

Research Paper

Factors influencing organizational change and health - Evidences from the Indian pharmaceutical sector

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Dynamics and interplay among various drivers and competencies in any organizational set-up shape the configurations of the systems black box. Structural flexibility, information management, decision making and leadership are critical components which manage the intra-organizational interactions for a collective meaningful outcome in terms of organizational change capability and superior performance. In the recent past, the Indian pharmaceutical sector has witnessed impressive global consolidation and expansion. The organizational health recipes which have been designed by the Indian pharmaceutical sector for its healthy growth need to be explored and understood. Identifying how these variables interact and how they have contributed to the success of the pharmaceutical sector is the key research agenda of this paper. The responses obtained from 216 mid- and senior-level executives of the Indian pharmaceutical industry have been processed by structural equation modeling to investigate interactive dynamics. Therefore, the outcomes are of value to scholars as well as practitioners.

1 Introduction

The scholarly and intellectual interest in pharmaceutical industry results from its highly 'closed' innovation model, pricing policies, regulatory barriers and dynamics of boundaries of the firm (Foss and Rasmussen, 2014). The Indian pharmaceutical industry will grow to US\$ 55 billion by 2020 driven by steady rise in affordability and a steep jump in market access. Articulating the insights and revelations by transcending through the 150 years old history of Indian pharmaceutical industry, it is not very surprising to find that ability to change and adopt are the key survival instincts which this industry has exhibited. The current state of its health is due to existing capabilities to change, adopt and reconfigure its competencies in light of external happenings. This magnitude of growth will lead towards a market size at par with developed markets other than the US, Japan and China and in terms of volumes it will be next to the US (McKinsey, 2013).

The pharmaceutical and medical report by McKinsey & Company (2013) and its research related to

the Indian pharmaceutical sector has embarked upon four fundamental questions: How can the industry stimulate the growth drivers? What are the most attractive opportunities in Indian markets? Which capabilities will differentiate the leaders of tomorrow? Would the way organizations are structured and managed need to change as the range of opportunities becomes diverse?

This complexity calls for an investigation into the status of organizational health of the Indian pharmaceutical sector identifying the key enablers which have catapulted this industry from a weak health configuration to global recognition. Before we proceed with the framework, model and empirical investigation, it is important to trace the enablers of this development in the industry so far. Researchers dealing with business and industry history have divided the evolutionary path in four stages with an objective to explain the industry dynamics in minutest detail. The objective of this research is to examine the internal firm-specific dynamism and more recent trends. Once research broadly understands the challenges and obstacles faced by this industry, it is possible to explore the

concept of organizational health and the constructs contributing to this central theme. We scan the literature examining the key variables associated with this unexplored phenomenon and propose a framework based on extensive literature review. We hypothesize relationships within a constructed model on the basis of existing theory and then constructs are modeled based on empirical data to validate the theoretical understandings.

2 Theoretical background

2.1 Organizational health

"[...] the health of an organization is based on the ability to align around a clear vision, strategy, and culture; to execute with excellence; and to renew the organization's focus over time by responding to market trends. Health also has a hard edge: indeed, we've come to define it as the capacity to deliver - over the long term - superior financial and operating performance". (Smet et al., 2014)

Similar to humans, a healthy organization can sustain its existence in longer runs. Therefore, it is implicit that organizational health is a powerful lever in a dynamic business environment where coping with change is an instinct linked with survival. Organizational health according to Smet *et al.* (2014) can be achieved by following one of the following four ways ("organizational health recipes"):

A. Leader-driven:

This refers to presence of talented and high-potential leaders at all levels in the organization who can exercise autonomy and are accountable. The ability to create something from nothing is materialized if this health driver is aptly nourished and nurtured.

B. Market-focused:

This refers to a firm's external orientation not

only towards the customers but also towards regulators, partners, competitors and the community. This approach directs the ability of organization to be shapers of market trends, innovators and creators of robust brand equity.

C. Execution-edge:

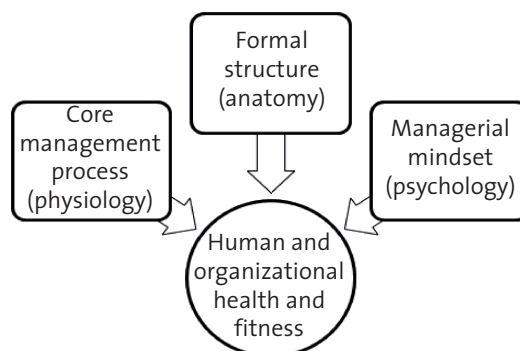
This describes the ability to sense the environment, reconfigure and deploy resources. Thus, the thrust is on the ability to swiftly act with a stout mechanism of decision making.

D. Talent and knowledge core:

This lever refers to the ability of organizations to build competitive advantage by assembling and managing a high-quality talent and knowledge base.

Following the inductive reasoning to the concept of organizational health as proposed by Smet *et al.* (2014), the theory of organizational health can be configured around the following facets. The talent and knowledge core constitute the essence of effective organizational processes, reconfiguration and deployment of resources hinge on organizational structure, the issues of market focus correspond to the sensing abilities of organizations for change and the drive comes from the organizational leadership. The health of business organizations can thus be viewed to rest upon three fundamental pillars, i.e. core management processes, formal structures and managerial mindset. If we compare these aspects of organizations with humans, they can be interpreted as synonyms for anatomy, physiology and psychology. Organizational health as interpreted and modeled in this paper (figure 1) focuses on organizational structure (anatomy), mechanism of transparency in information sharing and decision making (physiology) and shared leadership and change friendly identity (psychology). The human architecture is structured by nature and its health depends upon a balanced

Figure 1 The pillars of human and organizational health (Source: Researchers' own presentation).



interactive dynamics among the three key variables. Organizations are socio-economic units purposefully structured to bridge the value gaps. These value delivery propositions are interpreted as (parts of) business models in management literature.

2.2 Business models

Organizations and living entities are configured around the structural domains of inter- and intra-relationships. The efficiency in management of these interfaces provides benefits which are aimed at. In business context, the organizational pattern of relationships can be termed as business model. Research exists in abundance but concurrence and concreteness in the understanding of the term business model is lacking (George and Bock, 2011 and 2012). The best way to interpret and understand a business model for any firm is in terms of value propositions towards customers (Doz and Kosonen, 2010; Teece, 2010; Tikkanen *et al.*, 2005).

What makes a business tangible, is the anatomical foundation interpreted as organizational structure (Baden-Fuller and Morgan, 2010). The management processes coupled with shared leadership act as an enabler for organizational health and thus configure the organizational change ability (Gulati and Puranam, 2009; Hall and Saias, 1980). Since business models need continuous reconfigurations, any random or planned fluctuations in the environment call for realignment (Ho *et al.*, 2011; McGrath, 2010; Sosna *et al.* 2010; Teece, 2010) of processes and structure. Leadership acts as a facilitator in adjusting and coping with changes. It becomes apparently evident that changes in environment call for a reconsideration of the business model. The (re)configurations will revolve around the organizational capability of leadership, process and system dynamics and the structural organization (Najmaei, 2011).

Research by PricewaterhouseCoopers (PWC, 2009) states that the conventional integrated business model (from discovery to customer) will become distant reality in future times (Gilbert *et al.*, 2003; PWC, 2009). They suggest that alternative business models are needed to ensure effectiveness of the business value delivery.

O'Reilly and Tushman (2004) have contributed to the understanding of innovations in business models and organizational principle structural (anatomical), operational (physiological) and conceptual (psychological) components, but their work is limited to manifested organizational structures in light of business model innovations. As shown by firms in the Indian pharmaceutical sector, there has been continuous innovation in the business models over time (Foss and Stieglitz 2014, Foss and

Rasmussen 2014). Whenever an organization innovates its business models, it requires the inclusion of new tasks inside the company in order to address requirements and reshaping the coordination requirements with this new practice initiation (Foss and Rasmussen 2014). This refers to a shift in organization's health constructs by reconfiguring its structure, processes and leadership.

Changes in business models and business configuration are done to exploit unique and novel opportunities with a balance of coordination, control and expectations of better gains (Johnson *et al.*, 2008). This study draws from these key issues and correlates it to an aggregated term of organizational health. Whelan-Berry *et al.* (2003) have proposed culture, vision, leadership and communication as facilitators to the change process. These change ingredients have a high degree of dependence on structure, process and leadership. The research constructs employed in this paper have sound foundations to explore the relationships among the exogenous and outcome variables and are introduced in the following.

2.3 Hypotheses development

When linking performance with strategy and organizational structure, they can be seen as resultant and drivers (Chandler, 1962; Davis *et al.*, 2009). Structure can be interpreted as a macro-level, multifunctional system with an implicit objective of creating and capturing value (Bock *et al.* 2012). *Structural flexibility* as an organizational capability can be defined as simplification, expansion or reconfiguration of the constituent elements in light of a reorientation of a practiced business model. Structural flexibility can drive performance by reducing the coordination costs and increasing cooperation among the units leading to enhanced ability for exploration and exploitation (Mom *et al.*, 2009). Structural flexibility when viewed closely with a conceptual lens involves consolidation, removal, delegation and devolution which enable managers to resolve critical issues and exploit opportunities arising out of changes in environment (George and Bock, 2012; Ocasio, 1997; Rothaermel *et al.*, 2006).

The key role of organizational leadership is to perceive and share the impact of exogenous changes on the organization's competitive position (Ocasio, 1997) and this calls for *shared leadership and collective identity*. *Transparent information and decision making* act as glue to hold structural needs and the understanding of leaders concerning the organization and its environment together. Managers must pay attention to the roles and significance of knowledge sharing, dissemination and communication in discovering, penetrat-

ing into and exploiting new markets as well as assessing the progress of their revolutionary initiative (Najmaei, 2011).

Leadership is therefore responsible to define and design the organizational characteristics for superior performance, success and ultimately organizational health (Davis *et al.*, 2009; Glick *et al.*, 1990). Adapting and changing to the needs of the future, results in superior performance in complex and dynamic environments (Nadkarni and Narayanan, 2007). Interpreting planned organizational change as a generic phenomenon might mask important idiosyncrasies associated both with the different activities involved in the change implementation process and with the unique functions that leadership competencies might play in the execution of these activities (Battilana *et al.*, 2010). Therefore, it is essential to integrate the enablers which enhance the firm's ability to change and thus become different from others in terms of performance which is used as a proxy for *competitive advantage*.

In this paper, we propose that the firm's ability to change (CC) is linked with superior performance (CA), which is an indicator of better organizational health. In addition, the change capability (CC) depends on the organizational abilities: structural flexibility (SF), transparent information and decision making (ID) and shared leadership and identity (SLI). Furthermore, an attempt to identify the role of change capability as a mediator in the proposed relationships is made.

Studies in the area of organizational design have established relationships between structure and change. Structure can facilitate and act as an enabler resulting in better ability to control and to have a clear focus (Ethiraj *et al.*, 2008; Lee and Makhija, 2009). Reduction in cost of coordination and broad-

ening the range of offerings for better-off position among rivals is enabled by increasing the availability of information and the ability of organization to share (Puranam *et al.*, 2006; Sanchez and Mahoney, 1996). The explicit questions addressed here are:

1. How structural flexibility is related to organizational change capability and contributes to the firm's competitive advantage.
2. How transparent information and decision making is related to organizational change capability and contributes to firm's competitive advantage.
3. How shared leadership and change friendly identity is related to organizational change capability and contributes to firm's competitive advantage.

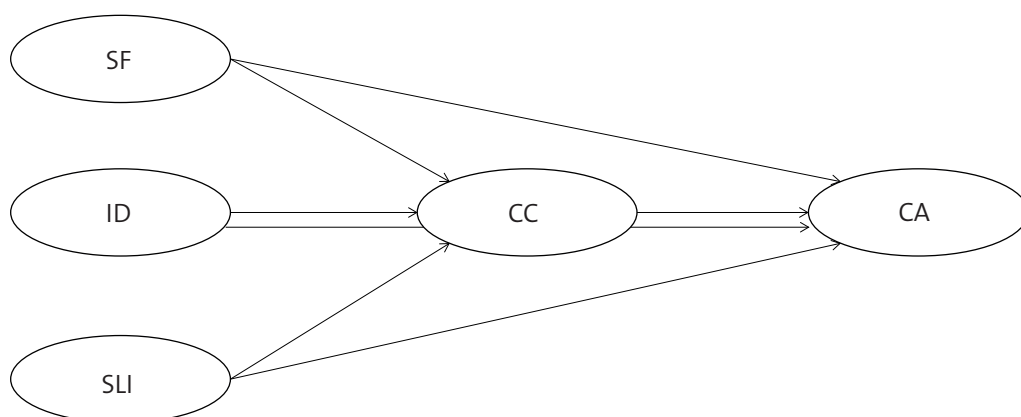
The relationships thus investigated are depicted in figure 2, where change capability (CC) is proposed as a mediating variable between the constructs of structural flexibility (SF), transparent information and decision making (ID), shared leadership and change friendly identity (SLI) and competitive advantage (CA) measured by a proxy of superior performance.

The associated research hypotheses are:

H_{SFCC} : Structural flexibility (SF) has a significant, direct and positive impact on change capability (CC).

H_{SFCA} : Structural flexibility (SF) has a significant, direct and positive impact on competitive

Figure 2 Proposed structural model.



advantage (CA).

H_{IDCC} : Transparent information and decision making (ID) has a significant, direct and positive impact on change capability (CC).

H_{IDCA} : Transparent information and decision making (ID) has a significant, direct and positive impact on competitive advantage (CA).

H_{SLICC} : Shared leadership and identity (SLI) has a significant, direct and positive impact on change capability (CC).

H_{SLICA} : Shared leadership and identity (SLI) has a significant, direct and positive impact on competitive advantage (CA).

H_{CCCA} : Change capability (CC) has a significant, direct and positive impact on competitive advantage (CA).

H_{MCA} : Change capability (CC) plays a mediating role between SF, ID, SLI and CA.

3 Research method

3.1 Sampling frame and sample characteristics

Senior level management employees from Indian pharmaceutical companies constitute the target population in this study. Our definition of the Indian pharmaceutical sector includes those firms which primarily operate in India, are incorporated and registered under the Indian Companies Act of 1956, and might be operating abroad but are not branches of a foreign company (as defined by Sharma and Singh, 2012a, 2012b; Singh, 2014). The data source for identifying the companies is CMIE (Center for monitoring Indian economy), which provides detailed and exhaustive information on 648 organizations through the database PROWESS. Data collection occurred during the years 2012 and 2013. For Indian companies, CMIE is a leading information provider and many published papers have used this database for India-specific research.

The level at which the analysis is carried out are pharmaceutical organizations (Davidsson and Wiklund, 2001; Singh, 2014). Information from top level managers provides valuable insights into the organizational systems and practices (Snow and Hrebiniak, 1980, p.320) and therefore, the information pertinent to research questions was collected from them and this data in aggregate represents the measurements at the firm level. A number of studies has previously adopted this approach, for example, Cragg and King (1988), Davidsson and Klofsten

(2003), Gadenne (1998), Kara *et al.* (2005), Sharma and Singh (2012a) and (2012b), Singh (2014). Understanding the fact that top-level executives in a firm have adequate information and understanding about the uniqueness of processes and systems followed by firms, information specific to the organizational context with reference to competitive advantage and organizational performance is obtained from them.

The overall study design is adapted from Singh (2014). The sampling design followed the approach suggested by Short *et al.* (2002) for studies of this kind. To add relevance to the research, the list of pharmaceutical firms was analyzed on the basis of consistency in the sales turnover over a period of the past eight years (2005-2012). On this basis, we derived thirty firms eligible for data collection and analysis. In an attempt to resolve existing disparities in sampling processes in place, this census was chosen. These thirty firms were targeted for 15 responses from key informants which totaled to a size of 450 responses.

Data analysis was carried out through structural equation modeling (SEM) by using AMOS 19. The final sample size depends upon reliability, strength in effects and complexity in model (Bearden *et al.*, 1982; Bollen, 1990). There is lack of consensus on the recommended sample size for SEM, Gerbing and Anderson (1985) have suggested a sample size of 150 for a convergent and proper solution whereas Garver and Mentzer (1999), Hoelter (1983) as well as Sivo *et al.* (2006) have proposed a critical sample size of 200. If we adapt the study to the sample size prescribed, any sample size equal to or above 200 is accepted as it may provide sufficient statistical power for data analysis (Singh, 2014).

Data was collected for this study by hosting an online questionnaire on Google documents, sent to the targeted organizations by collecting details from their websites and other sources like a directory of NPPA (National Pharmaceutical Pricing Authority). Studies which have used online surveys consider 20% responses as valid (Hitt *et al.*, 2004; Malhotra and Grover, 1998). Considering the response rate of 38% by Subramaniam and Venkatraman (2001), 21% by Paxson *et al.* (1995), 41% by Dyer and Hatch (2006), Dyer and Nobeoka (2000), Kotabe *et al.* (2003), 25% by Kale *et al.* (2002), 32% by Hoskisson *et al.* (2000), this study has a higher response rate, i.e. 48%. Among a total of 216 responses obtained, 168 out of 250 were obtained by physical follow-ups and 48 out of 200 were obtained online. The item completion rate was 99% indicating a high survey effectiveness.

3.2 Measures

The focus of this study is on exploring the strength of relationship between SF, ID, SLI, change capability and competitive advantage. In absence of existing scales, a new instrument (table 1) has

been developed in two stages as suggested by Menor and Roth (2007).

Table 1 Constructs and their measure.

Construct	Construct description	Measure (Seven point scale: 1 – strongly agree; 7 – strongly disagree)
<p>Structural flexibility: <i>Ability of the structure to expand to maximizes the surface area of the firm.</i></p>	<p><i>Structural flexibility</i> as an organizational capability can be defined as simplification, expansion or reconfiguration of the constituent elements in light of reorientation of practiced business model (Mom <i>et al.</i>, 2009).</p>	<ol style="list-style-type: none"> 1. Cross-functional teams with more authority than departmental managers in daily decisions. 2. Allocation of resources to improve and adapt. 3. Awareness and categorization of level of risk acceptable to the organization. 4. HR practices which enhance understanding of change.
<p>Transparent information and decision making: <i>Availability of relevant information across various decision making domains which provides for a mechanism which facilitates goal setting, decision making and implementation</i></p>	<p>Refers to roles and significance of knowledge sharing, dissemination and communication in discovering new markets, penetrating into them, exploiting them and assessing the progress of their revolutionary initiative (Najmaei, 2011).</p>	<ol style="list-style-type: none"> 1. Mechanism to allow critical information about trends, opportunities, and issues to flow into decision making. 2. Effective communication and implementation of strategy. 3. Easy access to information of interest to customers and associates. 4. Mechanism to encourage Employees for solving problems they encounter. 5. Approach to treat mistake as opportunities for learning and improve. 6. Frequent goal setting reviews.
<p>Shared leadership and change friendly identity: <i>Focus on leadership as an individual trait, leadership as an organizational capacity, which integrates the organization with its environment</i></p>	<p>Leadership which is responsible to define and design the organizational characteristics for superior performance, success and ultimately organizational health (Davis <i>et al.</i>, 2009; Glick <i>et al.</i>, 1990).</p>	<ol style="list-style-type: none"> 1. Team work to support the overall objectives. 2. Ability to translate vision to employee action by strong leadership. 3. Capacity to quickly respond to changes as and when required.
<p>Change capability: <i>Defined as the ability to sustainably integrate, reconfigure, gain and release resources to ensure alignment with changing organizational environments.</i></p>	<p>Definitions of change typically suggest it is composed of three main elements, a current state, a desired future state, and a set of transition processes to shift from the current state to the desired future state (Beckhard and Harris, 1987).</p>	<ol style="list-style-type: none"> 1. Leadership with consensus based direction setting. 2. Focusing change simultaneously on systems and corporate culture. 3. Valuing to be proactive than to be reactive. 4. Emphasis on new practices to suite changes. 5. Ability to align with need of change in case of shifting business priorities.
<p>Competitive advantage: <i>Competitive Advantage is not just a function of how one plays the game; it is also a function of the assets that one has to play with and how these assets can be deployed and re-deployed in a changing market.</i></p>	<p>The capability of an organization to create a defensible position over its competitors (Li <i>et al.</i>, 2006).</p>	<ol style="list-style-type: none"> 1. Ability to change swiftly than the competitors. 2. Better change ability ensured by shared leadership for superior performance. 3. Configuring structure to drive change capability and thus superior performance. 4. Transparency in information and decision making for change thus superior performance. 5. Change linked to performance.

3.3 Testing the measurement model

3.3.1 Exploratory Factor Analysis (EFA)

Uni-dimensionality and reliability was checked at the onset by carrying out exploratory factor analysis. The concept of uni-dimensionality is one of the basic assumptions in measurement theory which a research shall meet before proceeding for analysis (Steenkamp and Van Trijp, 1991). This refers to the existence of one construct which underlines a complete set of items (Anderson and Gerbing, 1987; Kumar and Dillon, 1987; Steenkamp and Van Trijp, 1991). Confirmatory factor analysis was carried out after conducting exploratory factor analysis on each scale separately so that factor loadings on each construct are verified. As the research scales were hypothesized to be uni-dimensional, it was expected that all items will load highly on one factor. This can be verified when the KMO (Keiser Meyer Olkin) test values are greater than 0.5. Following the above rules, the results for EFA were interpreted, and it was found that the scales were uni-dimensional on the basis of the eigenvalues greater than 1 heuristic

(Delgado-Ballester *et al.*, 2003), one principal component was extracted which accounts for more than 50% of the total variance of the scale.

3.3.2 Confirmatory Factor Analysis (CFA)

For carrying out the confirmatory factor analysis of the structural model, maximum likelihood method was chosen as it is statistically well-founded and is least affected by the sampling error. The convergent reliability and the validity of alignment are checked by examining the adjustment level of the model and the causality coefficients which linked various constructs (see Sharma and Singh, 2012a and 2012b; Singh, 2014). Since all the scales were uni-dimensional, a CFA is carried out to check further reliability and validity of scales (table 3). Values of indicator reliability are within the accepted limits (Long, 1983; Schumacker and Lomax, 2004; Wu, 2005).

Cronbach's alpha values are calculated to check reliability. All values for the constructs are above 0.7, which are meritorious (Hair *et al.*, 1998; Nunnally and Bernstein, 1994). When values of construct

Table 2 Results of KMO and Bartlett's test of sphericity.

Construct	KMO measures of sampling adequacy	Bartlett's test of sphericity		
		Approx. Chi.-Sq.	Df	Sig.
Structural flexibility	.746	147.311	6	0.000
Transparent information and decision making	.840	283.871	15	0.000
Shared leadership and change friendly identity	.746	70.830	3	0.000
Change capability	.815	274.640	6	0.000
Competitive advantage	.822	163.591	10	0.000

Table 3 Results for indicator reliability.

Indicators	SF	ID	SLI	CC	CA
1	.49	.53	.67	.54	.48
2	.55	.46	.47	.46	.65
3	.47	.52	.48	.57	.56
4	.48	.55		.48	.47
5		.52			.47
6		.48			

Table 4 Results for construct reliability.

Measures	No. of items	Cronbach's alpha	Construct reliability	AVE
Structural flexibility	4	.711	.81	.51
Transparent information and decision making	6	.780	.88	.56
Shared leadership and change friendly identity	3	.739	.83	.57
Change capability	4	.787	.84	.51
Competitive advantage	5	.839	.87	.53

Table 5 Goodness of fit indices for the model.

χ^2	df	χ^2/df	GFI	CFI	IFI	RMSEA
347.459	190	1.829	.904	.941	.938	.056

reliability are calculated, they are found to be higher than 0.5, which is well accepted (Fornell and Bookstein, 1982). The values of average variance extracted (AVE) are higher than 0.5 which indicate appropriateness (table 4) of the internal consistency and construct reliability (Fornell and Larcker, 1981). One way to interpret discriminate validity is to look at the estimated correlation between factors (Klin, 2010) which is not greater than 0.85%. To reinforce the presence of discriminate validity, AVE and shared variance are compared. It is found that AVE is greater than the shared variance conclusively proving presence of discriminate validity (Singh, 2014). Since the constructs should relate with each other to provide logical relationships, the calculated correlational values are observed to be positive and significant (Ahire *et al.*, 1996; Dunn *et al.*; Graver and Mentzer, 1999 and 1994; Mentzer and Flint, 1997), providing sufficient evidence of predictive validity.

4 Results

4.1 Structural model

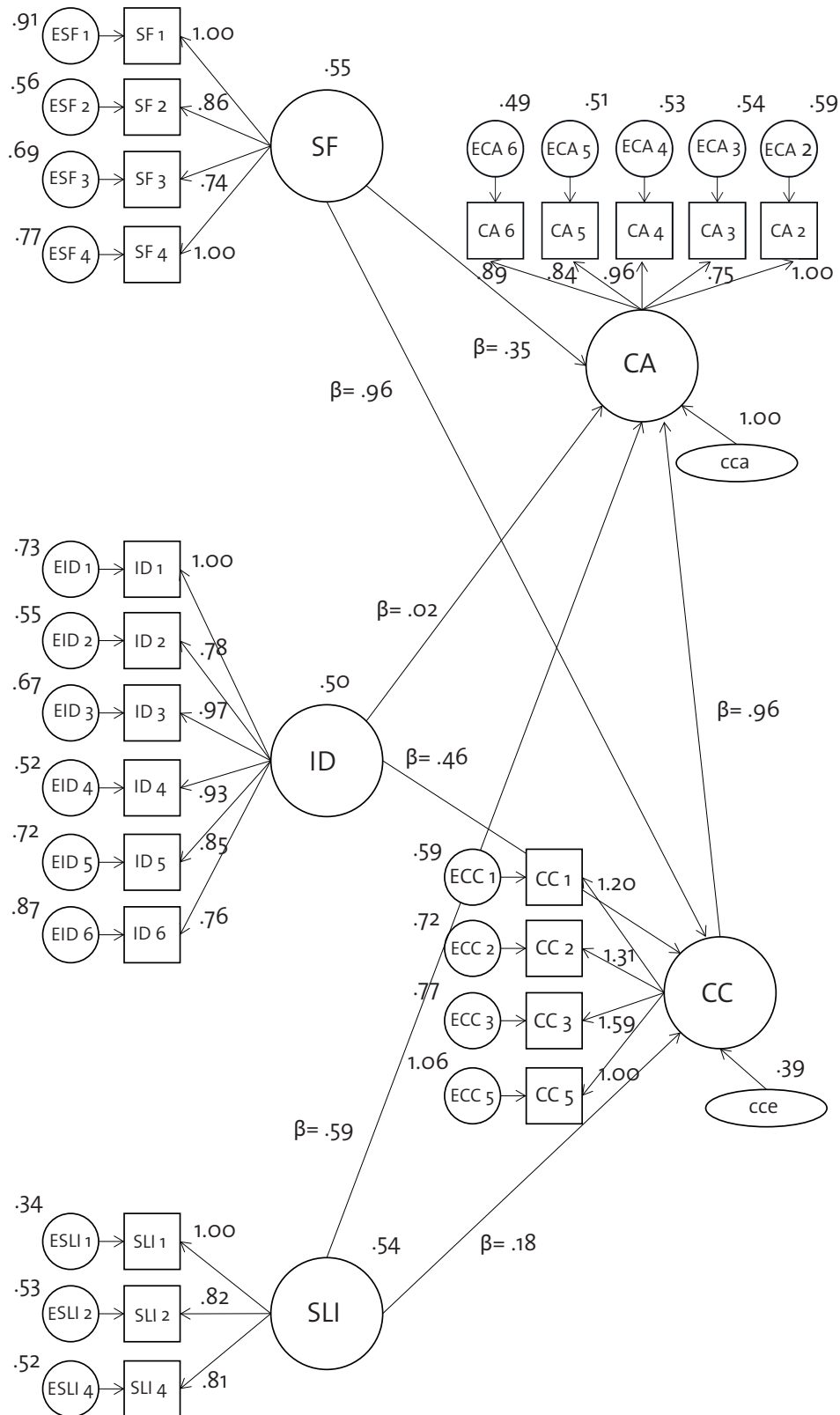
The statistical software Analysis of Moment Structures (AMOS 19) is used to test the conceptual model as shown in figure 2. In this study SF, ID, SLI are independent variables and the dependent variable is CA measured by a proxy of superior performance proxy (Barney, 1991 cited by Clulow *et al.*, 2003; Christensen and Fahey, 1984; Kay, 1994; Passe-

mard and Calantone, 2000; Porter, 1980 cited by Chaharbaghi and Lynch, 1999). Change capability as proposed was hypothesized to be a mediating variable. The tested model is shown in figure 3. It demonstrates good fit (table 5), as the values of CFI (comparative fit index) and RMSEA (root mean squared approximation of error) fall within the prescribed acceptable limits (Garver and Mentzer, 1999). Based on the inferences and recommendations about model fit, we have used the commonly accepted fit indices, CFI (>0.90 indicates good fit), RMSEA (<0.08 indicates acceptable fit) along with commonly used χ^2 statistic (χ^2/df ratio of 3 or less).

4.2 Mediation analysis

Direct effects measure the change in the dependent variable when the independent variable increases by one unit and indirect effects are compounded effects wherein the independent variable is held fixed and a change of the dependent variable is observed, considering the changes in the mediator variable by the amount it would have changed if the independent variable increased by one unit (Pearl, 2001; Robins and Greenland, 1992; Singh, 2014). According to Zainudin (2010), mediation in social sciences can be of three types. Full mediation occurs when the regression coefficient between the independent and mediating as well as between independent and dependent variable is significant. Partial mediation occurs when all three regression coefficients are significant, there is no mediation

Figure 3 Structural model including β path coefficients.



when the direct effect is higher than the indirect effect.

Properties of AMOS 19 are used to calculate the direct and indirect effects. Mediation is said to be established if the coefficient of the direct path between the dependent and independent variable remains significant when the indirect path via the

mediators is introduced in the model (Bontis *et al.*, 2007; Singh, 2014). In accordance with the study of Baron and Kenny (1986) which inherits the technique of Sobel (1982), the indirect effect should be higher than the direct effect to indicate a mediation effect in structural modeling (Wan Mohamad *et al.*, 2014). As proposed by Cheung (2007) and

Table 6 Path coefficients and hypotheses testing.

	Hypothesis	β	Result
H_{SFCC}	Structural flexibility (SF) has a significant, direct and positive impact on change capability (CC).	.96	Accepted
H_{SFCA}	Structural flexibility (SF) has a significant, direct and positive impact on competitive advantage (CA).	.35	Accepted
H_{IDCC}	Transparent information and decision making (ID) has a significant, direct positive impact on change capability (CC).	.46	Accepted
H_{IDCA}	Transparent information and decision making (ID) has a significant, direct and positive impact on competitive advantage (CA).	.02	Rejected
H_{SLICC}	Shared leadership and identity (SLI) has a significant, direct and positive impact on change capability (CC).	.18	Accepted
H_{SLICA}	Shared leadership and identity (SLI) has a significant, direct and positive impact on competitive advantage (CA).	.59	Accepted
H_{CCCA}	Change capability (CC) has a significant, direct and positive impact on competitive advantage (CA).	.96	Accepted

Table 7 Mediation analysis.

	Direct effect on change capability (CC) (β)	Direct effect on competitive advantage (CA) (β)	Indirect effect on competitive advantage (CA) (β)	Interpretation
Structural flexibility (SF)	.957	.354	.921	Indirect effect > Direct effect: Full mediation
Transparent information and decision making (ID)	.462	.021	.444	Indirect effect > Direct effect: Full mediation
Shared leadership and change friendly identity (SLI)	.183	.589	.176	Indirect effect < Direct effect: No mediation

MacKinnon (2000), the indirect effect can be estimated by the product of the direct effect β -value of the independent variable on the mediator variable and the direct effect β -value of the mediator variable on the dependent variable. The direct, indirect and total effects among the constructs as depicted in the model are presented in table 7. It reveals that change capability mediates the relationship between the structural flexibility of the firm and its ability to extract superior performance and thus contributes to competitive advantage. Similar is the case when we interpret results concerning the relationship between transparent information and decision making and the competitive advantage. Here, change capability acts as well as a mediator between the independent and the dependent variable. This reinforces the assumption that the ability to morph the organizational structure according to the needs of changes and also the information sharing and decision making positively contribute to the organizational ability to change and thus enhance the competitive advantage of firms. In case of shared leadership and change friendly identity, there is no evidence of a mediating role of change capability. Instead, it directly contributes to the competitive advantage of firms and also influences their change capability (figure 3). Therefore, the hypothesis H_{MCA} : *Change capability (CC) plays a mediating role between SF, ID, SLI and CA* is rejected and we infer that change capability only mediates the relationship between structural flexibility and the transparent information and decision making.

4.3 Discussion and conclusion

The results concerning the values of path coefficients (table 6 and figure 3) along with the model fit provide a sound and logical foundation for the theoretical constructs. The β -value is a measure of how strongly each predictor variable influences the criterion (dependent) variable. β is measured in units of standard deviation. As SEM path analysis provides no straightforward tests to determine model fit (Suhr, 2000), this relationship is to be examined in light of multiple tests e.g. chi-square, comparative fit index (CFI), Bentler-Bonett non-normed fit index (NNFI), root mean squared error of approximation (RMSEA) (Hu and Bentler, 1999).

As hypothesized in the theoretical constructs, strong relationships are exhibited between structural flexibility and organizational change capability and between change capability and superior performance (β -value of 0.96 in both cases), leading towards the conclusion that the role of organizational structure is paramount when organization faces exogenous shocks and a need for change.

Structure can be therefore interpreted as an enabling mechanism assisting organizations to adapt in response to the requirements of change. Change is significantly linked to the ability to perform better than rivals and thus providing an organization with a competitive edge resulting in unique advantages. Thus, the ability of organizations to change is a significant contributor towards gaining competitive advantage. This finding conforms to earlier researches exploring relationships between the organizational structure, change and competitive advantage (Bock *et al.*, 2012; Chandler, 1962; Davis *et al.* 2009; George and Bock, 2012; Mom *et al.*, 2009; Ocasio, 1997; Rothaermel *et al.*, 2006).

The hypothesized relationship between transparent information and decision making (ID) and change shows a moderately strong β -value (0.46), thus leading to an interpretation that this ability is positively and directly related to its ability to change. The relationship between the construct of transparent information and decision making (ID) and competitive advantage is feeble (β -value of 0.02), the possible reason for this effect can be due to the assessment of impact of decisions. The role of this construct is to act as glue, holding together the structural configurations and the other attributes (factors) for organizational success but the relationship with competitive advantage is not pounced. An important understanding which therefore emerges enhances our arguments proposed in the theoretical construct that transparent information and decision making does not contribute significantly to the construct of competitive advantage but it is an enabler positively contributing to organizational change capability. The results of this study therefore support the earlier findings of scholars (e.g. Ethiraj *et al.*, 2008; Lee and Makhija, 2009; Najmaei, 2011; Puranam *et al.*, 2006; Sanchez and Mahoney, 1996).

The relationship between shared leadership and change friendly identity (β -value of 0.59) with competitive advantage is strong, in line with the role of leadership in organizational success as proposed by various researchers. The relationship between the construct of shared leadership and change friendly identity with change capability (β -value of 0.18) shows to be positive and thus reinforces our belief that leadership has a significant role to play when it comes to an organizational capability to change as shown by Battilana *et al.* (2010), Davis *et al.* (2009), Glick *et al.* (1990), Ocasio (1997), Nadkarni and Narayanan (2007) and Whelan-Berry *et al.* (2003).

All in all, the relationships explored in this research contribute to our understanding of organizational health (Smet *et al.*, 2014) as a construct. As discussed in figure 1, compared to living organ-

isms, any formal organization can also be characterized by its anatomy (organizational structure), physiology (organizational systems and processes) and psychology (leadership and thought process). A healthy state of any living entity depends upon integrative and balanced functioning of the three key components. A healthy organization will therefore need a balanced integrative mix of structure, decision making and leadership (Ho *et al.*, 2011; McGrath, 2010; Sosna *et al.*, 2010; Teece, 2010). As observed in living entities, the three attributes of health reconfigure in response to changes and if the attributes resemble, organizational ability to change will also be conditioned by its attributes of structure, decision making and leadership. Healthy entities as well as organizations have definitely advantages over their counterparts. This implies that the attributes of success, survival and health are rooted in the organizational attributes as proposed in this research.

An objective appraisal of the research reveals its contributions to the discipline of business management in three ways. First and foremost, this research contributes towards an understanding about the construct of organizational health and the attributes associated with it. Subsequently, this research is valuable since it sheds light on the theoretical basis for change management strategies which experts recommend for competitive advantage. The third important contribution is to the creation and establishment of a link between three distinct bodies of research: organizational health, change capability and competitive advantage.

5 Limitations and implications for future research

The focus of this research is on the Indian pharmaceutical industry which has catapulted itself from a small home-based, inconspicuous sector to a global scale. Since a lot of characteristics are industry-specific, it is advisable that results are interpreted with caution as they require to be tested in different industry contexts. However, the broad constructs underlined on organizational health may not differ considerably across industries or even if they differ, the difference may be marginal. The nature of this study is proving association not causality in true sense. Since the data was obtained from the same respondent, common method variance can emerge. It is true that the respondents were compatible with the purpose of this research and they possessed sufficient knowledge for meaningful data collection and analysis. Still, a multiple respondent survey would have been more meaningful. Even if the existing literature stipulates the sample size as adequate, a greater amount of data

would have revealed even more appropriate results and enabled sound interpretation.

The three constructs attributed to organizational anatomy, physiology and psychology are used to define the concept of organizational health. Its relationships with change and competitive advantage are explored. It is our belief that this study and the model add more granularities to the constructs operationalized. This constructs might be strengthened by adding a few more independent variables. Also qualitative aspects via case study methods can be explored to link the quantitative with qualitative revelations in order to enhance an enlightened understanding of this subject. One extension might be to look at specific antecedents to change capabilities such as firm's external networks, similar group analysis, regulatory pressures, their change capacity, and the role of information architecture and software. Another approach can be to conduct this study in different industries, different geographies and in contexts to mature the concept of organizational health.

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