



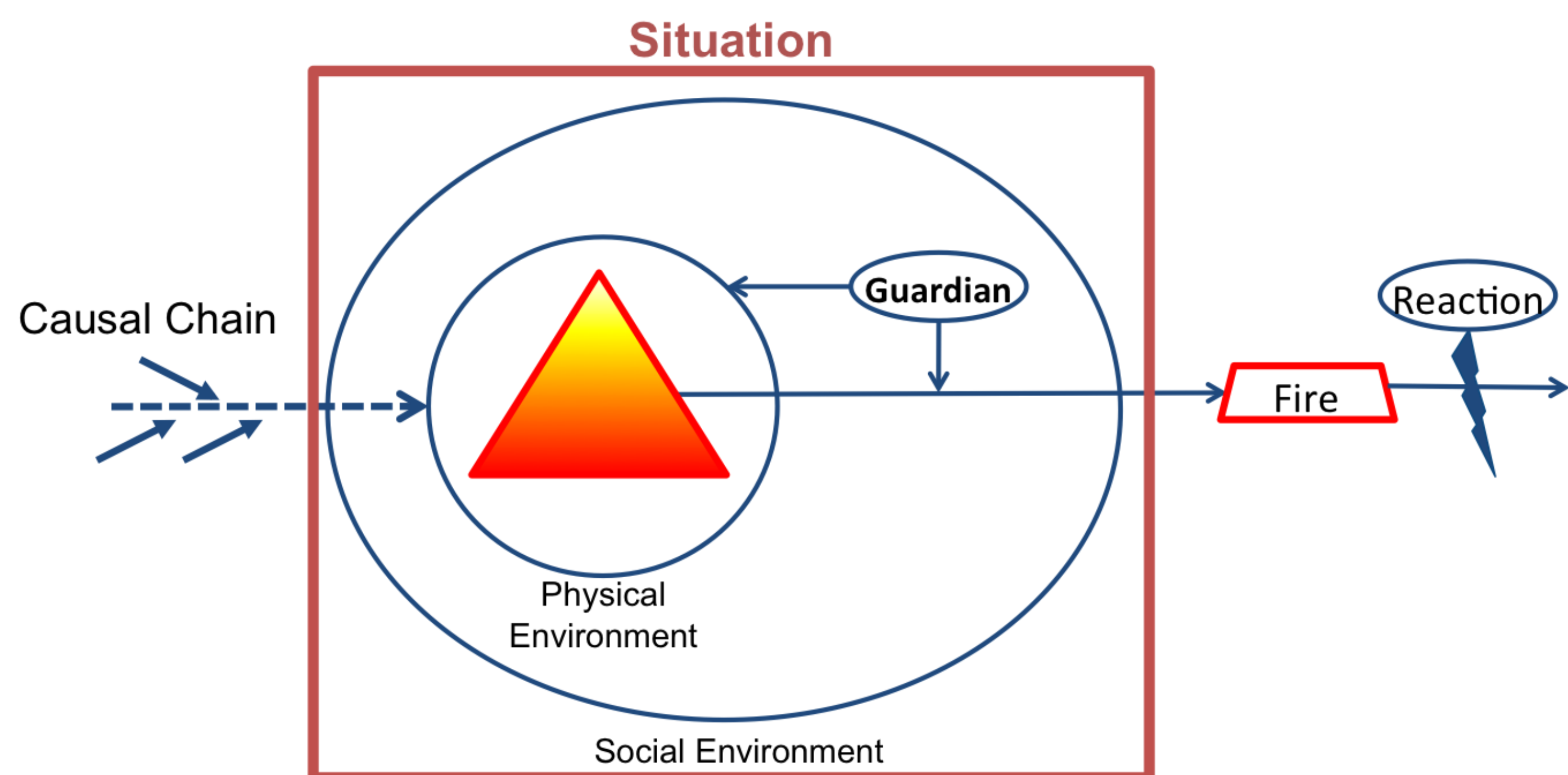
Situational classification of fire risks

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>> Fire risk and situation

Many energy sources are used everyday and each utilisation is not likely to create a fire. However many studies found in the literature use energy source to classify fire cases, that's not adequate. **Energy source only influences fire incidence probability in a given situation** (a burning cigarette left unattended on a sofa will probably lead to a fire, whereas the same cigarette in an ashtray won't).

Thus, we consider fire to be the consequence of a process that begins with a causal chain of proximal and distal causes (organisation of society, human habits, human needs, etc.). These causes will lead the three physical elements of the fire triangle to meet. They meet in a social environment where a guardian (a human, a technical system or a standard) is normally present. **The guardian's task is to avoid the meeting of the three fire triangle physical elements or to keep control of a fire.** Once the control of the energy source is lost, only a reaction (fire brigade intervention) can stop the fire.



Practice of fire investigations as also detailed examination of fire cases tell us that **specific situations are likely to generate specific fire risks.** The physical and social environment (the situation) surrounding the incidence of each fire can be described. Consequently these specific situations could be identified, described and used to classify fire incidence data in separated categories. The main purpose of this situational classification is to contribute to detect problematic situations and to make analysis easier.

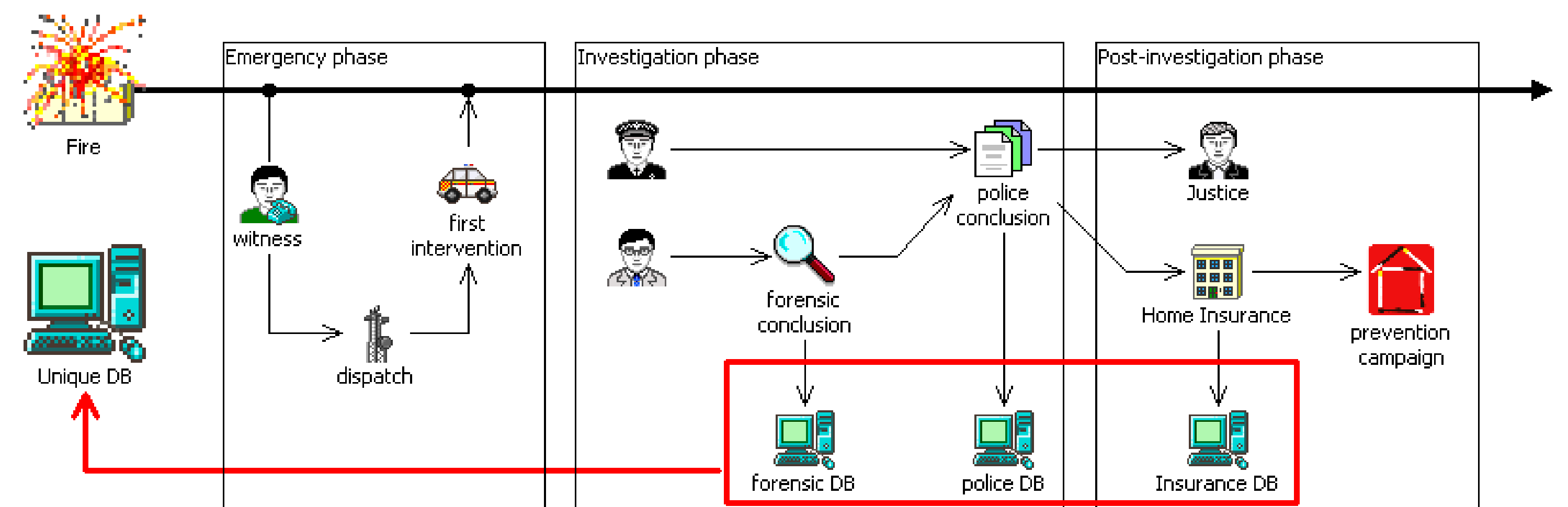
>> Conclusion

Fire is considered to be the consequence of a situation where the control of an energy source is lost. Consequently, specific situations are likely to generate specific fire risks. Detecting and identifying these specific situations is the first step to build a situational classification of fire risks. This classification could be used to make the analysis of fire cases easier. A future aim, we will be to use the situational classification to detect specific risks and to suggest measures to reduce risks.

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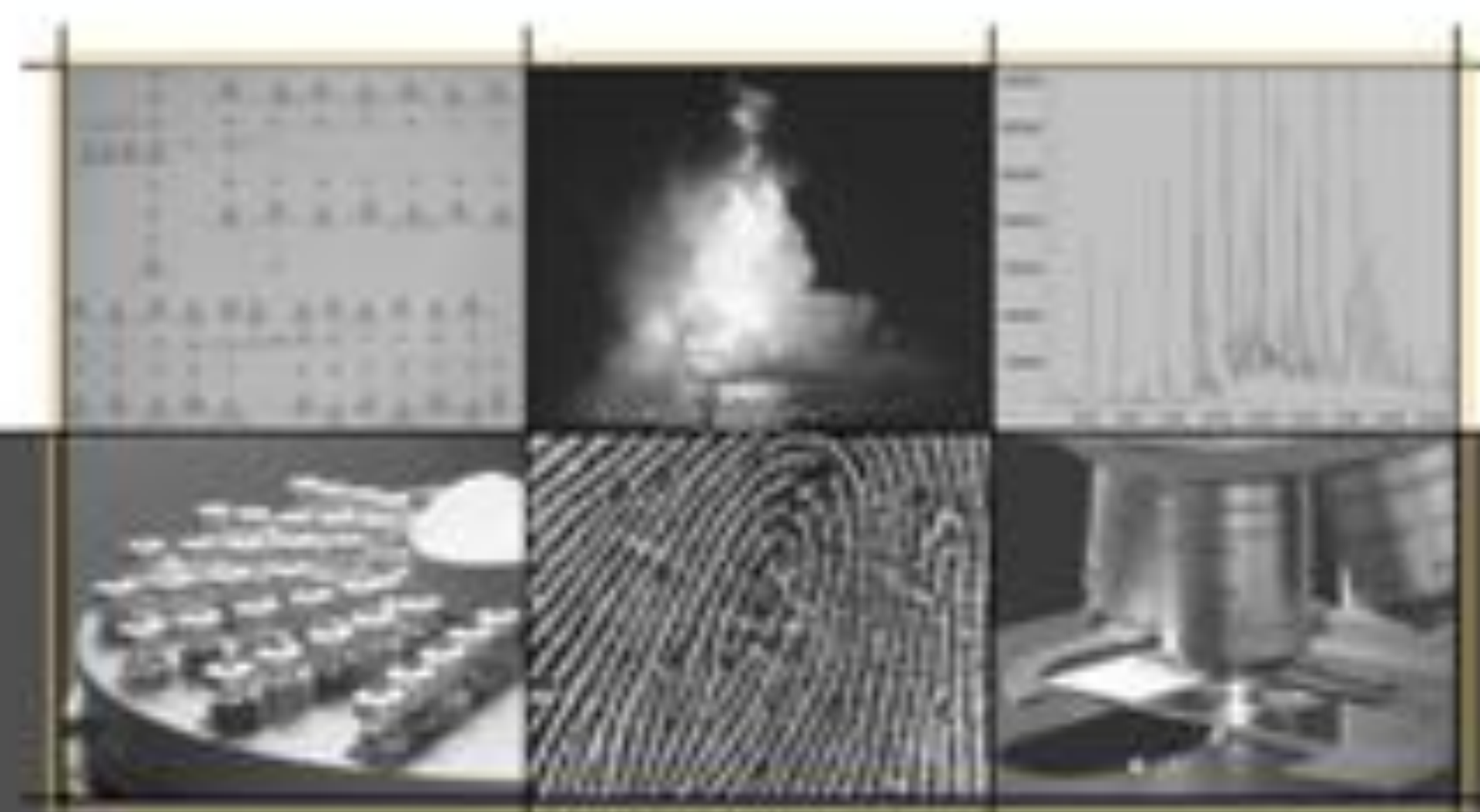
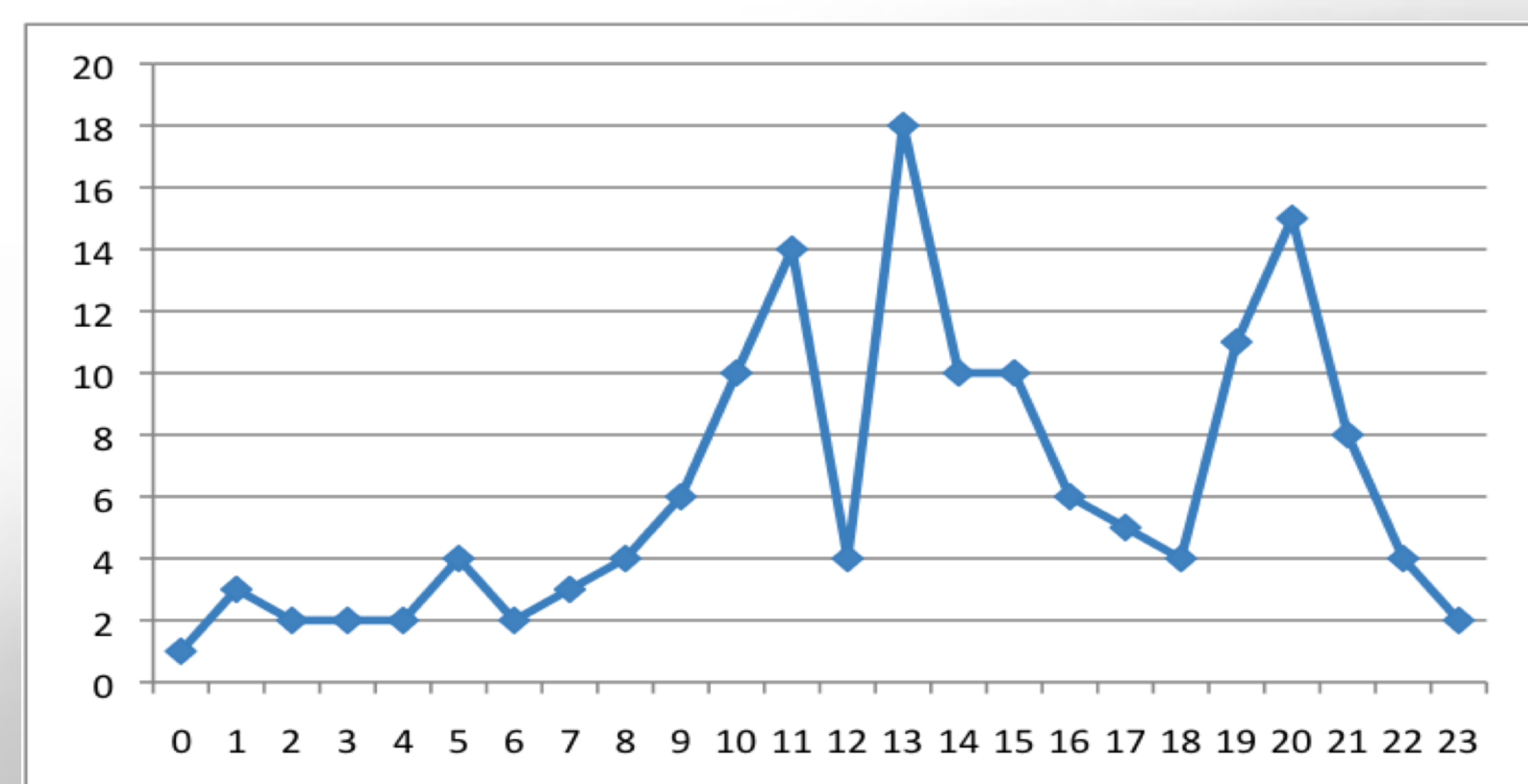
>> Short Study

Many institutions (police, fire brigade, home insurance) interact with fires and each one collects data of its interest. The Neuchâtel state (Switzerland) police and home insurance databases had been gathered and organised in a unique database, then classified according to our situational classification.



The fires caused by using of a cooking appliance (150 of the 1632 available cases in the database) between 01.01.2001 and 31.12.2009 are presented hereunder. Without a surprise, **the majority of the fires (107 cases upon 150) occurs when the "guardian" had left the room where the cooking appliance is located**, 12 fires occurs when people are asleep, 9 by clumsiness, 6 with drunk people, 16 fires in others social situations.

Usually fires are described as independent events, however the result of this short study indicates that **the distribution of the fires is not linear through the day**, most of the fires occur between 10am and 2pm (with a major decrease at 12am) and around 8pm. This kind of fire is linked with human activities. An explanation of the 12am ditch could be that fires happens when there is no guardian to look after an energy source, which is not the case at midday.



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