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**Tinatin Mshvidobadze\***

PhD (Technical Sciences), Associate Professor

tinikomshvidobadze@gmail.com

<https://orcid.org/0000-0003-3721-9252>**Maka Sosanidze\***

PhD (Economics), Associate Professor

Makasosanidze2@gmail.com

<https://orcid.org/0000-0002-1572-1471>

\*Gori State University, 53, Chavchavadze Str., Gori, 1400, Georgia

## DEDICATING PROJECT MANAGEMENT TOOLS TO DIGITAL MARKETING EFFECTIVENESS

**Abstract.** Marketing campaigns are an important marketing process that supports the communication of brands and products to the general public. Because of the proliferation of products and brands, even larger number of market segments, fierceness of competition, and overall acceleration of change, marketing campaigns have become complex and their planning and administrative decisions must be made under increasing time pressure. Indeed, timing and sequencing activities within a campaign is one of the critical decision variables. In this paper, we argue that by using a process definition language to describe marketing campaigns, we can facilitate the management of many competing campaigns through automation. The article the essence and structure of marketing management of the enterprise is highlighted. The role of marketing is formulated for company management and its impact on the effective functioning of the enterprise. The article discusses various studies considering digital tools for the project supplier marketing process. Based on the results of this research, we present a list of some digital tools that can be used in project marketing. This research contributes to new knowledge about digital project marketing about digital tools and their use in the project marketing process.

The paper aims to present an open source web-based application tool to support business users in modeling business processes using Business Process Modeling Notation (BPMN), an OMG standard for process modeling. Moreover, the tool allows you to execute a business process diagram in a Business Process Execution Language (XML Process Description Language) that can be understood by a workflow engine. In this paper, we describe its architecture, functionality, and capabilities.

The typical multi-agent system used for campaign management can be easily extended to manage workflows of other concurrent processes. Another future direction in this regard is the development of an integrated scheduling algorithm that can create a robust process model. We can limit the input requirements to just a list of activities and their priority requirements, eliminating the need for a formal representation of the processes.

**Keywords:** *Marketing Campaign, Management, Process, XPDL, Project Implementation, Online Interaction.*

**JEL Classification:** L15; GH5; JK8; GH8.

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**Introduction.** Internet marketing or web marketing is a revolutionary process for all kinds of business transactions.

Internet databases have provided advanced business operations and models for the international financial system. Internet

marketing adapts to the rapid development of online business. Online advertising has made great strides in online marketing. Companies should carefully choose an appropriate and effective Internet marketing strategy.

The main advantage of all Internet

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marketing strategies is that companies can overcome barriers or distance limitations and the management team can not only promote their products and services worldwide, but also sell them and make huge profits.

Internet marketing usually involves using it and related digital technologies along with conventional communications to achieve marketing goals. Internet marketing has many synonyms that are used in business, although they have a broader scope because they also include electronic customer relationship management systems (e-CRM systems) (Choudhury, 2014).

The concept of internet marketing has shaped and given more opportunities to organizations to increase the number of customers on a global level.

The tools of successful internet marketing are blogs, keywords, new updates and domain name. The thing about internet marketing is that it grows at a rapid pace and is always changing with the times. Hence, companies adopting online marketing strategies are advised to always update themselves with new and emerging technologies and also use the latest technology or software to get more benefits from online marketing.

The most common Internet marketing activities include developing a website for a company, online advertising, sending emails, and engaging in search engine marketing so that the company's name appears on the top list when a customer searches online for a specific product or service.

In addition, online marketing may include other activities such as marketing through online games, mobile phones or live streaming. Online marketing differs from traditional marketing because it offers new ways to interact with customers and other stakeholders.

The benefits of adopting internet marketing strategies vary depending on the size of the company. This is a new environment for advertising and PR (Public Relations), as well as a new channel for product distribution. Internet marketing also provides new opportunities to develop new international markets without continuing to operate representative offices or sales offices and agents.

In other scientific domains, such as business research, digital marketing has attracted attention in business-to-business (B2B) and business-to-consumer (B2C) settings (Rustholkarhu et al., 2022).

The aim of the study is to show outsourcing projects that demonstrate the effectiveness

of using digital project management tools (Marnewick & Marnewick, 2021).

It can be assumed that firms that implement projects also use these tools in their project marketing efforts.

The following tasks were performed in the preparation of this article:

1. The data obtained by various researchers, based on studies conducted in various companies, in terms of the effectiveness of the use of project management were studied.

2. Based on the research, the potential benefits and suitability of these tools in the project marketing process are highlighted.

The object of the study is digitalization in project management. The subject of the study is the Marketing campaigns. In addition, the study contributes to project marketing research (Cova et al., 2022) and digitalization in project management.

**Literature Review.** Digitization and digital tools are seen as a force for change in B2B marketing. Rapid advances in digital technologies have opened up many research opportunities, especially regarding digital marketing tools, which we define as websites or applications used in marketing.

S. Fraccastoro et al. studied digital marketing through social media such as Facebook, LinkedIn and Twitter and compared it to marketing done with tools designed for online communication such as online chat and email, including Skype and WhatsApp (Fraccastoro et al., 2021).

The authors, Wang et al., put forward the argument that the inclusion of social media in the firm's marketing process is beneficial (Wang et al, 2016).

With regard to projects, social media use has been considered in the context of stakeholder engagement in projects where its importance has been identified or measured.

Previous studies have discussed the category of digital tools for customer relationship management (CRM), which include functions to acquire customers, understand them and their needs (Teo et al., 2006).

Sales force automation (SFA), a process that uses digital tools to automate sales processes, can also be considered part of CRM systems.

Search engine optimization (SEO) and search engine marketing (SEM) are categories of tools previously identified in the literature. A study by H. Taiminen and H. Karjaluo showed that the use of SEO and SEM tools improves the visibility of suppliers and their

offers in search engines. SEO tools are designed to optimize the content of a supplier's web page with the aim of improving its ranking in search engine results (Taiminen & Karjaluoto, 2024).

SEM tools enable paid advertising on search engines such as Google, ensuring that paid advertising is prominently displayed when a search is performed. Without the implementation of SEO and SEM tools, a supplier's web page is likely to have a low position in search results, which may limit user traffic to the page and thus hamper the supplier's marketing of the project.

Search engine optimization is used to increase the quality of traffic to the site from search engines. Every time a website visitor searches for a specific keyword and finds a match, they see several sites appear on the first page of search engine results.

The purpose of SEO is to provide users with a relevant link to a website. They want their clients' sites to rank higher in search results. In this way, they give their clients, or companies, a better chance of being noticed by consumers. SEO can address different search queries such as image search, local search or vertical search engines.

Typically, SEO is required to understand how search engines actually rank pages. This can be done by mining information in search engine algorithms, by freely disseminating

information about search engines through the patent system.

A study by J. Järvinen and H. Karjaluoto focused on web analytics tools used to measure digital marketing effectiveness. The specific analytics tools they explored were Google Analytics, E-Space, and Salesforce. The study highlighted the importance of these types of tools for firms selling complex solutions such as projects. Web analytics tools should be considered relevant for project vendors to use in their project marketing process. (Järvinen & Karjaluoto, 2015);

Building Information Modeling (BIM) has received much attention, specifically in the project management literature (Papadonikolaki et al., 2019).

BIM can be thought of as software applications, tools and activities to generate, manage and share information with stakeholders.

Although BIM is used throughout the project life cycle (Eastman et al., 2011), it is also useful for project suppliers at the front end, such as preparing bids. In addition, 3D visualization and virtual reality BIM tools can help suppliers demonstrate project solutions and create marketing materials.

In addition to BIM, geographic information systems (GIS) have been discussed in the project management literature. GIS are automated

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  <Transition From="Identify_Target" Id="Transition_3" To="Publish_TgtDoc" />
  <Transition From="Communicate_Manager" Id="Transition_4" To="Establish_Budget" />

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Fig. 1. Code snippets from an example XPDL

systems that capture, store, retrieve, analyze and display spatial data (Clarke, 1995). Google Maps is an example of a GIS tool (Brown & Kytä, 2014) that is publicly available. Little knowledge is needed to access it.

**Research Methodology.** Based on the multifaceted research objectives, this study aimed to identify and categorize the digital tools available for project marketing. It focuses on how the project supplier currently uses digital tools in the project marketing process.

We consider each campaign a different process. Each process instance represents a single individual run of the campaign that can be independently controlled and audited as it progresses to completion. During execution, each instance reflects the internal state of the campaign, representing its progress and its status with respect to its constituent atomic activities.

**Automating Marketing Campaign Management.** We consider the XPDL language, which is a popular workflow definition language adopted by many vendor organizations, and it works fully with the Business Process Modeling Notation (BPMN) of the Business Process Management Initiative (BPMI) (OMG, 2009). To facilitate the end users of the system, the campaign process can be defined by an existing process template.

This way, the campaign process definition is finally an XML document. This is a significant advantage because XML documents can be easily parsed so that a computer automatically understands the structure of the process. An illustrative example of an XPDL document is presented in Figure 1. According to the XPDL standard and in the context of marketing campaign management, the main elements of defining a campaign process are:

*The atomic activities*, which can be seen as the individual steps of the process. The activities are responsible for the actual execution of the campaign and they can be either the smallest units of work which need to be scheduled. In the XPDL documents each activity is declared within an <Activity> tag, while its duration is declared by exploiting the <ExtendedAttributes> feature of the XPDL and inserting the numerical value at the corresponded attribute.

*The transitions among the activities.* The transitions define the flow of the process. Virtually any flow is possible as a campaign process can be arbitrarily complex. However, the basic flow structures are the sequence, the parallel execution and the conditional branching.

*The performers of the activities*, namely the necessary resources (humans or tools) needed to execute the campaign. By definition, in the XPDL document, each activity declares its performer using the <Performer> tag. According to the XPDL specification, the performers' types are: RESOURCE\_SET, RESOURCE, ORGANIZATIONAL\_UNIT, ROLE, HUMAN, and SYSTEM. In our study, a performer could be anything among the above types. Separation of atomic activities is done sparingly to maintain time constraints and minimize overall campaign completion time.

According to DELIAS et al., the fair scheduling algorithm described above solves both of the above issues because it allocates activities to available resources (Delias et al., 2020).

**Theoretical background.** Project marketing is a special type of B2B marketing that refers to project-related activities that a firm delivers to its customers (Tikkanen et al., 2007).

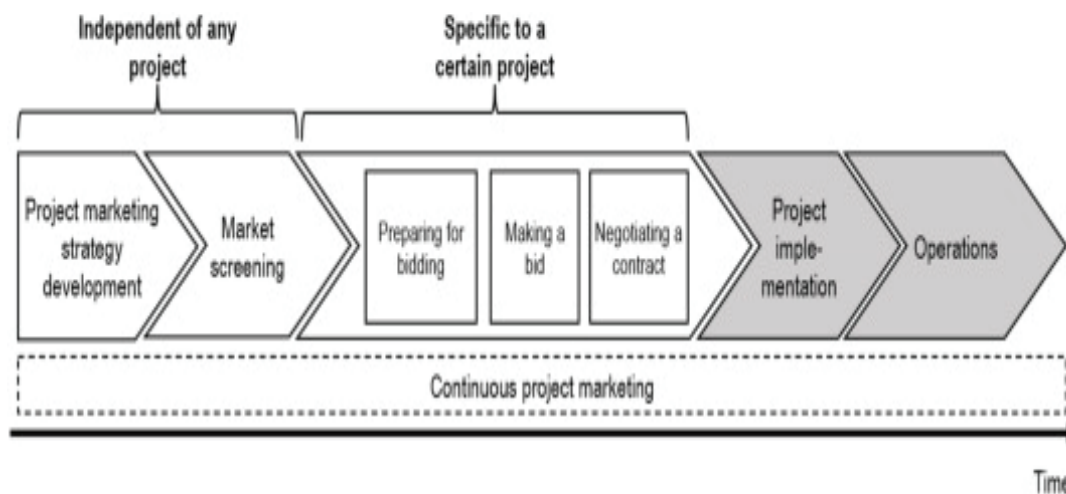


Fig. 2. Project marketing process



Carrying out traditional market research, identifying opportunities and anticipating customer needs are challenging aspects of project marketing.

Projects are often complex, transactions are large, many stakeholders are involved, and customer relationships between different projects are often discontinuous. Successful project implementation requires collaboration between stakeholders and effective management of these relationships within the project network (Aaltonen & Kujala, 2016).

Project marketing is presented as a process to show what happens at different stages before project implementation.

In this study, we will discuss the project marketing process as shown in Figure 2 below.

Traditionally, long before project implementation, the marketing process includes the following stages: project marketing strategy development, market screening, tender preparation, proposal making, and contract negotiation. These stages can take several months to several years. Many internal functions (e.g. management, technology, logistics and project management) are involved in this process (Turkulainen et al., 2019).

**Main results.** Based on the literature review, we developed an understanding of the current stage of project marketing research and the types of digital tools used in it.

The research used several websites and blogs of sales and marketing experts (i.e.

digital influencers) to find digital sales and marketing tools. This search revealed several digital tools used in marketing.

In parallel with the analysis of digital tools obtained by S. Toukola and T. Ahola, from empirical research, we identified digital tools that can be used in project marketing, such as: Market research, Prospecting, Online interaction, Web analytics, Social media, CRM, SEO & SEM, BIM & GIS.

To support the findings of this study and to obtain a more comprehensive view, the authors conducted another new study in an electromechanical systems and services contract manufacturing company, where they used semi-structured interviews to collect data (Toukola & Ahola, 2022).

This company is a medium-sized family business, founded more than 40 years ago, with approximately 500 employees. Its headquarters and production units are located in two Northern European countries. It serves its global customers in a variety of industries, including marine and offshore, rail, energy solutions and industrial machinery. In addition to the various industrial equipment manufactured in its premises, it offers other services to its clients, such as engineering and project management, supply management, installations, classification and product support.

The conclusions of the empirical study, which can be used in the marketing process

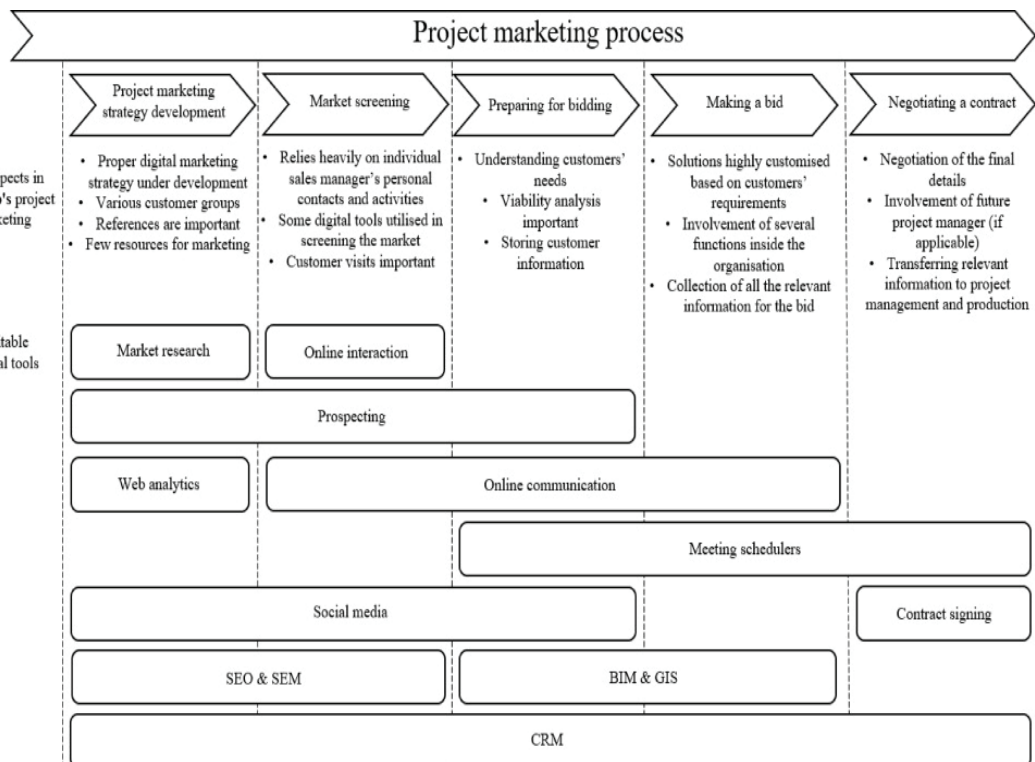


Fig. 3. Project marketing process using digital tools

of the project, are as follows: Market research, Prospecting, Online interaction, Web analytics, Social media, CRM, SEO & SEM, BIM & GIS.

At the first stage, as a result of qualitative data analysis, the overall picture of the marketing and sales activities of the company's projects was assessed.

Then, patterns were formulated (Eisenhardt, 1989) and data were coded into first-order themes following the stages of the project marketing process drawn from the literature: developing a project marketing strategy, market screening, tender preparation, bidding and contract negotiation.

In support of this, the current marketing process documentation and process chart provided by the company representative were reviewed along with the relevant interviewees.

As a general marketing strategy development, the company relies on traditional marketing approaches. Social media were mentioned as a marketing tool, but many sales managers were not familiar with all their possibilities for marketing.

Regarding the general needs, the surveyed beneficiaries (Sales managers) stated that they need more information about potential tools that can be used to improve their digital marketing processes, more training in the use of different tools, more effective approaches to information processing and the implementation of a proper CRM system.

#### **Digital Marketing Process and Tools.**

Based on the research results, we have identified suitable digital tools that can be used

in project marketing, fig. Below 3 shows the main findings of the study, which consist of the main aspects of the project marketing process of the case company and the corresponding categories of digital tools that can be used at each stage of the project marketing process.

As a final point, CRM tools are comprehensive and often contain many digital marketing functions that can be used throughout the project marketing process. CRM is a kind of basic application, it is also a kind of database storage system.

**Conclusion.** In this paper, we presented Automating Marketing Campaign Management system to automate the marketing campaigns management. We recast campaigns in terms of business processes, by describing them using a formal process definition language. This way, the campaign process structure can be interpreted by a computer and lead to effective scheduling and monitoring. The workflow support that the proposed system provides, advances the project management methodologies, often used to carry out the same work.

The study contributes to new knowledge by offering a holistic view of available digital tools suitable for project marketing.

We also discussed the marketing process of digital projects, identifying opportunities for using digital tools at each stage.

Identifying and categorizing digital tools and relating them to the traditional project marketing process provides a basis for improving both project marketing and its research.

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**Тінатін Мшвідобадзе\***,  
кандидат технічних наук, доцент  
tinikomshvidobadze@gmail.com  
<https://orcid.org/0000-0003-3721-9252>

**Мака Сосанідзе\***,  
кандидат економічних наук, доцент  
Makasosanidze2@gmail.com  
<https://orcid.org/0000-0002-1572-1471>

\* Державний університет Горі, вул. Чавчавадзе, 53, Горі, 1400, Грузія

## ВИКОРИСТАННЯ ІНСТРУМЕНТІВ УПРАВЛІННЯ ПРОЕКТАМИ ДЛЯ ЕФЕКТИВНОСТІ ЦИФРОВОГО МАРКЕТИНГУ

Маркетингові кампанії є важливим маркетинговим процесом, який підтримує комунікацію брендів і продуктів для широкої громадськості. Через поширення продуктів і брендів, ще більшу кількість сегментів ринку, жорстку конкуренцію та загальне прискорення змін маркетингові кампанії стали складнішими, а їх планування та адміністративні рішення повинні прийматися в умовах зростаючого часового тиску. Дійсно, вибір часу і послідовності дій в рамках кампанії є однією з найважливіших змінних при прийнятті рішень. У цій статті ми стверджуємо, що, використовуючи мову визначення процесів для опису маркетингових кампаній, ми можемо полегшити управління багатьма конкуруючими кампаніями за допомогою автоматизації. У статті висвітлено сутність і структуру маркетингового управління підприємством. Сформульовано роль маркетингу в управлінні компанією та його вплив на ефективне функціонування підприємства. У статті розглядаються різні дослідження, що розглядають цифрові інструменти для процесу маркетингу постачальника проекту. На основі результатів цих досліджень ми представляємо перелік деяких цифрових інструментів, які можуть бути використані в проектному маркетингу. Це дослідження сприяє отриманню нових знань про цифровий маркетинг проектів, про цифрові інструменти та їх використання в процесі маркетингу проектів.

Метою статті є представлення веб-інструменту з відкритим вихідним кодом для підтримки бізнес-користувачів у моделюванні бізнес-процесів з використанням нотації моделювання бізнес-процесів (BPMN), стандарту OMG для моделювання процесів. Крім того, інструмент дозволяє виконати діаграму бізнес-процесу на мові виконання бізнес-процесів (XML Process Description Language), яка може бути зрозумілою для механізму робочого процесу. У цій статті ми описуємо його архітектуру, функціональність та можливості.

Типова мультиагентна система, що використовується для управління кампаніями, може бути легко розширена для управління робочими потоками інших паралельних процесів. Іншим майбутнім напрямком у цьому відношенні є розробка інтегрованого алгоритму планування, який може створити надійну модель процесу. Ми можемо обмежити вхідні вимоги лише переліком робіт та їхніми пріоритетними вимогами, усунувши потребу у формальному представленні процесів.

**Ключові слова:** *маркетингова кампанія, управління, процес, XPDL, реалізація проекту, онлайн-взаємодія.*

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