

# An Open Data Storytelling Framework for Organizational Knowledge Management

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**Abstract:** Storytelling is an effective way to share information. The combination of storytelling and knowledge management is beneficial to share knowledge, transfer tacit knowledge, create new knowledge and shape corporate culture. From the four basic processes of knowledge creation, knowledge storage/retrieval, knowledge transfers and knowledge application, stories and storytelling can effectively promote the acquisition and transfer of tacit knowledge, but have no outstanding performance in the creation and application of knowledge. But this is storytelling in the traditional sense. Data storytelling is a way of telling stories based on data. Data scientists mine, analyse, comb and add plots to the core information of the data to describe it, so that the data can be more easily recognized and understood by non-professionals, and the insights contained in the data can be more easily remembered and used by them. Data storytelling framework provides a new solution for knowledge management. Within this research work we design an open data storytelling framework for organizational knowledge management. Our goal is to apply data storytelling to knowledge organization, and regulate explicit knowledge, make tacit knowledge explicit, use stories to organize knowledge, all members participate in the process of knowledge dissemination, and make knowledge display emotionally. We describe the essential elements and basic process contributing to this framework. The framework is divided into a data story product layer, a knowledge system layer and a user layer. At the data story product layer, knowledge management-oriented data stories are generated in the order of obtaining the story content, extracting the story, adding supplementary narrative, and presenting the story. At the knowledge system layer, knowledge in the organization is organized according to four basic processes: knowledge creation, knowledge storage/indexing, knowledge transfer, and knowledge application. At the user layer, users in the organization are allowed to interact with the data story product so that all users can add their own explicit and tacit knowledge to story products.

**Keywords:** data storytelling, organizational knowledge management, knowledge system, open, user

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## 1. Introduction

Said Peter F. Drucker, a management guru, "in the 21st century, the most valuable asset of an organization is its knowledge, workers, and their productivity" (Drucker, 1999). In fact, knowledge is now regarded as one of organizations' core competencies, which can be improved by organizational knowledge management. Therefore, knowledge management has been a popular topic for a long time. The owners of knowledge include organizations and individuals. So, the existing literature about knowledge management mainly covers both organizational and personal knowledge management. The booming of research on knowledge management reflects two phenomena: on the one hand, organizations have realized the importance of knowledge and made adjustments to take leverage of the knowledge wave with organizational development; on the other hand, huge values are hidden in knowledge. Therefore, if organizations and individuals can manage knowledge effectively, it is meaningful for both of them.

A story is a narrative composed of a series of inspiring events, either true or fictional. A good story can combine information and emotion to express explicit and implicit knowledge. It is beneficial to combine storytelling and knowledge management within organizations, especially in the following aspects: to share knowledge, to transfer tacit knowledge, to create new knowledge and to shape enterprise cultures (Kutay & Ho, 2010; Snowden, 1999; Brown, Gabriel & Gherardi, 2009; Colton, Ward & Arnold, 2004). But this is a storytelling in the traditional sense. As an alternative, data storytelling is a way of telling stories based on data, that is, the core information of data will be mined, analysed, sorted and added with charts and narratives by data scientists, and then tell a powerful story in aggregate. In this way, the data can be more easily recognized and understood by non-professionals, and the insights contained in the data can be remembered and used more easily by them. The result of data storytelling is an easy-to-understand data story for specific data, and the data story can be seen as a data product.

Like traditional story, data story is attractive, easy to spread, meaningful and emotional. And they have common goals in terms of knowledge management, including: to inspire actions, disseminate ideas, share knowledge,