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

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## 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.

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