – i.e., Abdel-Latif et al. (2011), Cimoli et al. (2014) Correa (2000), Drahos and Braithwaite (2002), Ramcharan (2013), Sell (2003), the UK CIPR report (2002) – operate via this sort of knowledge governance conception, with an emphasis on the implications for developing nations.

Other notable works approaching knowledge governance as a global norm-setting phenomenon include, but are not limited to, those by Okediji (2003), Yu (2004), Chon (2011), May (2010) and Oguamanam (2011). For example, Oguamanam (2011) conceives of knowledge governance in relation to plant genetic resources as being a product of, inter alia, the "regime complexity" and "hegemonic agenda" produced by the International Union for the Protection of New Varieties of Plants (UPOV) and TRIPS international IP norm-setting instruments (2011, pp. 116-117). There are also significant works on knowledge governance at the international level that put emphasis on certain agencies and/or private-sector players, such as Drahos's (2010) work on international knowledge governance as wielded by certain patent offices, and the work of Lemmens (2013) on how international pharmaceutical companies behave in relation to certain laws and regulations. Meanwhile, the works of Lessig (2004) and Boyle (2008), while largely focused on the US context and not speaking explicitly of "governance" of knowledge, provide crucial, internationally-applicable insights into how corporate interests and actions dictate the extent to which knowledge becomes available for follow-on use in the public domain. Also concerned with the public domain is Beldiman (2013), who explicitly speaks of "knowledge governance" and calls for policy in support of "convergence" of all knowledge resources (i.e., towards making all knowledge freely accessible).

If one moves away from consideration of international-global spheres of knowledge governance, one finds that some of the earliest and most explicit deployments of the concept of knowledge governance are to be found in private-sector management literature, with a focus on activity within firms. Van Kerkhoff's (2014) review of knowledge governance literature identifies the work of Grandori (2001) as a pioneering example of this private-sector, firm-centric approach, with Grandori positioning knowledge governance as a rule-setting function within firms that guides the way knowledge flows and is used (Grandori, 2001; Van Kerkhoff, 2014). This firm-focused conception of knowledge governance has also been extended into the field of organisational economics, notably in the work of Foss (Foss & Michailova, 2009; Van Kerkhoff, 2014). The focus of the business management and organisational economic approaches is on linkages between intra-firm knowledge processes and, as Van Kerkhoff writes, "creativity, innovation and ultimately, profitability" (Van Kerkhoff, 2014, p. 86).

Moving away from firm-centric, private-sector conceptions, one finds a relatively rich array of explicit "knowledge governance" conceptions in the literature, concerned with matters such as industrial public policy; regulation of science; dynamics at universities and other knowledge-producing institutions; collective action and social learning; and the knowledge modalities of sustainable development initiatives. Among the examples cited by Van Kerkhoff (2014, pp. 87-88) are:

- Burlamaqui's (2012) work, from an evolutionary economics perspective, positioning knowledge governance as an industrial policy approach that balances private knowledge control and knowledge as a public good;
- Stehr's (2004) view of knowledge governance as the phenomenon produced by national regulation of scientific knowledge and the politics linked to such regulation;
- Fuller's (2004) conception focused on the internal knowledge dynamics of universities and similar institutions, Wilbanks and Rossini's (2009) characterisation of knowledge governance as a phenomenon nested in the institutions and practices of academia;
- the more sociological Gerritsen et al. (2013) conception, whereby knowledge governance is a mode of collective action characterised by elements such as self-organisation, transdisciplinarity and social learning; and
- Manuel-Navarette and Gallopin's (2011) sustainable-development-focused work on knowledge governance as the set of knowledge engagement practices at play among both public and private actors in the course of an effort to, in the case of their research, promote a shift in people's agricultural practices in a particular developing-world rural region.

Van Kerkhoff's own conception of knowledge governance sits in a sustainable development frame, focused on "institutional knowledge-based dimensions of sustainable development" – with "institutions" understood as being both formal and informal (2014, p. 90).

Another key non-firm-centric conception of knowledge governance that we feel deserves mention here is the "commons" conception of communal resource governance, including knowledge governance, as developed by Ostrom (1990, 2005) and Hess and Ostrom (2007), and extended into a knowledge commons research framework by Madison, Frischmann and Strandburg (2010). (The aforementioned work of Boyle (2008) on corporate encroachment on the public domain also provides a rich extension of the notion of the commons in relation to management of knowledge resources, as does the development of the Creative Commons suite of flexible copyright licences (Creative Commons, n.d.).)

In respect of the African context, a key account of high-level international knowledge governance processes affecting IP norm-setting in Francophone Africa is contained in Deere (2009). Deere gives an account of the pressures that led members of the

regional IP organisation OAPI (Organisation Africaine de la Propriété Intellectuelle) adopting standards, in the late 1990s and early 2000s, that went beyond minimum TRIPS requirements. Meanwhile, the Open African Innovation Research (Open AIR) network, of which we are part, has placed conceptualising and investigating African knowledge governance among its core pursuits. Broadly, Open AIR seeks to take account of "the complex, dynamic and multilevel nature not just of IP rules, but also of the broader governance of knowledge" (De Beer et al., 2014, p. 3). The network's conceptions of knowledge governance include consideration of a broad set of realities, ranging from on-the-ground practices of innovators all the way to the realities of high-level policymaking and law-making at national, regional, continental and international/global levels). Open AIR's current research programme is focused on innovation and knowledge governance modalities present in the continent's high technology hubs, informal sector innovation settings, and indigenous entrepreneurial settings, as well as a fourth, cross-cutting research track interrogating metrics, laws, and policies "for measuring, valuing, facilitating and scaling up knowledge production" (Open AIR, n.d.). Open AIR has thus sought to adopt multifaceted conceptualisations of knowledge governance – as something that is engaged in at myriad levels, from informal-sector innovators and indigenous entrepreneurs to high-tech hub administrators and international norm-setters. These multifaceted conceptualisations combine some of the aforementioned conceptions of knowledge governance in an attempt to fully (or at least better) capture the broad and diverse set of realities on the continent.

Open AIR's knowledge governance approach emerged from on-the-ground case studies of African innovation settings between 2011 and 2013 (De Beer et al., 2014) and a parallel scenario-building project focused on realities on the continent in the year 2035. The three scenarios – called "Wireless Engagement", "Informal – the New Normal" and "Sincerely Africa" – each have particular modes of knowledge governance associated with them:

- in the "Wireless Engagement" scenario, African innovation enterprises are widely interconnected with the global service economy, and African IP is "governed by copyrights, patents, utility models, scholarly publications, trademarks and industrial designs";
- in the "Informal – the New Normal" scenario, informal small-scale enterprises are at the forefront of innovative activity, and "[i]nterpersonal, dynamic and pragmatic systems are governed by improvisation, complexity, secrecy, first-mover advantage, customer loyalty and moral rights"; and
- in the "Sincerely Africa" scenario, successful African innovators are those who tap into traditional cultural practices and inter-generational knowledge, and "[t]raditional, sacred and hierarchical systems are governed by customary norms over traditional knowledge, benefit sharing, geographical indications and certifications schemes" (Elahi & De Beer, 2013, pp. 134-135).

Also providing valuable insights into African on-the-ground knowledge governance modalities was the recent work of the World Intellectual Property Organisation (WIPO) Development Agenda project on IP and the Informal Economy (see De Beer et al., 2013; Kraemer-Mbula & Wunsch-Vincent, 2016). That project, which Open AIR members participated in, investigated the knowledge management practices in three informal, micro and small enterprise (MSE) contexts: Ghanaian traditional medicine; Kenyan metalworking; and South African manufacturing of personal care and home care products. De Beer and Armstrong (2015) conducted an overview of the innovation and knowledge appropriation modalities uncovered by these three WIPO project studies and by two Open AIR project studies: a study of innovation exchange between informal-sector and formal-sector auto parts makers in Uganda (Kawooya, 2014); and a study of knowledge-sharing among a group of traditional healers in South Africa (Cocchiaro et al., 2014).

Looking across the five studies – the three by the WIPO project in Ghana, Kenya and South Africa, and the two by Open AIR in Uganda and South Africa – De Beer and Armstrong identified the following commonalities that are relevant to understanding African knowledge governance:

- African MSEs can and do orient themselves towards openness and inclusion, rather than exclusion, in their innovation practices;
- MSEs' knowledge networking for innovation can and does rely to great extent on offline, socially constructed linkages; and
- MSEs can and do favour informal appropriation approaches, and to a lesser extent semi-formal appropriation practices, for their innovative knowledge. (De Beer & Armstrong, 2015, p. 68)

In summary, we see elements of value in all of the conceptualisations of knowledge governance touched upon in this section – including the private-sector, firm-centric conceptions cited above. However, as African-based researchers, our bias is towards conceptions of knowledge governance – whether at the grassroots, or at an institution such as tech hub, or in an international intergovernmental context – that treat it as a process inextricable from matters of human and socio-economic development.

3. The contributions in this thematic issue

The preceding discussion has shown that notions of the knowledge dimensions of sustainable socio-economic development, and notions of knowledge governance, are already relatively abundant in the available literature. But at the same time, the concept of knowledge governance is typically deployed in the available literature in an implicit, rather than explicit, fashion. There are only a handful of researchers and writers who to date have foregrounded the precise expression "knowledge governance", and fewer still who have fused it directly with notions of sustainable human development.

Thus, it seems fair to say that the knowledge governance for development conceptual terrain is still quite new, and fluid. We see the terrain's newness and fluidity as characteristics to be embraced. It is our view that *AJIC*'s thematic issues touching on this terrain need not seek to constrain the fluidity but rather to examine it and document it. And each of the 10 pieces in the thematic issue contributes to the process of examination and documentation.

The contribution from Rutenberg and Makanga reports on research that the authors argue demonstrates the need for Kenya to reinstate substantive examination of utility model certificate (UMC) applications. At the same time, Rutenberg and Makanga are careful to point out that UMCs are but one component of the Kenyan innovation ecosystem, and should not be seen as a proxy for the country's levels of innovation.

The article by Adams and Adeleke presents research findings that reveal a contrast between the South African government's strong official support for the principle of open data and the actual realities of insufficient proactive information disclosure on environmental matters in the country.

The contribution by Ntawanga and Coleman outlines findings from an information and communication technology for development (ICT4D) intervention, in a rural South African community, that followed the "living lab" approach in order to give primacy to open, on-the-ground interaction between the application's developers and its eventual users.

In the Belete article, the author reports on a research exercise whereby he took data collected in the course of an Ethiopian "copyright industries" study funded by WIPO in order to craft a set of recommendations for policy support of Ethiopia's creative industries. Belete calls for the government to take steps to, among other things, improve ICT access, support formation of creative clusters, improved access to finance, and ensure significant copyright limitations and exceptions.

Rother's piece brings the aforementioned Madison et al. (2010) knowledge commons research framework to bear on the modalities of massive open online courses (MOOCs).

In the four thematic reports:

- Adusei tackles the matter of benefit-sharing, in the Ghanaian context, from IP that individuals create in the course of their employment.
- Dagne looks at the potential of geographical indications (GIs) as knowledge governance tools for producers of distinctive agricultural products in East and Southern Africa.
- Van Wiele analyses what he sees as deficiencies in South African copyright law in respect of its treatment of inclusion of public artworks in amateur

photographs and videos.
- Mwaura examines a feature of Kenyan patent law that gives significant power to the Kenya Industrial Property Institute (KIPI) in matters of technology transfer (TT) from foreign to domestic entities, arguing that how KIPI exercises this power is likely to be an increasingly important matter in the years to come in the context of technologies for climate change mitigation and adaptation.

The final item is Isiko Strba's review of Ncube's book on African IP administration and the continental harmonisation agenda (Ncube, 2015).

The compelling and diverse nature of the submissions published in this issue vindicates *AJIC*'s decision to adopt knowledge governance for development as a thematic frame. The items in this issue confirm Van Kerkhoff's (2014) assertion that "[b]y bringing the governance of knowledge to the fore (rather than regarding knowledge as an input to other governance goals)", one is able to identify "a range of opportunities and constraints" and to bring "the many rules shaping the dynamics of knowledge creation, sharing, access and use into consideration as a fundamental issue in sustainable development" (2014, pp. 90-91).

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