

## 1. MOTIVATION

In the preparation stage of the emergency management cycle, the emergency plan is designed, which contains the response procedures that are carried out in the response stage, in case of disaster, with the aim of preventing the loss of lives, safeguard assets and normalize the situation as soon as possible. However, they are static consultation tools written in natural language, so they are concerned about the lack of usability to handle emergency situations.

Due to their nature and the variants that may occur during the contingency, the response procedures contained in the emergency plan must be executable and flexible.



## 2. GOALS

### GENERAL

- Study the adequacy of flexible case management to obtain a framework for modeling and executing response procedures in order to improve the management of emergencies.

### SPECIFIC

- Study of the **state of the art** of the current situation in which are found the investigations and technologies related to **emergency management** with adaptive case management (ACM).
- Study and analyze the adequate **methodology to design hybrid ACM models** of flexible responses based on the combination of the CMMN, BPMN and DMN languages in order to represent all the aspects that comprise the response procedures when managing an emergency.
- Design a **framework that allows managing the design and execution of hybrid ACM models** of flexible responses based on the response procedures contained in emergency plan.
- Develop and execute hybrid ACM models** of flexible responses of real response procedures in the proposed framework.
- Evaluate the usability** of the proposed framework by organizations in Spain and México responsible for corporate security.

## 3. RESEARCH PLAN

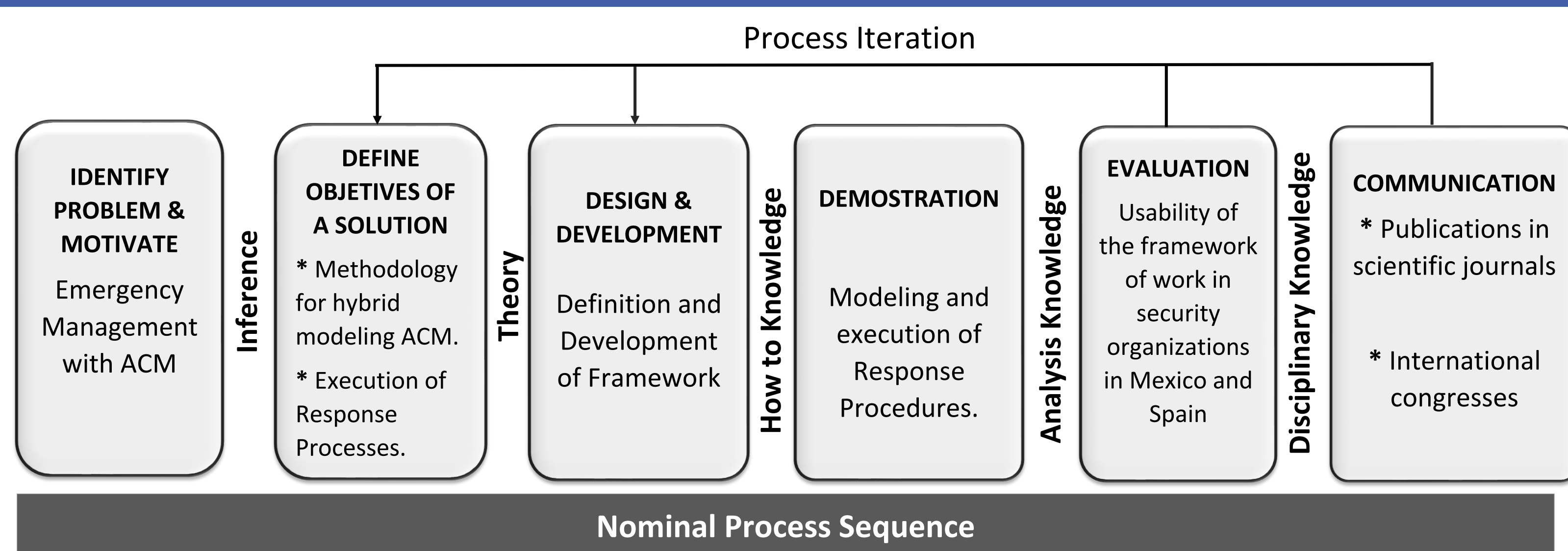


Fig. 1 - Development based on "Design Science Research Methodology", K. Peffers et al., 2007

## 4. WORK IN PROGRESS

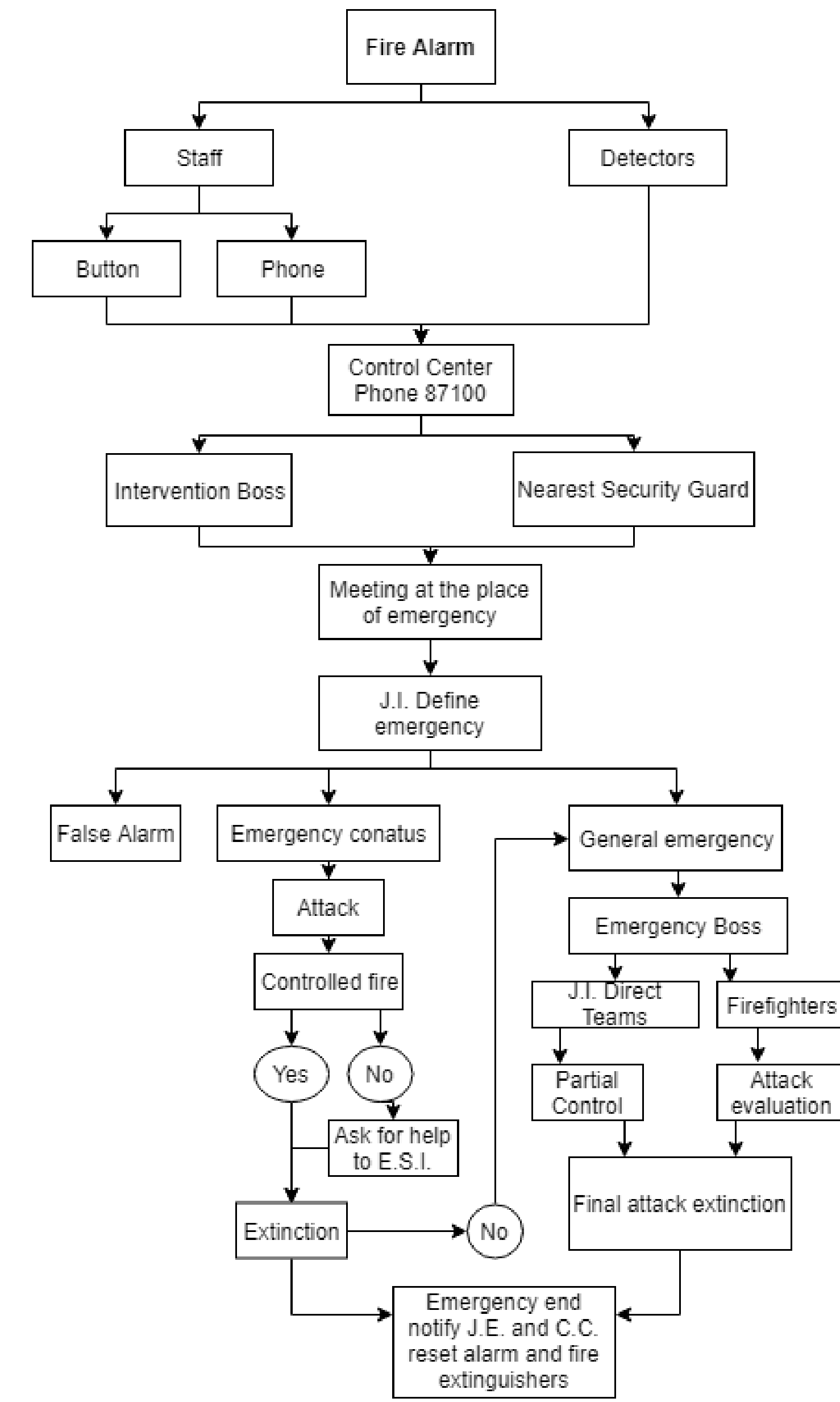


Fig. 2 - Flowchart of the fire-type response procedure in the Hospital La Fe

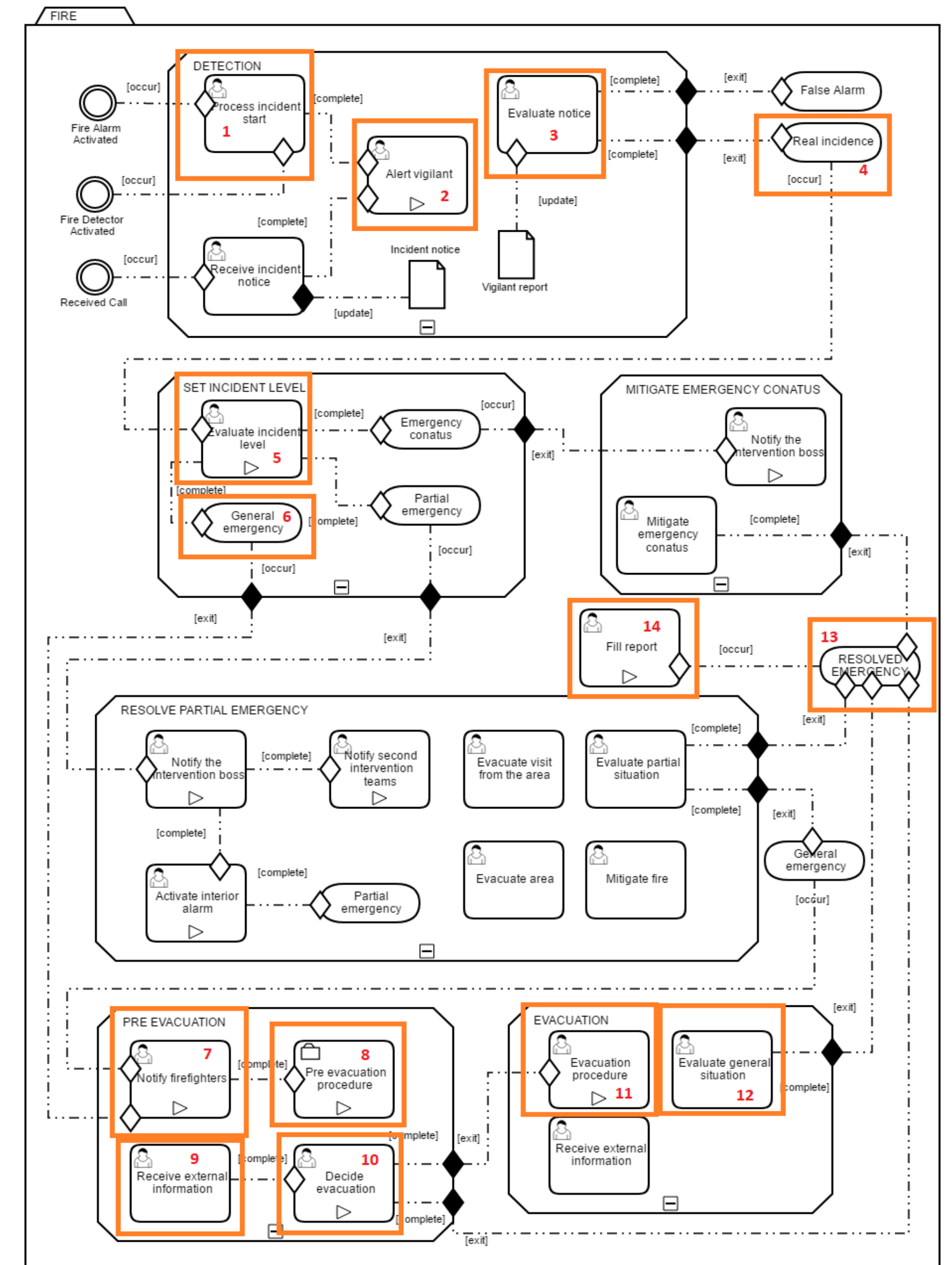


Fig. 3 - General emergency execution flow in CMMN Model

## 5. EXPECTED RESULTS

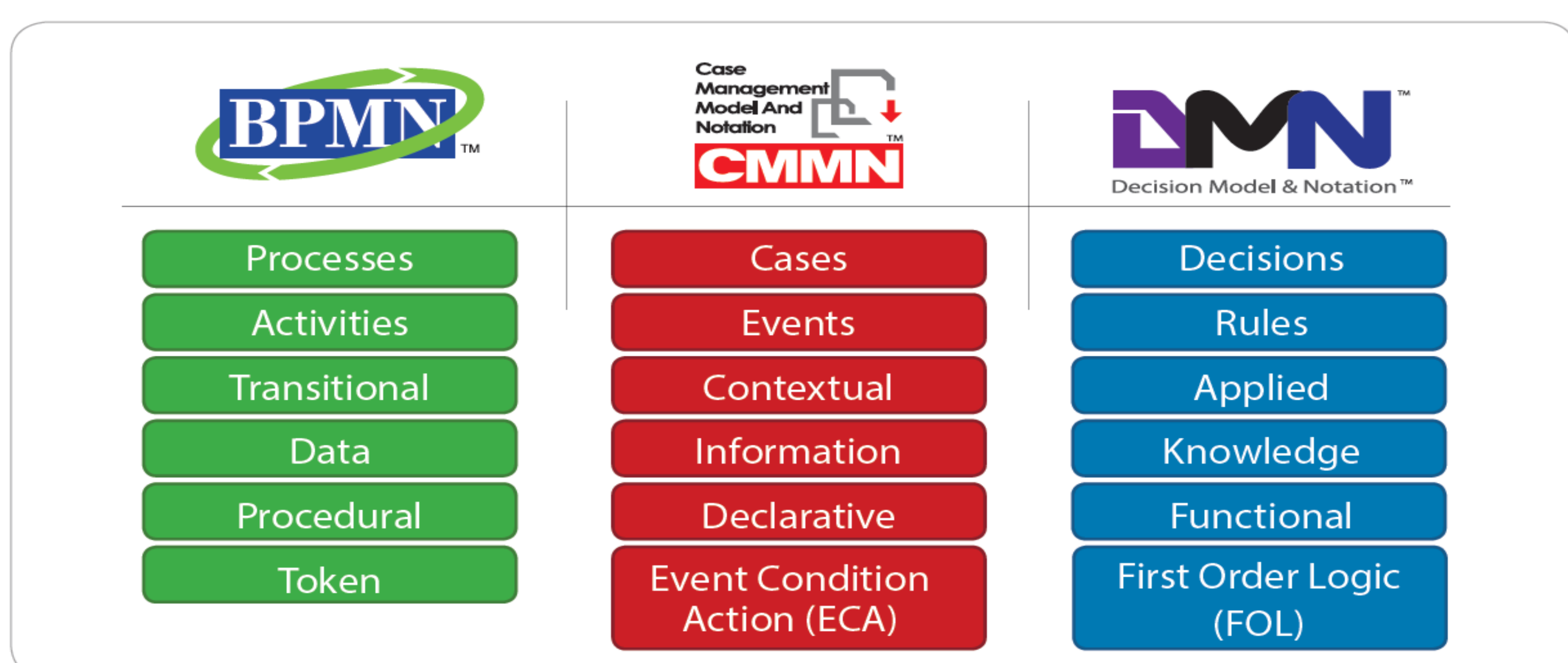


Fig. 4 - "Differences in terms of core concepts, focus and semantics of BPMN, CMMN, DMN", OMG, 2016

- A methodology that will allow integrating the features of each modelling language (BPMN, CMMN, DMN) to represent the diverse activities that integrate the response procedures, this digital object will be known as hybrid model ACM.
- The aim of the framework is to provide security staff with a technological tool to improve emergency management during a simulation or real incident through a flexible response procedure adaptable to the environment, taking into account the life cycle: design of the hybrid model ACM, deployed, execution, and evaluation.
- Carry out research that will evaluate the usability and productivity of the proposed framework with the tools currently used by the security services in México and Spain.