

# HATARI



# WHY HATARI™

## HATARI™ IS A REPUTATIONAL RISK QUANTIFICATION TOOL BASED ON INFORMATION FROM SOCIAL MEDIA AND DIGITAL PRESS, USING INNOVATIVE ARTIFICIAL INTELLIGENCE AND NLP TECHNIQUES

Hatari™ extracts the topics contained in a corpus of texts and statistically determines their impact on the metrics of interest to the organization. In doing so, it allows the impact of reputational events on sales, liquidity, share value, customer churn, or any other relevant indicator measured over time.

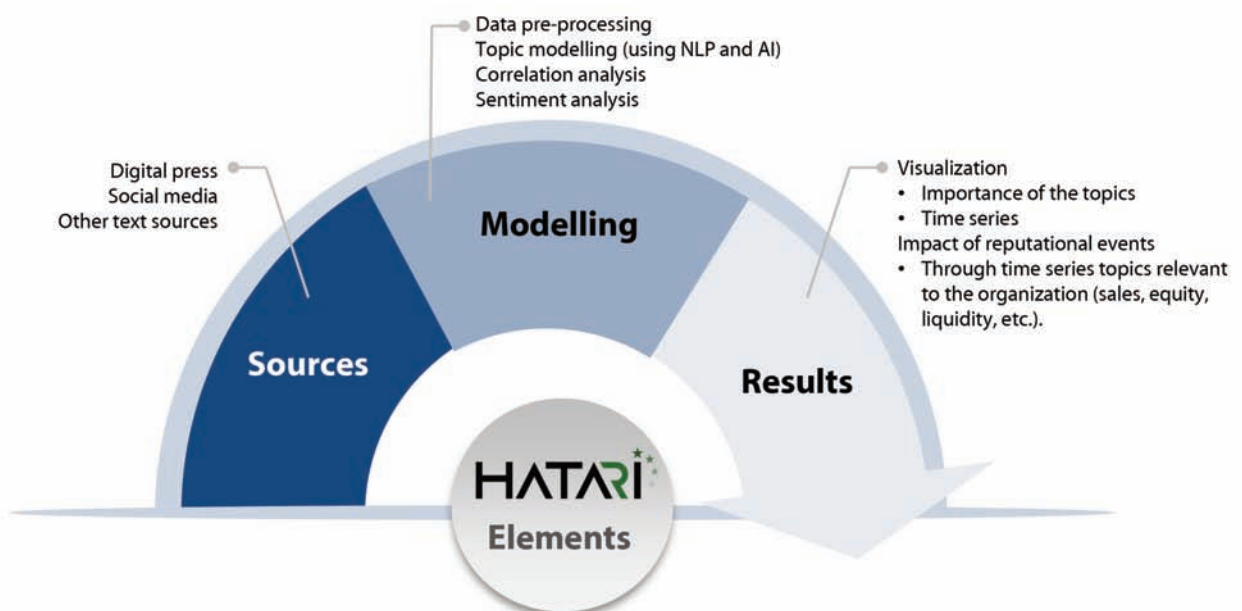
Hatari™ thus responds to industry needs such as:

- ▶ The growing interest in reputational risk by companies, regulators and supervisors.
- ▶ Reputational risk management aligned with regulatory requirements.
- ▶ The need to quantify reputational risk and express it in quantitative indicators, as an essential part of a reputational risk management framework.
- ▶ Improving the integration of reputational risk in the organization's strategy, analyzing its relationship with other risks.
- ▶ The industry's concern with quantifying and mitigating negative reputational events that may cause deterioration in revenues, margins, share value, customer churn, etc., by understanding the causes that led to them.

To do this, Hatari™ uses the most advanced natural language processing (NLP) and artificial intelligence techniques.

The development of Hatari™, carried out jointly by Management Solutions and Mr. Houston after several years of R&D, brings new methodological techniques that significantly improve existing models and have been published in the most prestigious scientific journals in the field.

As a result, Hatari™ is a unique tool, with a level of scientific sophistication unprecedented in the industry, and enables a revolutionary approach to the quantification of reputational risk.



# FUNCTIONALITIES OF HATARI™

HATARI™ CALCULATES THE IMPACT THAT PUBLIC INFORMATION HAS ON CERTAIN INDICATORS OF A COMPANY (SHARE PRICE, SALES, REVENUES, ETC.) OVER TIME, ALLOWING AN ACTIVE MANAGEMENT OF REPUTATIONAL RISK

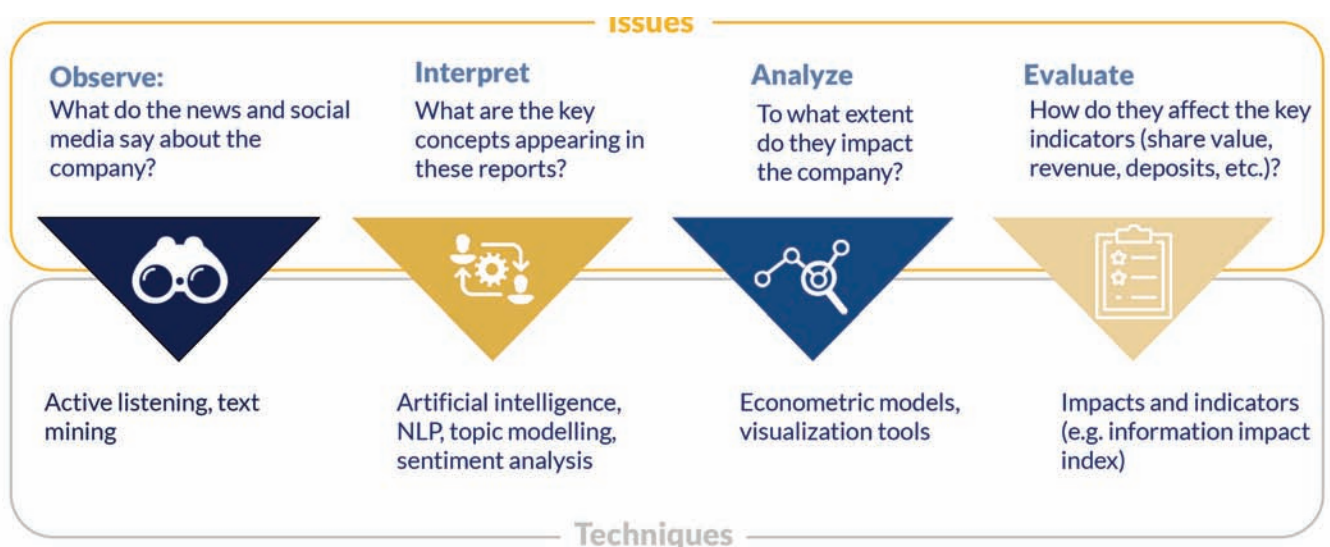
Hatari™ essentially answers four questions:

- ▶ What does the news and social media say that is relevant to the company?
- ▶ What key concepts are in those news?
- ▶ To what extent do they impact the company?
- ▶ And how do they affect key indicators (share value, revenues, deposits, etc.)?

To do this, in a schematic way, Hatari™:

- ▶ Feeds from a corpus of natural language texts, such as news in the digital press, mentions on social networks, texts from websites, or other documentary databases.
- ▶ Pre-processes this corpus using text mining techniques, eliminating information without semantic load (prepositions, conjunctions, punctuation, etc.), and transforms it into sets of words suitable for modelling.
- ▶ Using NLP techniques, obtains the topics present in the texts, without the need to provide any a priori information (e.g. keywords), and constructs a time series with their importance over time.
- ▶ Using econometric models, calculates the correlation of the time series of the occurrence of each topic with other time series provided by the user, which allows determining the influence of a given topic on an indicator.
- ▶ Additionally, by means of sentiment analysis, determines whether the tone in which each text in the corpus used is written is positive, neutral or negative.

Applied to the quantification of reputational risk, Hatari™ makes it possible to determine which specific reputational events, characterized through topics, affect a company's performance over time, and to what extent they do so.



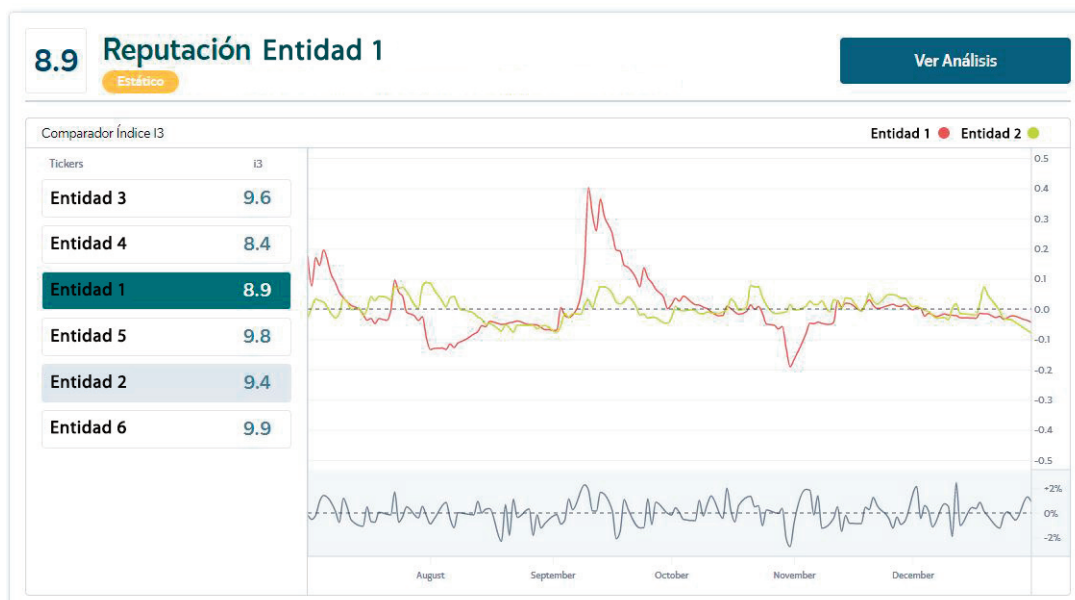
# USE CASES

## HATARI™ CAN BE USED TO DETERMINE THE IMPACT OF INFORMATION ON MANY AREAS OF INTEREST TO ORGANIZATIONS

Some areas of use of Hatari™ include:

- ▶ Reputation and share value: studying the impact of digital press and social networks on the value of a company's shares, allowing for improved management of reputational risk and communication with investors.
- ▶ Commercial management: analysis of the relationship between positive and negative messages on social networks and a company's sales and churn.
- ▶ Credit risk: calculation of a 'reputational score' for each customer in a portfolio of large companies, which is incorporated into their credit analysis.
- ▶ Liquidity management: measurement of the impact of news on a bank's time series of a bank's deposit inflows and outflows, allowing the identification of factors that trigger a deposit run-off and improve liquidity management.
- ▶ Cost of debt: analysis of the impact of news on a company's CDS spread, allowing the direct translation of the deterioration of reputation into an increase in the cost of debt, and therefore its impact on the P&L statement.
- ▶ Commodity prices: measurement of the impact of news on the price of the raw materials used by a company, which allows improving the management of purchases.

Beyond these specific cases, the flexibility of Hatari™ to incorporate any corpus of texts, as well as any time series on which to measure the impact of the information, allows it to be used for numerous purposes, according to the needs of each area of the company.



# FEATURES OF HATARI™

HATARI™ IS A TECHNOLOGICALLY LIGHTWEIGHT, EASY-TO-USE TOOL WITH UNPRECEDENTED COMPUTATIONAL POWER IN ITS FIELD.

## User

- ▶ High level of automation: Hatari™ fully automates the process of modelling, data mining and training of econometric models used to quantify reputational impact, in a user-transparent way.
- ▶ Absence of bias: Hatari™ does not require prior information to identify topics, as it employs a statistical approach and not based on keyword search, and therefore does not incorporate biases in the analysis.
- ▶ Customization: users can design their analysis autonomously, defining the corpus of texts used, the filters applied and the indicators on which to measure the impacts.
- ▶ User-friendly interface: Hatari™ has an interactive and simple interface, which allows immediate and intuitive access to information.
- ▶ Traceability: the interface offers full traceability of the analyses carried out, their information sources, the topics calculated and their impacts.
- ▶ Code optimization: Hatari™ has been optimized using the most advanced algorithmic techniques, which maximizes its computational power while keeping computation time to just a few minutes.

## IT

- ▶ Flexibility in deployment: Hatari™ can be deployed either as an on-premise tool or as software-as-a-service (SaaS) in the cloud, according to customer needs.
- ▶ Scalability and parallel computing: Hatari™ is scalable and takes full advantage of parallel computing capabilities.
- ▶ Easy deployment: Hatari™ can be deployed in a very short timeframe, including an analysis of the customer needs, their configuration preferences and necessary customizations.
- ▶ Reduced support: Hatari™ requires reduced IT support, and maintenance includes the deployment of evolutionary.

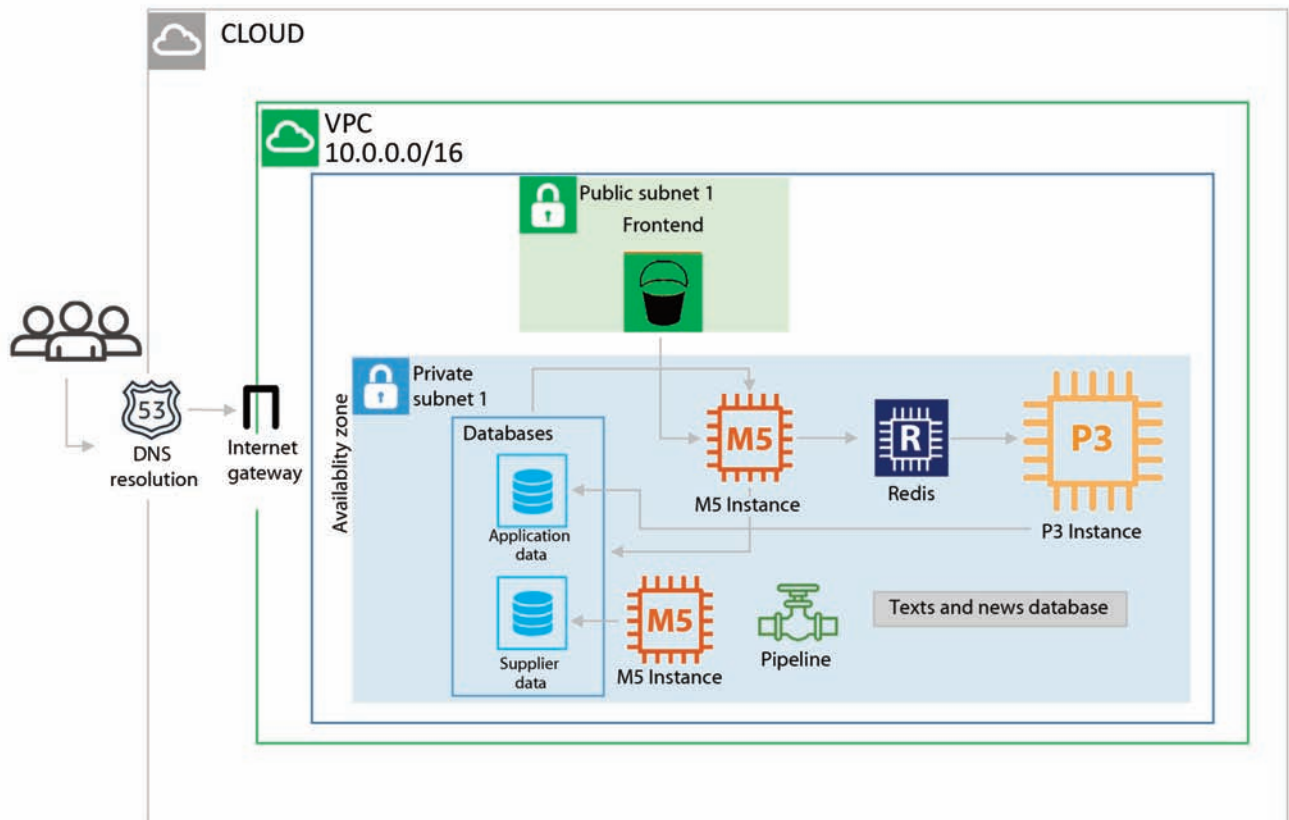
# IT ARCHITECTURE

HATARI™ IS OFFERED IN TWO MODALITIES TO ADAPT TO THE CLIENT'S NEEDS:  
SOFTWARE-AS-A-SERVICE (SAAS) AND ON-PREMISE.

The Hatari™ cloud architecture follows industry standards to be deployed on all major web servers and is compatible with all major browsers.

Hatari™ offers a flexible connection to different databases and security management systems. It results in reduced technology costs and installation times.

Hatari™ is fully scalable and stable even under high user traffic.





# CREDENTIALS

Joining forces, Management Solutions and Mr. Houston have extensive capabilities and references in the field of reputational risk, combined with a deep understanding of technology, business processes and risk control.

Together, Management Solutions and Mr. Houston bring differential value in the field of reputational risk:

- **Management Solutions** has extensive experience in frameworks, organization and governance, processes, systems, models and risk reporting. In particular, in the area of non-financial risks (conduct and compliance, reputational, ESG, strategic risk, technology risk, MRM, etc.), it has its own methodologies and proven quantitative and technological skills (2/3 of its staff are STEM).
- **Mr. Houston** is a specialist in artificial intelligence and software development, and is involved in R&D work within the European Social Fund, CDTI and the Spanish Government's Digital Enabling Technologies (THD) programme.

Management Solutions and Mr. Houston have teams of data scientists that carry out projects in artificial intelligence, NLP and machine learning projects applied to credit, market and counterparty risk, ALM, operational, liquidity, reputational, stress testing, economic capital, commercial modelling, etc. Specifically:

- Management Solutions has a R&D team dedicated to the practical application of AI applied to management, and collaborates with universities in the dissemination and promotion of R&D in the area of data analytics.
- Mr. Houston has a team of data scientists dedicated to the development of applied artificial intelligence, with a focus on natural language processing (NLP) and machine learning techniques.

Thanks to these differential values, Management Solutions and Mr. Houston implement Hatari™ in all the countries and industries where they operate.

For further information, please contact

**Javier Calvo**

Partner at Management Solutions  
*javier.calvo.martin@msgermany.com.de*

**Manuel Ángel Guzmán**

Partner at Management Solutions  
*manuel.guzman@managementsolutions.com*

**Segismundo Jiménez**

Supervisor at Management Solutions  
*segismundo.jimenez@msspain.com*

**Nicolás Franco**

Partner at Mr. Houston  
*nfranco@mrhouston.net*

**Ivar Zapata**

AI Director at Mr. Houston  
*izapata@mrhouston.net*



#### Management Solutions, Professional Consulting Services

**Management Solutions** is an international consulting Firm whose core mission is to deliver business, risk, financial, organization, technologies and process-related advisory services.

For further information please visit [www.managementsolutions.com](http://www.managementsolutions.com)

Follow us at:    

#### Mr. Houston

**Mr. Houston** is a technology services and solutions company. Core services: digital transformation, cybersecurity, artificial intelligence and software development.

For further information please visit [www.mrhouston.net](http://www.mrhouston.net)

Follow us on:   

© Management Solutions- Mr. Houston Tech Solutions. 2021  
All rights reserved.

All rights reserved. Cannot be reproduced, distributed, publicly disclosed, converted, totally or partially, freely or with a charge, in any way or procedure, without the express written authorization of Management Solutions and Mr. Houston.

The information contained in this publication is merely to be used as a guideline. Management Solutions and Mr. Houston shall not be held responsible for the use which could be made of this information by third parties. Nobody is entitled to use this material except by express authorization of Management Solutions and Mr. Houston.