

CASE STUDY

Sales & operations planning: case study on the engineer-to-order production model in the entertainment industry*

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How to cite: Romão, L.O.P., Scavarda, L.F. and Seeling, M.X. (2021), "Sales & operations planning: case study on the engineer-to-order production model in the entertainment industry", *Brazilian Journal of Operations & Production Management*, Vol. 18, No. 03, e20211037. <https://doi.org/10.14488/BJOPM.2021.016>

ABSTRACT

Goal: This article characterizes the application of the Sales and Operations Planning (S&OP) process in an audiovisual content production industry, whose production model is Engineer-To-Order (ETO), adding important empirical knowledge for S&OP in this production strategy within a unique context.

Design / Methodology / Approach: The methodology adopted is based on an exploratory case study. The research adopts a well-known framework to characterize the process observed within the company.

Results: The findings characterize the S&OP process based on the main components of the context, inputs, structure and process and outcomes / results, demonstrating that, even with the particularities of the industry, S&OP can be a key process to manage the business complexity and to achieve the objectives by the company.

Limitations of the investigation: This study was based on the observations made in only one company, which is a research limitation towards the generalizability of the findings. Thus, for a deeper understanding of the theme, future research is necessary, expanding the observations to other companies.

Practical implications: Practitioners can take stock of the S&OP characterization and the lessons learned herein to help to support their S&OP initiatives, especially regarding ETO contexts.

Originality / Value: This article sought to reduce the research-practice gap in the literature concerning the need for a complete characterization of the S&OP process from empirical researches and the understanding of S&OP application in the ETO production model.

Keywords: S&OP; Plan Integration; Process Management; Case Study.

INTRODUCTION

Aligning demand and production is a well-known challenge for different industry sectors. For this reason, literature has increasingly explored the discussions on how to implement Sales and Operations Planning (S&OP). S&OP is a process that allows the unification of different business plans into an integrated set of plans, with two main objectives: balancing

*This article is from the XXVI International Conference on Industrial Engineering and Operations Management (IJCIEOM) and was invited to be published in the September/2021 Special Issue of the Brazilian Journal of Operations & Production Management, due to its relevance and contribution to the field.

Financial support: This work was supported by the following research agencies: German Academic Exchange Service – DAAD (PROBRAL), Coordination for the Improvement of Higher Education Personnel (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – Brazil – CAPES) (Finance Code 001) & (Grant Number 88881.198822/2018-01), Brazilian National Council for Scientific and Technological Development (Conselho Nacional de Desenvolvimento Científico e Tecnológico – CNPq) (Grant Numbers 311757/2018-9).

Conflict of interest: The authors have no conflict of interest to declare.

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Received: 06 January 2021.

Approved: 08 January 2021.

Editor: Antônio Márcio Tavares Thomé



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supply and demand and building a bridge between the company's strategic planning and operational plans (Thomé et al., 2012).

The literature highlights significant benefits of its application in companies, such as improvement in the accuracy of forecasts and the service level (Wagner et al., 2014), reduction in the stock level (Goh and Eldridge, 2015; Wagner et al., 2014) and improving the flow of information between demand and supply (Oliva and Watson, 2011). The academic literature presents good examples, however, empirical studies on S&OP are still lacking opening avenues for research (Goh and Eldridge, 2015; Grimson and Pyke, 2007; Seeling et al., 2019; Thomé et al., 2012). According to Pedroso et al. (2016), the literature lacks a complete characterization of the process based on empirical research. Another gap observed in the literature is regarding the application of S&OP in different production models. Thomé et al. (2012) enhance that the production strategy is part of the context of S&OP, which can be MTS (Make-To-Stock), BTO (Build-To-Order), ATO (Assemble-to-Order) and ETO (Engineer-To-Order). Despite this, the focus of the literature is on studies evaluating companies with MTS and BTO. The literature lacks an analysis that includes ETO.

According to Kristensen and Jonsson (2018), to explain how results are generated with S&OP, it is essential to comprehend S&OP from the perspective of unique company contexts (Kristensen and Jonsson, 2018). Therefore, this paper aims to address this research gap by offering a case study to characterize the S&OP model in an audiovisual content production industry, whose production model is ETO. The study uses a well-known framework from the literature to characterize the process observed within the company, identifying which particularities of the process can strengthen the current theoretical models.

The article is organized into five sections, the first being the introductory one. The second section presents a theoretical background on S&OP and the third section describes the research method adopted demonstrating how the information gathering, the analysis, and the study were conducted. In the fourth section, the case study is presented and analyzed describing the structure of the process. Finally, the conclusion section highlights the main points observed that contribute to expanding knowledge about the S&OP process and offers future research direction.

THEORETICAL BACKGROUND

Over the past few years, several articles have discussed the topic of S&OP. Thomé et al. (2012) synthesized the existing literature to analyze S&OP as a business process. From this synthesis, a framework was developed with several blocks that make up the S&OP: context, input, structure and processes, and outcomes/results. These blocks make it possible to identify and understand the S&OP process as a whole within the company. This structure captures the main elements of S&OP (Kjellsdotter Ivert et al., 2015a) and is considered generic, as it offers a complete overview of the process (Noroozi and Wikner, 2017). This study was later referred to by several authors, such as Danese et al. (2017), who evaluated the managing evolutionary paths in S&OP, Goh and Eldridge (2015), who analyzed new product introduction and supplier integration in the S&OP of two companies in Asia, Kristensen and Jonsson (2018), who did a systematic literature review on context-based S&OP, Pedroso et al. (2016), who developed a multiple case study, Pedroso et al. (2017), who offers a model for S&OP maturity, Seeling et al. (2019) and Seeling et al. (2020), who presents a case studies in Latin America, and Vereecke et al. (2018), who assesses maturity in demand planning. There was also the influence of the different frameworks developed, such as those by Tuomikangas and Kaipia (2014), which assesses the coordination of S&OP, by Hulthén et al. (2016) looking at the effectiveness and efficiency of S&OP, by Thomé et al. (2012) and Hollmann et al. (2015) with a focus on collaborative planning, forecasting and replenishment, by Kjellsdotter Ivert et al. (2015a) who analyzes the complexity of the planning environment, by Noroozi and Wikner (2017) with a focus on supply chain integration, and Kristensen and Jonsson (2018) analyzing context-based S&OP.

The framework building blocks are context, inputs, structure and processes, and outcomes and results. Situated at the tactical level, this framework integrates long-term business and corporate strategic plans with short-term operations (Seeling et al., 2019). Through this study, Thomé et al. (2012) ascertained that the S&OP process varies according to the industry context and the company's production strategies and requires having as inputs the different plans and the main operational and financial restrictions. Inputs come from several functional areas such as sales, marketing, operations (e.g., supplies, logistics, and production). The authors also emphasize the importance of regular meetings with the participation of a team with empowerment and specific gatherings that contemplate senior management. This study reinforces that S&OP can generate several results such as integration of plans, improvement in projections, a balance between supplies and demand, reduction of stock and an increase in results. The framework also highlights that S&OP serves as a bridge between strategic planning and business plan with operations.

S&OP is a cyclic process. According to Wallace and Stahl (2008), it is usually performed in five steps: data gathering, demand planning, supply planning, pre-meeting, and executive meeting (Wallace and Stahl, 2008). Lapide (2004) claims that the Data Gathering step refers to updating the data for the month that has just ended and the generation of key performance indicators (KPIs) and other reports demanded by the different business functional areas. With this information and the inputs from the sales area, in the Demand Planning step, a new demand plan is generated for the coming months. According to Wallace and Stahl (2008), the Supply Planning step follows, when the supply plan is also revisited based on the information collected and the inputs of the new demand plan. Based on this information, the Pre-meeting is held. The purpose of this forum is to align and validate demand and supply plans, generating a set of recommendations to be presented at the Executive Meeting. Finally, the last step is the Executive Meeting with the participation of the executive members (Seeling et al., 2020). According to Wagner et al. (2014), in this forum, the executives review major KPIs and compare current and planned financial performance (Wagner et al., 2014). They can approve the new operation plan, suggest new tactical actions, and make decisions on points not agreed upon in the Pre-Meeting.

However, the implementation of S&OP goes through steps. In recent years, many studies have evolved to develop models to assess the maturity of S&OP in companies. These maturity models differ in their steps and dimensions. The maturity model proposed by Lapide (2004) analyzes the dimensions of meetings, processes and technology. The degree of maturity of this model goes through four steps: marginal, rudimentary, classic and ideal. However, the dimensions evaluated are related to the balance between demand and supply, the goals of the S&OP process, the ownership and the metrics used to measure the process. Wagner et al. (2014) refined the studies and proposed a model with five levels of maturity (underdeveloped; rudimentary; reactive; consistent; integrated and proactive) and with the following dimensions: characteristics and general activities of the process, integration and alignment of plans, people and organization and information technology. Goh and Eldridge (2015) already explore maturity models in situations in which suppliers are integrated in the process, while the model by Hulthén et al. (2016) measures S&OP performance through measures of effectiveness and efficiency. Efficiency measures are related to demand and supply. The efficiency measures are related to the process. It is possible to observe that the factors that stand out the most in this set of models are integrated planning, technology and measurement.

Understanding the degree of maturity of the S&OP process is essential to identify gaps and the possibility of evolution. Taking into account the factors already identified in the literature, Grimson and Pyke (2007) proposed a maturity assessment model, which aims to study how a company operates in S&OP practices and develops its capabilities over time to move from one-step to another. The model developed by Grimson and Pyke (2007) analyzes the following categories: meetings and collaboration, organizational structure, performance measures, information technology and integrated planning. The maturity model of Grimson

and Pyke (2007) was adopted for this research, as it evaluates, with clear and objective parameters, the relevant dimensions for the implementation of the process in the analyzed company. Besides that, several authors have referred to this study over the past few years as Wagner et al. (2014), Goh and Eldridge (2015), Kristensen and Jonsson (2018), Pedroso et al. (2016), Pedroso et al. (2017) and Vereecke et al. (2018), all of these references are related to maturity analysis and assessment regarding S&OP. Danese et al. (2017) used this model to study the key dimensions and the sequence of implementation of S&OP in companies. The maturity model of Grimson and Pyke (2007) defined five steps for each dimension. In step 1, there is no formal S&OP process, nor executive sponsorship to make it happen. As a result, there is no integrated vision, and performance measurements still take place at a basic level. In step 2, it is possible to observe some type of alignment between demand and operation, but still without the involvement of the finance area. It is already possible to perceive a consolidation process and with specific performance measurements. In step 3, there is already a widespread planning culture with clear roles and responsibilities and an integrated look at finance. The integration of demand and supply plans is done via software and it is possible to identify performance indicators along the supply chain, helping decision-making. In step 4, there is a collaboration between the main customers and suppliers making the S&OP process more complete and effective. In step 5, the S&OP process is extremely mature and disseminated by the company and across the executive level. Meetings are now oriented to events and performance indicators are linked to the company's profitability and impacts on the ecosystem.

RESEARCH METHOD

The methodology of this article is based on a case study. The case study is a type of research where the phenomenon (in this case, the process) can be studied in its natural environment, generating relevant theories from the understanding gained through observing actual practice (Voss et al., 2002). There are four types of research related to case study: exploratory, theory creation, theory testing, and theory extension/refinement. For this article, an exploratory study will be applied to a large Brazilian audiovisual content production industry whose production model is ETO. According to Yang (2013) in this production model, the operation is designed to provide unique products where each product is the result of a project. This study seeks to characterize the S&OP process and understand how it can be applied in this type of industry

As a researcher and an integral part of the company's S&OP process, it was possible to collect the process information from unstructured interviews, observations made throughout the cycle, and analysis of internal documents. Thomé et al.'s (2012) S&OP framework was chosen to support the case study development and to characterize the analyzed process. According to Seeling et al. (2019), besides being largely adopted in the literature to analyze S&OP operations, as well as developing new frameworks, its main building blocks offer an important approach to conduct a structured analysis of case studies. From this characterization, it was possible to observe where the theoretical models apply and where there is a particularity in the context of the industry with ETO production. These particularities indicate the need for further studies to a further deepening of the models and theories existing in the literature. The maturity model used was the one offered in Grimson and Pyke (2007), as it is well recognized in the literature (Goh and Eldridge, 2015) and its dimensions are aligned with the S&OP process and the implementation steps of the analyzed company.

THE S&OP PROCESS IN THE BRAZILIAN COMPANY

The Brazilian company under study is part of the entertainment content production sector. This sector has been changing in recent years. Aiming to be more efficient in its production process and improve its performance, this company started to implement S&OP in its production process in the last year. After going through a one-year cycle, it is possible to

observe how the model was implemented, what particularities were found, and what the evolution needs were.

Model production in the Brazilian Company

The production process of this company begins with the identification of demand, where the claimants signal to the Producer the products they would like to create. These products are audiovisual content that can be dramaturgy (soap operas and series) or varieties (shows, reality shows, talk shows) and arrive at the Producer in the form of ideas, texts, or scales. Within the Producer, the execution of these products go through some phases: Conceptualization, Pre-production, Production/Recording, and Post-production, finally arriving at the final product ready for exhibition and/or delivery to the applicant. It is important to note that each of these steps includes numerous processes. Figure 1 summarizes this process.

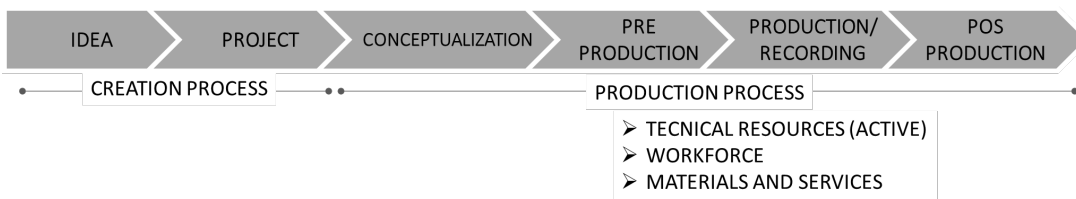


Figure 1. Creation and production process
Source: Authors

S&OP aims to assess, through product demand planning for the coming months, what the need for technical resources (studios, editing islands, and portable recording units) and human resources (workforce) will be. Figure 2 shows the planning horizons throughout the year.

The focus of this study is not to detail the production process, but rather to demonstrate how, through S&OP, the production plan is made in an integrated manner with the demand and resources plan, in addition to involving the process stakeholders. The following sections describe the company's S&OP and the next section associates the process implemented with the blocks structured by Thomé et al. (2012).

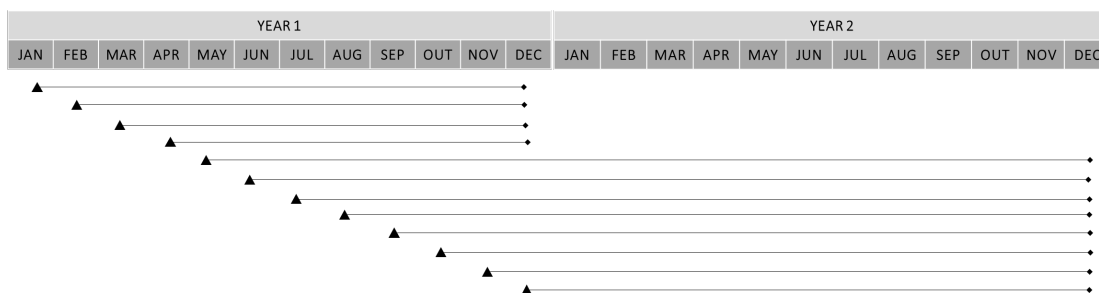


Figure 2. Planning horizon
Source: Authors

The Brazilian Company's S&OP

The S&OP process performed by the studied company has three major steps: demand planning, production planning, and executive forum.

Demand planning

The S&OP process begins with a survey of demand for the coming months. In the past, this demand came exclusively from a plaintiff. With the expansion of windows and platforms

of audiovisual content display, new claimants began to emerge. Allied to this, the diversity of content to be produced has increased as well.

To ensure that all demand is identified, the Demand Forum was created with S&OP. In this forum, in addition to raising the demands, the critical parameters of each product are discussed, such as availability of script, cast, and expected delivery date. Production assumptions are also examined, such as required production time, level of complexity and specific resource needs. This discussion also points out historical references that can be used to guide planning.

From this forum, the production planning area has the inputs to plan and equalize this mix of demands within a single production plan.

Production planning

The production planning step can be separated into 4 phases.

Phase 1 consists of drawing up the production plan. This plan is prepared based on the inputs of the Demand Forum, also taking into account the premises and restrictions identified in the forum. At this time, the production plan aims to optimize the use of technical resources (studios, editing islands, and portable recording units).

From this moment, it is already possible to identify some points of attention, such as:

- **Additional need for technical resources:** indicates that additional resources will need to be rented to deliver the request. This means additional costs for these products and the plan as a whole.
- **The idleness of technical resources:** can lead to idleness in workforce planning. Besides, having idle assets turns out to be an indirect cost. It is important to assess whether there is a possibility of adjustment in planning to reduce this idleness.
- **Production concurrency:** production peaks and valleys can also influence workforce planning, resulting in the need for additional hiring or workforce idleness, respectively.

All these points of attention are taken into account when analyzing the impacts of the plan.

Once the production plan has been prepared, the Operational Planning Forum is held. This forum aims to align changes in the production plan with the areas of operational planning. The operational planning areas will make the workforce allocations for this production plan. Therefore, it is essential that they are aligned not only with the new plan but also with the premises of each product.

From this forum, Phase 2 of production planning begins, called the Planning Round. In it, the operational planning areas allocate the workforce to the production plan. This allocation is made charge by charge, product by product. The areas start the plan considering their headcount (active and open positions). When the demand for the production plan exceeds this scenario, the areas allocate additional workforce, signaling the need for market hires. The result of this phase is a database with the entire workforce planning for the coming months.

With this data, Phase 3 starts, when the round is valued, based on labor costs. This period lasts an average of 2 days, but it is extremely important for the next step when the analysis of the round will be made.

Phase 4 comprises the consolidation of information and preparation of analyses for the *Planning Forum*. It is held in parallel to Phase 2 and 3, but it is only finalized with the inputs of Phase 3. In this phase, the original plan and the plan resulted from the last round of S&OP are compared and analyzed. The analysis can be divided into 4 groups:

- **Plan changes:** the amount and types of change are evaluated. The changes are plotted on a graph to assess their criticality considering the timing they were requested. That is, short notices are more critical for planning. The objective of S&OP is that changes are increasingly shifted to the low criticality range.
- **Use of technical resources:** the utilization curve of each resource is assessed, highlighting idleness and additional demands. In the case of additional demands, it is important to

point out the triggering fact of each demand. This analysis also shows the panorama of the use of resources so far (carried out) to assess some type of trend.

- **Workforce capacity:** this is the most critical point in production planning, as it can lead to decisions to reduce or increase installed capacity. Because of this, some indicators are evaluated for this group, such as the total volume of workforce required, % of idleness for each position and continuous idleness (over 3 months), the volume of additional hires per position, and headcount. It is important to highlight that these analyses are generated in the quantity view and the financial view.
- **Total cost:** this is the key point of S&OP. In addition to all the specific indicators by area and position, an overview of how this plan impacts the total cost of the Producer is also generated.

Based on these analyses, it is possible to highlight points of attention and opportunities that this production plan brings.

The plan, the result of the analysis performed in the previous phases, and the points of attention and opportunities identified are brought to the *Planning Forum*, where all the managers involved in the process (Production planning, Product planning, Operational planning of the areas and Finance) take part. The main objectives of this forum are: i) to discuss the plan, points of attention and opportunities; ii) to build alignment among the attendees; and iii) to map possible risk mitigation action plans that can be taken to the *Executive Forum*.

Executive Forum

The *Executive Forum* is the most important step in the S&OP process. It presents all the analyses of the planning round. It aims to discuss the points of attention and opportunities, evaluate the action plans proposed in the *Planning Forum*, and define the course of actions, such as: revisiting the production plan, re-prioritizing demands or even reviewing the installed capacity - workforce.

The result of this forum is the consensus-based official production plan the Producer will work on in the coming months, thus giving a clear direction for the operational areas.

Figure 3 summarizes the cycle steps and the stakeholders involved in each step.

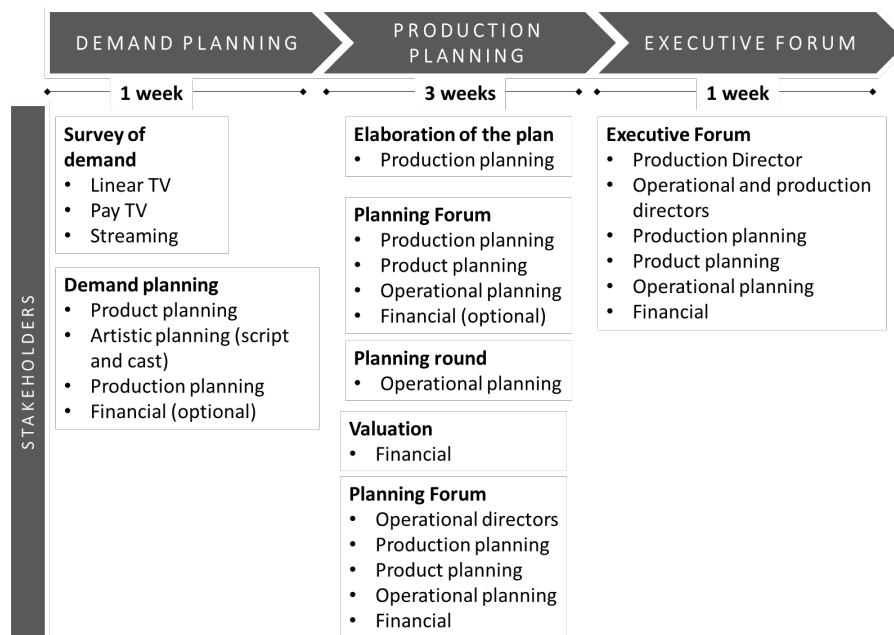


Figure 3. Cycle step and stakeholders
Source: Authors

DISCUSSIONS

S&OP is helping the company to achieve significant efficiency gains. Before the S&OP implementation, the requests frequently came too late, resulting in delays or extra costs; it was difficult to plan the workforce thus resulting in idleness or overload, impacting costs and quality; there was no visibility of the demand in the coming months, making it impossible to properly manage the capacity. Predictability improvements and involvement of the stakeholders are allowing better cost control and more efficient management of the resources. In the last year, the company had a 10% reduction in the idle cost of the workforce. The S&OP implementation made by the company demonstrates that the process can be applied in different contexts (e.g., industries and production models) and ways (e.g., cycle steps, periodicity, and business functional areas involved). The characterization of the process using the framework of Thomé et al. (2012) demonstrates that even with the particularities of the industry and its production model, S&OP has been a key process to manage the business complexity and to achieve the expected objectives set by the company. The framework's main building blocks are detailed specifications for this organization as follows.

Context: in addition to the production model in ETO, which in itself is already a relevant context, this industry is constantly changing, with new players and new customers emerging all the time. This demands an integrated, agile, and robust planning process. The planning horizon is short-term, serving tactical planning.

Inputs: as this company's S&OP is aimed at evaluating production and delivery capacity vis-à-vis the financial impact, the inputs of this process are related to this information: original and executed production plan, budget, capacity, and demand plan for the next few months.

Structure and processes: The company's S&OP involves the participation of the main areas responsible for the production process, in addition to the areas of production and demand planning. As a representative of each area, the process involves the executive level (directors and managers) at the operational level (supervisors and staff). This mix of participants ensures greater alignment and consistent results. The process takes place through monthly planning rounds with validation and decision-making forums. The process forums are: Demand Forum, where the demands for the coming months are mapped and aligned to be plotted in the production plan; Planning forum, where the impacts of the demand plan on installed capacity are aligned and the action plans to be taken in the executive forum and the Executive forum are discussed, where the results of the round are presented, the action plans are discussed and the drivers for the coming months. Throughout the process, some performance indicators are generated and evaluated in each of these forums. These indicators analyze the use of technical resources and workforce, indicating idle rates or the need for additional hiring, in addition to assessing the impact on the budget. The technology inserted in the process is still in excel, requiring a significant amount of time from the team involved to generate and consolidate information.

Outcomes / Results: it is possible to observe, in addition to the alignment between production, demand, and cost, a more structured and robust decision-making process, reducing the company's operational and financial risk. It is usually said that the main objective of an S&OP implementation is maximizing profit (Grimson and Pyke, 2007; Thomé et al., 2012), but this case is completely different and very unusual. It is very important to notice that the S&OP process implemented in the studied company is focused on reducing costs, by balancing demand and supply and efficiently managing the resources. The revenues come from advertisements and are not directly related to production.

Figure 4 offers the S&OP characterization based on the framework developed by Thome et al. (2012).

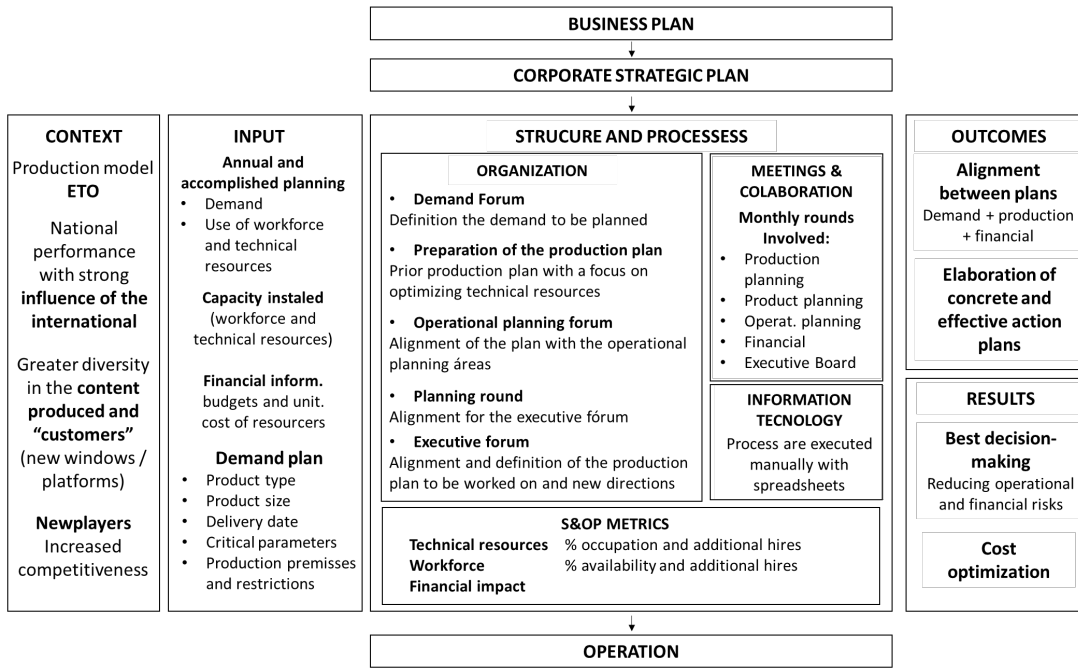


Figure 4. Structure of S&OP (adapted from Thomé et al., 2012.)
Source: Authors

For the studied company, S&OP is considered a fundamental process to manage resources and installed capacity. In the last year, the period in which the S&OP was applied, it was possible to observe a significant improvement in the indicators for the use of technical resources and workforce capacity, directly impacting the better management of capacity. One of the most impacted indicators was the cost of idleness of the workforce that in this first year of implementation of S&OP already showed a 10% reduction. Even though they are not yet in a high degree of maturity, it is already possible to evaluate the process implemented from the perspective of the main pillars defined by Grimson and Pyke (2007). Regarding the involvement of people and organizations, the analyzed S&OP process seeks the participation of all areas involved in the flow of demand and production, but there is still no team dedicated to it, and many times it has to be deprioritized compared to the daily operation. However, despite being a new process, it already has clear roles and responsibilities. In the process and methodology aspect, the analyzed S&OP follows the methodology in a well-structured manner. The forums are well defined. However, the process is not yet dynamic, being planned monthly. Despite presenting the financial view, it is possible to evolve within a total cost perspective, incorporating to S&OP a look over the impact on variable production costs. In this way, it is possible to envision the inclusion of external partners in the process. The information technology dimension is the most critical in the S&OP under analysis. This is because the whole process is still manual, being done in spreadsheets. This fact significantly impacts the consolidation and analysis of the data, generating a great operational effort for the teams involved. Regarding the nominees, some of them are already established in the current process. These indicators permeate the operation and are essential for internal management. The financial view brings even greater concreteness to the analysis, however, to achieve a more comprehensive look at the result, it would be important to insert the other product cost lines.

Analyzing the steps of the cycle, it is possible to observe the main milestones described by Wallace and Stahl (2008) throughout the process. Data collection takes place before the start of S&OP meetings and, as it is a dynamic update of information and indicators, it ends up not being included in the company's S&OP process, but it happens periodically, regardless of the implementation of S&OP. This procedure is in line with recent S&OP studies (Seeling et al., 2019). Therefore, the cycle formally starts from the demand planning step. This

step takes place in a structured way from the Demand Forum, where, as previously described, the demands and the main parameters for production planning are mapped. Regarding the Wallace and Stahl (2008) model, it is already possible to identify a difference at this step of the process. While the demand planning step of Wallace and Stahl (2008) focuses only on the discussion of the demand plan, in the S&OP implemented in the company, the main production parameters for this plan are already analyzed, strengthening the discussion already in the initial step of the process. Then there is the production planning step, which parallels the supply planning step described by Wallace and Stahl (2008). At this step, the production plan is prepared and shared with the areas so that the necessary resources can be planned to meet demand, for example, operational restrictions. Throughout this step there is an alignment forum (operational planning forum) and an estimate of the financial impact, adding to S&OP the vision of finance. Then there is the Planning Forum, which in the steps of Wallace and Stahl (2008) is called a pre-meeting. In this forum, the impacts and action plans that will be taken to the Executive Forum are aligned. In the next step, the Executive Forum takes place, as described in the steps of Wallace and Stahl (2008), where impacts, action plans are discussed and directions are given to the areas involved in the process. It is possible to notice that the implemented process has some peculiarities. The data collection step is not considered within the company's S&OP process. The demand planning step is more comprehensive than the model of Wallace and Stahl (2008), incorporating an initial view of production. The production planning step incorporates the supply planning steps and the pre-meeting in a single step. Even with these particularities, the implanted model presents significant similarities with the model developed by Wallace and Stahl (2008).

It is important to highlight that the implementation of this process was only possible with the participation of a multidisciplinary team and the executives whose areas are impacted by the process. Another important factor in the implementation of S&OP is the accuracy of the demand. As the Demand Forum becomes relevant in the process, the better the results obtained in the Planning Round and the smaller the deviations in relation to the realized one.

In order to assess S&OP performance, the company has adopted the practice of comparing the S&OP result with what it was actually accomplished. This makes it possible to identify deviations and map possible failures in the process. So far, most of the deviations are still related to changes in demand or lack of detail of the project scope. Change in the project scope is a characteristic and an issue of the ETO production model that may be amplified by the dynamic nature of the studied company business that produces audiovisual content.

CONCLUSION

This case study sought to reduce the research practices gap in the literature concerning the characterization of the S&OP process from empirical research. Besides, it addressed the application of this process in the ETO production model, which was another gap found in the literature. The study analyzed how the S&OP process was applied in an industry with an ETO production model, based on the model recognized in the literature with the view of the process structure: the framework by Thomé et al. (2012).

It is possible to perceive that the 5-step model of Wallace and Stahl (2008) and the integrative model of Thomé et al. (2012), already developed in the literature, can be applied in this industry even though the company operates in the ETO production model. Regarding the structure of the process, it is interesting to note that all the blocks identified by Thomé et al. (2012) appear in the model implemented in the studied company. The focus on profit optimization is presented in a relevant manner. As per the analysis of the information technology block, the company utilizes basic tools such as spreadsheets to manage the process thus existing opportunities to improve the process of adopting systems to increase integration and automatize activities. Regarding the flow, it is possible to observe that the steps of the Wallace and Stahl (2008) cycle appear well marked throughout the process, pointing out some differences, such as: the non-existence of the data collection step within the process; a more robust demand planning stage, adding an initial look at the critical points

of production; a consolidated production planning stage that combines supply planning with pre-meeting. A highlight in the studied process is the relevance of the demand and production planning phases. These phases are critical in the process, either because of the operation involved or because of the importance of the data generated. While in the traditional process, demand and production plans are anchored in quantity by type of product and period, in the model presented, demand is more diversified and specific, directly impacting production planning.

A relevant point to be observed in this process is the set of key performance indicators analyzed periodically. In the studied company, only critical indicators for decision making are taken to the forums, such as % of utilization of installed capacity and staff, the needs of additional hiring (workforce and equipment) and financial impacts. Indicators related to day-to-day operations are not discussed in the S&OP forums.

Although this article concretely brings the empirical approach of S&OP with relevant points about the process, it was based solely on the observations made in only one company, which is a limitation of the study. Thus, for a deeper understanding of the theme, future research is necessary, expanding the observations to other companies, seeking to generalize the findings.

ACKNOWLEDGEMENTS

This work was supported by the following research agencies: German Academic Exchange Service – DAAD (PROBRAL), Coordination for the Improvement of Higher Education Personnel (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – Brazil – CAPES) (Finance Code 001) & (Grant Number 88881.198822/2018-01), Brazilian National Council for Scientific and Technological Development (Conselho Nacional de Desenvolvimento Científico e Tecnológico – CNPq) (Grant Numbers 311757/2018-9).

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Author contributions: All authors contributed equally to this paper.