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The Agency of Artificial Intelligence in Microsocial Decision Making in the Licensing Division of the Ministry of Works and Transport: An Analysis of User-AI Interaction in the U-Turn System

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Abstract. As developing nations seek to increase the use of technology in their governance, the integration of artificial intelligence (AI) in public sector organizations is gaining momentum. While existing research has predominantly explored AI's macro implications, this study investigates its microsocial effects on daily professional practices within public organizations. Focusing on the case of Trinidad and Tobago's Licensing Authority and its implementation of the U-Turn system, this research employs an organizational ethnography approach. By analyzing interviews, observations, and documents, the study aims to understand how employees interact with AI-based technology at the microsocial level. Initial findings highlight the significance of the law in

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shaping technological usage, with AI often serving as a manifestation of legal mandates. Furthermore, the introduction of AI prompts organizational transformations, necessitating new administrative practices to bridge technological gaps. Ultimately, this study contributes to a deeper understanding of the nuanced interactions between employees and AI systems in public sector decision-making processes, shedding light on the evolving dynamics of organizational practices and knowledge construction.

1 Context and Research Question

Public organizations are increasingly engaging the use of Artificial Intelligence (AI) as it seeks to maximize productivity and efficiency (Ahn & Chen, 2020). The use of AI-based technologies is currently advancing public sector operations in policy creation, patent review and customer service (Susar & Aquaro, 2019). However, the engagement with technology as a means of ensuring governments' efficiency in the allocation of scarce resources, reduction of corruption and increased efficiency both in internal processes and with interactions with the public, have contributed to what Ahn & Chen (2020) refer to as frontier technology, that is, technology that brings about social transformation.

The literature suggests that research has focused primarily on the use of AI in public organizations as a vehicle for implementing policy and as tool for ensuring efficiency, as such there is little existing research on how the use of AI-based technologies affects the daily professional practices in public organizations (Wirtz et al., 2019). As AI becomes more intuitive and its use increases in public organizations, it has become urgent to better understand the ways in which this increased use shapes how people work and, more broadly, how these technologies reshape how people collaborate and make decisions. The synergies and forms of collaboration that can take place between human workers and AI in the workplace need to be explored in greater detail (Seeber et al., 2020). *"A key challenge to the implementation and adoption of intelligent machines in the workplace is their integration with situated work practices and organizational processes"* (Wolf and Blomberg 2019, p. 546).

The increased role of AI and its ability to contribute significantly to organizational processes may mean that researchers must actively consider that the agency of AI in decision-making is increasing (Wimmer et al., 2020). Also of significant consideration is that much of AI can operate either autonomously or semi-autonomously and may serve a standalone role in public organizations.

The problem to be examined under this study is: What are the implications for microsocial decision-making when AI, as a non-sentient entity, is an equal contributor to the practices involved in decision making?

To examine and explore these issues, a case study is being conducted of the implementation of AI technology within a public organization. The Government

of the Republic of Trinidad & Tobago (GORTT) embarked on significant legislative change as a means of reducing road fatalities, reducing inefficiency in the internal processes of the Licensing Authority, and improving the quality of interactions with the public. The U-Turn system, which the Ministry of Works and Transport describes as “software that provides real time connectivity between the Judiciary, the Trinidad and Tobago Police Service, the Licensing Authority, TTPost and the new Traffic Management Center” was the technological vehicle used to implement the broader goals of policy change, improved efficiency, and enhanced public engagement. van Noordt & Misuraca, (2020) advance the concept that AI in the public sector is typically placed under ICT platforms as part of a broader eGovernance approach.

This increasing adoption of AI-based technology in public organizations has generated a lot of research on the macro implications of the technology but less on the day-to-day interactions between workers and AI systems. This leads to the following research question: How do employees of public organizations interact with AI-based technologies in the workplace to assist them in their decision-making process? More specifically, the objective is to understand:

- a) How do employees collaborate with AI-based technology in their daily tasks?
- b) How is this AI-based technology shaping the way they work and make decisions?

2 Theoretical Framework

A practice-based framework (Barrett & Orlikowski, 2021; Corradi et al., 2008) is the lens through which the data is being analyzed. The study takes the position as established by Orlikowski (2000, 2007) that a practice lens is appropriate for examining the way in which technology helps construct and define organizational reality. Thomas et al., (2014) presents a three-part rationale for understanding practice lens as a social construct in organization which helps researchers better interpret organizational phenomena. In the first instance, they argue that knowledge is a socially constructed, individual process that participants actively engage in as they make sense of their environment.

The production and construction of knowledge is a combination of what is being learned, the content of the information, the persons involved in the process and the goals of individuals as they make sense of their specific context. The second argument is that learning is a function of dissonance, and individuals generate new knowledge as they seek to make sense of uncertainty in the workplace. The resolution of this dissonance is once again a function of sense-making that is specific to the environment and premised on the content of the knowledge. Finally, a socio constructivist approach explains the development of knowledge via “*the acquisition of cognitive processing strategies, self-regulation,*

and problem solving through socially constructed learning opportunities.”
 (Thomas et al., 2014).

3 Methodology

In this research project, an organizational ethnography will be conducted within the Licensing Authority of Trinidad and Tobago, focusing on the operations of the Traffic Enforcement Center Unit, the department with direct oversight of the U-Turn software.

Organizational ethnography is described as being best suited for grasping the essence of organizational action (Czarniawska, 1997) and in the case of the U-System, the actions being considered are the changes to microsocial decision making that comes with the introduction of a complex technology. Organizational ethnography is concerned with implications of rules, strategies, and meanings and how these impact the social relations in the organization (Rosen, 1991). The introduction of the U-Turn system impacts the ways that things are done and ergo the ‘rules’ by which stakeholders engage with each other in the organization. Because of the pervasive effect of the technology being used, there are resulting organizational, cultural and sensemaking changes taking place in the organization. Therefore, ethnography will be the best way to see how the practices have changed, while engaging users to fill gaps and allowing them to be reflexive and reflective in their thinking about their own decision-making and the ways in which that has changed their engagement.

The table below identifies the various methods that have been used thus far in the gathering of the data for this thesis. During the months of September and October 2023 and February 2024, trips were made to Trinidad and Tobago to engage in an ethnographic inquiry around the implementation of the U-Turn system.

Table I. Data Gathered during organizational ethnography.

Interviews	Observation	Document collection	Ethnographic interviews	Photo elicitation	Picture & video
No: 4 (Senior Management)	No:30 (Staff Members: Office & Field) 90 Hours of observation	Legislative, Communication and System Generated	No: 5 (Office and Field staff)	No:4 (Office staff)	75 pictures & 37 minutes of video

4 Current State of the Study

Data was analyzed in two phases. In the first phase, an inductive process analysis was conducted (Mezmir, 2020; Azungah, 2018). Due to the interest in understanding work practices and the dynamic nature of collaboration with an AI-based system (such as the U-Turn system), the inductive analysis contributes to identifying and describing works practices. NVivo was used for coding the transcribed interviews, observation notes and reflection notes containing interpretations, and document analysis on fieldwork were uploaded. A thematic analysis was conducted to identify core themes and sub-themes that focused on work practices, group interactions, modalities of collaboration between services, and tensions that arise during the use of the AI system. This process of analysis is an iterative one, meaning that while engaged in developing themes, there is also a search (looking) for congruence with the literature review and determining what other areas may need to be engaged to help explain some of the findings from the data collected. While the analysis is ongoing, there are several emergent themes that have become apparent. These are:

- 1) The materialization of the law in the AI as a “figure” of authority.
- 2) AI-based technology as a new partner, reconfiguring the situated decision-making (the case of field officers).

4.1 The materialization of the law in the AI as a “figure” of authority

The translation and incarnation of laws and regulations into AI-based technology shape work practices and transform the way employees interact with the public and other departments within the organization. The law limits the ways in which technology can be used, which is a separate discussion from the capacity and scope of the technology. In public organizations, the law drives technology and not the other way around. In essence what seems to be occurring is a materialization of the law through the technology. Materialization in this context is understood as the passing of matter from one stage to another as defined by Cooren (2020). Ergo, the U-Turn is the law materialized, that is, having been conceived legally, it has now materialized as technology.

4.2 AI-based technology as a new partner, reconfiguring the situated decision-making (the case of the field officers)

A first analysis of interviews and observations with officers in the field shows how they integrate – or try to integrate – the U-Turn system into their daily practice. This study will focus on two aspects. The first is the way officers integrate the U-Turn system into their interactions with the public; and the second is the way officers in the field coordinate with the new Traffic Management Center that was created specifically after the system was implemented within the

Ministry of Works & Transport. This new organizational unit plays a unique role by ‘controlling’ activities and decisions made by the officers in the field. It appears that the implementation of the U-Turn system has fragmented the decision-making process by limiting the access of officers to specific information about driver’s licenses or previous traffic offences.

5 Contributions to the Discipline

The growing presence of AI in public organizations is of interest to organizational communication and CSCW researchers who are interested in understanding the complex relationship between AI-based technologies and organizations, as well as how the technology might shape work practices and how the use of AI might create new forms of collaboration in organizations (Makarius et al., 2020; Mateescu & Elish, 2019; Wolf & Blomberg, 2019; Lampinen et al., 2022; Flügge et al., 2020). The U-Turn system is pervasive in the way in which it transformed the Licensing Authority. However introducing comprehensive technology reform into an organization that has not been a culturally technologically inclined institution, means that there are bridging practices that must happen to ensure continuity of operations.

Liao et al., (2020) in their discussion argue that a lot of the research on AI usage has been focused on the data scientists and have taken a top-down approach. Conversely, the study of the U-Turn system is positioned from the perspective of the user and how that interaction in turn reframes the organizational practices. Ergo, while the technology affects the user, this study contributes to the discourse on how the user impacts on the way the technology is used and the way in which organizational practices are restructured to facilitate effective collaboration using the technology. The present study offers a real time observation of the evolution of organizational practice around AI usage from the perspective of the persons who are the primary users.

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