

Chapter 13

Frugal Innovation: Organisational Climate and Culture

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Introduction

With the ever-present and worsening issue of resource scarcity, coupled with the adverse consequences of overexploitation of natural resources on the wellbeing of the current and future generations (Esposito, Tse, & Soufani, 2018; O'Shea, Golden, & Olander, 2013; Scoones, Smalley, Hall, & Tsikata, 2018), the ability to use less resources to satisfy more human needs is a welcome development. A concept which has come to be associated with the philosophy of doing more with less is *frugal innovation* (FI) (Angot & Loïc, 2015; Meagher, 2018). Tiwari and Herstatt (2012) define FI as an innovation that seeks to minimise the use of material and financial resources in the entire value chain with the purpose of reducing cost of ownership while fulfilling or even exceeding certain pre-defined criteria of quality standards. It can be conceptualised as an idea, process, or outcome (Hossain, 2018; Rosca, Arnold, & Bendul, 2017). The concept of frugal innovation appears to be a meeting point for the traditional efficiency perspective of corporations (Hanousek, Kočenda, & Shamshur, 2015) and the emerging sustainability worldview (Anderson & Lillis, 2011; Rosca et al., 2017); as such has potential appeal for both sustainability oriented and efficiency focused organisations. Consequently, making frugal innovation a way of life and an embedded organisational value will not only enhance organisational bottom line but also address sustainability concerns. Information regarding the mechanisms involved in embedding frugal innovation into organisational culture could be of substantial benefit to organisations that wish to make frugal innovation an integral part of their culture.

The extant FI literature is yet to address the issue of integration of the concept into organisational culture. The existing literature has mainly been preoccupied with issues of definitions/explanations of the concept (Hossain, 2018; Pisoni, Michelini, & Martignoni, 2018), the aims and objectives of FI (Angot & Loïc, 2015; Kuo, 2016), and related effects or impact (Pansera & Sarkar, 2016; Rao, 2013; Rosca et al., 2017). To address this oversight, this chapter examines the mechanism of embedding FI into organisational culture, and the reciprocal relationship between the latter and organisational climate, and how these interact to influence behaviour and relationship at the organisational level. This is a novel analysis that provides significant learning opportunity for both academics and practitioners.

Frugal Innovation

Definitional issues notwithstanding, FI has come to be understood as innovation that entails (re)designing goods, services, systems, and business models to reduce total lifecycle costs and complexity so as to provide low-income customers affordable solutions with enhanced functionality and user value (Knorringa, Peša, Leliveld, & van Beers, 2016; Rosca et al., 2017). Though critics have described it as a mere exploitative tool of the capitalist which will only turn to exacerbate the already bad condition of the poor and vulnerable (Dolan, 2012; Meagher, 2018), FI remains a substantially important business and social development concept especially in developing countries (Kahle, Dubiel, Ernst, & Prabhu, 2013; McPhee, Gupta, & Hossain, 2018). Its qualities of social inclusiveness, judicious and economic use of resources, and value maximisation for stakeholders (Rosca et al., 2017; Weyrauch & Herstatt, 2016) are of significant relevance to the corporate world, especially as the need to be economically, socially, and environmentally responsible is on the ascendency. The following paragraphs highlight five key attributes of FI that need consideration when developing appropriate FI organisational climate and culture.

Cautious Resource Utilisation: A basic tenet of FI is minimisation of resource utilisation. Frugal innovation emphasises the use of less material and financial resources to produce more and better goods and services (Radjou & Prabhu, 2014). Unlike conventional innovation which thrives on resource abundance and huge capital outlay, FI is driven by harsh resource scarcity and the need to improvise (Hossain, 2018; Melkas, Oikarinen, & Pekkarinen, 2018).

Significant Cost Reduction: Related to the above feature, FI is characterised by substantial cost reduction (Basu et al., 2013). Cost is reduced by means of a number strategies including:

whittling out frills to reduce products to their bare essentials; using locally available materials; reusing old materials; and reducing maintenance costs (Hossain, 2018; Rosca et al., 2017). This is done with the aim of making products affordable and accessible to low income customers (Weyrauch & Herstatt, 2016).

Robust Products: The quality and standard of products and services are by no means to be compromised though cost is to be reduced substantially (Angot & Loïc, 2015). Frugal goods and services are required to fulfil or even exceed pre-defined acceptable quality standards (Tiwari & Herstatt, 2014). Since the primary focus of FI is developing countries, where infrastructure is weak and basic provisions are lacking (Knorringer et al., 2016), it is required that frugal products must be durable, robust and able to function effectively and efficiently under tough and harsh conditions.

Adaptability and Flexibility: Frugal innovation encompasses flexibility and adaptability of mind-set, process, and outcome/products. A mind-set that is able to turn adversity and limitations into opportunities is essential for FI. Radjou and Prabhu (2014) explain FI as a mind-set that perceives resource constraints not as a liability but an opportunity to create good quality solutions that deliver the greatest value to customers at the lowest possible cost. One of the basic characteristics of FI is its ability to be adapted to different conditions, and user-friendliness (Angot & Loïc, 2015; Melkas et al., 2018). For example General Electric's frugal cardiogram, Mac 400 which is a mobile device is considered more adaptable than the normal cardiogram, as the former can easily be used in different settings and under different conditions (Prabhu & Jain, 2015). Moreover, frugal products are required to be simple to understand and use, since the target customers are often people with minimal level of education (Angot & Loïc, 2015).

Specific Customer-Base: Low income customers or producers are the primary targets of FI (Meagher, 2018), as such the core customer base of this innovation is in the developing economies (Melkas et al., 2018). These markets are often referred to as the underserved or bottom of the pyramid (BoP) customers that constitute a formidable market for frugal products, as over 4 billion of the world's population fall into that category (Knorringer et al., 2016). Though originally perceived as innovation for developing countries, FI is becoming a global phenomenon as it is attracting increasing level of interest from the developed economies (Angot & Loïc, 2015; Pisoni et al., 2018). Taking into consideration the above highlighted attributes of FI, the next section discusses how FI can be embedded into organisational culture.

Frugal Innovation and Organisational Culture

In Schein (2010, p. 18), organisational culture has been defined as “a pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and therefore to be taught to new members as the correct way to perceive, think, and feel in relation to those problems”. For FI to become a basic assumption, a way of thinking, feeling, and behaving in an organisation as highlighted in the above definition, there will be the need to cultivate a frugal mind-set at the organisational level. A mind-set that perceives resource constraints as an opportunity to innovate to provide products and solutions that address related social needs (Radjou & Prabhu, 2014). Moreover, it requires the absorption of FI values such as judicious and responsible use of resources, social inclusiveness, bottom-up approach, concern for BoP customers, simplification of process and product, collaboration, and flexibility (Knorringa et al., 2016; Pisoni et al., 2018; Radjou & Prabhu, 2014). The following sections highlight seven main strategies that organisations can use to incorporate FI into their culture.

Leadership Acceptance of Frugal Innovation

Organisational leadership is critical to the adoption and implementation of various forms of innovation including frugal innovation (Angot & Loïc, 2015; Li, Sun, & Dong, 2018), and lack of top management support is likely to relegate frugal innovation to failure (Angot & Loïc, 2015). Moreover, organisational leadership is known to exert substantial influence on organisational culture (Schneider, Ehrhart, & Macey, 2013). In this regard, top management support is key to the process of embedding FI into organisational culture. Therefore, for FI to become an integral part of the culture of an organisation, there is the need for the leadership to embrace and be committed to the idea and values of FI. This will require organisational leadership’s understanding of the concept, and how it can contribute to the organisation’s competitive advantage.

In their book *Jugaad Innovation*, Radjou et al. (2012) narrate how visionary CEOs at companies such as Renault-Nissan, General Electric, Procter & Gamble, PepsiCo, and Siemens took courageous steps in restructuring their firms’ cultures and operations to deliver affordable and sustainable solutions to increasingly cost-conscious and eco-aware customers.

Corporate and Leadership Communication of FI Values

One of the major means by which values and beliefs are embedded into organisational culture and perpetuated as the way of life of the organisation is through the teaching and communication of these values to members of the organisation (Ehrhart & Schneider, 2016; Schein, 2010). Therefore, embedding FI into organisational culture will require persistent and continuous articulation of the need for members of the organisation to think frugal, act frugal, and produce frugal outcomes. Apart from the communication of frugal innovation goals at the corporate level, there is the need for organisational leadership to popularise FI values by making major public declarations about their FI goals and repeating them to employees, customers, suppliers, and other stakeholders (Radjou & Prabhu, 2014). These public declarations put leadership and corporate reputation at stake, and this may compel leadership to be committed to the FI goals.

Starting in 2007, Marks & Spencer (M&S) introduced its famous 'Plan A' which consisted of 100 FI goals and periodically augmented subsequent versions thereof. Similar to previous versions, the latest version, Plan A 2025 was communicated through a massive PR launch, and is a bold update with 100 new social and environmental commitments (Anonymous, 2018).

Cultivating Frugal Mind-set

This may require addressing existing and traditional conceptions of innovation, especially those that view innovation as a capital intensive corporate venture (Melkas et al., 2018), as these have the potential of blocking an organisation's understanding of the potential advantages and relevance of FI (Angot & Loïc, 2015). Moreover, cultivation of a frugal mind-set will entail a change of attitude and perspective regarding resource availability and utilisation. A frugal mind-set according to Radjou and Prabhu (2014) sees opportunity in resource scarcity and exploits it to create good quality solution that delivers the greatest value to customers at the lowest possible cost. Furthermore, a frugal mind-set makes the best possible use of available resources and guards against frills and profligacy (Hossain, 2018; Prabhu & Jain, 2015). The process of developing this mind-set may begin with ascertaining the perceptions of members of the organisation regarding FI, and this may be achieved through interview, focus group discussion, and other similar methods. Sensitisation of members, as well as education, training and workshop may also be critical in the frugal mind-set cultivation process.

To achieve a 'culture of simplification', Chairman and CEO Jeffrey Immelt of General Electric (GE) and Chief Marketing Officer, Beth Comstock tasked Eric Ries- founder of the Lean Start-up movement to establish the Fastworks program (Anonymous, 2015). This programme enabled the company to design and launch 'good-enough' solutions, get quick user feedback, and then fine-tune their ideas in short time-frames. In doing so, they delivered better and faster outcomes for customers. To ingrain this way of operating in the organisation's culture, GE has trained over 40,000 employees in the Fasworks Program (Radjou & Prabhu, 2014).

Frugal Innovation Goals as Key Performance Metrics

Another important means by which FI can be embedded into organisational culture is by incorporating it into the organisation's key performance indicators (KPIs). Eckerson, cited in Kerzner (2017) defines a KPI as a metric which measures how well an individual or organisation performs on strategic, tactical or operational activity that is critical for the current and future organisational success. Linking FI goals with KPIs will ensure effectiveness in aligning the organisation with FI values, prioritisation of resource allocations and programme initiatives, and setting a course of action for the organisation as a whole (Dolence & Norris, 1994). This will incentivise and sustain FI across the organisation, as it drives frugal thinking and action, and enables employees and other stakeholders to track their performance against enterprise-wide goals (Radjou & Prabhu, 2014).

Sánchez, CEO of Florida Ice & Farm Co., led by example in 2008 when he linked 65% of his own pay to his Costa Rica-based food and beverage company's FI performance. In addition he set up a set of KPIs for FI in the company's balanced scorecard that were tied to his senior executives' compensation plans (Prabhu, Radjou, & Ahuja, 2012).

Organisational Structure

Centralisation of decision making has been found to inhibit employee empowerment and innovation adoption (Damanpour, Sanchez-Henriquez, & Chiu, 2018; Powell, 2002). On the other hand, flatter organisations i.e. organisations with fewer hierarchical levels (Claver-Cortés, Zaragoza-Sáez, & Pertusa-Ortega, 2007) have been found to facilitate knowledge sharing, employee empowerment, organisational creativity and innovation (Li et al., 2018; Powell, 2002). Flattening the organisational structure will simplify process, facilitate flexibility, eliminate unnecessary bureaucracy, empower employees, and engender FI (Angot & Loïc, 2015; Krishnan & Prashantham, 2018). Frugal innovation requires flexibility and less formal structure to thrive (Pansera & Sarkar, 2016). There is therefore the need to modify top-

down process to a more polycentric and interactive organisational structure to facilitate the integration of FI into organisational culture (Knorrinda et al., 2016).

The question arises with regards to how companies can simultaneously pursue 'premium' and frugal innovation strategies within the same organisational culture. This is indeed a dilemma that reminds strongly of the ambidextrous requirement for companies that are exploiting existing business while at the same time exploring new or future business. Effectively, FI is adding a third organisational dimension to the mix. Addressing this added complexity may lie in separating the frugal division from both the core organisation and the new product development part of the business aimed at developed markets. FI leaders such as Cisco, GE, Nestle, PepsiCo and others have done this. These companies established FI home office bases in the emerging markets they are targeting to dedicate full attention to customer needs (Govindarajan & Trimble, 2012).

Collaboration and Co-operation

Knowledge and sensitivity to local situations is a necessary condition for successful FI (Prabhu & Jain, 2015). Insights from local actors such as customers, suppliers, and entrepreneurs could be a valuable source of information for the FI process. Involvement of targeted customers for instance will facilitate the development of appropriate products and solutions that effectively address the identified needs. Co-creation of solution with local actors is perceived as critical to successful implementation of FI (Meagher, 2018). Since ability to make judicious use of locally available resources is fundamental to the idea of FI (Pansera & Sarkar, 2016), partnering with local suppliers can facilitate the availability of requisite resources for the FI activities. This requires the ability to co-operate and collaborate with various stakeholders of the organisation, which can be developed by equipping members of the organisation with effective teamwork skills through training program.

In Kenya, through ongoing and in-depth consultation and collaboration with mobile app users, Twende-Twende developed an efficient traffic control system that helped commuters in Nairobi the capital, to reduce their travel times amidst highly-congested road conditions (Kinai et al., 2014).

Research and Development

As innovation is a continuous process (Chung, Choi, & Du, 2017) continuous update and development of new knowledge to facilitate improved applications is a necessity, hence the need for research and development (R&D) (Prabhu & Chandy, 2010). For FI to become an

embedded aspect of an organisational culture its ability to stand the test of time as a valid and effective approach to achieving the organisation's objectives is of paramount importance. Research and development regarding frugal innovation will facilitate the development of new ideas and strategies, as well as products or outcomes to provide enhanced quality solutions which are relevant to conditions and time. Moreover, R&D enhances the absorptive capacity of organisations and facilitates the uptake of FI (Ojha, 2014).

To optimally facilitate FI in GlaxoSmithKline's monolithic R&D department, CEO Andrew Witty reorganised the latter to operate as a network of 40 nimble, biotech units. With each unit focusing on a specific area of frugal research which either attracted further investment if it showed potential for success, or was closed down if it did not (Radjou & Prabhu, 2014).

Frugal Innovation and Organisational Climate

Schneider et al. (2013, p. 362) define organisational climate as "the shared perceptions of and the meaning attached to the policies, practices, and procedures employees experience and the behaviours they observe getting rewarded and that are supported and expected". Organisational climate exists within an organisational culture, and is a much more fluid phenomenon (Turnipseed, 1988). The integration of organisational climate and culture enriches understanding of behaviours and practices in an organisation and how these influence organisational performance and effectiveness (Ehrhart & Schneider, 2016). In this regard insights into the mechanisms by which FI is absorbed by the organisational climate will deepen an understanding of the interrelatedness between organisational culture and climate, and how these can reinforce FI behaviour at the organisational level. Issues regarding events, behaviours, policies, procedures, and practices in organisation, especially as perceived by employees have significant influence on the resultant climate (Schneider et al., 2013). The following sub-sections explain how FI can be made an integral part of organisational climate, and how these relate to a FI culture.

Leadership by Example

Leadership has tremendous influence on organisational culture (Ogbonna & Harris, 2000), and can also influence organisational climate significantly. However, since the climate is to a large extent shaped by employees' perceptions (Ehrhart & Schneider, 2016), what they make of leadership behaviour can have substantial influence on the organisational climate. Leadership example therefore is of significant importance to the framing and shaping of organisational climate. In this regard, leadership behaviour relative to FI, for instance their spending habits,

resourcefulness, and practical initiatives can speak volume about the level of seriousness attached to the 'doing more and better with less' mantra of FI; this will send a signal across the organisation and influence perceptions regarding FI. In other words, for FI culture to be manifested at the organisational climate level, there is the need for the shared FI assumptions, beliefs, and values to reflect in the lifestyle, conducts, behaviours, attitudes and practices of the leadership of the organisation.

Walking the Talk

Frugal innovation goals, policies, and espoused values may not reflect in organisational climate if these are not implemented and made to work. For example, FI issues of economic inclusion of BoP customers, co-creation of goods and services, and making use of locally available resources and skills may not find expression in the organisational climate if conscious and deliberate measures are not put in place to ensure that these are implemented and made functional in the organisation. Since perceptions regarding the way that organisations deal with issues significantly influence organisational climate (Ehrhart & Schneider, 2016), the level of importance accorded FI issues will communicate to members of the organisation whether the organisation is serious with FI or not, and this could influence the climate relative to FI. A conducive FI climate is likely to evolve if serious attention is attached to the related issues.

Rewarding Frugal Innovation Behaviour

Behaviours that are rewarded by the organisation are perceived as important and as such constitute the organisational climate (Schneider et al., 2013). In this regard, one of the means by which FI can be integrated into organisational climate is by rewarding FI initiatives and related performance. Incorporating FI objectives into employee performance appraisal will communicate management's seriousness on the issue, and engender employee commitment, since their reward and career progression will depend on it. In this way it will find expression in the organisational climate. Instituting award schemes to recognise and reward members who contribute significantly to the organisation's FI objectives will also encourage such behaviours, and this will in turn influence the organisational climate.

Frugal Innovation Events

Organisational events communicate certain meanings to members, and these influence the climate (Ehrhart & Schneider, 2016). The climate may be influenced by meanings that employees attach to events such as product launches, appreciation day, end of year parties, and

conferences. Instituting an event to recognise and celebrate FI products or solutions of the organisation, as well as members' initiatives and performance could go a long way to promote and enhance FI climate.

Since climate is nested in organisational culture (Ehrhart & Schneider, 2016; Turnipseed, 1988), shared FI assumptions, values, beliefs, and attitudes provide the environment for frugal innovation climate. However, employees' experience and perceptions regarding FI will depend on factors such as the consistency of leadership behaviour with FI values, recognition given to FI innovation initiatives and achievement, and visible interventions that have been put in place to ensure FI success.

Frugal Innovation Organisational Culture and Climate Reciprocity

A reciprocal relationship is found to exist between organisational culture and climate (McMurray, 2003); culture is believed to provide basis for the climate (Ehrhart & Schneider, 2016), and the latter is found to influence the former through the behaviour, attitude, conduct, practices, and relationships at the organisational level, as members enact, and reflect the deep-seated assumptions and beliefs of the organisation (McMurray, 2003). A frugal innovation embedded organisational culture will therefore set the tone for FI consistent organisational behaviour, and the resultant behaviour will help consolidate and perpetuate the culture. The interplay between FI culture and climate may be explained from two main angles: the perspective of the basic assumptions; and organisational socialisation process.

Since organisational beliefs, basic assumptions, and value systems find expression in the structures, policy, procedures, and practices of the organisation, and significantly influence the climate (Martins & Terblanche, 2003), FI policy and practices on issues such as resource utilisation and cost will influence and shape the organisational climate. And as climate influences the underlying assumptions, values, ideologies, and beliefs (i.e. culture) of the organisation (McMurray, Scott & Pace, 2004; Ostroff, Kinicki & Muhammad, 2012), the resultant FI climate will in turn influence and reinforce the related culture. In this way, FI culture and climate will interact and influence each other.

Moreover, through socialisation which is the process by which organisations transmit cultural elements to members (Schneider et al. 2013), norms relative to acceptable behaviours and practices are developed, and these influence perceptions about organisational routines, practices, procedures, and policies (Martins & Terblanche, 2003). In this regard, FI values such

as social inclusiveness, co-creation, collaboration, and adaptability can be imparted to members through the process of socialisation. These will influence and shape the organisational climate, which in turn will impact the organisational culture as result of the reciprocal relationship that exists between climate and culture (McMurray, 2003).

Conclusion

The ability to use less resources to produce more and better products and solutions to meet societal needs is not only a responsible approach to production but also a smart strategy for navigating the challenges of resource constraints, and remaining competitive in a fierce and swift business environment. The prospect of frugal innovation in achieving sustainable business success whilst providing value for underserved customers, especially those at the BoP appears strong. Embedding FI into organisational culture is of key importance as decisions, practices, and behaviours of an organisation are heavily influenced by its culture. However, for FI culture to permeate the organisational environment and be reflected in the climate, the shared assumptions, beliefs and espoused FI values need to be enacted in the experiences, events, rewards and recognitions, as well as in the attitude and behaviours of leadership. The resultant climate will influence the behaviour and attitude of employees and other members of the organisation relative to FI, this will in turn reinforce frugal mind-set, process, and outcome in the organisation, thus strengthening the FI culture of the organisation.

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