



The design and implementation of a successful Business Intelligence system at a large teaching hospital

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Context

In today's health systems' context of scarce resources and growing demand, decision-making requires the efficient use of information

Business Intelligence (BI) systems have been considered a useful tool, as they allow access to information in real time and in a user-friendly format (Loewen and Roudsari, 2017)

Despite the recognized advantages of a BI system (e.g. improved access to information, time savings, better decision-making, gains in financial performance), its use in healthcare is still incipient and underdeveloped

Healthcare institutions have faced significant difficulties in successfully implementing BI systems (Pestana et al., 2020) due to:

- management issues
- organizational factors
- little is known on how to successfully implement a BI system in the health sector (Kitsios and Kapetaneas, 2022) – **a gap this study aimed to address**

Methods (1)

The research adopted a case study of a Business Intelligence system developed from scratch, since the mid-2000s, by a large public teaching hospital located in Portugal, in partnership with the Computer Science department of a Portuguese University

The hospital is recognised in the country as having one of the most advanced BI systems and by its effective use in decision-making

Methods (2)

Data were collected in 2023-2024 through 45 face-to-face in-depth semi-structured interviews with clinical and non-clinical staff involved in the design, development, and implementation of the BI system or who have access to it

Interview questions explored:

- i) the processes of the design, implementation, and improvement of the BI system and the roles played by hospital staff and external stakeholders, and
- ii) the factors that facilitated/created barriers to the BI system's development and to staff's effective use of the BI system in decision-making

Interviews were verbatim transcribed and inductively analysed

Results

Findings from the interviews highlight that both the **features** of the BI system and the **processes** adopted by the case study hospital in its design, implementation, and continuous improvement had a key role in its successful development and effective use in day-to-day and strategic decision-making

The **tailored approach** (to both the hospital and the departments) adopted in the development of the BI led to:

- the implementation of a BI system whose features and indicators are useful to the users
- the effective use of the BI system in decision-making
- the motivation for the BI users to continuously suggest new BI system improvements

The existence of a department centralising the development of the BI system, staff skills, and the support of the hospital board also played a key role

Discussion

This study explored the development of a successful BI system in one of the Portuguese large teaching hospitals, pioneer in the development and effective use of a BI system

Although the findings are from a single hospital, the fact that the hospital successfully developed and implemented a BI system which is effectively being used in decision-making, can be of great help to hospital managers considering adopting BI systems

We are currently designing a **BI toolkit**, based on the findings, to aid hospitals design, implement, and further develop their BI systems

References

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THANK YOU



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