CHAPTER 3. THEORETICAL FRAMEWORK

In this chapter, an attempt is made to conceptualize the insights received from literature review, which is the first stage of theory building (Weick, 1995). Methods using conceptual framework create a balance between the routine inductive and deductive theory building research methodologies and will guide and lead research community to the best managerial practices (Meredith, 1993). According to Carter and Rogers (2008) and Meredith (1993), a conceptual framework can be defined as “a collection of two or more interrelated propositions that explain an event, provide understanding, or suggest testable hypotheses” – of SSCM. We found the book authored by Ravitch and Riggan named “Reason and Rigor: How Conceptual Frameworks Guide Research (2011)” as one of the relevant references in its kind in guiding the development and use of theoretical framework in research. According to Maxwell (2012), a conceptual framework is not simply a verbal or pictorial representation of ideas, but it is the framework of ideas, concepts, and commitments that are actually guiding and informing the study. Many researchers have clearly acknowledged and highlighted the pressing need to have clearly defined constructs and conceptual frameworks to advance the research rigor in operations research and supply chain (See, New, 1995; Saunders, 1995, 1998; Cooper et al., 1997, Chen and Paulraj, 2004; Babbar and Prasad 1998; Chen and Small, 1996; Ho et al. 2002). The theoretical framework building methodology is the integration of different works by summarizing the common elements in them, by analyzing the differences, and by extending the work in some manner (Meredith, 1993). It can be further elaborated that the conceptual framework also touches the definition of variables and the development of “specific predictions” (Wacker, 1998) based on the integration of the existing theories with “logical deduction” that will formulate the propositions (Handfield and Melnyk, 1998). There are many articles that proposed theoretical framework for sustainable supply chain management such as: Carter and Rogers (2008), Dubey et al. (2016); Mann et al., (2010); Ramudhin et al., (2010); Dey et al., (2011); Hassini et al. (2012). But, research attempts by applying organizational theories in supply chain management are in its infancy stage (Ketchen and Hult, 2007), especially when it comes to green or sustainable supply chain domain (Etzion, 2007; Sarkis et al., 2011). And there is a need for more rigorous research to develop frameworks for the performance measurement in supply chain (Hassini et al., 2012). Thus, taking all these arguments
into consideration, we have attempted to build a theoretical framework of sustainability performance of supply chain based on resource based view theory and institutional theory.

3.1. Theoretical framework

The theoretical framework made is purely based on the literature content analyzed in sustainable supply chain domain. In other words, the foundation of our research comprises of two core organizational theories such as institutional theory and resource based view theory. Institutional theory is widely used in environmental sustainability (Bansal, 2005; Bansal and Clelland, 2004; Delmas, 2002; Hoffman, 1999, 2000 and 2001; Jennings and Zandbergen, 1995). By considering the improved environmental awareness and morale of customers, institutional theory foresees that organizations can gain legitimacy and competitive advantage by following better environmental regulations and green operations (Bansal, 2005; Bansal and Clelland, 2004). Institutional theory will also guide professionals in understanding the exact reason behind any decisions made, that were taken by knowing the poor economic return from them (Berrone et al., 2010; Meyer and Rowan, 1977). Institutional theory explains how institutional pressures drive organizations to follow all social and environmental compliances to become a sustainable organization (Glover et al., 2014). Institutional theory helps to point out the factors that may help the organizations to improve the legitimacy, societal expectations, and the capabilities required for survival, but the reasons to acquire the legitimacy and capabilities are often ignored. Improving legitimacy helps organizations to ensure safe access to better resources, minimize risks, improve reputation and stakeholder relationships (Sherer and Lee, 2002; Staw and Epstein, 2000). Thus, it can be understood that institutional theory well explains and take care of all the forces that impacts the legitimacy of an organization that have direct or indirect impact on the economic aspect and organization’s performance. So it can be considered as the best among all existing organizational theories to explain the environmental and social dimensions of suitability performance of supply chain.

Resource Based View Theory (RBV), in sustainable supply chain management suggests how competitive advantage can be gained by focusing on sustainability based operations in supply chain (Touboulic and Walker, 2015). RBV focuses mainly on resources and the economic rationale by completely ignoring the societal expectations and institutional forces affecting the competitive
advantage of the firm. According to Hart (1995), based on resource based theory, organizations that follow better environmental behaviors gain competitive advantage. Resource based view theory bests fits within the organizational economics paradigm (Barney and Ouchi, 1986; Mahoney and Pandian, 1992). But again, resource selection and sustainable competitive advantages are highly influenced by institutional factors (Oliver, 1997). Environmental innovations help to create resources and capabilities that are difficult to get imitated, which in turn will improve social legitimacy and financial performance of the organization (Christmann, 2000; Dowell et al., 2000; Hart, 1995; King and Lenox, 2002). Thus we can understand that resource based view theory is the best among all organizational theories to explain the economic aspect of sustainability.

Figure 3.1 Theoretical framework

Resource-based view theory is derived from strategic management and the theory of competitive advantage (Carter and Rogers, 2008), where as institutional theory is derived from institutional economics, evolutionary economics and actor-network theory (Wickramasinghe and Alawattage, 2007). Development of resources and competitive advantages are also more likely to be get affected by the institutional forces beyond economic factors (Barney, 2001). The availability
of resources and the development of unique capabilities are also equally important along with the attainment of legitimacy through better social compliances and branding for the sustainable growth and success of an organization (Barney, 1991; DiMaggio and Powell, 1983; Meyer and Rowan, 1977; Wit and Meyer, 1998; Scott, 1995; Wernerfelt, 1984). Thus these two theories can be seen as very unique in their nature, but complementary to each other in explaining all the dimensions of sustainability. However, based on our best knowledge, empirical research attempts by using a combination of these two theories are found to be very scant, whereas Clemens and Douglas, (2006) and Oliver (1997) are some few exceptions to this. And thus, these two theories were selected as they are very distinctive and complementary to each other and contribute unique viewpoints in deriving meaningful insights in SSCM (Fang et al., 2012; Hansjürgens and Antes, 2008; Berrone et al., 2008).

Figure 3.1 is the framework outcome of this research. Based on resource based view and institutional theory, social, economic and environmental performances can be seen as the outcomes of the framework based on three different types of institutional pressures and resources such as information sharing, supply chain connectivity and top management support. The framework is grounded on the proposition that institutional forces and firm resources such as information sharing systems affect the sustainability performance of supply chain through the top management involvement and commitment. This research attempt is very unique in its kind, as empirical research attempts by using a combination of these two theories are found to be very scant. We further extend the argument that resource based view theory and institutional theory is the natural best fit to build the conceptual framework of sustainable supply chain performance as the first one focuses on economic factor and capability building based on resources and the second one consider the social and environmental institutional factors of sustainability.

3.2. Hypothesis development

“A hypothesis is an unproven statement or proposition about a factor or phenomenon that is of interest to the researcher. It may be a tentative statement about the relationships between two or more variables based on the theoretical framework or the analytical model” (Malhotra and Dash, 2011). A hypothesized statement must be measurable and quantifiable and the validation of the hypothesis involves the testing of the statistical significance of the relationship between variables.
involved in the hypothesized relationship (Chawla and Sondhi, 2011). Hypothesizes used in the research must be having strong evidences from relevant literature and must be based on proven theories or relationships from previous research bodies available on the topic and a researchers are not supposed to formulate their own hypothesizes. Research hypothesis formulated based on the literature review, research questions and research objectives are narrated below:

3.2.1. Linkage between Coercive pressure and top management belief

Very high coercive pressures have a positive impact on influencing the top management belief and vision (Liang et al. 2007). Coercion is positively related to the voluntary acceptance of green initiatives by organizations (Clemens and Douglas, 2006). Based on belief-action-outcome framework, Gholami et al. (2013) argue that coercive pressures have a positive impact on senior management beliefs and attitudes which in turn will become a controlling factor in the adoption of environmental sustainability practices. According to Chen et al. (2011) and Gholami et al. (2013), coercive pressures have a significant influence on the attitude of top management. Top management attitude is one of the critical factors that decide the strategy and the sustainability adoption level into an organization’s operational level (Ageron et al., 2012; Klassen, 2001). According to Zhu and Sarkis (2007), coercive pressure such as government rules and regulations has a positive influence on organizations to have better environmental performance. So, based on all these arguments, we have considered the linkage between coercive pressure and top management belief in our research.

3.2.2. Top management belief and top management participation linkage

The psychological state and perceptions of top management on various things related to the business of an organization is referred to as top management belief (TMB). Whereas top management participation (TMP) referrers to the various behaviors and actions by top management on the business issues of an organization. TMB and TMP are the two pre-steps in the process of embracement of top management commitment. According to Chatterjee et al. (2002), top management can formulate vision and guidelines for managers and business based on their belief to assimilate the opportunities and risks of new technologies. Akkermans et al. (1999) list out top management involvement as one of the prerequisite to have internationally successful supply chain and shows how top management participation is getting impacted by their belief and
perceptions. According to Min et al. (2004), top management belief and support is very critical in setting up the direction for the organization and the lack of it may become a barrier as a result functional managers will lack motivation and decision making guidance. Mello and Stank (2005) also asserts the positive role of top management beliefs and participation in shaping up the firm culture and orientation to supply chain success. And thus, the linkage between TMB and TMP has to be verified and tested further and is considered as one of the hypotheses in our research.

3.2.3. Coercive pressure and top management participation linkage

The positive linkage between coercive pressure and top management participation is well tested and established by Colwell and Joshi (2013) and Liang et al. (2007). The existences of pressures from market and customers due to high environmental awareness and social morality have a positive impact on the green practices of supply chains (Zhu and Sarkis, 2007). Dubey et al. (2016) also empirically validated the positive linkage between coercive pressure and top management commitment. Research scholars have widely accepted the positive and critical role of top management in achieving sustainability practices (see, Liang et al., 2007; Gattiker and Carter, 2010; Foerstl et al., 2015). Hence, based on the available information, there are very limited research exploring the linkage between the coercive pressures and top management participation and is considered in our study to explore it further.

3.2.4. Linkage between Normative pressure and TMP

Top management confidence and participation is one of the key factors influencing the success of implementation of any technology, innovation or management systems in an organization (Hamel and Prahalad, 1989; Yeung et al., 2003; Zhu et al., 2008). In an attempt to figure out factors behind the effective implementation of ERP systems, Liang et al., (2007) empirically tests and validates that high levels of normative pressures have a positive impact on top management participation. Dubey et al. (2016) has also empirically tested and explicitly shows the positive linkage between normative pressure and top management participation. Ageron et al. (2012) has listed out the lack of top management commitment and participation as one of the barriers to the adoption of sustainability practices into supply chain. Thus, based on these evidences, the relationship between normative pressure and top management participation is found to be relevant and is considered in our study for further testing and analysis.
3.2.5. Mimetic pressure and TMP linkage

According to Liang et al. (2007), higher levels of mimetic pressure have a positive influence on top management participation. Mimetic pressure also positively influences the attitude and perceptions of top managers, which in turn will decide their level of participation (Chen et al., 2011; Gholami et al., 2013). The finding by Zhu and Geng (2013) and Dubey et al. (2016), gives us the fact that top management always have a tendency to mimic the actions and strategies of it’s very successful competitors and peers. The relationship between mimetic pressure and top management participation is rarely explored by researches, especially in the context of supply chain management. So, TMP is one of the critical drivers of sustainability initiatives in supply chain and its implications based on mimetic pressure have to be explored further.

3.2.6. Linkage between TMP and supply chain connectivity

There is a positive linkage between top management participation and supply chain connectivity (Colwell and Joshi, 2013; Liang et al., 2007). According to Gunasekaran and Nagi (2004), top management involvement and awareness have a positive impact on the strategies and goals of SCM and information technology adoption both in terms of flexibility and responsiveness to changing market requirements. There are very rich research evidences supporting the positive influence of top management participation and involvement in the adoption of technologies for better connectivity by organizations (see examples: Khalifa and Davison, 2006; Lee et al., 2014; Dubey et al., 2015). Management interest and participation are the key driving forces behind the investment decisions in technologies related with the sustainability performance of any organization (Nidumolu et al., 2009). Thus, by considering all these arguments, the linkages between these two variables are considered in our study.

3.2.7. TMP and quality of information sharing linkage

The intensity of information sharing has a positive impact on the level of integration between the partners in the supply chain (Prajogo and Olhager, 2012). The important role of top management in information sharing is widely acknowledged by many of the researchers in supply chain (e.g. Lai et al., 2010; Kembro and Näslund, 2014; Wu et al., 2014). They further argue that,
heavy investments in IT infrastructure will not only ensure the quality and intensity of information sharing. But willingness to share information and strategic collaboration depend on top management commitment and participation (Li and Lin, 2006). Top management has a critical role on quality information in supply chain on timely manner without any distortion (Feldmann, and Müller, 2003). Quality of information sharing and trust is an essential requirement to have better collaboration with in supply chains. There is a positive linkage between top management commitment and level of collaboration in supply chain (Ireland and Bruce, 2000; Horvath, 2001). Thus, we understand that the relationship between these two variables cannot be neglected while considering the sustainability performance of supply chain and will be considered for further testing.

**3.2.8. Linkage between SCC and sustainable supply chain performance**

The positive linkage between supply chain connectivity and supply chain performance is a widely accepted fact by researchers (Akkermans et al., 2003; Brandon-Jones et al., 2014; Liu et al., 2013; Zhou et al., 2007). Connectivity improves the collaboration between the players in a supply chain (Fawcett et al., 2011). Collaboration has got a positive impact on supply chain performance (Fugate et al., 2010; Cao and Zhang, 2011). According to Chen et al. (2009), improved supply chain connectivity is the key factor behind efficient integration of supply chain that ultimately helps to improve supply chain efficiency by minimizing redundancy, reducing complexity and by improving relationships. Dell Computers has achieved significant improvement in their supply chain performance by ensuring better supply chain connectivity (Magretta, 1998). Dell’s web enabled supply chain helped them to significantly reduce inventory levels and to ensure negative cash conversion cycles with respect to their financial cycles (Fields, 2002). Cisco Systems achievement in improved performance and collaboration in its global supply chain as a result of the implementation of supply chain digital platform is another classic example of the positive impact of supply chain connectivity on supply chain performance (Enslow, 2000; Sabath and Frentzel 1997). Further, integration improves information availability (Daugherty et al., 1995) efficiency (Flynn et al., 2010) and also the time and place utilization (Droge et al., 2004). And thus improved supply chain connectivity leads to improved customer service and improved supply chain performance (Adams et al., 2014). And thus, this is one of the well defined and well established relationships that we have also captured in our research.
3.2.9. SCIS and sustainable supply chain performance linkage

Information systems enabling timely sharing of data within the supply chain network is an essential requirement for ensuring efficient supply chain operations. The positive impact of information systems on supply chain performance are widely acknowledged by many researchers (Bowersox et al., 1999; Fawcett and Clinton 1996; Gustin et al., 1995; Williams et al. 1997; Stank et al., 1999; Lambert and Cooper, 2000; Lau and Lee, 2000). Timely and accurate information on inventories and stocks provided by logistics information systems help organizations to minimize the inventory quantities and to strategically allocate storage locations and logistics hubs in an optimum way (Chen et al., 2009). Information systems help to ensure better collaboration and co-ordination and assist the entire chain to achieve the goal to act as a single unit (Dewett and Jones, 2001). Electronic data exchange is acute for maximizing the responsiveness and service advantage (O’Callaghan et al., 1992; Sutton, 1997), to improve perceived value and minimize costs (Sutton, 1997; Williams et al., 1997; Zhao et al., 2001). There are enough literature evidences on the positive linkage between collaboration through better information sharing and sustainable supply chain performance (Brandon-Jones et al., 2014; Dao et al., 2011; Lee and Whang, 2000; Vachon and Klassen, 2008; Melville, 2010). And thus we too have considered the positive impact of information sharing and connectivity with the sustainable supply chain performance for further analysis.

3.3. Chapter Summary

In this chapter, we have done an attempt to explain how the insights received from literature review are used to conceptualize the theoretical framework. The detailed description of the meaning and purpose of building the theoretical frameworks are also reviewed and listed down. The subsequent parts explained the reason behind the selection of theory based research methodology and the reason behind the selection of multiple theories to build the theoretical framework. Since the selection of theories were restricted to institutional theory and resource based view theory, the justification for the selection of these two particular theories are also explained. In the next sections, the implication of institutional theory on SSCM framework development is explained in detail. In a similar fashion, the significance of resource based view theory and the importance to consider the two controlling variables such as firm size and structure are also
explained. All hypothesizes that are to be tested further are also outlined in this chapter. The literature evidences that support each proposed hypothesis are discussed in detail. Enough evidences are found from the existing supply chain research body that support the relationships between constructs considered in the study. Hypotheses formulated based on the review and other evidences from literature are to be tested imperially to validate the theoretical framework proposed. The next chapter will be dealing with the detailed description of research methodology and data collection technique followed by the analysis and results in the upcoming chapters that are being used to test the proposed theoretical framework.