

**Олимпиада студентов и выпускников «Высшая лига» – 2022 г.  
Методические рекомендации и демонстрационная версия заключительного этапа  
по направлению «200. Менеджмент»**

**Треки:**

<b>Логистика</b>	<b>Код – 200.1</b>
<b>Маркетинг</b>	<b>Код – 200.2</b>
<b>Управление инвестиционными проектами</b>	<b>Код – 200.3</b>
<b>Производственные системы и операционная эффективность</b>	<b>Код – 200.4</b>
<b>Стратегический менеджмент и консалтинг</b>	<b>Код – 200.5</b>
<b>Управление в сфере науки, технологий и инноваций</b>	<b>Код – 200.6</b>

**Общая информация о направлении**

Олимпиада по направлению «Менеджмент» ориентирована на поиск талантливых и проактивных студентов, способных продемонстрировать общее понимание основных проблем в различных предметных областях менеджмента, подходов к их разрешению, возможностях и ограничениях различных инструментов менеджмента.

**Тематика заданий**

Задания первого этапа и инвариантной части второго этапа формируются в соответствии с основными разделами менеджмента, а задания вариативной части второго этапа – с предметными областями треков по направлению.

**Информация о первом (отборочном) этапе**

Продолжительность состязания – 60 минут.

Задание первого (отборочного) этапа включает 20 тестовых вопросов с автоматической проверкой ответов по разным аспектам менеджмента. Правильный ответ на каждый вопрос оценивается в 5 баллов. В сумме участник может набрать 100 баллов.

**Информация о втором (заключительном) этапе**

Задания второго (заключительного) этапа состоят из инвариантной и вариативной частей. Продолжительность состязания – 240 минут, из которых инвариантной части рекомендуется уделить не более 60 минут времени, вариативной – не менее 180 минут времени.

В *инвариантной части* участнику предлагается написать развернутые ответы на два вопроса. Один из вопросов сформулирован на английском, второй – на русском языке. Полный ответ на вопрос на английском языке принесет 30 баллов (ответ на английском языке), на русском языке – 20 баллов (ответ на русском языке). В сумме участник может набрать 50 баллов.

В *вариативной части* по треку «**Логистика**» предлагается решить 10 закрытых тестов, 5 из которых на английском и 5 – на русском языках, а также ответить на 5 открытых вопросов, предоставив короткий содержательный ответ. Максимальная оценка за каждый тестовый вопрос – 2,5 балла. Каждый ответ на открытый вопрос оценивается по шкале от 0 до 5 баллов. В сумме за вариативную часть участник может набрать до 50 баллов.

В *вариативной части* по треку «**Маркетинг**» участникам Олимпиады предлагается проанализировать академический текст на английском языке, относящийся к области

маркетинга и маркетинговых коммуникаций, а также на русском языке ответить на 5 вопросов по содержанию текста.

Оценивается предметное знание обозначенной области, основных методов сбора и анализа маркетинговой информации, корректность применения маркетинговой терминологии; умение анализировать материал с опорой на приведенные данные и другие источники информации (по памяти); способность аргументированно и структурировано излагать свои мысли по каждому вопросу, делать выводы, излагать собственную исследовательскую и менеджерскую позицию. В сумме за вариативную часть участник может набрать до 50 баллов.

В *вариативной части* по треку **«Управление инвестиционными проектами»** предлагается провести анализ академической статьи на английском языке и дать развернутые ответы на 5 вопросов на русском языке.

Оценивается предметное знание обозначенной области, общая структура подготовки академической статьи и наполнение каждого ее элемента, основные методы сбора и обработки информации, корректность принципов, подходов и моделей; способность аргументированно и структурировано излагать свои мысли по каждому вопросу, делать выводы, излагать собственную позицию; умение прогнозировать будущие изменения и способность излагать креативные решения применительно к обозначенной профессиональной области. В сумме за вариативную часть участник может набрать до 50 баллов.

В *вариативной части* по трекам **«Производственные системы и операционная эффективность»** и **«Стратегический менеджмент и консалтинг»** участнику предлагается провести критический анализ статьи на английском языке по проблематике, связанной с развитием производственных систем и повышением операционной эффективности организаций, и предоставить развернутый ответ на русском языке на 5 вопросов.

Ответы оцениваются по способности участника определять общий контекст и постановку задачи в исследовании, выделять альтернативные сценарии решения поставленной задачи, логично и аргументировано излагать свои выводы, демонстрировать широкий кругозор в предметной области и знание ключевых экспертов. За вариативную часть участник может набрать до 50 баллов.

В *вариативной части* по треку **«Управление в сфере науки, технологий и инноваций»** участнику предлагается ответить на английском языке на три открытых вопроса по проблематике, связанной с управлением в сфере науки, технологий и инноваций.

Ответы оцениваются по способности участника логично и аргументировано излагать свои мысли, демонстрировать широкий кругозор в предметной области и знание ключевых научных и аналитических работ. В сумме за вариативную часть участник может набрать до 50 баллов

Вариативная и инвариантная часть по ряду треков включает в себя вопросы на английском языке. В случае использования в ответе любого другого языка (кроме английского), ответ засчитан не будет. При выполнении задания участникам разрешено пользоваться калькулятором любой сложности, простым карандашом. Черновики работы могут быть предъявлены к проверке по желанию участника.

## Демонстрационный вариант инвариантной части второго (заключительного) этапа

- 1) Опишите элементы маркетинг-микс 4P для Toyota Motor Company на глобальном рынке
- 2) Please develop a questionnaire with 5 questions at max to fetch data that will help to measure customer satisfaction and the factors that constitute it following the restaurant visit. Hint: Linear regression is chosen as an empirical model for this particular research

## Демонстрационный вариант вариативной части второго (заключительного) этапа

### Демонстрационный вариант для трека «Логистика»

**Задание 1 (пример / фрагмент). Выберите среди предложенных ответов один или несколько правильных (-ых) варианта(-ов) ответа(-ов).**

1. Which of the following is also referred to as a layout by function?
  - 1) Process layout;
  - 2) Product layout;
  - 3) Group technology layout;
  - 4) Fixed position layout;
  - 5) Assembly line.
2. The main functions of distribution logistics in chain store (retailing) company is:
  - 1) To manage the orders of suppliers;
  - 2) To store and handle goods;
  - 3) To place the orders to suppliers;
  - 4) To manage delivery from supplier to distribution center;
  - 5) To choose the places of goods allocation.
3. Picking & packing zone of a warehouse in case of cartons picking is not required when
  - 1) Decentralized order-picking system is used;
  - 2) Centralized order-picking system is used;
  - 3) Warehouse capacity is in short supply;
  - 4) Dynamic order-picking system is used;
  - 5) Static order-picking system is used.
4. Выберите из приведенного ниже списка показатели оценки качества функционирования поставщика:
  - 1) отпускная цена запасов;
  - 2) доля бракованных товаров в поставке;
  - 3) тариф на перевозку заказываемых партий;
  - 4) точность заполнения сопроводительной документации на товар;
  - 5) время выполнения заказов.
5. Каким образом снабжение воздействует на рентабельность активов промышленного предприятия?
  - 1) за счёт уменьшения общих активов и увеличения прибыли в результате снижения цены на покупаемую продукцию;
  - 2) за счёт уменьшения времени доставки материальных ресурсов для производства и повышения оборачиваемости запасов незавершённого производства;
  - 3) за счёт повышения качества исходных материальных ресурсов и стабилизации производственно-технологического цикла;
  - 4) за счёт выбора надежных поставщиков и возможности получения товарного кредита;
  - 5) за счёт правильного выбора базиса поставки и увеличения запасов незавершённого производства.
6. Выберите из приведенного ниже списка ключевые элементы технологии VMI:

- 1) местоположение запасов и прозрачность информации;
- 2) система (модель) управления запасами и условия взаиморасчётов;
- 3) объём и рентабельность продаж запасов;
- 4) финансово-экономическое состояние поставщика и покупателя;
- 5) квалификация персонала.

**Задание 2. В открытых вопросах дайте развернутые ответы.**

1. Какие виды логистической интеграции характерны для управления цепями поставок?
2. Какие основные факторы должны учитываться при определении взаимоотношений со стратегическими поставщиками в логистике снабжения?
3. Перечислите основной состав информационных систем SCM-класса.
4. Какие виды технологического оборудования являются основой при оснащении зон основного хранения автоматизированных складов для поддонных грузов?
5. Какие основные задачи решает служба продаж в рамках сбытовой деятельности компании?

**Демонстрационный вариант для треков «Маркетинг»,  
«Управление инвестиционными проектами»,  
«Производственные системы и операционная эффективность», «Стратегический менеджмент и консалтинг»**

**Прочитайте статью<sup>1</sup> и сделайте её критический анализ на русском языке.**

**Introduction**

As social media networking has emerged and expanded rapidly in the past decade, interest in social media marketing among marketing scholars and organizations has also grown sharply worldwide. As managers become more comfortable with and active in including social networks as part of their integrated marketing communications, they have naturally turned their attention to questions regarding the return on investment of social media: Can social media marketing activities improve firm performance? (Hoffman and Fodor 2010).

**Literature Review and Research Framework**

*Theory: The RBV and Dynamic Capabilities Extensions*

The RBV and the dynamic capabilities perspective serve as the theoretical foundations of the current research. Both perspectives suggest that performance is determined by a firm's resource endowment and its effectiveness at converting these resources into capabilities (Barney 1991; Day 1994). The RBV proposes that competitive advantages arise from developing and deploying unique, valuable, inimitable, and non-substitutable resources (Barney 1991; Lahiri, Kedia, and Mukherjee 2012). Dynamic capabilities theory proposes that marketplaces are dynamic and that firms, rather than being heterogeneous in their resource endowments, exhibit differences in the capabilities by which they acquire and deploy resources. These differences explain inter-firm performance variance over time. Capabilities are also dynamic, such that they can help firms implement new strategies to reflect changing market conditions by combining and transforming available resources in new and different ways.

*Traditional CRM*

In a traditional CRM framework, the organization possesses substantial customer information and uses this information to manage its customer relationships define CRM as a procedure that “entails the systematic and proactive management of relationships as they move from beginning (initiation)

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<sup>1</sup> Подготовлена на основе: Wang Z., Kim H. G. Can social media marketing improve customer relationship capabilities and firm performance? Dynamic capability perspective //Journal of Interactive Marketing. – 2017. – Т. 39. – С. 15-26

to end (termination), with execution across the various customer-facing contact channels.” Boulding et al. (2005) identify several key elements:

CRM relates to strategy, the management of the dual creation of value, the intelligent use of data and technology, the acquisition of customer knowledge and the diffusion of this knowledge to the appropriate stakeholders, the development of appropriate (long-term) relationships with specific customers and/or customer groups, and the integration of processes across the many areas of the firm and across the network of firms that collaborate to generate customer value.

*CRM and Social Media*

The traditional definition of CRM is still generally valid, but the rapid and widespread popularity of social media networking in both consumer and business markets indicates a need to reconsider the traditional view of CRM (Trainor 2012). Customers have begun using social media networking to connect with other individuals and firms and through user-generated information and interactivity within the network. Consumers have become actively involved in the co-creation of their experiences with.

*Social CRM*

Recognizing the important role of social media in CRM systems, this study adopts the following definition of social CRM: “the integration of traditional customer-facing activities, including processes, systems, and technologies with emergent social media applications to engage customers in collaborative conversations and enhance customer relationships” (Trainor 2012, p. 321). Social CRM is not a replacement for traditional CRM but instead is an extension that incorporates the social functions, processes, and capabilities that address firm–customer interaction as well as customer–customer interaction (Greenberg 2010).

*Social CRM Capabilities*

Taking these findings into account, Trainor et al. (2014) propose “social CRM capabilities” as a unique combination of emerging technological resources and customer-centric management systems that can lead to customer satisfaction, loyalty, and retention. In addition, they demonstrate that social CRM capabilities are positively associated with customer relationship performance (Trainor et al. 2014).

**Conceptual Model and Hypotheses**

To explain how using social media technology can benefit both customer relationships and financial performance, we develop a conceptual model that integrates market adaptation strategies and market capability development. The model first establishes the relationship between social CRM capabilities and customer engagement and then considers how social CRM capabilities influence firm performance directly. Next, the model delineates relationships between customer engagement and firm performance. Finally, it identifies the moderating effects of social media usage on the relationships between social CRM capabilities and firm performance. Fig. 1 depicts this conceptual model.

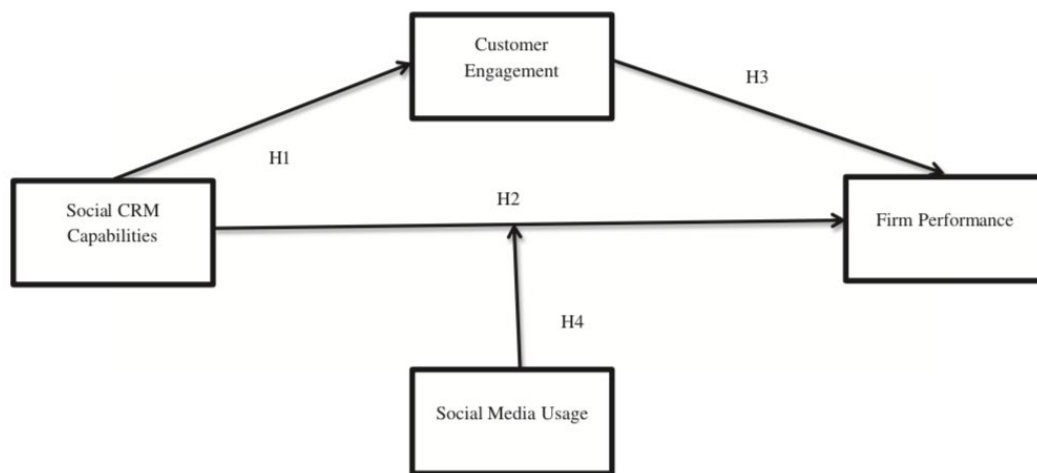


Fig. 1. Conceptual model.

### *Effects of Social CRM Capabilities*

Social CRM capabilities emphasize a firm's ability to engage customers in collaborative conversations and enhance customer relationships (Trainor et al. 2014). Interactive marketing technologies can not only enable more intense and higher-quality interactions with stakeholders but also increase the quantity and quality of information provided to customers (Wu, Mahajan, and Balasubramanian 2003). Recent literature shows that marketing capabilities, including social CRM capabilities, lead to the development of strong customer relationships that positively influence customer satisfaction and loyalty (Hooley et al. 2005; Rapp, Trainor, and Agnihotri 2010; Trainor et al. 2014). From a technology-based perspective, the literature suggests that marketing technologies have enabled firms to interact more effectively and efficiently with customers (Coviello, Milley, and Marcolin 2001), to capture and use customer information developing for more effective customer responses (Jayachandran et al. 2005). The purpose of a social media brand page is to encourage consumers to react or interact (e.g., liking, commenting, sharing); therefore, when companies or brands show intention to interact and co-create value with customers, customers' engagement level should increase because they can receive better information and feel they are valued. In line with our position that social CRM capabilities emphasize the integration and accessibility of customer information to engage customers in collaborative conversations and enhance customer relationships, we argue that firms possessing such capabilities will be more effective in engaging customers and leveraging this information to better serve their customers. Thus, we propose the following:

**H1.** A firm's social CRM capabilities are positively associated with its level of customer engagement.

In line with the RBV and dynamic capabilities theory, previous studies suggest that developing distinctive capabilities can be a source of superior organizational performance (Day 1994; Menguc and Auh 2006). Firms adept at converting existing resources and capabilities into new value-adding processes and capabilities are more likely to improve performance. Many studies have proved that marketing capabilities are positively associated with firm performance for both large firms in industrialized countries and small firms (Fahy et al. 2000; Morgan, Vorhies, and Mason 2009; Shin

2013). Social CRM capabilities increase efficiency related to customer communications and internal administration. Therefore, firms that have more social CRM capabilities should realize better organization performance overall. Thus, we propose the following:

**H2.** A firm's social CRM capabilities are positively associated with its business performance.

### *Effects of Customer Engagement*

Companies report customer engagement as the most important among several specific benefits they expect from their presence on social media (Sashi 2012). Increasing interest in customer engagement has paralleled both the continued evolution of the Internet and the emergence of new digital technologies and tools dubbed Web 2.0, especially social media networks such as wikis and blogs; microblogging sites such as Twitter; video sites such as YouTube; and social networking sites such as Facebook, MySpace, and LinkedIn (Sashi 2012; Wirtz, Schilke, and Ullrich 2010). The emergence of the customer engagement concept recognizes the opportunities offered by the interactive aspects of Web 2.0 technologies and tools to transform the relationship between customers and sellers (Tsimonis and Dimitriadis 2014). Practitioners and researchers view the interactivity of social media, along with its ability to establish conversations among individuals and firms in communities of sellers and customers and involve customers in content generation and value creation, as providing the means to better serve customers and satisfy their needs. Practitioners thus have attempted to use social media marketing to build enduring relational exchanges with strong emotional bonds to improve business performance (Mitic and Kapoulas 2012; Sashi 2012; Tsimonis and Dimitriadis 2014).

Focusing on customer involvement on social media brand/ company pages, we adopt the following definition of customer engagement from the online brand perspective as “behaviors [that] go beyond transactions, and may be specifically defined as a customer's behavioral manifestations that have a brand or firm focus, beyond purchase, resulting from motivational drivers” (Van Doorn et al. 2010, p. 254). Customer engagement occurs on social media when delighted or loyal customers share their positive feelings in interactions with others in their social networks and become advocates for a product, brand, or company (Gummerus et al. 2012; Sashi 2012). As these engaged customers develop new connections, they become advocates for the seller in interactions with other customers and even non-customers on their social media networks. Customer engagement turns customers into fans who remain wedded through ups and downs in intimate, enduring relationships and even proselytize for the product, brand, or company (Tsimonis and Dimitriadis 2014). Consumers who become fans of these brand pages tend to be more loyal and committed to the company and are more open to receiving information about the brand (Bagozzi and Dholakia 2006). Increasing numbers of people are spending increasing amounts of time on social media; thus, it is meaningful to analyze consumers' engagement in this context (de Chernatony et al. 2008; Kaplan and Haenlein 2010). Research shows that customer engagement is directly and positively related to customer relationship outcomes such as satisfaction, affective commitment, and customer loyalty (Brodie et al. 2011). Social media operate like a large word-of-mouth platform that catalyzes and accelerates the distribution and exchange of information among individuals and organizations (Chan and Ngai 2011; Dellarocas 2003; Godes and Mayzlin 2004; Jalilvand and Samiei 2012).

Social media brand pages can help companies achieve three strategic goals: building brand awareness, increasing loyalty, and boosting sales (Castronovo and Huang 2012). Research shows that customer engagement is directly and positively related to relationship outcomes such as satisfaction, trust, affective commitment, and loyalty (Brodie et al. 2013). Customer engagement expands the role of customers by including them in the value-adding process as co-creators of value. Companies may also want to encourage and reward consumers for becoming more active on the site to receive maximal relationship benefits (Gummerus et al. 2012). Previous customer engagement studies also show that engaged and satisfied customers may create and disseminate brand/firm information that other constituents can use to create reputation (Fombrun and Shanley 1990) and positive brand image (Coulter et al. 2012). With high levels of customer engagement on social media, companies can better employ the interactive features of social media to create a better company image, better customer experiences, and more future purchase behaviors. Thus, customer engagement is also a key factor that influences customer loyalty and, ultimately, firm performance. We hypothesize the following:

**H3.** A firm's customer engagement level on social media is positively associated with its business performance.

#### *Moderating Effects of Social Media Technology*

Social media technologies influence an organization's social CRM capability by providing the environment to engage customers in collaborative conversations and enhance customer relationships. Social media usage can be viewed as an index of how much an organization uses social media technologies. Firms that actively use social media can increase consumers' awareness of their brand and themselves and also highlight their intentions to engage in interactive dialogue, thus augmenting the impact of social CRM capabilities. Advertising can also amplify the impact of social CRM capabilities on performance by attracting consumers' attention. The existence of an active, official social media account implies that firms are eager to build relationships with consumers, and consumers become more willing to participate in acquiring or processing information about these firms. Firms can thus leverage the positive impact of social media activities to highlight and differentiate themselves from other competitors, enhancing consumers' future purchase likelihood.

In addition, organizations adapt to rapidly changing market environments through the introduction of technical innovations, which lead to greater performance (Han, Kim, and Srivastava 1998). In this sense, social CRM capability can be viewed as a form of innovation based on the definition

we adopted (Trainor et al. 2014). Organizations with a high level of social media usage are more likely to adapt to the social media environment and achieve an advantage by acquiring customer information and trust earlier than competitors. In line with the premise that market-related capabilities allow firms to accurately anticipate changes in markets and develop appropriate responses, we expect this relationship to be even stronger for firms that use social media technology extensively, thus having a higher impact on firm performance. We hypothesize the following:

**H4.** A firm's social media usage positively moderates the relationship between its social CRM capability and firm performance; that is, the positive relationship will be stronger when the level of social media usage is higher.

## **Methodology**

### *Data and Sample*

#### *Social Media Data*

Because we aim to examine and compare social media usage, we collected our primary social media data from one of the earliest social media websites: Facebook. Because some of the companies from which we collected data had multiple Facebook accounts acting on their behalf, we chose for analysis the accounts that appear on each company's official website, including both the company's and its main brands' Facebook accounts, to best reflect any organizational policy or practice on the use of social media. We downloaded all postings from these Facebook accounts from the day these companies began using Facebook until December 31, 2014.

#### *COMPUSTAT*

To test firm performance and control our data sets, we collected financial statement data from COMPUSTAT North America and Global Fundamentals annual databases. We initially drew the data for a 34-year period (1980–2014), but then we used the time span of the firms' social media activities. We calculated return on assets as a measure of firm performance from the data, and we collected other control variables, such as number of employees.

Because only 379 brands/companies have available an American Customer Satisfaction Index (ACSI), we used this list to identify our sample companies by combining those brands under the same company. After we matched ACSI list and COMPUSTAT data, we were left with 340 firms. We continued to match ACSI and COMPUSTAT to social media data and to exclude companies that did not have Facebook accounts. The final sample consisted of 232 companies.

#### *Measures*

##### *Social Media Usage*

As a platform for consumers to interact with and influence one other, social media has a more direct impact on brand communities, and it produces higher response rates and customer engagement levels than traditional marketing methodologies that focus only on the firm–consumer relationship (Trusov, Bucklin, and Pauwels 2009). Thus, we measured social media usage with data collected from companies' Facebook account each year: the number of posts of the sample company each year. More posts mean that the sample company used Facebook more often.

##### *Customer Engagement*

Social media has also enabled customers to interact with business organizations and has empowered them to take an active role in co-creating their experiences (Prahalad and Ramaswamy 2004). When companies establish social media pages, they are expecting consumers to visit the page, become fans, and share the content with their own friends. However, research suggests that “likes” of brand social media pages may be too weak a signal of future engagement behavior for the brand because it takes mere seconds of attention (John et al. 2016). In contrast, when consumers decide to share the company's post, they have the intention of sharing this post with their own social network. Thus, we measured customer engagement by the number of posts customers shared to help companies deliver the information in their own social network.

##### *Social CRM Capabilities*

An important goal of social CRM capabilities at the firm level is to enhance both the perceived value of the firm's products and customer relationship with the firm's current and potential



customers. This goal is partly reflected in growing sales, through a better understanding of customer needs and distinctive targeting of appropriate customers. Thus, we developed the social CRM capability measure using information from corporate disclosures with an input–output stochastic frontier model (Battese and Coelli 1992; Dutta, Narasimhan, and Rajiv 1999; Xiong and Bharadwaj 2013), an effective model for predicting efficiencies of individual firms in an industry (Battese and Coelli 1992; Dutta, Narasimhan, and Rajiv 1999). The RBV defines a firm's capability as its ability to deploy the resources (inputs) to achieve the desired objectives (the output). The input–output conceptualization of the firm's capabilities makes the stochastic frontier estimation (SFE) methodology well suited because SFE provides the appropriate econometric technique to empirically estimate firms' level of efficiency (Dutta, Narasimhan, and Rajiv 2005, 1999). The input–output SFE approach models a firm's functional activities as an efficient frontier relating the productive resources/inputs a firm uses to the optimal attainment of its functional objectives/outputs, if the firm deploys these resources most efficiently (Dutta, Narasimhan, and Rajiv 2005, 1999). The SFE involves two random components, one associated with the presence of inefficiency and a traditional random error (Battese and Coelli 1992). The lower the functional inefficiency, the higher is the functional capability of the firm. Therefore, previous studies have used the inverse of a firm's functional inefficiency as the measure of its functional capability (Dutta, Narasimhan, and Rajiv 2005, 1999; Narasimhan, Rajiv, and Dutta 2006; Xiong and Bharadwaj 2013).

Following Xiong and Bharadwaj (2013), we used this equation:

$$\text{Sales}_{it} = f(X_{it} : \text{Resource}_{it}, \alpha) \times \exp(\varepsilon_{it}) \times \exp(-\eta_{it}), \quad (1)$$

where  $\text{Sales}_{it}$  represents the sales (the output) for the  $i$ -th firm at the  $t$ -th period of observation;  $f(X_{it} : \text{Resource}_{it}, \alpha)$  is a suitable function of a vector,  $x_{it}$ , of factor inputs (and firm-specific variables), associated with the sales of the  $i$ -th firm in the  $t$ -th period of observation, and a vector,  $\alpha$ , of unknown parameters;  $\varepsilon_{it}$  captures random errors beyond the firm's control; and  $\eta_{it}$  captures the firm's inefficiency of converting resources (inputs) into sales (the output). Resources include the firm's technology base; sales, general, and administrative expenses; and receivables (Xiong and Bharadwaj 2013). In addition to the traditional resource inputs, we add social media resource inputs (SMR) (i.e., HasTag, HasLink, HasVideo, IsReply, and HasImage) to emphasize the social CRM capabilities using social media. Social CRM assumes that customers are actively engaging with the firm; therefore, these inputs show how they do so (Malthouse et al. 2013). Table 1 summarizes all the items we employed in the SFE of social CRM capabilities.

Table 1  
List of items used for SFE of social CRM capabilities.

Item	Description
1 Social media resource inputs (SMR): HasTag, HasLink, HasVideo, IsReply, HasImage	HasTag — the number of posts that contain tags HasLink — the number of posts that contain superlinks HasVideo — the number of posts that contain videos IsReply — the number of posts that are replies to others HasImage — the number of posts that contain images
2 Sales, general, and administrative stock (SGAS)	Sales, general and administrative expense
3 Receivable stock (RCS)	Account receivables
4 industry and market conditions (MC)	Dummy variables based on the four-digit SIC code of firm $i$
5 Sales output	Total sales

Because resources from previous years can influence current revenue, we use a Koyck lag function with higher weights on more recent years to derive measures of sales, general, and administrative stock; receivable stock; and advertising expense stock (Dutta, Narasimhan, and Rajiv 1999). For example, we define ADSTOCK for period  $t$  as  $\text{ADSTOCK} = \sum_{k=1}^t \gamma^{t-k}$ .

$\gamma^k \times ADExpense_k$ , where  $\gamma$  represents the weight attached to the past value of advertising expenses. Following previous literature (Dutta, Narasimhan, and Rajiv 2005), we used a weight of .5; the results were robust to different weights. Using the same formula, we calculated SGASTOCK for period  $t$  as  $SGASTOCK_t = \sum_{k=1}^t \gamma^{t-k} \times SGAexpense_k$ . Although sales, general, and administrative stock also includes items that are not strictly within the domain of marketing, it is a good proxy for the amount the firm spends on its market research, sales effort, trade expenses, and other related activities. Other stock variables are also calculated by the same method.

To control for industry and market conditions that might differ across the sample, we divided our sample of firms on the basis of their four-digit Standard Industrial Classification (SIC) code. For estimation purposes, we code the variables as dummy variables based on the four-digit SIC code of firm  $j$ .

Then, we used the stock variables as inputs ( $X_{it}$ : Resource $_{it}$ ) in Eq. (2).

$$\ln(\text{Sales}_{it}) = \alpha_0 + \alpha_1 \ln(\text{SGAS}_{it}) + \alpha_2 \ln(\text{RCS}_{it}) + \alpha_3 \ln(\text{SMR}_{it}) + \alpha_4 \text{MC}_i + \varepsilon_{it} - \eta_{it}. \quad (2)$$

We derived the maximum likelihood estimate of the inefficiency term  $\eta_{it}$ , then rescaled the estimate  $\eta_{it}$  to be between 0 and 100, and used  $100 - \eta_{it}$  as the marketing capability measure (Xiong and Bharadwaj 2013). Appendix 1 describes the statistics of the inefficiency term  $\eta_{it}$  and the efficiency index  $100 - \eta_{it}$ .

#### *Firm Performance*

We used Tobin's  $q$  as the dependent variable in our study. We measured it by summing the market value of equity and the book value of debt, divided by the book value of the total assets for the period in which the individual firm is involved. We gathered financial data from COMPUSTAT.

#### *Control Variables*

We collected customer satisfaction data from the ACSI, a customer-based measurement system for evaluating and enhancing firm performance. The ACSI is designed to be representative of the economy as a whole and covers more than 300 firms from over 40 industries in the seven major consumer sectors of the economy, whose 1994 sales are in excess of \$2.7 trillion. An individual firm's ACSI represents its served market's (i.e., its customers') overall evaluation of total purchase and consumption experience. The ACSI contains 20 years of records beginning from its baseline year, 1994, according to firms' marketing activities. We used the indexes of the matching company each year from 2004 to 2014 as the customer satisfaction measurement.

To control for firm heterogeneity and industry, we also used the control variables firm size, leverage, industries categories, and total sales every year, and year fixed effects. To do so, we used the average total number of employees as an indicator variable for firm size and nine industry categories with dummy variables.

### **Analysis and Results**

We used STATA 14.0 to generate descriptive and inferential statistics and to conduct panel regressions to test the hypothesized relationships. Table 2 presents the correlation matrix descriptive statistics (means, standard deviations, and correlations) for all variables. The range of social media usage variable and the time length using social media is large, which means our sample companies have a wide range of strategies. The results of the correlation matrix indicate that social CRM capability is positively related to Tobin's  $q$  ( $r = .05$ ) and customer engagement is positively related to Tobin's  $q$  ( $r = .03$ ).

Table 2  
Correlation matrix and descriptive statistics.

No.	Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9
1	Firm performance (Tobin's q)	4.11	8.06	1.00								
2	Year	2009	3.16	.06	1.00							
3	Social CRM capability	88.04	1.90	.05	.01	1.00						
4	Social media usage	11.37	17.87	.01	.38	-.17	1.00					
5	Customer engagement	6.01	12.28	.08	.56	-.16	.85	1.00				
6	Sales	9.30	2.47	-.10	-.02	-.92	.11	.12	1.00			
7	Employee	3.64	1.84	-.18	-.03	-.65	.03	.07	.80	1.00		
8	Leverage	.22	1.37	-.15	-.01	-.25	-.02	-.03	.27	.15	1.00	
9	Customer satisfaction	76.55	5.71	-.11	.07	.06	.05	.05	-.04	.01	.27	1.00

### Hypotheses Test

Table 3 presents fixed-effect panel regression results testing H1–H4. Model 1 represents H1, H2, and H3; the mediating effect; and full model. Model 2 represents the moderating effect of social media usage between social CRM capability and firm performance (H4). In H1, we predicted a positive relationship between social CRM capability and customer engagement. The coefficient estimate for the social CRM capability variable is significantly positive ( $p < .001$ ), providing support for H1. As we predicted in H2, social CRM capability had a positive and statistically significant effect ( $p < .01$ ) on firm performance. However, contrary to H3, customer engagement had negative but insignificant impact on firm performance. Finally, the statistically significant and positive coefficient estimate of social media usage  $\times$  social CRM capability ( $p < .1$ ) in H4 confirms that social media usage positively moderates the relationship between social CRM capability and firm performance.

Table 3  
Results of fixed-effect (within) panel regressions.

Models	1					2			
	H1	H2	H3	Mediating effect		Full model	H2	H4 (Full model)	
Dependent variable	Customer engagement	Tobin's q	Tobin's q	Tobin's q	Customer engagement	Tobin's q	Tobin's q	Tobin's q	Tobin's q
Constant	-1,170.318 (343.982)**	-429.921 (131.726)**	-45.427 (13.170)**	-429.921 (131.726)**	-1,170.318 (343.982)**	-45.427 (13.170)**	-436.990 (133.425)**	-429.921 (131.726)**	-526.561 (137.439)**
Social CRM capability	13.310 (3.506)***	4.085 (1.380)**		4.085 (1.380)**	13.310 (3.506)***		4.164 (1.399)**	4.085 (1.380)**	5.044 (1.432)**
Social media usage									-.226 (.023)
Customer engagement			-.293 (.020)			-.293 (.020)	-.006 (.018)		
Social media usage $\times$ Social CRM capability									.812 (.367)*
Sales	3.113 (6.230)	8.244 (2.023)***	-5.316 (.937)***	8.244 (2.023)***	3.113 (6.230)	-5.316 (.937)***	8.273 (2.027)***	8.244 (2.023)***	8.800 (2.024)***
Employee	7.441 (3.808)*	-2.954 (1.216)*	-.835 (.849)	-2.954 (1.216)*	7.441 (3.808)*	-.835 (.849)	-2.906 (1.224)*	-2.954 (1.216)*	-2.798 (1.210)*
Leverage	-1.499 (21.967)	-8.948 (7.142)	-12.740 (5.063)*	-8.948 (7.142)	-1.499 (21.967)	-12.740 (5.063)*	-8.902 (7.155)	-8.948 (7.142)	-6.653 (7.174)
Customer satisfaction	-.335 (.232)	.075 (.072)	.072 (.064)	.075 (.072)	-.335 (.232)	.072 (.064)	.072 (.073)	.075 (.072)	.751 (.723)
Industry fixed	Included	Included	Included	Included	Included	Included	Included	Included	Included
Year fixed	Included	Included	Included	Included	Included	Included	Included	Included	Included
Observations	232	232	232	232	232	232	232	232	232
R2	.7	.12	.12	.12	.7	.12	.12	.12	.14

\*  $p < .10$ .  
\*\*  $p < .01$ .  
\*\*\*  $p < .001$ .

### Mediation Effects Test

In the hypotheses, we suggested one mediation effect of customer engagement on the relationship between social CRM capability and firm performance. We tested four conditions that should be met to verify the mediating effect:

1. Social CRM capability is significantly related to firm performance.
2. Social CRM capability is significantly related to customer engagement.
3. Customer engagement is significantly related to firm performance.
4. After controlling for customer engagement, the relationship between social CRM capability and firm performance is no longer significant.

For the mediation effect of customer engagement, the first criterion is satisfied. Social CRM capability is positively and significantly related to firm performance ( $p < .01$ ). The second criterion

is also satisfied. The social CRM capability has a positive impact on the mediator, customer engagement ( $p < .001$ ). The third and fourth criteria, however, are not satisfied. Customer engagement has negative insignificant impact on firm performance, and after controlling for customer engagement, the relationship between social CRM capability and firm performance is still significant. Thus, the results fail to show clear statistical evidence to verify that customer engagement plays a mediating role in the relationship between social CRM capability and firm performance.

### Questions for your consideration

1. What research questions were proposed in the article?
2. What scientific methods were applied to investigate each of these questions?
3. What are the drawbacks of the research design (data, methods, analysis)?
4. What managerial implications of the findings do you suggest?
5. For what areas these research ideas may also be applicable? Illustrate with an example highlighting how the research design should be adapted.

### Критерии оценивания критического анализа предложенной статьи

- Обозначение основного вопроса исследования
- Анализ использованных в статье методов исследования
- Недостатки в планировании и проектировании исследования
- Ценность результатов статьи для науки и практики
- Осведомленность с авторами, периодическими и монографическими изданиями по теме исследования
- Системные знания материала
- Владение понятийным аппаратом
- Широта эрудиции
- Логичность изложения
- Обоснованность выводов
- Грамотность речевая и фактологическая, релевантность предлагаемых идей

### Демонстрационный вариант для трека «Управление в сфере науки, технологий и инноваций»

**(Фрагмент постановки задания)** Приведите развернутый ответ на 5 вопросов из 10 на том языке, на котором задан вопрос, при этом выбор стоит осуществить следующим образом: 3 вопроса должны быть выбраны на русском языке и 2 вопроса – на английском языке.

1. Исследуя динамику конкуренции компаний из разных отраслей, американский исследователь Клейтон Кристенсен предложил различать *поддерживающие* и *подрывные* инновации. **Поясните отличия поддерживающих и подрывных инноваций и приведите примеры. Какие методы защиты от подрывных инноваций можно применить компаниям, которым угрожают подрывные инновации?**

2. В 2005 году исследователи У. Чан Ким и Р. Моборн в своей книге «Blue Ocean Strategy» предложили новый способ формирования конкурентных стратегий, отличающийся от конкурентного позиционирования в отрасли, описанного Майклом Портером. **Поясните принципы стратегии голубого океана. Когда компании заинтересованы в построении голубых океанов? Приведите примеры**

3. В 1974 году преподавателями Гарвардской школы бизнеса Эдмундом Лёндом, Роландом Кристенсенем, Кеннетом Эндрюсом и Уильямом Гуттом было подготовлено учебное пособие с кейсами, содержащее описание нового метода анализа стратегической ситуации: возможностей и угроз со стороны внешнего окружения и потенциала (в виде сильных и слабых сторон) компании, который первоначально получил название LCAG-анализа (по первым буквам фамилий авторов).

Этот метод, помогающий обосновать идеи развития бизнеса на основании использования возникающих возможностей и реакции на угрозы, быстро завоевал признание у практиков бизнеса и активно используется и в наше время, правда, с измененным названием «SWOT-анализ». **Опишите алгоритм SWOT-анализа на примере российской или зарубежной компании и синтеза решений на его основе. Какие достоинства этого подхода Вы можете отметить? Какие недостатки этого метода анализа Вы можете отметить?**

4. One of the important strategic dilemmas consists in the choice of alternatives: 1) the decision to integrate with a certain company (through a merger or acquisition) - that is, the inclusion of this company in the boundaries of a new united firm and 2) the decision to form market relations with a certain company under a cooperation agreement between two independent separate companies. There is an opinion "At present, the merger and creation of a large integrated company is always preferable to the formation of market partnerships between two separate firms"

**Do you agree with the above opinion? If YES, why? If NO, why not? Give examples. If there are two described alternatives, then explain, when it is more reasonable to choose the first one or second? Why? Give an example**

5. There is an opinion: "Competition prevents people and companies from achieving their goals. The main task of the strategy is to weaken the positions of competitors by all means "

**Do you agree with the above opinion? If YES, why? If NOT, why not? If, in part, yes, then in what do you agree and in what do you disagree? Give examples. Are there situations in which competition is not a significant factor? Explain these situations. Give examples**

6. The analysis of many digital transformation projects of companies, carried out at the IT center of MIT Sloan Business School, showed that the success of companies that managed to become drivers of digital ecosystems is associated with 1) omnichannel integration of customer experience and / or 2) the transition from local value chains to building platforms, connecting many value chains or building a universal value chain that plays the role of a basic element for many platforms (for example, PayPal, which is required as a mean of payment for many platforms)

**Give examples of Russian digital ecosystems and describe the mechanisms of their formation. What key problems in the development of Russian digital ecosystems do you see? How can these problems be solved, in your opinion?**

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