



**HAL**  
open science

# What remains of containment? Evolution of artifact ecologies in civil security organizations

Lisa Formentini, Matthieu Tixier, Francois Charoy

## ► To cite this version:

Lisa Formentini, Matthieu Tixier, Francois Charoy. What remains of containment? Evolution of artifact ecologies in civil security organizations. ECSCW2024, Jun 2024, Rimini, Italie, Italy. hal-04772255

**HAL Id: hal-04772255**

**<https://sciencespo.hal.science/hal-04772255v1>**

Submitted on 7 Nov 2024

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

# What remains of containment? Evolution of artifact ecologies in civil security organizations

Lisa Formentini <sup>1</sup>, Matthieu Tixier <sup>2</sup> et Francois Charoy <sup>1</sup>

<sup>1</sup> Laboratoire LORIA - Université de Lorraine, Nancy, France

<sup>2</sup> Laboratoire LIST3N - UTT de Troyes, Troyes, France

## Introduction

- To **collaborate**, **civil security** (*i.e.* firefighters, gendarmes, hospital staff, etc.) uses a multitude of digital tools (*i.e.* CRIMSON, SYNERGI) and collaborative practices (*i.e.* videoconferencing) (Linot, 2021): this is their **ecology of artifacts**.
- During the COVID-19 crisis**, these services quickly had to find solutions to continue working despite the health risks and measures (Chalulleau *et al.*, 2022).
- Today**, even if the pandemic is under control, their ecology of artifacts seem to have changed.

**How and why have the practices and uses of collaborative tools evolved in civil protection with and since containment?**

## Literature review

**Ecology of artifacts (EoA)**, based on the work of Jung *et al.* (2008), Bødker & Klokmoose (2011), Bødker *et al.* (2017) and Vasiliou (2017) = a heterogeneous dynamic space rich in artifacts (*i.e.* software, hardware, machines, etc.) endowed with an interactive aspect between themselves and with their environment (*i.e.* physical, social, cultural, etc.).

To study and represent them, several theoretical currents, associated with several operationalized models:

**Table 1. Comparison of theoretical frameworks and operational approaches for EoA's study**

Theoretical framework	Activity theories		Disitributed Cognition theory
Operational approach	Human-Artifact Model, Bødker & Klokmoose (2011, 2012)	Bødker, Lyle & Saad-Sulonen (2017) et Modèle par Layers, Jung <i>et al.</i> (2008)	DiCoT, Blandford & Furniss (2005)
Which approach is adapted to account for EoAs in their...			
spatial dimension?			X
temporal dimension?	X		
personal dimension?	X		
interpersonal dimension?		X	
What are all the theories currently missing?			
	Acquisition of each artefact		
	Temporal representation of the artefact's use by multiple individuals		
	Detailed analysis of the artefact's feature as produced within an EoA		
	Indicating the synchronized and shared status of an artifact		

## Research method

**Collection of documents** dated pre- (Linot, 2021) or during COVID-19 (Rizza, 2022)

**Semi-directive explanatory interviews** with members of the civil security sector

**Observation of practical inter-departmental training sessions**



Fig 1. Official photo of an inter-service training session, found at <https://www.facebook.com/sdis57Officiel>

## Preliminary observations

- Unstable observed EoA (*i.e.* firefighters, gendarmes, etc.) ;
- EoAs contain many various numerical tools, different from one department to another ;
- On the field, exchanges between departments are mostly informal and ad hoc;
- Influence of COVID-19 on EoAs:
  - zonal headquarters = no change
  - firefighters = some changes
  - gendarmes = radical changes.

## References

- Bødker, S. & Klokmoose, C. (2011). The Human–Artifact Model: An Activity Theoretical Approach to Artifact Ecologies. *Human-Computer Interaction*, 26, 315-371. <https://doi.org/10.1080/07370024.2011.626709>
- Bødker, S., Lyle, P. & Saad-Sulonen, J. (2017). *Untangling the Mess of Technological Artifacts: Investigating Community Artifact Ecologies*. 246-255. <https://doi.org/10.1145/3083671.3083675>
- Jung, H., Stolterman, E., Ryan, W., Thompson, T. & Siegel, M. (2008). Toward a framework for ecologies of artifacts: How are digital artifacts interconnected within a personal life? *Proceedings of the 5th Nordic Conference on Human-Computer Interaction: Building Bridges*, 201-210. <https://doi.org/10.1145/1463160.1463182>
- Linot, B. (2021). *Confiance dans les situations de travail collaboratifs médiatisés par des environnements numériques* [PhD Thesis]. <https://www.theses.fr/s187689>
- Rizza, C. (2022). La réorganisation d'un SDIS face à la première vague de CODI-19. In H. Dumez, B. Loveluck & A. Mallard (dirs.), *Innové en temps de crise. Réactions et adaptations face à la crise Covid-19* (pp. 90-101). Paris, Presses des Mines, Collection Sciences sociales. <https://univ-scholarvox-com.bases-doc.univ-lorraine.fr/reader/docid/88931154/page/1>
- Vasiliou, C. (2017). *A distributed cognition perspective for collaboration and coordination: artifact ecologies in design studies* [PhD Thesis], Cyprus University of Technology. <https://hal.science/hal-01599899/>