



THE DESIGN OF A WEBSIG PLATFORM TO SUPPORT RURAL FIRE RISK MANAGEMENT AT LOCAL LEVEL

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Introduction

The management of rural fire risk is a growing concern for local and operational authorities worldwide, and efficient communication and adequate risk management are essential to prevent and minimize damages. In this context, technology can be a great ally. The present work aims to understand how a Websig platform can support rural fire risk management at the local level, aiming to improve risk management efficiency and communication with local communities.

Objective:

Faced with the need to deal with extreme risk situations, such as fires, for example, it is necessary to adopt new forms of management and decision-making based on recent and, if possible, updated information. This work aims to demonstrate the need to create a WebSig platform that can be used by administration (Municipalities and Parishes) and operational entities (Firefighters, etc.) location and improve risk communication.

Material and Methods / Methodology:

To achieve this goal, a questionnaire was structured to understand the contribution that a Websig can bring to the management of forest fire risk from the perspective of municipalities. This questionnaire was sent to all civil protection services and forest technical offices of the 278 municipalities in mainland Portugal, obtaining 106 responses to date, thus allowing for a more realistic understanding of the needs.

Results:

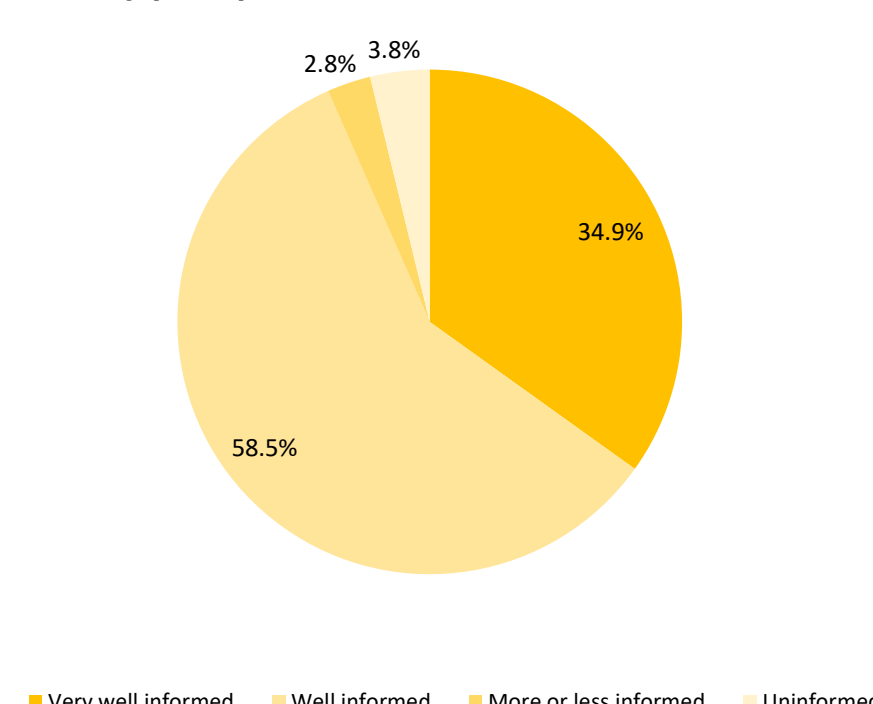
It was found, in the first instance, that there were gaps in the communities' access to relevant information in a context of fire risk, as well as problems and difficulties in communication between the populations and the local authorities. As such, it was necessary to consider the creation of a GIS-based tool that could help in this area, but in this first step, it is necessary to understand the needs of the municipalities and what contributions they could provide.

Analyzing the questionnaire results, it was observed that the sample came from various locations throughout mainland Portugal, with 106 responses obtained from 88 identified municipalities and 3 anonymous responses. It should be noted that since the questionnaire was sent to two different services, some municipalities have responded more than once.

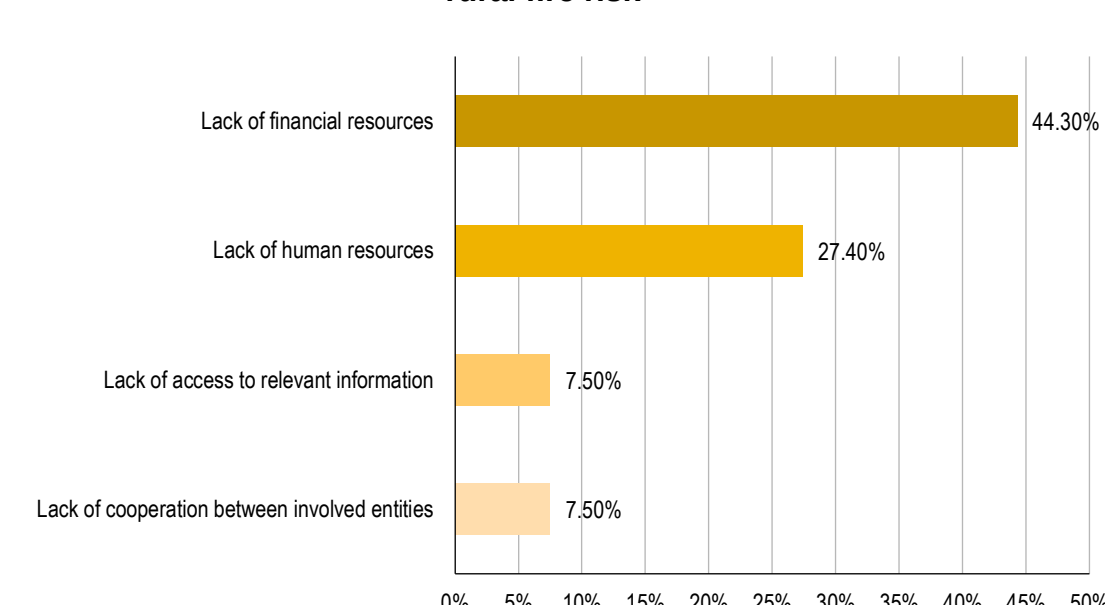
The first question asked whether technicians considered their community well-informed about rural fire risks. It was concluded that 58.5% (n=62) of the sample considered the community to be "well-informed" and approximately 34.9% (n=37) considered it to be "very well-informed". On the other hand, none of the individuals in this sample considered the community to be "not informed" (Figure 1).

It was deemed pertinent to question the opinion on what would be the biggest challenge faced by their community in rural fire risk management. From this question, we concluded that about 44.3% (n=47) of the sample considers that the lack of financial resources is the biggest challenge, while about 27.4% (n=29) consider that the biggest challenge is the lack of human resources. We were able to highlight two more challenges mentioned by 7.5% (n=8) of the sample, namely the lack of access to relevant information and the lack of cooperation between the entities involved (Figure 2).

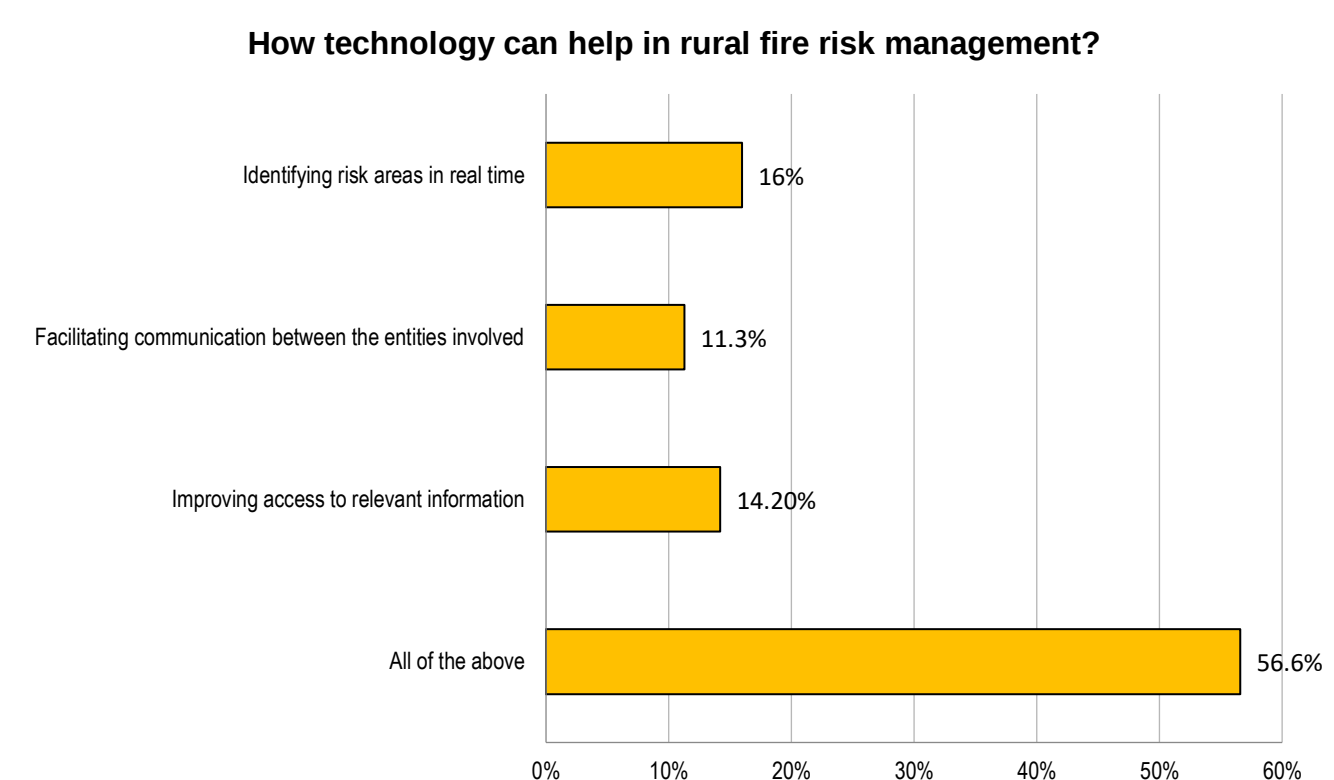
Community perception of information on rural fire risk



Biggest challenge faced by the community in managing rural fire risk*



It is also crucial to understand whether local administration technicians consider that technology can help in the management of rural fire risk. Thus, more than half of the sample, about 56.6% (n=60), agreed with all the proposed options, while about 16% (n=17) consider that technology is crucial, as it allows for the identification of risk areas in real-time. On the other hand, less than 1%, specifically 0.94% (n=1), consider that technology is fundamental, as it allows for greater public awareness and informs the community about the need to change behaviors. The results suggest that technology is seen as an important tool in the management of rural fire risk by the interviewed local administration technicians (Figure 3).



We also asked about the opinion regarding the role of the community in managing the risk of rural fires. More than half of the sample, specifically 67% (n=71), believes that the community should be informed and involved in the development of prevention and firefighting plans, while 21.7% (n=23) of individuals believe that the community should lead prevention and firefighting efforts with the support of local authorities. These results suggest that active community participation is valued by technicians as an essential element in managing the risk of rural fires, whether through involvement in plan development or leading prevention and firefighting efforts in collaboration with authorities.

Finally, we tried to understand how Websig can be used to improve rural fire risk management in your community. Analyzing the responses given, we concluded that 28.3% (n=30) of the sample considers that Websig plays a fundamental role in allowing better communication between local authorities and the community, 27.4% (n=29) believes that Websig will allow real-time monitoring of rural fire risk conditions, and 25.5% (n=27) believes that Websig will facilitate access to relevant information on rural fire risk.

Conclusions:

The creation of a platform of this kind can help simplify the management processes of rural fire risks by facilitating communication between institutions and communities. This, in turn, allows for increased participation of the population in risk management (citizen science) and promotes greater community resilience in the face of increasingly complex and severe fires.

Based on the results obtained, it can be concluded that local technical officials believe that the community is well-informed about the risks of rural fires. However, the lack of financial and human resources is considered the biggest challenge faced by the community in managing the risk of rural fires. With regard to the role of technology in rural fire risk management, the majority of the interviewed officials agree that it can play an important role, particularly in the real-time identification of risk areas. Furthermore, most of the respondents believe that the community should be informed and involved in the development of prevention and firefighting plans.

Finally, concerning the role of Websig in rural fire risk management, local government officials believe that it can play an important role, particularly in communication between local authorities and the community, real-time monitoring of fire risk conditions, and access to relevant information about rural fire risk. This study represents only the beginning of the process, as there are other entities that need to be consulted before the Websig can be developed.

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