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Wuhan International Conference on e-Business

Summer 6-30-2018

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The Analyzing on the Connotation, Properties and Research Trend of

Enterprise Social Media

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Abstract: The expansiveness and importance of Enterprise Social Media (ESM) have attracted the attention of researchers. ESM's connotation, properties and functions are being actively explored. And the discovery of some new social media properties such as diversity, polycentricity and network externalities, as well as their further application in business management scenarios, will surely drive further ESM research. Taking this reality into account, we will redefine the connotation of ESM, sort out the properties of ESM, analyze the overall characteristics of ESM related literatures, summarize the current status of ESM research, and then look forward to the ESM future research blueprint. Our paper will help scholars and business managers understand that, the ESM has a profound impact and the application of ESM is inevitable, which will bring opportunities and challenges in the IS field.

Keywords: Enterprise Social Media, Enterprise Social Network, Social Media

1.   INTRODUCTION

Social media is an Internet-based program that promotes users to create and share content. It's one of the most important applications in the past decades. ESM is a further extension of social media in the business environment. Today, more and more enterprises begin to use ESM for external communication and internal collaboration. ESM thus become one of the most important enterprise-level applications, and there are many mature ESM products, including foreign Yammer, Jive and domestic MingDao and so on. According to the research firm, the market size of ESM based enterprise collaboration software in 2019 will reach to 8.14 billion dollars.

ESM is fundamentally changing the way companies communicate, collaborate, operate and create values [1]. ESM, as an important part of enterprise application system for web 2.0, can generate the collective wisdom, promote collaboration and innovation. It can also help an enterprise to better establish connection based on knowledge and information among employees and further establish enterprise social knowledge network to achieve knowledge management. In addition, ESM can promote the connection among employees, then affect the social capital of individuals in the organization and further influence the performance of employees. For managers, ESM is provided to respond promptly to user feedback and maintain corporate image, ultimately impact enterprise performance.

According to the existing ESM research and considering the new properties and focuses to be urgently excavated and clarified, the logical structure of this paper is as follows. First, we summarize the classification, connotation and main properties of ESM; secondly, we collect the key literatures of ESM; thirdly,we measure and analyze the literatures, summarize the research status and explore the breakthrough of forthcoming research; finally, we give the research trend of ESM.

2.   ESM CLASSIFICATIONS, CONNOTATION AND PROPERTIES

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2.1   ESM classifications

Social media into the business environment, has undergone a gradual development process. With Facebook and other social media sites gathering more and more users, managers realize that mainstream social media sites are a good place to engage with customers and can communicate with customers in a convenient and efficient manner, which prompted many enterprises to start using social media. In view of the possible negative impact of using public social media, including the intrusion of employees' leisure and entertainment into the workplace and the leakage of internal information, the need to build an enterprise-owned social media is highlighted, such ESM can support internal staff contact and collaboration, but also to avoid the disadvantages of public social media [2]. Therefore, the current ESM is mainly divided into two types: Enterprise external public social media (EEPSM) and enterprise internal private social media (EIPSM). EEPSM is an enterprise level application system based on public social media such as Facebook, Twitter and Blog. It's used to support the communication between enterprises and external organizations and individuals such as customers, suppliers and the public. EIPSM mimics mainstream social media platforms in terms of appearance, functionality and user experience, primarily for internal communication and collaboration. In addition, MITRE has developed an internal social media platform and allows employees to invite external business partners to join, which may mean that ESM will be an enterprise level application with seamless integration both internally and externally.

2.2   ESM connotation

As for the connotation of ESM, Kuegler et al. argue that ESM is to apply mature and public social media tools into enterprises so that employees can use it to work and self-management [3], highlighting the characteristics of the social network. Leonardi et al. defined the connotation of ESM by summarizing the properties of ESM. They considered visibility, persistence, editability and association[4], emphasizing ESM as a social media whose information and data can be edited and persisted for a long time, this view is similar to Wu [5]. Richter et al. propose that the phenomenon of enterprises using public social media is ESM, thus implicitly indicating a typical scenario with two kinds of ESM applications [6]; In addition, there were some scholars also define ESM from the perspective of resource management and knowledge management[7-9]. Taking a variety of viewpoints, we have Table 1.

Table 1.   ESM connotation analysis

	Connotation of ESM	Construction perspective	References
1	Achieve efficient, transparent and convenient communication and collaboration among internal employees	Enterprise internal social network	[3]
2	Web-based software platform with visibility, persistence, editability and association	Enterprise internal social network, social media	[4, 5]
3	Social network is applied to enterprise environment	Public social network, enterprise internal social network	[6]
4	Through the 'following', users form an enterprise internal network platform to provide continuous data resources to the shared pool	Data resource management, knowledge management	[7, 8]
5	Symbolic social interaction system to promote members' social identity and collaboration, especially knowledge sharing	Knowledge management, social network	[9]

Based on the analysis of existing research on the connotation of ESM, we think ESM is an enterprise-led social media network platform, that has the dual properties of social network and social media. Internally, it enables employees to communicate more conveniently and fosters collaboration; externally, it facilitates the communication with the external public, customers, and suppliers, ultimately creating value for the enterprise.

2.3　ESM properties

ESM give full play to the properties of social networks and social media. Specifically, from the perspective of social networks, ESM has the visibility, association, centrality and network externalities, from the perspective of social media, ESM is editable, persistent and diverse.

2.3.1　Visibility / Transparency

Visibility, refers to the act of communicating between users using ESM in a transparent state that can be observed. This transparency is divided into three dimensions, including the transparency of communicators identity, communication content and interaction, which correspond to the visibility of the identities, the contents and information exchange activities respectively[10]. Visibility can be described both internally and externally. Internally, the visibility of the ESM can enhance communication and collaboration among employees, and managers can better understand and manage the employee to assist in business decisions. Externally, enterprises and consumers will communicate more timely and effective, which can be monitored and evaluated by managers, also to strengthen investor judgment on the business.

2.3.2　Persistence

Persistence refers to the fact that users can still communicate in their original mode once the communication is completed on the ESM platform, and because the exchanged information can be preserved for a long time, the others without having to engage in initial communication have the opportunity to learn and discuss. Treem and other scholars believe that persistence affects organizational behavior in three ways, including the availability of content, the "robustness" of communication formats, and the expansion and extensibility of content, which is an important foundation for enterprises to carry out knowledge management [11].

2.3.3　Editability / Interoperability

Editability refers to ESM users can modify published content, sum up experience, create new knowledge and promote business innovation, there are two meanings, users can develop communication behavior and content, and modify the content released by themselves or others[12]. The editability of ESM makes information richer and clearer, facilitates the dissemination of information, regulates personal expression, controls the extent and ways in which recipients can access content, and improves the quality of information through information exchange.

2.3.4　Association / Social connectedness

Association, also known as social connectedness, refers to social media can create and maintain the contact between multiple subjects [13]. Generally, there are two types of connection in ESM. One is the connection between people reflects the properties of the social network. The other is the connection between people and information, which reflects the properties of social media. Association can generally be analyzed from the breadth and depth of contact, and then the social capital in the organization can be portrayed from the perspective of quantity and quality to explore the laws that affect the development of social capital in the organization.

2.3.5　Diversity / Heterogeneity

Diversity describes the differences in the function, the form and the network structure on ESM [5], also known as heterogeneity. Based on the structure-hole theory, these holes in the social network that have low cohesion and can cross local networks. The diversity of nodes existing in these holes makes it easier to acquire professional knowledge and positively affects job performance. Meanwhile, the relationship between knowledge sharing and performance is more closely related to the diversity of participants in social media, or the structural diversity of the job team.

2.3.6　Decentration / Polycentricity

Centrality is an important indicator of social network analysis, describing "the extent to which one actor is at the network center". Based on social network theory, individuals who occupy a middle ground in social

networks are more likely to achieve creative results, in turn, gain a more favorable position, or even by influencing and shaping others in the network based on their own abilities and interests [14]. What needs to be emphasized is that in the ESM application scenario, the social networks may show more decentration, or there may be some inconsistencies in network concentricity and departmental organizational structure. This is one of the important directions for ESM future research.

2.3.7   Network externality

Network externality involves the concept of "critical mass," which describes social processes that affect the behavior of individuals. When the value of participating networks increases as more people participate in the network, network externality will appear [15]. Network externality theory shows that if more people use the same technology, then the technical value of the user will increase, so the continued use of employees is crucial to the success of the ESM..

The above properties of ESM are generally summarized from the perspectives of social media and social network, some of them have been fully recognized, such as visibility and persistence, while polycentricity needs further exploration. Future exploration of these properties will better reveal the value and impact of ESM.

3.   ESM RELATED LITERATURES COLLECTION AND BASIC ANALYSIS

3.1   ESM related literatures collection

Our initial idea is to delineate 20 important journals in the IS field and select the "web of science" database for literatures collection. Through the early accumulation, we limited the time scope after 2004 and retrieved the keywords "enterprise social media", "enterprise social network" and "enterprise social software", respectively, and obtained 24 related literatures, which is difficult to reflect the overall situation of ESM research. Therefore, we cross-search using "social media", "social network", "social software" and "performance", "employee", "innovation", "efficiency" to obtain a total of 272 literatures including 24 literatures. Then we have a quick review of the abstract and the full text. We identified 31 literatures related to ESM. Taking into account the limitations of the keywords and the selected journals, we examined 31 literatures and found 55 important literatures in different journals. So far, we have 86 literatures. Finally, we started to read carefully, excluding literatures that were atypical social media studies or were not discussed in the enterprise environment, and confirmed the fuzzy boundaries. Finally, 56 literatures were identified that are closely related to the ESM. At the same time, considering the subjectivity of the manual screening, we divided 56 literatures into 2 copies and invited 4 professionals conducted double coverage readings and compared their screening results to reduce misjudgment, for the controversial literatures, we discuss together, eventually formed a consistent analysis of the results.

3.2   ESM related literatures basic analysis

Through the above methods, we confirmed 56 important ESM literatures. From the time dimension, the ESM research shows a clear growth trend from 2004 to 2015. With the deepening of research questions, ESM research faces some new problems and difficulties, so the number of research papers in the past two years has been reduced. In the following, we will analyze the literatures in detail from the four perspectives of theoretical perspective, research level, research topics and research methods, and elaborate the research status of ESM.

3.2.1   Theoretical perspective analysis

First of all, we analyze the theoretical perspectives of ESM research, in which social network theory is mentioned eight times, with the object being the relationship between people and society [5]; second, the social capital theory, which mainly discusses the members' interaction influence individuals and teams [16], and social

capital theory is an interdisciplinary concept, often appears with social space theory or interactive memory theory. In addition, there are cognitive theory based on psychology and study the change caused by experience, the communication theory used for communication visibility, and the media richness theory, computer-mediated communication theory and behavior organization theory. These theories cover various academic fields such as social network science, psychology, computer science and organizational behavior.
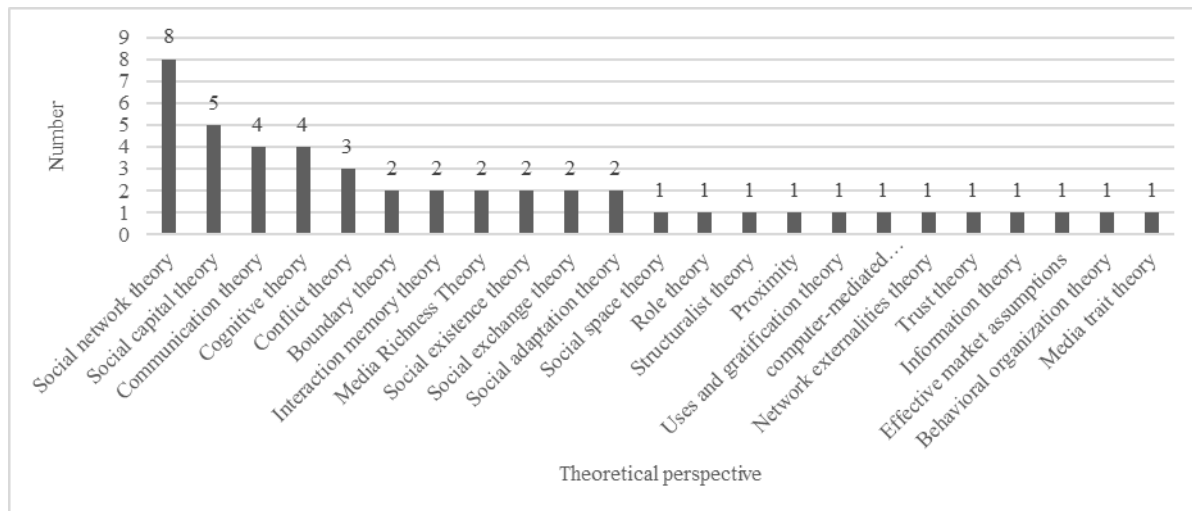

Figure 1. The theoretical perspective analysis of ESM related literatures

The collation of published journals confirms the interdisciplinary nature of ESM research. The final 23 related journals, including the top three journals in the field of IS, as well as journals in the fields related to computer science and behavioral science, we can say that ESM research not only draws attention in the field of IS, but also is considered by other fields as an interesting research topic.

3.2.2 Research level analysis

Ali-Hassan suggested that, ESM is a basic technology that penetrates into the organization through the use of employees, therefore, the research on ESM tends to focus on the individual level [2]. Excluding 10 literatures reviews, we classify the remaining 46 literatures on the three levels of individual, group and enterprise, and divide the multi-level research. Not surprisingly, there are a large number of studies at the individual level and relatively few literatures studies at the group level, often because even the analysis within the group focuses on the group members rather than the group structure. At the enterprise level, in 2006, there appeared an
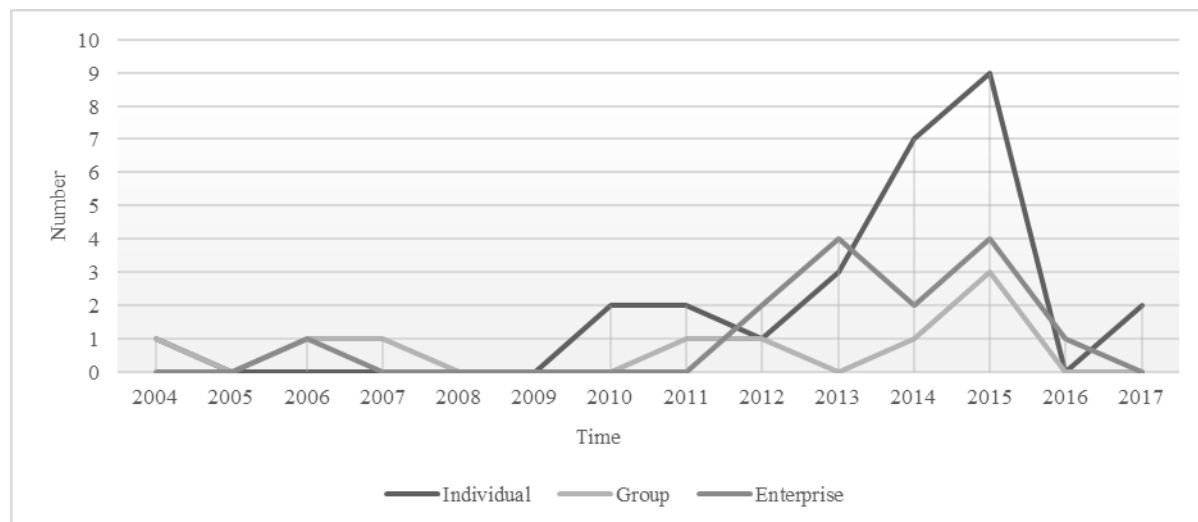

Figure 2. The research level analysis of ESM related literatures

exploration of the management strategies and values of corporate blogs, since 2012, research on enterprise performance, enterprise innovation and enterprise ESM management has been gradually increasing. This confirms Ali-Hassan's view, which means with the depth of individual research, there will be more and more research at the group and enterprise level. Finally, ESM research will give priority to the value of the enterprise and even be targeted at changing the organizational structure.

3.3.3 Research topic analysis

We continue to analyze 46 literatures that include topics such as ESM management, enterprise innovation, relationship management, enterprise performance, group performance, employee performance, employee knowledge management and sharing, and more. After multi-topic repeated counting, there are two main reasons can explain the majority of the topic-- employee knowledge management and sharing. First, the properties of ESM such as visibility, persistence and editability can promote employee knowledge interaction. Second, ESM has the function of enterprise forums and communities, and researchers can easily think about knowledge management issues from a virtual team perspective. The second topic is research on employee performance. According to Sarker, organizations are increasingly focusing on "personal performance" even in a collaborative environment, which leads to an increasing exploration of individual performance [17]. It can be expected that in the short term, the correlation will still be based on individual knowledge management and performance analysis. However, in the long run, due to the fact that the ESM is ultimately responsible for organizational value, research on enterprise performance and reputation is more likely to be accepted by society.
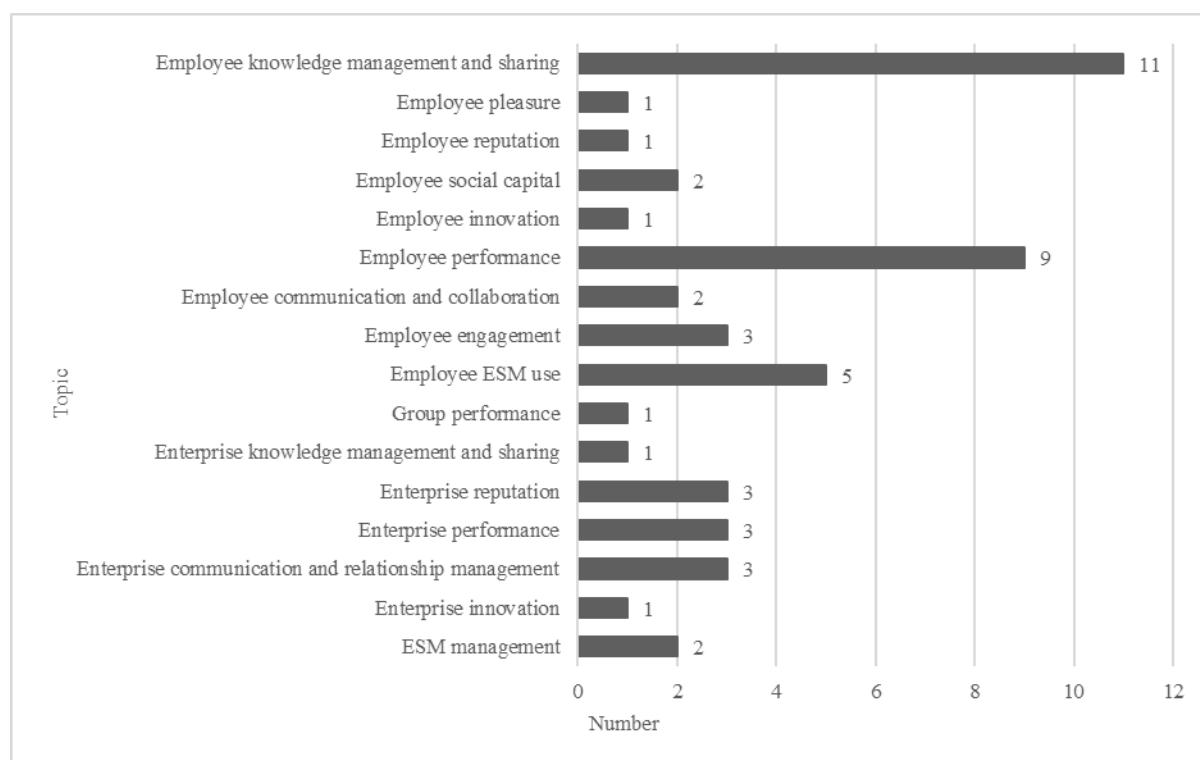

Figure 3.   The research topic analysis of ESM related literatures

3.2.4 Research methods analysis

Based on previous research, we think that these 56 literatures mainly use seven kinds of methods, which are case study, secondary data analysis, laboratory experiment, field experiment, questionnaire, descriptive, concepts and conceptual applications. Among them, the most used method is the case study, accounting for 30%. As early as 1989, Straub et al. proposed that the case study is an exploratory study and is mostly used in IS early analysis, and concept and conceptual application categories(36%) are considered as effective means of theory

construction in the initial exploration[18]. These exploratory methods are the mainstay in the short term, prove ESM research is an emerging field. In addition, scholars' attempts to analyze ESM using secondary data and experimental methods have also been ongoing. At present, we argue that exploratory qualitative research has attracted enough attention. In the near future, non-exploratory quantitative research including secondary data analysis and experiments will receive attention, and the result will play a role of an amendment to qualitative study.
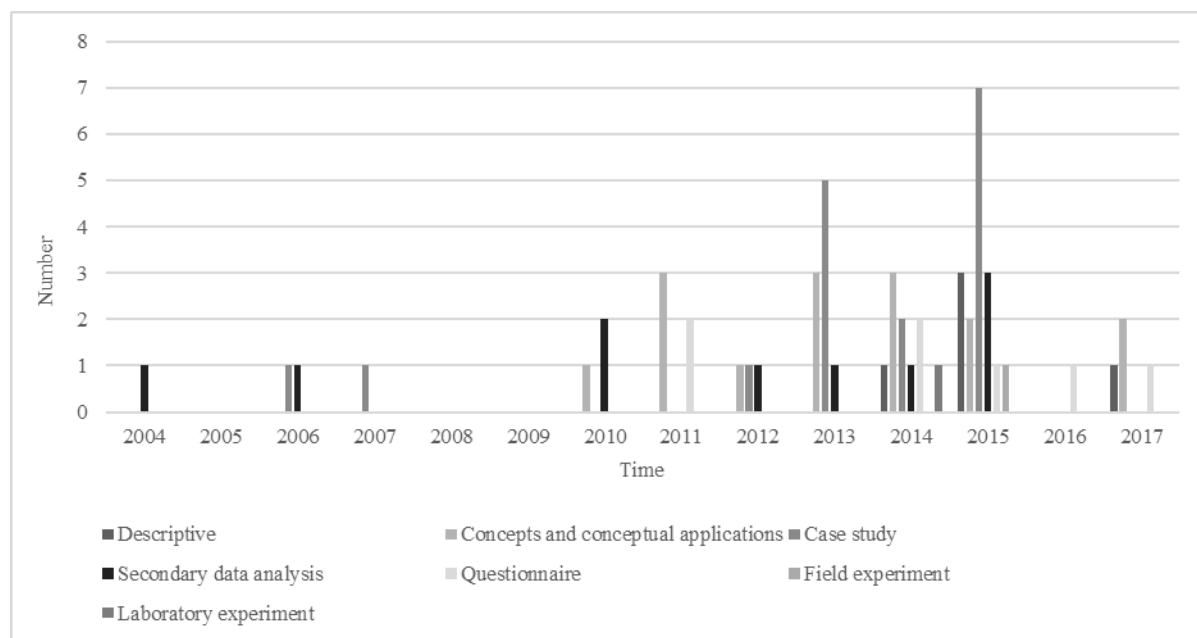

Figure 4.   The research methods analysis of ESM related literatures

3.2.5   Basic analysis summary

This chapter mainly illustrates the following three points. First, the arrangement of the research level, the analysis of research topics and methods tells us that ESM research is generally in its infancy, which brings some opportunities for follow-up research. Second, ESM research is an interdisciplinary subject. Finally, the most important focus in the ESM field at present is to explore employee knowledge management and sharing and individual performance, and the focus will continue in the short term. However, with ESM properties and functions' further exploration, the ESM of the future will focus on the enterprise level. Additionally, although exploratory qualitative methods are the mainstream currently, with the development of ESM research, non-exploratory quantitative research will become the focus of scholars' attention and give a feedback to exploratory research.

4.   CONCLUSION

Based on the extensive application and importance of ESM, this paper explores the research process of ESM according to the related ESM literatures, and gives the definition of ESM based on enterprise value and internal and external perspectives. And when we considering the duality of ESM. This paper presents seven important properties. Finally, this paper analyzes the basic analysis of 56 extracted literatures. The results show that ESM research is a relatively new field, which has attracted a great deal of attention in various academic fields.

The shortcoming of this paper is that the database selected only contains the foreign periodical literatures, neither domestic research nor the conference essay or the book has been elaborated, which may create some limitations. The next study can consider adding this information. In addition, this paper hopes to combine the

properties and theories in ESM research in the future, explain the impact of ESM adoption from two perspectives within and outside the enterprise, and ultimately accelerate the enterprise organizational change.

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