

On understanding of external and internal integration in supply chains

- Challenges and evaluation

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Abstract Benefits of implementing Supply Chain Integration (SCI) are acknowledged in existing integration literature. Integration extending beyond functional silos and firm boundaries is expected to provide value for customers in terms of higher quality, improved service level, and reduced costs. In addition, internal integration allows business functions to align around a single company goal. This type of integration promotes value creation while decreasing redundancies and costs. Yet, regardless of the significant advances in research and practice, many organizations still experience difficulties not only to integrate activities with supply chain partners, but they also struggle to integrate activities within an organization, for example, through implementation of a sales and operations planning (S&OP) process. To tackle these challenges, organizations may need to reconsider why and how they integrate both internally and externally. However, the previous integration research provides only limited guidelines for how to carry out such evaluations. Many organizations experience difficulties in addressing the complexity related to integration and evaluation of activities internally and with SC partners. The lack of concrete guidelines for evaluation of SCI in theory is seen as one of the reasons for the still sporadic examples of successful SCI in practice. Thus, the overall purpose of this research is to increase understanding of external and internal integration in supply chains. To address the purpose, three studies (1-3) have been conducted. The study 1 highlighted the current status and several <i>SCI challenges</i> in academic literature and in practice. One of the major challenges relates to the absence of a systematic comprehensive approach for evaluation of internal and external integration. To contribute to closing of this gap, study 2 was conducted to develop a <i>context based framework for evaluation of external integration</i> . Finally, the subsequent study 3 aimed to develop a <i>framework for evaluation of the S&OP process</i> . Concerning the SCI challenges, this research contributes to previous integration literature by confirming some existing challenges but also by identifying additional challenges. Related to challenges of external integration, a set of contextual factors are identified which were observed to challenge the establishment of an appropriate level of external integration with SC partners. As a result a misfit occurs between the contextual factors and applied level of external integration. Additionally, reasons for the misfits were identified and discussed. Associated with the challenges of S&OP process, this thesis adds to existing fragmented literature on the S&OP process evaluation challenges by synthesizing and extending the existing knowledge. A framework has been developed which is founded on two key areas of process performance – S&OP process effectiveness and efficiency, and on various maturity levels of the process. Although several challenges were found for each maturity level, some challenges were observed occurring across more levels. Moreover, in this research, a context based framework for evaluation of external integration is proposed. The framework extends the previous SCI frameworks. It is founded on contextual factors which were considered by the studied cases when integrating with their SC partners. Furthermore, the factors were observed to promote establishment of an appropriate level of external integration. Each level consists of identified external integration activities. The thesis further contributes to the S&OP performance research by addressing the lack of process oriented frameworks for evaluation of the process performance. The proposed framework of measuring the S&OP process performance considers the five major steps of the process and their outputs as well as the output of the entire process. To reflect the process performance measures, the framework structures and defines effectiveness and efficiency measures and their relation to the process performance. The framework also conforms to the majority of the criteria for designing of appropriate performance measures. Finally, the major results of the thesis are synthesized and a framework is suggested of external integration and its effect on S&OP process performance. The framework considers the identified contextual factors, appropriate levels of external integration, and the S&OP performance measures the integration can have effect on. The thesis also discusses, alongside with the theoretical contributions, how the developed frameworks can support managers in evaluating their supply chain integration practices. Additionally, several opportunities for future research are outlined.	
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