Marketing, Sales and Supply Chain Management: A Case Study in Sports Marketing Human Resources Costing

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Keywords:
Marketing; Sports Marketing; Supply Chain; Operations Management; Effort Based Costing

Abstract: A systematic literature survey on sales and marketing operations is presented with an emphasis on supply chain management. Articles included in the survey are categorized into four main categories identified namely: Supply Chain Management, Sales and Operations Planning, Artificial Intelligence and Big Data Analytics. The theory of Sports Marketing is presented as well as an effort-based costing case study of a team of Sports Marketing professionals working in marketing, sales and supply chain management. The costing case study approach provides activity costs calculations as well as the required Full-Time Equivalents per activity. Based on these calculations further performance metrics per activity are calculated.

1. INTRODUCTION

Money saving and efficiency improvement are considered constant goals for most companies globally. A very useful and innovative tool, to succeed in all business areas, is Sales and Operations Planning (S&OP). As a result of the new challenges faced by companies/organizations, to achieve the aforementioned goals, there is a growing interest from academics/researchers in the field of sales and marketing.

For example, the effectiveness of applying Artificial Intelligence in supply chain management (Dogru & Keskin, 2020; Toorajipour et al., 2021), the use of a structural equation model (Goh & Eldridge, 2019) or the adoption of the circular economy (CE) business models for operations management (Jabbour et al., 2019), are just some of the frameworks presented in the literature survey above.

Facing this dynamic, the sports industry could not remain unaffected requiring innovative and integrated sales and programming activities to implement new marketing strategies (Niessen & Bocken, 2021). Finally, in the context of the present research, a case study was contacted presenting the example of human resource costing of a core team consisting of six sports marketing employees.

The costing approach used was effort-based costing (Glykas, 2011; Sachini et al., 2022) in which workers' costs allocated per activity are calculated based on the percentage each employee devotes per activity.

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2. SUPPLY CHAIN MANAGEMENT (SCM)

Sales and Operations Planning (S&OP) is a process that mainly ensures a balance between demand and supply and links supply chain planning with the connected and involved functional departments. The main benefits/advantages of harmonizing all stages in the supply chain and evaluating financial information is a better view of future capacity or sales problems, better customer service and faster changes in production rates. Overall, there is an improvement in fulfilling the customer's wishes. To succeed in company objectives and coordinate production with forecasted demand, the application of good forecasts and a variety of simulations are considered very important.

Jabbour et al. (2019) conducted a systematic literature review for the identification and examination of the following key areas: (1) the new demands facing operations management decision-making related to changes in capabilities, work processes, relationships and technologies within and between organizations (2) the specific changes that operations management decision making must make in order to support CE business models (based on the ReSOLVE framework) and (3) guidelines to help planners, businesses, and supply chain managers develop the necessary skills. Specifically, the research attempts to examine and conceptualize the implications of adopting circular economy (CE) business models on operations management (OM) decision-making processes, in the areas of product design, logistics production planning and control chain.

Huang et al. (2020) also provided an extensive literature survey (evaluating 152 peer-reviewed journal articles that meet the inclusion criteria) to identify research focus and gaps in the value of social media in OSCM, supported by an appropriate conceptual framework. One of the survey's findings highlights the lack of control/governance in the way companies use social media data for OSCM activities.

In contrast, Talwar et al. (2021) limited their scientific research to the investigation of the dimensions, advantages, areas, possibilities and obstacles of Big DATA implementation in OSCM. The study concluded with the development of a conceptual framework, the Dimensions-Avenues-Benefits (DAB) model for the adoption of BDA.

Furthermore, Goh & Eldridge (2019) revealed evidence of the negative relationship between S&OP Process/Planning and Supply Chain Performance. The study has focused on elaborating and extending existing knowledge and on the links between S&OP implementation and Supply Chain Performance. Furthermore, a structural equation model was developed in which six S&OP coordination mechanisms hypothetically contribute to improved supply chain performance. The model was tested using a global survey of 568 experienced S&OP professionals.

Additionally, Yu & Huo (2018) examined the effects of relational capital on supply chain quality integration (SCQI) and operational performance, from the holistic perspective of the entire supply chain. They conclude that building strong relationships with supply chain partners is the key-factor for companies to win tenders.

Dogru & Keskin (2020) focused on the analysis of the recent applications of artificial intelligence in operations management (OM) and supply chain management (SCM). They highlight the main challenges and opportunities for the use of artificial intelligence in these industries. Finally, current research topics with significant value potential in these areas are listed.
More recent research (Toorajipour et al., 2021) attempts to determine the contribution of artificial intelligence (AI) to supply chain management (SCM). Research outcomes indicate that the most widespread artificial intelligence techniques are 1st ANN, 2nd FL and 3rd ABS/MAS. However, they aim to identify current and potentially artificial intelligence techniques that can improve both the study and practice of SCM.

Helo & Hao (2021) also conducted a review of the concept of AI and SCM focused on timely and critical analysis of AI-driven supply chain research and applications. They specifically emphasize that the SC should be digitized and increasingly dependent on technology in the form of IoT and sensors throughout the SC.

Matos et al. (2020) point out the contingencies, trade-offs and tensions of sustainable operations and supply chain management (OSCM), emphasizing that the above should be considered inevitable.

Stolze et. al (2018) argue that focusing on the decision-making and behaviors of front-line individuals could be a basis for understanding cross-functional integration and firm-level outcomes. Supply chain integration elaboration through network theory could provide useful information about the driving forces behind CPG marketing execution in the retail supply chain. Finally, the present study makes use of social networks, through inductive qualitative methods based on grounded theory and ethnography.

LeMay et al. (2017) compile current definitions of supply chain management in practical and analytical use, develop standards for evaluating definitions and apply them to the most readily available definitions of the term. Finally, they list suggested definitions for consideration.

Furthermore, Min et al. (2019) point out the key market and technological changes that have occurred in SCM. They believe that research with an emphasis on theorizing the very nature, market, and technological changes will lead to the transformation of SCM. Also, this article highlights the key markets and technological changes that have occurred in SCM.

In addition, the relationship between GSCM pressures, practices and performance is emphasized under the moderating effect of quick response (QR) technology (for Chinese firms) in Li et al. (2020) theoretical approach. Institutional Theory, Resource-Based Theory (RBV) and GSCM literature are combined along with the use of statistical analysis of collected data and case studies from companies in China. The outcomes revealed that the effect of GSCM practices on negative financial performance is smaller than on positive financial performance.

Nemati et al. (2017) elaborated on the investigation of the benefits of S&OP through (FI-S&OP), (PI-S&OP) and (DP) models (for a multi-site manufacturing company in Iran) and demonstrate a slight superiority of FI-S&OP over the PI-S&OP model and a strong dominance over the DP model.

Feng and Shanthikumar (2018) focus on two aspects of supply chain management, namely, demand management, manufacturing and the way that Big Data can change the above. They summarize some relevant concepts that have emerged with Big Data and present several prototype models to show how these concepts can lead to a rethinking of this research. They highlight that using Big Data is not just about extending our models using additional functions but it can also provide an understanding of general contexts without having to postulate the real data as inputs.
Tsay et al. (2018) examined Production and Operations Management (POM) concerning outsourcing in the supply chain context. Ardito et al. (2018) presented innovative efforts on the development of digital technologies to manage the interface between supply chain management, marketing processes and the role they play in sustaining supply chain marketing (SCM-M). They present patent analysis and real examples and highlighted the role these solutions play in acquiring, storing and processing information for the integration of SCM-M.

3. SALES AND OPERATIONS PLANNING

Nowadays more and more industries adopt Sales and Operations Planning aiming to line up everyday operations with corporate strategy. Although the process was primarily applied on the supply chain to balance supply and demand, it has evolved into holistic business management and decision-making models. In its advanced form, Sales and Operations Planning involves, in addition to supply chain and production, sales, marketing and management. These types of advanced organization-wide processes are often cited by successful companies as their "key to success" in increasing their performance and reducing their operating costs.

According to Wery et al. (2018), an optimization simulation-based framework is proposed for new product demand management. A log analysis simulator is used in conjunction with a tactical planning model to perform sales and operations planning. The plan provides information to the decision maker about which orders for specialized products to accept, what to produce and when, as well as the equipment arrangements to use and the raw material to purchase/consume in each period. An industry-inspired case study shows how the framework can lead to significant benefits. While it is concluded that this framework allows for finding the best combination of scenarios.

Danese et al. (2017) analyzed the execution of the transition between maturity stages in S&OP, by comparing three case studies of S&OP transitions with different initiation and destination maturity stages. The study concluded that moving to a more advanced stage of S&OP maturity requires a balanced execution of all key dimensions.

In addition, Darmawan et al. (2018) present a framework for developing a decision support model to acquire a sales and operations plan (S&OP) that integrates production planning and price promotion decisions. They also aim to identify gaps in the value of social media in OSCM, supported by an appropriate conceptual framework. Research outcomes point out that the resulting qualitative insights can be generalized to other problems with a different set of parameters.

Pereira et al. (2020) provided a review of existing decision-making models, e.g. optimization tools that support S&OP in order to present and characterize S&OP from a modeling perspective. A holistic framework encompassing the decisions involved in this planning activity is presented. An interesting finding of the survey, in which the papers were classified according to the modeling approaches used by previous researchers, was that there are no synthesis models that characterize the overall S&OP problem.

Noroozi & Wikner’s (2017) review of sales and operations planning (S&OP) in process industries (PIs), was aiming to investigate the current state of S&OP in such industries compared to the discrete manufacturing sector and to identify the specific characteristics of PIs that can be influential at the S&OP level. They conclude that there is a need for conceptual models with an emphasis on specific characteristics of PIs.
Additionally, a maturity framework for sustainability integration is proposed, guided by the evolution of sustainable operations capabilities based on Machado et al. (2017) theoretical approach. Furthermore, prompting a company to develop standards of operations excellence with an emphasis on long-term profits, innovation and continuous improvement, the five maturity levels in sustainable operations management are emphasized.

According to Kristensen and Jonsson (2018) S&OP response variables are a product of S&OP related variables in addition to being dependent on S&OP maturity. Specifically, the study describes-categories the ways that current literature contributes to sales-operations planning (S&OP) research, and the ways that environmental variables influence planning S&OP and frames future areas for context-based S&OP research. Studies for review were retrieved through a keyword search of five relevant databases, manual searches of relevant journals and collection of references in relevant papers. In total, 571 papers published between 2000 and 2017 were evaluated and 68 papers were included in the review.

In addition, Bijmolt et al. (2021) developed a framework with the following key decision areas: (i) assortment and inventory, (ii) distribution and delivery, and (iii) returns. For each of the areas, the key decisions that affect or concern both the customer journey and the product flow are first identified. Then, for each decision, the marketing and operational goals and the tensions that arise when those goals are not perfectly aligned are described. Opportunities to alleviate these tensions are also discussed, and possible directions for future research aimed at addressing these tensions and opportunities are presented. While highlighting how an integrated marketing-business perspective can be formulated to address these interdependencies.

Ambrose et al. (2018) attempt to capture the applications of social identity theory to the study of sales and operations planning to show whether fostering superior identity can aid integration efforts in this unique cross-functional team environment. The importance of senior team identity in achieving sales performance and operations planning was emphasized during the research process.

Also, Groza et. al (2021) argue that the sales manager's intellectual stimulation contributes to the promotion of organizational innovation and, in turn, sales growth. They conclude that the degree to which the sales department is embedded in the firm strengthens this positive relationship. Furthermore, the results point out that a sales manager's intellectual stimulation can lead to organizational innovation.

In addition to the above, Kreuter et. al (2021) contacted a review of the empirical and theoretical perspectives on sales and operations planning (S&OP). They identify three main streams of research: S&OP and performance, S&OP implementation, and integration of S&OP plans. The research also included empirical S&OP research based more on the theory of two effects: applying general theories from other fields and developing internal theories through middle-range theorists. Although the review was limited to empirical studies rather than conceptual work, research results can support the development of solutions to improve the effectiveness of S&OP and real-time evidence-based decisions.

Also, Wang et al. (2021) study the interface between operations and finance in risk management. Through methodologies, they systematically present the progress of research from the beginning to its recent findings (through analytical, conceptual or empirical approaches). Finally,
to process any new information, they trace in detail the historical development in recent contributions and thus identify possible inconsistencies in the literature as future research directions.

According to Stentoft et al. (2020), the lack of implementation skills does not affect the relevance of S&OP. The study aimed to understand the relationship between the reasons for not using Sales and Operations Planning (S&OP), the perceived relevance of S&OP and business performance.

Finally, a literature review of sales and operations planning is presented by Nabil et al. (2018) as well as various research and models developed. The outcomes of the survey emphasize the main purpose of research involving operational issues, tactical and strategic in a context subject to different constraints.

4. **ARTIFICIAL INTELLIGENCE (AI)**

Artificial intelligence or machine learning is an approach to using massive data sets to train machines to perform tasks in semi-supervised ways. This applies to the entire manufacturing lifecycle, from problem identification to communication and then problem resolution. Automation is essential to streamline repetitive tasks such as scheduling and rescheduling, planning, and data tracking. Artificial intelligence should touch all aspects of the manufacturing value chain, from the shop floor to management systems and resource development systems.

Dogru & Keskin (2020) present the recent applications of artificial intelligence in operations management (OM) and supply chain management (SCM) highlighting the main challenges and opportunities for the use of artificial intelligence in the industries above. Specifically, innovations in healthcare, manufacturing and retail activities are considered, as collectively these three sectors account for the majority of AI innovations in business as well as growing problem areas. Finally, current research topics with significant value potential in these areas are listed.

Furthermore, Toorajipour et al. (2021) seek to determine the contribution of artificial intelligence (AI) to supply chain management (SCM). They aim to identify current and potentially artificial intelligence techniques that can improve both the study and practice of SCM. While they conclude that the most widespread artificial intelligence techniques are 1st ANN, 2nd FL and 3rd ABS/MAS.

Additionally, based on Helo & Hao's (2021) overview of the concept of AI and SCM, an extra focus on timely and critical analysis of AI-driven supply chain research and applications is given. Furthermore, they emphasize the reasons that the SC should be digitized and increasingly dependent on technology in the form of IoT and sensors throughout the SC.

Finally, Han et. al (2021) explores the approaches that artificial intelligence can be used to enable B2B marketing innovation. The study further categorizes the use of AI for B2B marketing innovation into five areas, identifying the main trends in the literature.

5. **BIG DATA ANALYTICS (BDA)**

Data analytics solutions are significantly important for ensuring efficient business operations and timely logistics and operations. The field of data analytics is applied to bring enhanced intelligence to the corporate decision-making engine. Also, BDA enables managers to understand
their business dynamics, anticipate market changes and manage risks. Companies increasingly depend on data analytics to personalize products and services and scale digital platforms to match buyers with sellers. According to Talwar et al. (2021), SLR is limited to investigating the dimensions, benefits, areas, opportunities and barriers of Big DATA implementation in OSCM. As a result of the SLR is the development of a conceptual framework, the Dimensions-Avenues-Benefits (DAB) model for the adoption of BDA.

Even Schlegel et al. (2020) explore how big data analytics capabilities (BDAC) enables the implementation of integrated business planning (IBP) – the advanced form of sales and operations planning (S&OP) – offsetting increasing information processing demands. The research model is based on organizational information processing theory (O IPT). They conclude that for the implementation of IBP in an organization related to effective and efficient decision-making, BDAC is necessary.

In addition, Roden et al. (2017) explore how Big Data can be used in different sectors and examine how it encourages change in the basic operating models of organizations and point out that most existing research has so far focused on incremental improvements in functionality.

Finally, Feng & Shanthikumar (2018) focus on two aspects of supply chain management, namely, demand management, manufacturing and how Big Data can change the above. They summarize some relevant concepts that have emerged with Big Data and present several prototype models to show how these concepts can lead to a rethinking of this research. While they point out that using Big Data is not just about extending our models with additional functions.

Table 1. Literature Survey of Marketing, Sales and Supply Chain Management

<table>
<thead>
<tr>
<th>Reference</th>
<th>Summary</th>
<th>Approach Methodology</th>
<th>Products-Services-Subjects</th>
<th>Cite Score</th>
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</thead>
<tbody>
<tr>
<td>Wery et al. (2018)</td>
<td>It proposes an optimization simulation-based framework for dealing with these kinds of problems.</td>
<td>A log analysis simulator is used in conjunction with a tactical planning model to perform sales and operations planning.</td>
<td>Engineering, Computer science</td>
<td>16.9</td>
</tr>
<tr>
<td>Jabbour et al. (2019)</td>
<td>Conceptualizes the implications of circular economy (CE) business models on operations management (OM).</td>
<td>Literature review</td>
<td>Business, Management, Accounting, Decision Sciences, Engineering, Environmental sciences</td>
<td>15.8</td>
</tr>
<tr>
<td>Danese et al. (2017)</td>
<td>This article focuses on the so-called S&amp;OP &quot;maturity models&quot;, which describe the successive stages in the evolution of the S&amp;OP process according to a precise set of dimensions.</td>
<td>Case studies of S&amp;OP transitions with different initiation and destination maturity stages have been compared.</td>
<td>Business, Management and Accounting, Decision Sciences, Engineering</td>
<td>14.6</td>
</tr>
<tr>
<td>Agus Darmawan, et al. (2018)</td>
<td>Presents a new modeling framework for the development of a sales and operations plan that integrates promotional and production planning decisions.</td>
<td>Incorporates a market appearance-brand choice-purchase quantity model and a mixed integer linear programming model to develop an optimal promotion-production plan.</td>
<td>Business, Management and Accounting, Decision Sciences, Engineering</td>
<td>14.6</td>
</tr>
<tr>
<td>Huang et al. (2020)</td>
<td>It identifies gaps in the value of social media in OSCM, within a conceptual framework.</td>
<td>A systematic review of English language articles was conducted following the procedures outlined by Denyer and Tranfield (2009).</td>
<td>Business, Management, Accounting, Decision Sciences, Engineering</td>
<td>14.6</td>
</tr>
<tr>
<td>Talwar et al. (2021)</td>
<td>The present study conducted an SLR to synthesize the existing literature on Big Data implementation in OSCM.</td>
<td>Literature Review (SLR)</td>
<td>Business, Management and Accounting, Decision Sciences, Engineering</td>
<td>14.6</td>
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<tr>
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<tr>
<td>Pereira et. al (2020)</td>
<td>This paper reviews existing decision-making models, e.g. optimization tools that support S&amp;OP.</td>
<td>Literature review based on the methodology proposed by Thome et al. (2016).</td>
<td>Business, Management, Accounting, Economics, Econometrics, Finance, Decision Sciences, Engineering</td>
<td>14.3</td>
</tr>
<tr>
<td>Goh &amp; Eldridge (2019)</td>
<td>This paper investigates the effect of S&amp;OP on supply chain</td>
<td>Structural equation model</td>
<td>Business, Management, Accounting, Decision Sciences, Engineering</td>
<td>14.3</td>
</tr>
<tr>
<td>Noroozi &amp; Wikner (2017)</td>
<td>This paper provides a systematic literature review of sales and operations planning (S&amp;OP) in process industries (PIs).</td>
<td>Literature review</td>
<td>Business, Management, Accounting, Engineering, Finance</td>
<td>14.3</td>
</tr>
<tr>
<td>Machado et al. (2017)</td>
<td>This paper proposes a maturity framework for sustainability integration, driven by the evolution of sustainable operations capabilities.</td>
<td>Literature review and results from two-panel studies conducted with academics and practitioners.</td>
<td>Business, Management and Accounting, Decision Sciences, Engineering</td>
<td>14.3</td>
</tr>
<tr>
<td>Yu &amp; Huo (2018)</td>
<td>This paper aims to examine the effects of relational capital on supply chain quality integration (SCQI) and operational performance.</td>
<td>Applied structural equation modeling with LISREL to test a conceptual model based on data collected from 308 companies in China.</td>
<td>Business, Management and Accounting</td>
<td>13.4</td>
</tr>
<tr>
<td>Dogru &amp; Keskin (2020)</td>
<td>It examines recent applications of artificial intelligence in operations management (OM) and supply chain management (SCM).</td>
<td>Case Study</td>
<td>Business, Management and Accounting Decision Sciences, Computer Science</td>
<td>13.1</td>
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<tr>
<td>Kristensen &amp; Jonsson (2018)</td>
<td>Categories how the current literature contributes to sales-operations planning (S&amp;OP)</td>
<td>A systematic literature review</td>
<td>Business, Management and Accounting, Social science</td>
<td>11.4</td>
</tr>
<tr>
<td>Schlegel et al. (2020)</td>
<td>This study explores how big data analytics capabilities (BDAC) enables the implementation of integrated business planning (IBP).</td>
<td>The research model is based on organizational information processing theory (OIPT) and a case study.</td>
<td>Business, Management, Accounting, Social science</td>
<td>11.4</td>
</tr>
<tr>
<td>Bijnolt et. al. (2021)</td>
<td>A framework is developed with the three key decision areas: (i) assortment and inventory, (ii) distribution and delivery, and (iii) returns.</td>
<td>Key decisions affecting both the customer and the product flow are identified. For each decision, marketing and operational objectives are described as well as the tensions that arise when these objectives are not perfectly aligned.</td>
<td>Business, Management, Accounting, Marketing</td>
<td>11.2</td>
</tr>
<tr>
<td>Ambrose et al. (2018)</td>
<td>Applies social identity theory to the study of sales and operations planning.</td>
<td>Responses from key informants representing middle management from the sales and operations functional areas were used.</td>
<td>Marketing</td>
<td>11.2</td>
</tr>
<tr>
<td>Toorajipour et al. (2021)</td>
<td>This paper seeks to identify the contribution of artificial intelligence (AI) to supply chain management (SCM).</td>
<td>Systematic review of existing literature</td>
<td>Business, Management and Accounting</td>
<td>11.2</td>
</tr>
<tr>
<td>Petri &amp; Yuqiuge (2021)</td>
<td>Provides an overview of the concept of AI and SCM and focuses on timely and critical research analysis of AI-driven supply chain applications.</td>
<td>Case study</td>
<td>Decision Sciences, Engineering, Business, Management, Accounting, Computer Science</td>
<td>11.1</td>
</tr>
<tr>
<td>Matos et al. (2020)</td>
<td>Explores (un)expected outcomes, trade-offs and tensions in sustainable OSCM</td>
<td>Literature review</td>
<td>Business, Management, Accounting, Decision Sciences</td>
<td>11.1</td>
</tr>
<tr>
<td>Reference</td>
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<td>Approach Methodology</td>
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<td>Cite Score</td>
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<tr>
<td>Roden et al. (2017)</td>
<td>Examines how Big Data can be applied in different areas in leading organizations and the ways it changes the basic operating models of organizations.</td>
<td>Case studies and implementation of a test framework.</td>
<td>Business, Management, Accounting, Decision Sciences, Engineering</td>
<td>11.1</td>
</tr>
<tr>
<td>Groza et al. (2021)</td>
<td>Examines how the intellectual stimulation of the sales manager helps to promote organizational innovation and, in turn, increase sales.</td>
<td>An online database of industrial enterprises from the United States was used for data collection. Random sample from 1000 B2B.</td>
<td>Business, Management, Accounting, Marketing</td>
<td>10.4</td>
</tr>
<tr>
<td>Martinez-Lopez et al. (2020)</td>
<td>Focuses on the IMM journal, with an extensive bibliometric analysis of the IMM from its inception in 1971 to 2017.</td>
<td>Bibliometric analysis</td>
<td>Business, Management, Accounting</td>
<td>10.4</td>
</tr>
<tr>
<td>Stolze et al. (2018)</td>
<td>This research elaborates on supply chain integration through network theory.</td>
<td>Applies social network analysis, and inductive qualitative methods based on grounded theory and ethnography.</td>
<td>Financial Business, Management and Accounting</td>
<td>10.2</td>
</tr>
<tr>
<td>LeMay et al. (2017)</td>
<td>Brings together definitions of supply chain management in practical and analytical use, develops standards for evaluating definitions, and applies them to the most readily available definitions of the term.</td>
<td>Collection of supply chain management definitions from journals, textbooks, universities, industry associations, and the Internet.</td>
<td>Business, Management and Accounting</td>
<td>10.1</td>
</tr>
<tr>
<td>Min et al. (2019)</td>
<td>This article highlights the key markets and technological changes that have occurred in SCM.</td>
<td>It follows the theory proposed in the article entitled &quot;Defining Supply Chain Management&quot; published in 2001 in the Journal of Business Logistics.</td>
<td>Business, Management and Accounting, Decision Sciences</td>
<td>10</td>
</tr>
<tr>
<td>Li et al. (2020)</td>
<td>The study addresses the relationship between fGSCM pressures, practices and performance under the moderating effect of quick response (QR) technology.</td>
<td>It combines Institutional Theory, Resource-Based Theory (RBV) and the GSCM literature. Uses statistical analysis of collected data and case studies from companies in China.</td>
<td>Business, Management, Accounting, Decision Sciences, Engineering</td>
<td>8.8</td>
</tr>
<tr>
<td>Nemati et al. (2017)</td>
<td>This study explores the benefits of S&amp;OP.</td>
<td>Mathematical approach using 3 mixed integer programming models in a real dairy industry in Iran</td>
<td>Chemical engineering Computer Science</td>
<td>7.6</td>
</tr>
<tr>
<td>Han et al. (2021)</td>
<td>This study explores the approaches that artificial intelligence can be used to enable B2B marketing innovation.</td>
<td>Applying a bibliometric research method.</td>
<td>Business, Management, Accounting, Marketing, Strategy, Management Information Systems, Engineering, Industrial Engineering, Computer Science, IT Applications</td>
<td>7.3</td>
</tr>
<tr>
<td>Feng &amp; Shanthikumar (2018)</td>
<td>This essay focuses on two aspects of supply chain management. Specifically, demand management and manufacturing.</td>
<td>It summarizes some relevant concepts that have emerged with Big Data and presents several prototype models to show how these concepts can lead to a rethinking of this research.</td>
<td>Decision Sciences, Engineering Business, Management and Accounting</td>
<td>6.6</td>
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<tr>
<td>Wang et al. (2021)</td>
<td>Provides a comprehensive research overview and directions for future research on the interface between operations and finance in risk management.</td>
<td>Combination of methodologies</td>
<td>Business, Management, Accounting, Decision Sciences, Engineering</td>
<td>6.6</td>
</tr>
<tr>
<td>Tsay et al. (2018)</td>
<td>This article reviews cutting-edge academic research in Production and Operations Management (POM) on outsourcing in supply chain contexts.</td>
<td>Review of publications from the POM community from 2000 to 2016. Divides research into empirical/conceptual.</td>
<td>Business, Management and Accounting Decision Sciences, Engineering</td>
<td>6.6</td>
</tr>
<tr>
<td>Ardito et al. (2018)</td>
<td>Presents innovative efforts aiming at developing digital technologies to manage the interface between supply chain management and marketing processes and the role they play in sustainable supply chain marketing. (SCM-M)</td>
<td>The paper uses patent analysis and real examples.</td>
<td>Business, Management, Accounting</td>
<td>6.2</td>
</tr>
<tr>
<td>Stentoft et al. (2020)</td>
<td>Advances the understanding of the reasons for not using Sales and Operations Planning (S&amp;OP) as well as the relevance of S&amp;OP to business performance.</td>
<td>Questionnaire research</td>
<td>Business, Management, Accounting, Decision Sciences</td>
<td>4.3</td>
</tr>
<tr>
<td>Nabil et al. (2018)</td>
<td>Provides a literature review of sales and operations planning, as well as research efforts and models. The research focused on operational, tactical and strategic issues subject to different constraints.</td>
<td>Research is done with a literature review related to (S&amp;OP) and the processes that link the strategic objectives of the business with the production plan.</td>
<td>Engineering</td>
<td>1.7</td>
</tr>
</tbody>
</table>

**Source:** Own research

### 6. SPORTS MARKETING

Sports Marketing is considered one of the most profitable industries worldwide due to the enormous amount of money that has been invested. Sports companies seek to recruit human resources capable of increasing customer value and concentrate on employees who have a significant influence in the sports industry to undertake marketing expert positions.

Sports Marketing could be defined as the application and extension of marketing theories, methodologies, tools and techniques to the development of marketing plans for sports products, events (professional/amateur), or services. Sports marketing aims to provide potential partners, clients and customers with a multi-aspect sports experience (Fetchko et al., 2018).

Smith and Stewart (2015) have proposed two categories in sports marketing, namely: the “Marketing in Sports” and the “Marketing with Sport” categories. The two categories are distinguished according to the way sports organizations promote their offering of sports products or services in the marketplace as well as their communication techniques. A representative example of the “Marketing with Sports” category could be the sponsorship of a team or an individual athlete. The sponsorship aims to enhance product visibility and increase sales in the main audience focusing on large-scale well known events (Roche, 2006; Bruhn & Rohlmann, 2022).

Sports Marketing can affect in a very efficient way some main areas related to Sports and the consumer community. It can contribute to increasing/formulating customer value. It also enhances,
the elevation and preservation of customer social connections (relationship marketing) as well as the interaction that sports companies/organizations have with society and authorities.

Mahajan (2020) points out the importance of *customer value*. It is also called value per money which is related to how a customer perceives the cost of the service or product relative to the benefits or the level of customer satisfaction. The cost of customer value is referring to expenses associated with the product or service use like the effort devoted or the amount spent on energy or petrol to reach or obtain the use of the service or product.

Berry (1995) refers to *relationship marketing* as an interactive process of making, preserving and reinforcing long-lasting beneficial relationships with individuals and partners. Furthermore, there are some crucial external factors (competitiveness, economical progression, social policy, technological trends and cultural main streams) that organizations should consider for proper marketing decision-making related to new product-service, positioning, placing, pricing and promotion (Fetchko et al., 2018). Decision-making related to sports marketing leads to effective marketing strategies and implementation plans.

Despite the ongoing economic and environmental crisis, the Sports industry continues to play a leading role in the invigoration of the global economy (Zang et al., 2017). This comes as a consequence of the increasing interest in sports and sports sponsorships and the aspiration to promote sports brands in the global market. A growing number of companies producing products and services related to the sports industry seek ways to apply marketing strategies based on the viability, desirability, feasibility and sustainability of their offerings (Niessen & Bocken, 2021). Additionally, marketing strategies should be based on and include activities related to social diversity, women empowerment, increased participation in sports and public wellness through sports (Fetchko et al., 2018; Niessen & Bocken, 2021).

7. SPORTS MARKETING HUMAN RESOURCES COSTING

According to Cole et al. (2006), the key factor of lasting organizational change and effective process development is directly related to top management commitment. A highly efficient group of employees under the proper supervision and guidance of a manager could lead to succeeding goals and enhancing sports facilities, along with increasing customer value.

As the most valuable asset within an organization, human resources are considered fundamental for individual and collective knowledge management, especially regarding sporting events (Galbreath, 2005). Professional sports events are usually planned and managed by a core small group of employees, large numbers of volunteers and people with temporary or flexible contracts (Chadwick & Beech, 2007). The management, costing and performance analysis of this core group of employees needs to be estimated and evaluated constantly in order to improve and enhance collective teamwork.

We present human resources costing example of a core team consisting of six sport marketing employees. The costing approach used is effort-based costing (Glykas, 2011; Sachini et al., 2022) in which the employee cost allocated per activity is based on the percentage he/she devotes per activity. The total employee effort devoted to activities per employee is 100%.

The total cost the organization spends per employee (salary, pension, insurance, taxes, etc.) is provided by the Human Resources Department. The employee cost per activity is calculated by
the multiplication of the percentage of each activity multiplied by the total employee cost. The result of our real-life case study example is shown in Table 2.

On the left side of the table are the activities as selected by the APQC (apqc.org) reference framework. In the last line, the total cost represents the employee cost.

### Table 2. Effort-Based Costing Case Study

<table>
<thead>
<tr>
<th>Activities</th>
<th>Employee 1</th>
<th></th>
<th></th>
<th>Employee 2</th>
<th></th>
<th></th>
<th>Employee 3</th>
<th></th>
<th></th>
<th>Employee 4</th>
<th></th>
<th></th>
<th>Employee 5</th>
<th></th>
<th></th>
<th>Employee 6</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1.1 Perform customer and market intelligence analysis (10106)</td>
<td>19</td>
<td>4370</td>
<td>19</td>
<td>2200</td>
<td>17</td>
<td>2720</td>
<td>18</td>
<td>5130</td>
<td>18</td>
<td>2160</td>
<td>19</td>
<td>3610</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1.1.1 Conduct customer and market research (10108)</td>
<td>20</td>
<td>4600</td>
<td>20</td>
<td>2200</td>
<td>18</td>
<td>2880</td>
<td>21</td>
<td>5670</td>
<td>25</td>
<td>3000</td>
<td>16</td>
<td>3040</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1.1.3 Analyze market and industry trends (10110)</td>
<td>17</td>
<td>3910</td>
<td>17</td>
<td>1870</td>
<td>13</td>
<td>2080</td>
<td>9</td>
<td>2430</td>
<td>14</td>
<td>1680</td>
<td>8</td>
<td>1520</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1.2 Evaluate and prioritize market opportunities (10107)</td>
<td>16</td>
<td>3680</td>
<td>16</td>
<td>1760</td>
<td>18</td>
<td>2880</td>
<td>18</td>
<td>4860</td>
<td>13</td>
<td>1560</td>
<td>22</td>
<td>4180</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2 Develop marketing strategy (10102)</td>
<td>8</td>
<td>1840</td>
<td>8</td>
<td>880</td>
<td>9</td>
<td>1440</td>
<td>10</td>
<td>2700</td>
<td>11</td>
<td>1320</td>
<td>7</td>
<td>1330</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.4 Analyze and manage channel performance (20006)</td>
<td>20</td>
<td>4600</td>
<td>19</td>
<td>2090</td>
<td>25</td>
<td>4000</td>
<td>23</td>
<td>6210</td>
<td>19</td>
<td>2280</td>
<td>28</td>
<td>5320</td>
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</tr>
<tr>
<td>TOTALS</td>
<td>100</td>
<td>23000</td>
<td>100</td>
<td>11000</td>
<td>100</td>
<td>16000</td>
<td>100</td>
<td>27000</td>
<td>100</td>
<td>12000</td>
<td>100</td>
<td>19000</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

The total cost per activity is calculated by adding the costs calculated for each one of the six employees. Similarly, we can calculate the total effort per activity (Activity Cost column). The **Full-Time Equivalents (FTEs)** per activity are calculated by dividing the total effort per activity by the effort of one full-time employee (100%) (FTE column). The **Cost contribution** (CC column) is calculated by dividing the activity cost by the total cost of all activities. The **Average Salary** per activity is calculated by the division of the Activity Cost by the FTE per activity. The **Concentration index** presents the average percentage of effort of all employees that participate in an activity and is calculated by dividing the FTE of the activity by the total number of employees that participate in that activity. In our example, the total number of employees that participate in the activities is 6.

### Table 3. Performance Measures calculation per activity

<table>
<thead>
<tr>
<th>FTE</th>
<th>Activity Cost</th>
<th>Cost Contribution</th>
<th>CC %</th>
<th>Av. Salary</th>
<th>Conc. Index</th>
<th>CI %</th>
<th>M</th>
<th>HVA</th>
<th>BVA</th>
<th>LVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.12</td>
<td>20190.00</td>
<td>0.19</td>
<td>18.69</td>
<td>18026.79</td>
<td>0.19</td>
<td>18.67</td>
<td>Y</td>
<td>Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.20</td>
<td>21390.00</td>
<td>0.20</td>
<td>19.81</td>
<td>17825.00</td>
<td>0.20</td>
<td>20.00</td>
<td>Y</td>
<td>Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.78</td>
<td>13490.00</td>
<td>0.12</td>
<td>12.49</td>
<td>17294.87</td>
<td>0.13</td>
<td>13.00</td>
<td>Y</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>1.03</td>
<td>18920.00</td>
<td>0.18</td>
<td>17.52</td>
<td>18368.93</td>
<td>0.17</td>
<td>17.17</td>
<td>Y</td>
<td>Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.53</td>
<td>9510.00</td>
<td>0.09</td>
<td>8.81</td>
<td>17943.40</td>
<td>0.09</td>
<td>8.83</td>
<td>Y</td>
<td>Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.34</td>
<td>24500.00</td>
<td>0.23</td>
<td>22.69</td>
<td>18283.58</td>
<td>0.22</td>
<td>22.33</td>
<td>N</td>
<td>Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>108000</td>
<td>1</td>
<td>100.00</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

In addition to the “hard” (calculated factors) we also have “soft” subjective performance measures. For example, with **Mission non mission** analysis we assess the contribution of each activity to the achievement of strategic goals (M column with value yes or no). With **Value Added Analysis** we categorize each activity to its relation to customer value. If the activity is directly related to the customer of product or service development or distribution, then it is considered as
High Value Adding (HVA column). If the activity is related to an internal customer, then it is considered Business Value Adding (BVA column). If the output of the activity is not considered useful either by an external or internal customer, then the activity is considered as Low Value Adding (LVA column).

During the reorganization, we start with the elimination of cost and effort spent on activities that are low value-adding and non-missionary, and we redistribute all minimized effort to other activities.

8. DISCUSSION AND CONCLUSION

We provided a systematic literature survey on sales and marketing operations management. We classified publications into four main categories: Supply Chain Management, Sales and Operations Planning, Artificial Intelligence and Big Data Analytics. We elaborated on the theory of each category based on the identified publications.

We then presented the theory of Sports Marketing and its significance in sports organizations. Finally, we provided a case study of a team of Sports Marketing professionals working in marketing, sales and supply chain management. We calculated activity costs as well as the required Full-Time Equivalents per activity they perform.

We used the effort-based costing approach for these calculations and extended it with further performance metrics per activity. Some of the most important ones are: the average salary, concentration index, mission-mission analysis, value-added analysis, etc.

Each activity is analyzed and prioritized according to its importance for the achievement of the organizations' mission (mission analysis) and its importance to its customers (value-added analysis). Prioritization leads the analysts to redistribute effort and costs to more missionary and value adding activities whilst minimizing the effort of value-adding and non-missionary activities.

Our application of the effort-based approach to various sports organizations has proved its validity and appropriateness for cost calculations and reorganizations of teams working in both well-established sports organizations as well as the ones that have periodic non-permanent project-based structures and concentrate on sports events.

A main limitation of our research is related to the fact that we have not yet applied effort-based costing to a large-scale team involving volunteers and sponsor-provided personnel. This is, however, the subject matter of our future research efforts.

References


