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Abstract

This paper lays out the conceptual groundwork for a long-term project examining ethical issues raised when addressing the value of knowledge to a knowledge economy. The project includes a series of papers on specific topics that interrelate to the subjects of knowledge, ethics and organizations. While some of the planned articles for the project will have a practical focus, others, such as this one, will be conceptual in nature. The following outlines selected key concepts for an ethics of knowledge and their relationship with cognate areas of inquiry and practice.

Keywords

ethics, AI, AI ethics, knowledge, information theory, information science, library science, knowledge economy

About Author

Norman Mooradian has had a multifaceted career working as an information professional and as an academic focusing on digital ethics. He received his Ph.D. and M.A. in Philosophy from the Ohio State University. He also completed graduate courses in Legal Studies at the University of Illinois and attained the CIPP/US Information Privacy Professional Certification from the IAPP. Dr. Mooradian has published articles in areas such as information ethics, business ethics, information privacy, enterprise content management (ecm), knowledge management, and virtual reality, and he is the author of *Ethics for Records and Information Management* (2018, ALA). His research and teaching interests connect concepts from applied ethics, epistemology and ontology to the information sciences.

Prior to joining the faculty in the School of Information at SJSU, he was the Customer Education Manager at Konica Minolta in the Intelligent Information Management Division and worked in the IIM/ECM field for over 20 years in a variety of roles. Norman has been active in the information fields, serving on standards committees for trusted systems, and has presented on numerous occasions for professional association groups such as ARMA and AIIM.

This paper lays out the conceptual groundwork for a long-term project examining ethical issues raised when addressing the value of knowledge to a knowledge economy. The project includes a series of papers on specific topics that interrelate to the subjects of knowledge, ethics and organizations. While some of the planned articles for the project will have a practical focus, others, such as this one, will be conceptual in nature. The following outlines selected key concepts for an ethics of knowledge and their relationship with cognate areas of inquiry and practice.

Knowledge Ethics: Conceptual Preliminaries¹

Scope and Justification

The scope of a knowledge ethics is defined by the intersection of the key concepts of knowledge and ethics. More specifically, however, it starts with the recognition that, as a concept, knowledge has a special role in our contemporary economy. It relates to economic activity and individual behaviors within organizations and is itself a valuable economic good sought by individuals and collectives. For this reason, scholars have described our contemporary economy as a “knowledge economy” (LaFayette et al., 2019).

Powell and Snellman (2004, p. 199) offer an early characterization of a knowledge economy, defining it as the “production and services based on knowledge-intensive activities that contribute to an accelerated pace of technical and scientific advance”. LaFayette et al. (2019, p. 66) build upon this definition, stating that a “. . . knowledge economy is so named because the core commodity – the primary factor of production - is knowledge”. This characterization identifies two ways that knowledge conditions an economy in such a way that it can be described as a knowledge economy (KE). First, knowledge is a raw material for production. As such, it can take two forms: (1) the creation of technologies to be used in production and as an application to the production process or provision of services; and (2) as an economic good itself. A KE produces knowledge goods. LaFayette et al (2019, p. 67) ascribe the economic property of an “experience good” to this aspect of knowledge.

While related to such concepts as information society and the fourth revolution, the idea of a KE accords a unique causal and explanatory role to knowledge that it does not accord to information and automation. This is because, while information and automation are central to our economy, they do not fully account for its distinctive features. The conception of knowledge’s role in the economy, including its relationship to information and automation, is essential to fully understand and operate within a contemporary economy. Accordingly, our understanding of the ethical issues related to the multifarious ways in which knowledge contributes to a KE is critical to its success and sustainability. Given that knowledge is both a significant factor of production and a product in a KE, elucidation of these two

¹ I would like to acknowledge the work of Denise Bedford who initiated a book project with the title *Knowledge Ethics in the Knowledge Economy* of which I have been a part and which has provided me with an opportunity to connect my current interests in digital ethics with knowledge studies.

contributory aspects will adumbrate the types of issues that arise for a KE and enable knowledge-centric analyses within modern economies.

Knowledge

Knowledge is not a new concept to economics, nor is the study of knowledge new to the sciences and humanities. When defining knowledge, a contrast to a related object or state is implied.

Knowledge / Belief

For epistemology (the philosophical study of knowledge), the analysis of knowledge centers on how it is distinguished from mere belief. Originating with Plato, the famous justified-true belief theory (JTB) adds the conditions of truth and justification to belief (Ichikawa, & Steup, 2017, p. 4). The transformation of a belief state to a knowledge state is an ongoing focus of epistemology and continues to yield interesting theories. In the context of a KE, however, mere propositional knowledge (knowing that something is the case even if it is not proved true) is too broad a concept to play an explanatory role.

Knowledge / Information

The distinction between knowledge and information is another example of knowledge defined in contradistinction to a lesser thing or state. In fact, information is the content of propositional knowledge. Often referred to in the field of knowledge management, Ackoff's (1998) data-information-knowledge-wisdom (DIKW) pyramid sees knowledge in transformational terms and posits those more elementary and advanced things or states required to transform information into knowledge. While often mentioned and described, DIKW is not given a full and coherent accounting, one problem being that it often straddles both mentalistic concepts of knowledge and external, informational concepts (Abbas, 2010, pp. 10-13; Bates, 2017, p. 2059). Nevertheless, a distinction between information and knowledge is a fruitful focal point of analysis when developing a knowledge ethics due to the assumed distinction between an information economy and a knowledge economy. It is also critical when examining how a knowledge ethics differs analytically from cognate ethical inquiries, including and particularly information ethics.

Knowledge / Economy

For the purposes of this discussion, the working definition of knowledge is rooted in its role in a knowledge economy (KE). In an industrial economy, knowledge is a factor of production in the creation of the technologies that constitute industrialization. Because processes are central within an industrial economy (Lafayette, et al., 2019, pgs. 141-142), knowledge of processes is the primary input. In a KE, by contrast, strategic knowledge is primary. Strategic knowledge consists of the ability to solve goals-based problems lacking clear steps requiring discovery (Clark, 2008, pp. 145-147). Broadly considered, it falls into the domain of expertise where knowledge of principles and practices are applied to develop novel solutions to new cases. To illustrate the difference, Clark (2008, p. 146) describes the knowledge of a chef versus a fast-food cook. The chef has knowledge of her/his

customers, the principles of cooking, creative design, etc., and can create new dishes for a specific need or customer base. Lafayette et al. (2019, pp. 144-149) use the terms *capabilities* and *contexts* to describe the type of knowledge characterized by the ability to create or discover valuable outcomes within changing contexts. In contrast, a fast-food cook simply follows a specific process and needs only to memorize steps (Clark, 2008).

Explicit and Tacit Knowledge

When conceptualizing knowledge in terms of a KE, it is critical to distinguish external knowledge that is recorded/codified in a medium from knowledge that is internal and constitutive of mental states/dispositions (Fuller, 2002, pp.106-107; Popper, 1979, pp. 106–152). Additionally, the distinction between explicit and tacit knowledge is essential to this conceptualization (Collins, 2013; Johannsen, 2022; Mooradian, 2005; Nonaka and Takeuchi, 1995; Polanyi, 1966). Explicit knowledge is that which is external and recorded. It generally exists within organizations, institutions, and other collectives. Tacit knowledge is internal and generally exists within the human mind. The distinction between explicit knowledge (external and recorded) and tacit knowledge (a state or disposition of the human mind) is important to analyzing and situating the behaviors and harms related to knowledge.

Ethics

Numerous concepts compose the core of any system of ethics, including but not limited to harms; goods; rights; obligations; autonomy; responsibility; fairness, and others. A knowledge ethics takes its shape through analysis of knowledge as a factor contributing significantly to problems. Its scope includes unethical behaviors based in or characterized by knowledge (knowledge behaviors) and the harms caused by behaviors that affect knowledge (knowledge harms). In conceptualizing knowledge behaviors and knowledge harms, our anchor is the definition of knowledge laid out above.

As mentioned earlier, commonplace propositional knowledge or perceptual knowledge is not sufficient to define the scope of analysis. In addition to the earlier example of the fast-food cook, the knowledge required by a pickpocket offers another example of propositional knowledge. Theft of a wallet requires both the perceptual awareness of a vulnerable wallet and propositional knowledge in the form of justified beliefs about its contents. Theft is wrongful behavior, but it is not a knowledge behavior in a sense relevant to a KE. Likewise, the harm caused by losing a wallet is a harm to one's finances and psychology. While the harm presupposes perceptual and propositional knowledge, it is not a knowledge harm because the person's knowledge is not adversely affected in a direct manner. By contrast, the use of knowledge capabilities to execute an intellectual property theft (e.g., defeating a DRM system) could count as a knowledge harm and knowledge behavior respectively.

Information Ethics / AI Ethics

Information ethics is a cognate ethics domain addressing the ethical use of information throughout its lifecycle. Topics include information privacy; confidentiality and disclosure; cyber security; copyright; trade secrecy; and others

(Mooradian, 2018). Most of these issues can be understood in relation to a wide range of organizational and social contexts and different types of rights, benefits, and harms. For example, breaches of privacy cause many harms such as, for example, financial loss and mental suffering. While they do not require or presuppose the conceptions of knowledge central in a KE, they do presuppose common place types of knowledge (e.g., propositional and perceptual knowledge). Issues related to intellectual property, such as trade secrecy and copyright, do involve the kind of knowledge relevant to a KE, especially in explicit forms. In these cases, there is an intersection between information and knowledge ethics. Work done on these topics will be part of the corpus of knowledge ethics as it develops, and divergence can be anticipated as issues of personal knowledge ownership arise which fall outside traditional conceptions of intellectual property. This will be especially true for internal (tacit) forms of knowledge.

Business Ethics

Another cognate domain is business ethics. Having a long history dating back to the 1970s, the field of business ethics is relatively mature (Moriarty, 2021, p. 1). Business ethics addresses business organizations and business-related activities central to economies. In this way it connects with the knowledge economy insofar as it pertains to economic activities. As businesses and their functions evolve into the knowledge economy, they and their activities will, ipso facto, become topics of knowledge ethics. Traditional issues include the ethics of marketing and sales; products liability and risk; employment; management; and corporate responsibility among others (Bowie, 2002, pp. 1-16). Insofar as these business functions involve knowledge processes that contribute to the knowledge economy (as opposed to the industrial economy), they are included in the scope of knowledge ethics. Much current work within the field of business ethics will be relevant to knowledge ethics and the theoretical and practical work of knowledge ethics will be an insightful source for research in the field of business ethics.

Professional Ethics

The domain of professional ethics also relates to knowledge ethics in that knowledge is a core component in the conception of professions. Professions are defined by their specialized knowledge; public serving missions; professional communities; relative autonomy in their governance; the ability to determine the fundamental aspects of professional work; and the trust that society confers in them. This public trust is a function of the other factors due to the specialized knowledge of professionals and their commitment to a public good. Professional duties are shaped by these common characteristics. Professional duties apply across professional domains and include fiduciary duties, avoidance of conflicts of interest, standards of work, due care, and confidentiality (Mooradian, 2018, pp. 43-47). While confidentiality in some form is common across professions, the information professions (e.g., libraries, archives, records, and others) include robust obligations related to the management of information. In this respect, their professional ethics intersect with information ethics. Finally, as professions constitute part of the economy, and many operate within the context of commercial organizations, professional ethics also intersect with business ethics.

Intrinsic / Extrinsic Value

Turning from specialized ethics to value theory, the distinction between intrinsic and extrinsic value is relevant to a knowledge ethics. According to this distinction, some things are valued in and of themselves and serve as ends of action while other things are valued as means to realize these ends (Zimmerman & Bradley, 2019). Knowledge is valued for itself; Plato (ca. 427-348 BCE) considered it to be the highest intrinsic good (Plato, ca. 360-247 BCE/1925, *Philebus*, Section 60e). Aristotle (384-322 BCE) observed that knowledge is valuable for itself and as a mean to other ends, stating "ALL men by nature desire to know. An indication of this is the delight we take in our senses; for even apart from their usefulness they are loved for themselves; and above all others the sense of sight" (Aristotle, 350 BCE/1941, *Metaphysics, Book I, Part I*). Further, knowledge is a critical element of human flourishing (Kantar & Bynam, 2021). This distinction between intrinsic and extrinsic value is relevant to the analysis of many ethical issues relating to knowledge. This includes analysis of the relation of knowledge workers to organizations because human beings value knowledge intrinsically and extrinsically while, by virtue of their nature, organizations value knowledge extrinsically only.

Example Issue: Automation

The automation of knowledge work is a pressing societal concern brought to the forefront by emerging technologies such as robotic process automation (RPA) and, especially, various forms of machine learning (ML). As such, it is a central issue in the ethics of artificial intelligence (Moradi & Levy, 2020, pp. 271-288). Machine learning, and particularly deep learning (DL), raises the possibility of automating tasks associated with tacit knowledge. Large language models (LLMs) such as ChatGPT produce human-like text which implicates tacit knowledge on multiple levels.² Software vendors and organizations are rapidly attempting to automate conversation-centered work such as, for example, customer support. Brynjolfsson et al. (2023) report on a case study about how ChatGPT was used in the customer support function of a software company. The study highlights the ". . . model's ability to encode the potentially tacit knowledge of high performers . . ." (Brynjolfsson et al., 2023, p. 24).

The ethical issue of automation is based in the potential harms caused to knowledge workers whose work is replaced either in part or entirely. It concerns the fair distribution of the burdens and benefits of replacement automation as well as the assignment of responsibility for addressing those harms and unfair distributions. This is an ethical issue for AI insofar as it arises from AI technologies and this causal factor is the common characteristic of issues that form the AI ethics literature. The centrality of data and information in information ethics makes it relevant to AI ethics and an extension of information ethics. Automation of work is also an issue for business ethics because employment issues (e.g., employment at will, compensation, working conditions) are a major consideration for the field.

² On Collins view, the most collective tacit knowledge (CTK) is cultural and based in language. He describes it as ". . . the irreducible heartland of the concept" (Collins, 2013, p. 119).

Finally, automation of knowledge work is relevant to professional ethics because professionals are a paradigmatic class of knowledge workers whose responsibilities link to their expertise.

Despite there being many fields with a disciplinary perspective on automation, a knowledge ethics makes a distinct analytical contribution. This contribution is based in its focus on knowledge behaviors and knowledge harms which are implicated in AI automation. For example, how knowledge workers should and should not interact with AI systems in terms of sharing and using their expertise is an important topic of study as AI systems advance and deployed more widely. The question of how knowledge workers are harmed in relation to their knowledge is also important and may be among the most important to address.

Clearly, there is an economic harm at issue with the automation of knowledge work and this harm is at the heart of current debates. Economic harm fits well within the scope of business ethics; however, due to the distinction between intrinsic and extrinsic value, it falls in the category of extrinsic (dis)value. Knowledge also has intrinsic value and is an important part of human flourishing (Kantar & Bynum, 2021). Therefore, the question of how organizations balance their extrinsic value in human knowledge with its intrinsic value to their human workers falls within the scope of knowledge ethics.

Conclusion

This paper has set out some of the basic concepts needed for the development of an ethics of knowledge as it pertains to the knowledge economy. Additional fundamental concepts require development in order to create the necessary ethical framework. A clearly demarcated and analyzed set of issues involving knowledge behaviors and knowledge harms is necessary, as are associated recommendations and guidance. Hopefully, this short article is a step in that direction.

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