

Deployment, Usage and Impact of Social Media Tools in Small and Medium Enterprises: A Case Study

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Abstract. Social media are today engaging millions of users and provide a great venue for various business activities of Small and Medium Enterprises (SMEs). However, many SMEs have been slow to adopt them due to perceived barriers such as lack of resources, negative views about their usefulness, and unfamiliarity with technology. Social Media Tools (SMTs) aim to lift some of these barriers by helping companies monitor, manage and enhance their social media presence. This paper presents a study that investigates the deployment, overall user experience and impact of such SMTs in SMEs. Four SMTs were introduced to three regional SMEs with diverse profiles. The SMEs freely used the tools for a period of one month, and both qualitative (e.g. perceived issues) and quantitative data (e.g. Facebook page fans, Twitter followers) were collected before, during and after the study. Evaluation results are presented per SME and common themes are tentatively discussed.

Keywords: social media, small and medium size enterprises, SME, case study.

1 Introduction

The contribution of information technology in improving and developing business performance has long been recognized [1]. This is certainly the case for social media; a term that was initially considered to be only a “buzz word” but has gradually gained the status of an important strategic tool for any company.

Social media provide businesses with a great opportunity for monitoring customer views about their products or their brand, increasing their customer base, implementing customer relationship management, and targeting advertisement campaigns [2-5]. Before the rise of social media, customers’ needs, complaints and opinions about a company or its products could be only gathered through rather expensive and time-consuming methods of traditional consumer/marketing research, such as surveys [6].

However, extracting useful information from the vast amount of unstructured data that users generate daily on Social Networking Sites (SNSs), such as Facebook and Twitter, is by no means an easy and cost-free task. Companies have to dedicate resources and employees with specific expertise or outsource the task to specialized

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companies offering to provide social media consultancy services. Thus, a need emerged for tools that filter data and enable businesses to extract meaningful information that is often hidden in large amounts of data.

As a result, Social Media Tools (SMTs) have emerged to address the need for customer listening methods, as well as to harness the wealth of information available online in the form of user-generated content [2]. Considering that social media are becoming increasingly important, particularly for the survival of small enterprises [7-9], the proliferation of such tools could be proven to be a critical factor in their competition with the larger ones. Small and Medium Enterprises (SMEs) are usually more limited in their ability to hire additional employees or external help compared to large corporations. Thus, using SMTs effectively could provide opportunities to become more competitive in the landscape created by the rise of social media.

The wealth of information that can be extracted from social media with the help of SMTs can be relevant to many different stakeholders in an enterprise. Examples of insights that can be gained are: overall reputation of a brand, competitor's analysis, feedback about marketing campaigns, current issues and requests in regard to specific products, and new ideas for product development [10]. Stavrakantonakis et al. [2] mention the following application fields for social media monitoring: reputation management; event detection, issue and crisis management; competitor analysis; trend and market research plus campaign monitoring; influencer detection and customer relationship management; product and innovation management. According to [11] companies could benefit from social media monitoring in the areas of: crisis management; influencer identification; building relationships with media and customers; creative feedback and ad-targeting; and competitive monitoring.

More than 200 SMTs are available in the market today [2], and they vary considerably in terms of general scope, functionality, application areas as well as price [12]. To what extent these tools can actually support corporate users, and especially SMEs to adopt, engage and integrate effectively social media in their everyday activities has to be assessed. To this end, case studies on the deployment, usage and impact of SMTs may provide valuable insights on best practices to foster intention to use them, define or re-establish a social media strategy, select tools that would embrace changes in organizational and structural levels and measure their impact [13].

This paper presents such a study that investigates the deployment, overall user experience and impact of SMTs in SMEs. The main goal of the study was to evaluate whether typical regional SMEs could benefit from integrating SMTs into their activities and to identify which specific features or functionalities could adequately support them in achieving their goals. Our efforts were driven by questions such as: "What are the needs of typical regional SMEs in regard to social networking?", "What kind of SMTs could assist them?", "How easy can such tools be integrated into their activities?", and "How much impact can SMTs have on SMEs social presence?".

The paper is structured as follows. First, we elaborate on the case study methodology. In this context, the study phases and procedures, data analysis techniques, profiles of participating SMEs, and the provided SMTs are described. Next, study results per SME, followed by a discussion of general overarching findings are presented. However, it should be noted that making generalizations from this single study that

involved introduction of four SMTs into the business activities of three SMEs should be avoided.

2 Method

2.1 Phases and Procedures

Figure 1 presents an overview of the study methodology. Initially, the participating SMEs were profiled in terms of their overall social media activities, including existing presence, engagement level, goals, strategy, needs, policies and attitude towards social media. The profiles were created using qualitative data collected through a pre-study interview and a set of quantitative metrics gathered from social media analytics tools, such as Facebook Insights, prior the SMTs introduction.

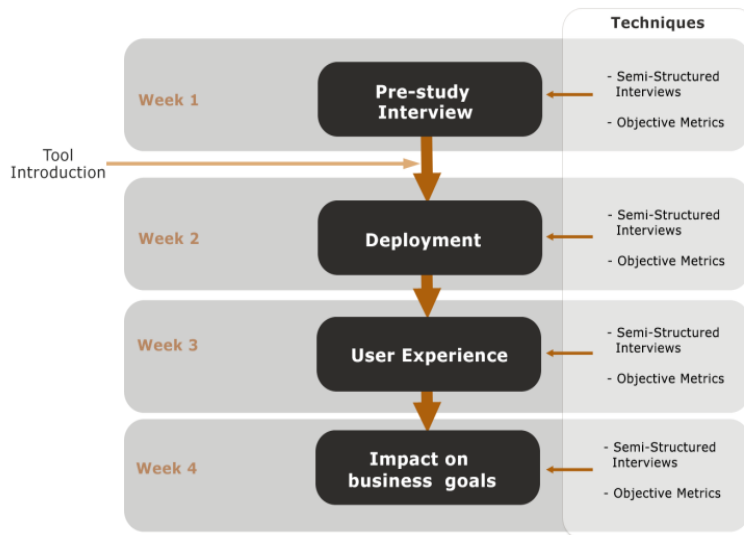


Fig. 1. Overview of the study methodology

Next, a set of SMTs (described in the following) were introduced to the participating SMEs, and concise training material was provided, including contextualized use cases of the tools. Next, the SMEs were left to use freely the provided SMTs for whatever purpose they deemed appropriate and for a time period of one month. During this period and following a ten-day interval, three semi-structured interviews were conducted with each SME in order to collect qualitative data on the tools' deployment process, overall user experience and impact on their business activities.

The interview during the second phase of the study was focused on the deployment process. The SMEs were asked about the level of effort that was required on their part in order to learn and start using the tools, whether changes in their social media policy were necessary due to the tools' deployment, as well to assess the sufficiency of the

provided training material. The focus in the third phase was on the participants' user experience with the SMTs introduced in the study. In specific, they were asked to comment about the usefulness, usability, learnability, and functionality of the SMTs. Finally, in the last phase the SMEs were asked to report whether the SMTs supported them in achieving their social media goals, whether they intent to continue using them in the future or recommend them to other SMEs, and to assess the general impact on their business activities. The study concluded with a post-study discussion.

In addition, we collected quantitative data related to the SMEs' social presence before, during and after the study. To this end, we used both tools available through the SNSs themselves (e.g. Facebook Insights), as well as third-party services (e.g. Klout) that were configured to continuously log the SMEs traffic. All in all, we collected metrics related to each SME Facebook Page (e.g. number of fans, lifetime likes, number of posts), metrics related to the SME Twitter account (e.g. number of followers, number of tweets), and the Klout score. The latter is a score that reflects social media influence on a 1-100 scale and is based on a proprietary algorithm that combines data from multiple SNSs. The rationale for collecting these measurements was to investigate whether changes in the activities of the SMEs due to the SMTs' introduction could be reflected in metrics of social media analytics, even in such a short term.

2.2 Data Analysis Techniques

The study collected both qualitative and quantitative data. Qualitative data included interview transcripts for each participating SME and were analyzed with Qualitative Data Analysis (QDA) [14] techniques, whereas descriptive statistics were employed to make sense of the collected quantitative data.

The QDA technique employed in this study followed a series of steps. First, the answers from all semi-structured interviews were transcribed and eyeballed to form a first impression of the results. Next, the data were read and re-read to identify and index categories which focused on particular phrases, incidents, or types of behavior. Each identified category was labeled with a representative word or short phrase. Subsequently, the results were analyzed by summarizing the prevalence of categories and identifying further groupings or relationships through a brainstorming session in which all authors were involved. In addition, various content analysis techniques, such as frequencies or counts of events/mentions, were performed along with correspondence analysis (a technique conceptually similar to principal component analysis) that aimed to create SME profiles in accordance to their responses to the semi-structured interviews. Finally, a technique called Narrative Summary Analysis [15] was performed in which the qualitative data were restructured in a form that resembles a narrative from the points of view of the participating SMEs.

2.3 Participating SMEs

In the context of the European project InterSocial, an exploratory survey on the use of social media in two regions of Greece showed that only 26%-30% of typical regional SMEs had a profile in SNSs, with Facebook being the dominant choice. Study results

also showed that social management was usually conducted by company owners and that social media profiles were updated infrequently. These Facebook company pages managed to attract a rather small amount of page likes (range: 41-2588).

According to these findings, three SMEs were recruited as representative regional companies in regard to social media usage and participated in our study. Although all of them were active in the same sector (i.e. information technology), they differed in regard to: business activities and structure; social media strategy, goals, and needs; and initial attitude towards social media. This allowed us to study the effect of SMTs use in different company settings. Finally, the participating SMEs hadn't previously used any SMT.

The first company (SME1) was a Business-to-Business software quality research group primarily engaged in research programs related to software quality assessment and evaluation, with special emphasis on educational technology. Although their workforce entailed 16 employees, only one employee was responsible for the management of the company's social media presence. The company used social media mainly to promote their research effectively, improve their networking and attract new project partners. SME1 was active in three SNSs, which in order of mostly used were: Facebook, Twitter, and LinkedIn. The company created approximately 10 posts per month on their Facebook page and had a total of 119 tweets on their Twitter account. SME1 reported that on average one hour per week was devoted to social media activities. The company's main problem in regard to social media practices was related to time management. The employee responsible for social media management had also other responsibilities and could not find enough time to manage multiple accounts in SNSs and engage more actively in conversations with the SME's followers. In addition, lack of ideas on what to post was also mentioned as a problem.

SME2 was a small Business-to-Business software design and development company with six employees. The company was mainly focused on web development, and their customers were companies and institutions from both the public and private domain. The two owners were responsible for the SME's social media management and they reported using LinkedIn, Facebook, Twitter, and YouTube. However, there wasn't any company page on LinkedIn, which was the network they reported using most frequently. Instead, they used their personal accounts mainly for networking and for monitoring developments in web programming by following specialized groups. On average they reported spending about three hours per week on social media activities, typically reading content created by others and rarely contributing content. The company owners attributed this rather limited social media use to limited human availability, but they also reported that did not believe much in social media Return of Investment (ROI). The main goal they hoped to achieve with their engagement in social media was to establish the company's brand in the market of software houses.

SME3 was a relatively small company mainly focused on web development as well as web and mobile marketing services. Typically, they launched and managed Business-to-Consumer e-commerce projects. An online travel agency and an online coupon and deal offering website were two of these projects they were trying to promote through social media at the time of the study. All employees were actively engaged in social media management. Being strong believers in the social media benefits, they

gradually abandoned more traditional web-based marketing strategies (e.g. Google ads, banner campaigns) on which they relied for many years in favor of social media campaigns. The company devoted about an hour everyday posting for each of their projects, mainly on Facebook. In addition to Facebook, they also used Google+ and were eager to start using Twitter and Pinterest in the near future. Their deals-offering website was launched approximately the same time that the study began and therefore started with zero followers and page likes. Their main goal in regard to social media was to increase their reach by widening their customer base. Although the company had an overall strategy for using social media, they did not set measurable goals that would allow them to assess their success. Instead, they occasionally eyeballed Facebook Insights, as they reported.

2.4 Social Media Tools Introduced to the Participating SMEs

Four SMTs were introduced to the participating SMEs. Three of the introduced tools had been developed in the context of the InterSocial project, namely the InterSocial Monitoring tool, Social Network Analytics tool (SONETA), and the Enterprise Social Aggregator (ESA) tool. These tools were created specifically to address the needs of regional SMEs aiming to support them in their social media activities. However, given that the InterSocial project tools had not been extensively tested at the time of the study, we decided to also include HootSuite, a widely-used commercial SMT. In the following, a short overview of the main functionalities of these tools is presented.

The InterSocial Monitoring Tool is a Facebook and Twitter specific search engine, built upon the publicly available APIs of these SNSs. The tool enables the user to search for specific keywords or phrases in the timelines of Facebook and Twitter subscribers that are denoted as being "Public". The tool can retrieve public posts from Facebook, Twitter or both simultaneously.

SONETA [16] is a tool that can be used to monitor and enhance the social media presence of an SME. The tool enables tracking of social media traffic in Twitter for a user-defined set of keywords within a user-specified time period and within user-defined geographical region(s). It can be used to recognize trending conversations in specific geographic regions and returns data visualizations in the form of word clouds, bubble clouds and treemaps.

The ESA [17] tool allows the management and monitoring of Facebook, Twitter, and Google+. Currently the tool is available both as a Wordpress widget and as an Android mobile application. In addition, ESA offers the possibility of calculating statistics of aggregated data from social media using the Facebook and Twitter APIs (e.g. reach, total mentions). It is an open source project and is available for download on Codeplex.

HootSuite is a tool that enables monitoring, searching and custom analysis of social media traffic. Furthermore, it acts as a global aggregator of the most popular social networks (i.e. Facebook, Twitter, LinkedIn, Google+, Foursquare, Wordpress and Mixi) and allows users to participate in their social networks through one single point. In particular, Hootsuite can be used as a Twitter handler to send and schedule Tweets, list and keyword tracking streams, as well as monitor mentions, direct messages, sent

tweets, and favorited tweets. Similarly, HootSuite's advanced Facebook functionality enables, inter alia, to post content, edit content and monitor feeds. Finally, HootSuite can also support groups of users through its functionality for role assignment and management. For the purposes of our study, we used the free version of Hootsuite which was sufficient to support the participating SMEs needs.

3 Results and Discussion

3.1 SME1: Business-to-Business, Neutral Initial Attitude towards Social Media, One Employee Responsible for Social Media

The main characteristic of SME1 was that they followed a single-representative model for their social media management. The most important problem they faced was not having time to post and engage in conversation with their followers as well as difficulties in managing multiple SNSs and finding content to post. When asked about what kind of help they would prefer their answer indicated that they needed tools supporting them in the management of multiple SNSs and tools that could help them understand their customers' needs. Prior to the evaluation study the SME did not have specific measurable goals in order to monitor the success of their social media activities. The only metrics they occasionally checked was the number of views and likes on their Facebook page and general demographic information about their followers.

In general, the SME had no problems deploying and embedding the provided SMTs in the company's activities. However, they did report that learning how to use them effectively was a rather time-consuming task. Analysis of the data collected through the second interview showed that the company was mostly interested in social media aggregators, while they also found the SONETA geo-location monitoring feature very interesting. Interview data also showed that the deployment of the SMTs resulted in new types of social media engagement, such as searching for trends related to the SME's activities and intention to design social media campaigns. In addition, the company realized that their current social media policy was too loosely-defined and that it should be revisited. In the last interview, the SME reported having increased the average time they spend on social media. They also reported that aggregating information from multiple networks and enabling easy posting to multiple networks was the most useful functionality that the tools provided. Even though the geo-location monitoring was perceived as interesting, the SME argued that such functionality was rather inappropriate for its type of activities, but it would be really useful for SMEs that target to sale products or services in specific locations.

Overall findings indicated that the deployment of the tools motivated the staff to increase their company-related social media activities while some of the introduced SMTs or specific features of them had a positive impact on this company. Tools providing management of multiple SNSs solved a real problem for this company and also triggered interest for new activities (trend monitoring, campaigns). In addition, pre-post comparisons of the collected quantitative metrics indicated that the SME gained a small increase in Facebook Page fans (from 69 to 74 page Likes), Twitter followers (from 10 to 12) and Klout score (from from 27.1 to 30.1). In addition, al-

most all other metrics related to their Facebook Page (e.g. mean daily total reach, reach of page posts) received also a small boost. These metrics showed a small decrease in the third phase of the evaluation study but increased again in the last phase.

3.2 SME2: Business-to-Business, Negative Initial Attitude towards Social Media, Company Owners Responsible for Social Media

From the initial interview it became apparent that this SME2 was not a very strong believer of social media benefits. They reported spending about three hours per week on social media primarily monitoring content created by others. When asked about what kind of help they would prefer, they expressed their interest for tools that can help in viewing and posting on multiple SNSs, as well as tools that would let them measure their social presence. They had never used Facebook Insights or any other tool to monitor their social presence by studying metrics such as total reach or post effectiveness. The only kind of monitoring they reported doing was checking general metrics such as overall number of page likes. They did not study the demographics of their followers and were not actively searching to identify influencers. In sum, this company was mostly interested in reputation management and in tools that would let them monitor multiple SNSs.

SME2 had no problems deploying and embedding the SMTs in the company's activities. Their involvement in the study gave them a new perspective on social media and contributed in convincing them to take the company's social presence more seriously than before. Analysis of the data collected through the second interview, showed that the company was mostly interested in aggregators that would allow them to monitor multiple SNSs, while tools for enhancing social presence, such as SONETA, also left a positive impression. Usability was highlighted as a very important issue in the deployment. Although most of the SMTs were perceived by the company owners as relatively usable, their perceived usefulness varied considerably. The aggregating functionality in the provided SMTs was perceived as the most useful. Finally, the last interview showed that in the middle of the case study the company had already changed its attitude towards social media. For instance, they reported that the SME's business objectives related to social media should be revisited and specific policies for improving and measuring their social presence should be produced.

All in all, the SMTs introduction had only a marginal motivational effect on SME2. This company needed information and examples about appropriate ways of using SNSs specific to their company domain more than tools. The lack of a general social media strategy resulted in difficulties incorporating the tools in their activities with some exceptions (monitoring multiple SNSs, reputation monitoring). However, pre-post comparisons showed that SME2 had a small increase in Facebook Page fans (from 48 to 53), Twitter followers (from 7 to 9) and Klout score (from 22.4 to 27.0). The frequency that this SME created content did also increase slightly, affecting positively various metrics such as mean daily total reach, reach of page posts and page consumptions. However, the data showed that the positive impact on this measurement peaked immediately after the SMTs introduction and started to slowly decrease after that. It seems that the SMTs introduction resulted in an increased interest in so-

cial media engagement by this SME at the beginning of the study. It is, however, doubtful whether the tools will continue to be used in the long term.

3.3 SME3: Business-to-Consumer, Positive Initial Attitude towards Social Media, All Employees Responsible for Social Media

Before participating in this study, SME3 representatives stated emphatically that they were convinced about the ROI of social media engagement for their kind of business. They had already good results with their Facebook page and were interested in expanding to other platforms. However, their main problem was lack of time and therefore studying how to use new SNSs was postponed perpetually. They stated that it was difficult for them to hire a new employee to work exclusively on social media. The tools that could help them in their activities were those measuring the effectiveness of their posts as well as tools that would help them understand the needs of their followers and build more effective promotions and campaigns. They frequently looked into Facebook post likes in an attempt to understand the effectiveness of certain posts. They expressed their interest about techniques that could help them identify general themes of conversations and learn what their customers are talking about. They frequently launched promotional campaigns, analyzed their audience demographics and created posts targeting specific subgroups (e.g. females only).

The first interview indicated that embedding the provided set of tools in the company's activities was relatively easy. The time spent with the tools triggered a renewed interest in examining more effective ways to use social media. They asked for more information about how to use the tools and identify appropriate ways to use Twitter. During the first phase, they used mainly monitoring functionalities to search for content posted by their competition and form an understanding of appropriate Twitter usage. From the second interview it was found that SME3 was mostly interested in monitoring and enhancement tools. In particular, they found geo-location monitoring conceptually useful, although they faced some usability issues in the provided tools. Tools that did not offer information or functionality in addition to what the company already managed to get through other ways (e.g. Twitter search, Facebook Insights) were evaluated negatively and abandoned quickly. For instance, the company did not use the aggregators in order to post on multiple social networks since they did that already through their RSS feed. They became, however, interested in aggregators for the purpose of monitoring multiple SNSs and their competition, and identifying local trends and relevant conversations. Finally, the last interview showed that the company found ways to use Twitter effectively. They reported that experimentation with the provided SMTs helped them formulate strategies about effective Twitter usage, a SNS that they were not actively engaged before. Apart from that, the deployment of the SMTs did not affect the activities or policies of the company. Even though they found some of the tools interesting, they stated that they intent to use them only infrequently in the future. It seems that for this company information about how to use social media effectively was valued more than specific features of a SMT.

This company needed information about effective ways of using new SNSs more than tools, but their engagement with the provided SMTs triggered an experimenta-

tion phase from which the company benefited considerably. In specific, SME3 engaged in Twitter, a new SNS that they were not previously using. Furthermore, this SME became interested in trend, geo-location and competition monitoring through social media analytics. Quantitative data for this SME were analyzed separately for two of their projects. The first project was an online travel agency that had a Facebook Page for more than a year and had a successful social presence as perceived by the SME. Results did not show any substantial change in Facebook followers (from 3418 to 3419) before and after the SMTs introduction, but the Klout score showed some improvement (from 43.0 to 45.2). The second project was a deals-offering website that launched approximately the same time that the study began. Results of the collected one-month data showed an impressive increase in Facebook followers (from 0 to 4649) and Klout score (from 0 to 51.5). However, this impressive increase cannot be solely attributed to the introduced SMTs. The company used various promotion options provided by Facebook (boosting page, advertisement, and boosting posts) during the same period. By contrast, the impact of the SMTs can be clearly observed in the company's engagement with Twitter. In specific, during the first two phases of the study they managed to gain only 6 twitter followers, although they streamlined all their posts to Twitter. After actively using the introduced SMTs to identify appropriate ways to use Twitter they managed to gain 149 followers in ten days.

3.4 Discussion

A general theme that could be identified by looking at the data provided by all SMEs in parallel was that the commercial tool received more positive comments than the tools created in the InterSocial project. One could expect this given that Hootsuite is a well-known tool that is on the market for many years and provides a multitude of functionalities. In addition, the main functionality of the tool is the aggregation of multiple SNSs, which was also the main need of two of the three participating SMEs.

Most negative comments in the study referred to the amount of time required to familiarize with all the concepts and functionalities of the various SMTs. According to the participating SMEs, all the provided tools used unfamiliar words and lacked in concrete information that would enable them to start using them effectively immediately, such as best practices and contextualized examples. For instance, one of the simplest and most common features of SMTs is keyword monitoring, but it was found that companies do not always know what keywords to monitor, as it was the case for SME2 and to some extent SME1. These SMEs felt that their domain or niche market did not have specific keywords that could be tracked in order to gain valuable information. In these situations it would be helpful if case studies about other similar companies or examples about best practices would be provided by these tools.

Trend analysis was particularly useful for SME3 and to some extent for SME2. Finding trending information, especially for specific regions, attracted the interest of all the participating SMEs. It helped them to find and engage in conversations as well as to modify their posts in order to include terms that would receive their customers' attention.

Finally, the participating SMEs did not ask for elaborate reputation measurements, scores or statistics. They were happy with those provided by the SNSs themselves, such as overall page or post Facebook likes. Aggregators that let them view all their SNSs at once were also enough to monitor their social presence by analyzing their customers' comments qualitatively.

4 Conclusions

The results of the study presented in this paper revealed that the usefulness of SMTs as well as intention to adopt and integrate them in future activities varied considerably among the participating SMEs. This was a generally expected result since these companies differed considerably in terms of business activities, organizational structure, social media management needs and initial attitude towards social media.

The main common effect that the introduction of the SMTs had on all SMEs was a renewed interest for engagement with social media in general. However, this could be due to their involvement in the study rather than a genuine impact of SMTs usage. For this reason we intent to revisit all three companies in the future and examine whether they continued to use the tools introduced in the study or other similar ones in their everyday activities. In addition, all SMEs that participated in our study increased their social media presence to some extent either by engaging in new social networks or by increasing their activity on those they were already using. Furthermore, SMTs usage helped all participating SMEs to realize that they were lacking an overall social media strategy with specific objectives and measurable goals.

However, apart from the positive effect in social media presence and intentions to integrate SMTs in their everyday activities, the SMEs confronted difficulties in aligning their business goals with continuous usage of such tools. It also became apparent that these tools need to provide best practices and contextualized usage scenarios so that SMEs can start using them effectively immediately.

The work presented in this paper is primarily driven by an effort to understand the perceived difficulties of SMEs in integrating and adopting SMTs and to describe lessons learned for efficient and effective adoption. A practical implication of this work is the elaboration of an empirical evaluation methodology along with insights related to SMTs' deployment, usage and impact on SMEs with diverse business profiles and objectives.

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