Frugal Innovation in Smaller Firms in the West

Praveen Adari, Lakshmipathy Ganesh

Master Thesis, 15 credits

Stockholm 2015-12-25
"How do smaller firms in the West use Frugal Innovation which in its nature best suited for emerging markets, having no subsidiaries in the local markets essential to develop frugal solutions for those emerging markets?"

Frugal Innovation in Smaller Firms in the West

Praveen Adari
Murali Ganesh
Master Thesis
ACKNOWLEDGEMENT

First, we would like to thank Peter Altmann our supervisor, whose is quite open and knowledgeable about the subject and for helping us with his insights in writing this paper. He was definitely a source of inspiration right from the start who encouraged us to take up with uphill task which we felt beyond our capabilities and helped us till completion.

Also would like to thank, Fawzi Halila our examiner for his motivation throughout the last semester and also helping us in finding the case company providing for his inputs during this collaboration with the company. Thanking, all the rest of the faculty at Halmstad University who had helped us at some point of time during our research with their knowledge and experience.

Special thanks to all the employees and the CEO of HPI AB, our case company which allowed us to work along with them for this research study. Thanks for letting us in and carry out the research for 3 months working along with your employees and for being open and co-operative and we cannot ask for more.

Our families have always been a strong support who cheered us every day and motivated us to work still being away from a very long distance. Thanks for the love and hope this one year isolation away from home brings back much more to our lives in return. To the land of our lives India, our home country which we missed dearly and finally Sweden and its people for making us feel this as our second home away from home.

Stockholm, Sweden, 2015

Praveen Adari, praveenadari@outlook.com
Ganesh Lakshmipathy, ganlak14@student.hh.se
ABSTRACT:
Although researchers during the last 5 years have been doing a lot of study on emerging market innovations, and of which Frugal Innovation had its special place. They have particularly concentrated on this innovation type on how it re-emerged in the emerging countries especially India and China and gave it new theoretical definition and a framework. Although this frugal innovation usage is constrained only to the firms located in those emerging markets and this innovation has not seen much application in the western smaller firms. In this research our main idea is to develop a theoretical model on frugal innovation for the western smaller firms, where currently not much emphasis is given by the previous researchers in this context. To achieve this we have been involved in an action research with a company looking to enter an emerging market by using frugal innovation strategy for their product development. The output of this research is a theoretical framework model which is sequential and includes all the stages that a firm has to follow as part of a frugal innovation strategy having not much knowledge of the emerging markets or its customers and who had to rely on external partners in developing countries to successfully develop frugal innovations. We have also identified challenges firms face in this context and listed out alternatives at each level of the strategy, finally concluded by listing out the future scope of research on frugal innovation in this particular area.

Keywords: Frugal Innovation, Small firms, Innovation strategy, Western markets, emerging markets, Affordability, emerging market innovation, frugal strategy
# Table of Contents

ABSTRACT: .................................................................................................................. iii

Keywords: ................................................................................................................... iii

1. Introduction: ........................................................................................................... 1
   1.1 Background: ....................................................................................................... 3
   1.2 Problem Discussion: ........................................................................................ 4
   1.3 Purpose of the study: ....................................................................................... 6

2. Theoretical Frame of Reference: .......................................................................... 7
   2.1 Frugal Innovation: ........................................................................................... 7
   2.2 Need for Frugal Innovations in Western firms: ............................................. 11
   2.3 Frugal Innovation Principles: ......................................................................... 12
   2.4 Smaller enterprises: ....................................................................................... 22

3. Methodology: ......................................................................................................... 23
   3.1 Research approach: ......................................................................................... 23
   3.2 Research strategy: ........................................................................................... 26
   3.3 Research design: ............................................................................................. 27
   3.4 Data collection: ............................................................................................... 28
   3.5 Data analysis: .................................................................................................. 28

4. Empirical Findings ................................................................................................. 30
   4.1 Case study – HPI AB, Stockholm, Sweden.................................................... 30
      4.1.1 Company Overview .................................................................................. 30
      4.1.2 Product Specification in detail: HPA ....................................................... 32
      4.1.3 Current challenges for the company: ...................................................... 36
   4.2 Innovation Action Research - working with the company: ......................... 38
      4.2.1 Discuss Entry Strategies/Market Entry Options...................................... 39
      4.2.2 New Product Development – Using Frugal Innovation........................ 50
         4.2.2.1 Using Frugal Innovation Principles: ............................................... 51
      4.3 A Frugal Outcome: ....................................................................................... 71

5. Analysis .................................................................................................................. 73
   5.1 Theoretical Model for Western smaller firms using a FI strategy: ............... 74

6. Conclusions: .......................................................................................................... 79
   6.1 Conclusion: ...................................................................................................... 79
   6.2 Shortcomings of the study: .............................................................................. 80
   6.3 Further Research: ............................................................................................ 81
Table of Figures and Tables

LIST OF FIGURES

Figure 1: Hierarchy of resource-constrained innovation in emerging markets ...................... 8
Figure 2: Major Players in the market for FI ................................................................. 12
Figure 3: Innovation Action Research Cycle .................................................................. 26
Figure 4: Geographic comparison India & Sweden ......................................................... 40
Figure 5: Miniature ECG machine ............................................................................... 58
Figure 6: Blood Cholesterol Monitor ........................................................................... 58
Figure 7: Peak Flow Meter - Lung Age Test ................................................................. 58
Figure 8: Lung Age Test device ................................................................................. 59
Figure 9: Multi-Purpose physiological Test device ....................................................... 59
Figure 10: Urine Test with Strips ................................................................................. 59
Figure 11: Blood Pressure Monitor .............................................................................. 60
Figure 12: Online Vision Screening ............................................................................ 60
Figure 13: Hearing Test Online ................................................................................... 60
Figure 14: On Demand Eye Test ................................................................................... 61
Figure 15: Microsoft Health ........................................................................................ 63
Figure 16: Apple Health App ....................................................................................... 63
Figure 17: Choose the Target customer ....................................................................... 77
Figure 18: Design a frugal product .............................................................................. 77
Figure 19: Enter the market .......................................................................................... 78
Figure 20: Theoretical model for western smaller firms using Frugal Innovation .......... 79

LIST OF TABLES

Table 1: Similar Innovation Types ............................................................................... 9
Table 2: Frugal Principles and Key Characteristics ..................................................... 21
Table 3: HPA Method Description with time taken ....................................................... 35
Table 4: HPA Observations, Participant: Praveen Adari ............................................ 50
Table 5: HPA Observations, Participant: Murali Ganesh ........................................... 51
Table 6: Standard vs Identified Frugal device ............................................................. 57
Table 7: Identified New Medical Procedures ............................................................... 57
Table 8: Traditional vs. Indian HPA ............................................................................ 70
1. Introduction:

This chapter leads to the topic of the thesis, comprises the problem discussion as well as the research purpose and gives a short outlook of what the subsequent chapters will cover.

Smaller firms in the Western countries have problems using Frugal Innovation for developing ‘Frugal’ products. The word “frugal” is defined as "simple, plain and costing little" (Oxford Dictionaries, 2014). Frugal innovation (FI) refers to innovative products and services that seek to minimize the use of material and financial resources in the complete value chain with the objective of reducing the cost of ownership while fulfilling or even exceeding certain pre-defined criteria of acceptable quality standards (Tiwari & Herstatt 2012). Smaller firms’ innovative capability is a crucial driver of sustainable competitive advantage in today’s rapidly changing markets, where the continuous development of new products and processes is the key to survival, growth, and profitability (Wolff & Pett 2006; Verhees and Meulenberg 2004; Forrest 1990).

Western companies that want to engage in frugal innovation must build organizational structures and capabilities to enable the development of frugal products (Zeschky et al, 2011). However the problem exists more with the western smaller firms as they do not have the ability to build such organizational structures in emerging countries to nourish talent and later develop frugal solutions. While coming to the bigger organisations or Multi-national corporations (MNC’s) in the West they however have subsidiaries all over the World and especially in the emerging markets where this frugal innovation originated and is now growing leaps and bounds. They were also successfully able to setup R&D labs and gain the required knowledge of the local markets and mind-set to think frugally through knowledge transfers from emerging markets resources to develop and design products using the underlying concept. It is indeed difficult for the smaller firms having resource constraints and limited infrastructure to make this possible as like the bigger firms. In contrast to large expenditures in public and private R&D as necessary precursors to innovation, the concept of frugal innovation herein enables recognition of a new type of innovation which debunks such heavy investment claims (Bhatti & Ventresca, 2012), thereby pointing out that this innovation do not need higher investments whereas knowledge (Zeschky et al, 2011) and mind-set are pre-requisites for smaller firms. This study would be helpful to understand the various problems smaller firms face and see how they overcome these problems, to achieve what they would seek using the very concept of ‘Frugal Innovation’, a concept which the rest of the world is learning from the emerging markets and finally develop a theoretical model based on the experiences of this research.

Before digging deep into the problems they face, it is also important to understand why and how FI helps the smaller firms in the Western world to think and act frugally. Listing out these things is necessary to understand why the West is going for Frugal Engineering or Frugal
Innovation which already gained popularity in the emerging markets for its affordability factor, gives completeness and an overall understanding of the need of FI in the western market context. Although we concentrate mostly on how these western firms use this approach in their foreign market entry and to develop products for the customers in the emerging markets to serve the BoP (Bottom of the Pyramid) customers. Multi-national corporation bosses were the ones who believed in this concept and were in a way successful in using it to their advantage either to offer more value to its customers, or being responsible to the environment or to explore the untapped market potential which existed both in Emerging markets as well as in the West using Frugal Innovation. Several profound economic changes account for the rise of frugal innovation in the developed world (Radjou et al, 2014).

More specifically the research on FI is quite fresh and not much had been done so far which obviously gives us a lot of gaps to fill and lot more to explore in detail. In this quest we have chosen to explore more of how could smaller firms in the west make use of this innovation strategy which is currently been made use of either big conglomerates or the newly come up start-up companies. What of the smaller firms which have matured in terms of both their business models and product lines. In order to remain competitive and meet the unmet demand in emerging markets, firms need to re-think their approach to innovation and product development (Bhatti & Ventresca, 2013). Change is the need of the hour especially for those firms to make use of this Innovation model to explore further in the emerging markets which is mostly confined to the bigger companies. It is therefore a very challenging task for the smaller firms, and to do so they need the right setup and the ability to satisfy the needs of the bottom of the pyramid which would be further understood using this research study.

Researchers previously have focussed much of their attention on bigger Western firms organizing the frugal innovative capabilities in emerging markets and have developed the principles mostly focussed on them. Whereas, limited or not much attention is given to the matured smaller firms in the organization of the innovation capabilities. In this study the focus is going to be shifted on the smaller firms to understand how they get benefitted out of FI strategy. The primary purpose of this research is to understand how smaller firms in the West use Frugal Innovation to enter the emerging markets, thereby formulating a theoretical model which enables them to use this Frugal Innovation approach is going to be the final outcome of this research which focusses on Frugal Innovation as a whole which constitutes both product /process innovation types. While the study also sheds light on the various other similar innovation concepts existing in the emerging markets innovation context for better understanding of the differences and similarities they have between them.
1.1 Background:

It is very important first to discuss whether this Innovation concept is newly defined or it existed already way back in the history. According to the historical perspective in defining the term ‘Frugal Innovation’, (Bhatti & Ventresca 2013) shows that frugally innovative response is not a new idea. Inventors and entrepreneurs such as Benjamin Franklin during 18th century in America used limited resources to come up with frugal solutions for everyday problems such as the Franklin stove, lightning rod, bifocals, and carriage odometer (Franklin 2008). The CC41 (Civilian Clothing 1941) utility scheme in World War 2 Britain, DIY (do-it-yourself) in US, and System D in France all have in common constraints in resources. All these Innovation types are similar and have common constraints and similar interests that it is to create something which is having all the necessary features, simple and yet affordable to the people. These approaches are very common to now so called resource-constrained or low-cost or emerging market innovations.

The trend of frugality existed at times of war and during the Industrial revolution which catalysed the growth in Western economies (Radjou et al, 2012). America’s founding fathers as well as its creative farmers, industrial pioneers and scientific explorers in the nineteenth century and early twentieth centuries from Benjamin Franklin (Franklin stove) to Cyrus McCormick (mechanized grain reaper) to the Wright brothers were historic practitioners of frugality in the West (Radjou et al, 2012). Innovation post world war 2 has become much more like delivering ‘more with more’ and ‘bigger is better’ (Radjou et al, 2012), which again today it challenges such assumptions under abundant resources are being re-evaluated in both emerging and developed markets leading to renewed global interest in historical frugal practices (Bhatti & Ventresca, 2013). Slowly this has been coming back due to many factors such as the global recessionary (due to the global recession also termed as the Great Recession in 2009) and austerity (difficult economic conditions created by government measures to reduce public expenditure) concerns middle classes in the US, Canada, Europe, Japan, Australia and elsewhere have seen their incomes stagnate and their purchasing power shrink, has been increasing even in the developed markets whereas they were existing very highly still in the emerging economies as they still could save only little though they are exponentially growing even during the global economic slowdown.

The scenario of growing demand for the emerging market innovation is not new and it has been well explained by (Bhatti et al, 2013) saying that, we argue the concept is not new, but the way individuals and firms think about its practice and impact has increased. Nations, firms, and individuals practiced some form of frugal innovation before (historical perspective), but today’s contextual environment in emerging markets (current perspective), increased global austerity, changing nature of global competition from emerging market firms, and advances in enabling technologies such as mobile, cloud, and digital means there is a
renewed global interest in and relevance of FI. The term ‘frugal innovation’ has recently enjoyed increasing popularity and has been used to denote innovations originally developed for resource-constrained customers in emerging markets (Zeschky, Widenmayer, and Gassmann 2011; Sehgal, Deehoff, and Paneer 2010; Sharma and Iyer 2012).

Though there exists a lot of increased interest in this Innovation type most of the authors have already contributed and shed light on defining the actual definition of frugal innovation, its relevance for the emerging markets and trying to differentiate frugal innovation with other similar innovation types meant for the emerging markets (Bhatti 2012, Woolridge 2011, Zeschky 2011, Tiwari & Herstatt 2012). While others tried to develop theoretical models on Frugal Innovation (Soni 2013, Bhatti & Ventresca 2013, Simon 2014) and (Radjou, et al 2012, 2014) developed guiding principles of Frugal Innovation based on how a few emerging market firms and western market firms adopted frugal innovation successfully in the book Frugal Innovation: how to do more with less and Jugaad Innovation: Think Frugal, Be Flexible, Generate breakthrough growth. They have also pointed out the relevance for further research in many areas and to test the existing theories based on empirical data to cover the gaps on the research on Frugal Innovation.

Most of these authors and researchers on this topic have discussed, studied and researched on either the newly evolving start-ups or the already established global companies or bigger businesses and not much emphasis is given particularly on the smaller firms. In Europe alone, more than 90% of businesses are Small Businesses/firms (Forbes, 2012). It is therefore important to understand what problems they face during this innovation adoption process.

1.2 Problem Discussion:

Frugal Innovation (FI) is achieved more as a form of R&D capabilities by the local subsidiaries of the Multi-national companies which are setup with the aim of developing products for the local customers using the local R&D capabilities thereby leveraging the knowledge, mind-set and other required capabilities from the local resources engaging them into developing frugal solutions to serve the local or the emerging markets they were operating in. The previous research is always focussed and based on the successful FI practices of the bigger firms or successful start-up’s and understood how these firms leveraged the concepts understood the characteristics and applied the frugal innovation principles and became successful.

There is always a bigger gap in terms of how smaller and larger firms in the western market adopt frugal innovation capabilities to their firms to serve the resource-constrained customers in the emerging markets. Having locally established R&D units the larger firms takes clear advantage in acquiring the required knowledge for adopting the frugal mind-set and local mind-set to translate local needs into products which is evidently required. Renault,
GE, Nissan, Unilever, IBM, Siemens, Nokia, Volkswagen etc., have made use of the local subsidiaries’ in their emerging markets especially in India and China to develop frugal products as they have understood the need of a frugal mind-set and the local contextual knowledge to develop products/services used by the consumers in their local markets. GE’s Indian subsidiary developed Well Baby Bassinet® and Infant Warmer Systems® (https://www2.gehealthcare.com/portal/site/use) and a Portable Ultrasound at their Chinese subsidiary. Renault developed its $6000 highly successful Logan in an emerging country like Romania. This frugal mind-set is what inspired Carlos Ghosn, a Brazilian-born CEO of Renault-Nissan, to send Gérard Detourbet, a seasoned engineer who co-led the development of Renault’s entry-level vehicles such as the Logan, to the south Indian city of Chennai to learn more about understanding Frugal Innovation. Having succeeded in engineering a €5,000 ($6,000) car, Detourbet’s team at the Renault Nissan Technology and Business Centre India (RNTBCI) is building its new CMF-A platform for a wide range of low-and ultra-low-cost vehicles aimed at first-time buyers in India and other emerging markets, who will account for 60% of global auto sales in 2015 and around 66% of the global car industry’s profits by 2020. This evidently explains the need of the local power and capabilities in bringing out something unique targeting the needs of the emerging market customers which would well be understood by the local people of the problems being faced by them in their everyday life.

Frugal innovations are largely developed by local R&D subsidiaries of Western firms in emerging countries (Zeschky et al, 2011). A substantial degree of autonomy for those local R&D subsidiaries, including product-portfolio responsibilities, can facilitate the development of frugal innovation. A more prominent local presence and a fundamental new-product development effort may be necessary to develop a truly effective frugal innovation process (Williamson 2010). This being said, it is extremely difficult and an arduous task for the smaller firms in the West to setup subsidiaries outside their home markets to design products/services or even to carry out their research to understand what local markets needs are. Understanding the local environment and user behavior was vital to product success (Zeschky et al, 2011), which could turn out to be a problematic area for them as they are rather small with limited R&D budgets or their incapability in setting local subsidiaries which requires more of networking as well as financial resources which they would normally lack. This is the reason why we choose this topic which is challenging to address and thereby provide useful insights for the smaller firms who currently have problems in use this FI approach which only the bigger companies in the West made use of until now to serve emerging market customers.
1.3 Purpose of the study:

In whatever literature study done on FI it has been observed that mostly it is the bigger companies which have embraced the concept right from the start. Taking the examples of Tata's Nano, GE's ECG machine, Siemens SMART products, Unilever, Procter & Gamble in retail, Renault-Nissan's Logan, Nokia's 1100 mobile phone and many more frugal innovations are from the bigger companies. They were the ones who understood the concept and made changes to their business models as well as their thinking to serve the untapped bottom of the pyramid (C K Prahlad & Stuart L Hart, 2002) customers by understanding what they seek and providing them at much affordable costs within appreciable quality and mostly added value to the money they spend.

Barring only a few successfully smaller companies others did not make much use of this innovation approach in the West. Also in developing a theoretical model on Frugal Innovation this thesis would add a lot to the existing literature on Frugal Innovation in the western markets context and the efforts of this paper are truly into unfolding how smaller firms could use Frugal Innovation which until now was used extremely by the bigger western companies. This study further helps us understand the various problems smaller firms face while working with this Innovation type which is more about understanding local context and mind-set rather than a just being a strategy or a new business model innovation in the emerging markets.

Taking all the above unattended questions into consideration the research question is thus formulated as follows:

"How do smaller firms in the West use Frugal Innovation which in its nature best suited for emerging markets, having no subsidiaries in the local markets essential to develop frugal solutions for those emerging markets?"

Framing this question would challenge us on how a concept which is best applicable and suited for an altogether different market setup would be used and succeeded by the Western smaller firms for serving emerging market needs as there exists an untapped market potential to be served. This challenge would drive our research through which on the way uncovers many different dimensions to bring out something substantial and useful for further research purposes in the theory building efforts on Frugal Innovation.
2. **Theoretical Frame of Reference:**

This section aims to discuss important characteristics of Frugal Innovation, its definition and similar innovation types and also their underlying principles defined by the previous authors. This would serve as the basis for collecting the empirical data and findings and thus help us during the analysis phase to answer the research question.

2.1 Frugal Innovation:

From now on to avoid confusion the terms “emerging countries”, “developing countries” would be used interchangeably. Also the terms “cost-conscious”, “price-sensitive”, “resource-constrained” customers would also be used in the similar vein as they almost mean the same within the emerging markets context without having much differences and as we are not doing any comparative study within the above mentioned terms, it is therefore deemed to be used as such for convenience.

The Economist defines “frugal innovation or constraint-based innovation as which is not just a matter of exploiting cheap labour (though cheap labour helps). It is a matter of redesigning products and processes to cut out unnecessary costs” (Woolridge, 2010). In this study we would like to use this definition as it is simple and also tells us the importance of frugal innovation which is more of a re-design of products or processes and thereby elucidating the core meaning of the entire concept which is just not about exploiting cheap labour or terming them as low cost or cheaper products. This is the first ever definition given by the Economist and later many authors have come up with their own.

As Frugal innovation has other similar more Innovation types for Emerging markets it is also necessary to define the other similar terms to avoid confusion and also present a degree of differentiation and delineation of the similar terms used within this emerging market context to provide more degree of clarity. However the term is defined and in whatever ways it is perceived by different authors the underlying idea of this Innovation doesn't change much. Although many authors including Bhatti & Ventresca, Zeschky, Woolridge, Tiwari & Herstatt etc., tried to define the term for “Frugal Innovation” they were not able to settle on either one of them and no standard definition exists just as for the terms Entrepreneurship and Innovation, as each author defined their respective terms based on their own perspectives and perceptions. Even though scholars agree that the concept appears to be better suited to capture the nuances of emerging market innovation, the relatively novel notion of frugal innovation still lacks a clear definition (Bhatti & Ventresca, 2013).

Tiwari and Herstatt (2012) defined frugal innovation as ‘innovations that seek to minimize the use of material and financial resources in the complete value chain with the objective of reducing the cost of ownership while fulfilling or even exceeding certain pre-defined criteria of acceptable quality standards’. This definition is much broader and includes
the complete value chain while taking about cost characteristics, other key resources and quality standards, which feels like the entire innovation idea is properly defined in its definition. Whereas in the similar vein Bhatti (2012) defined Frugal Innovation as “the one that redefines business models, reconfigures value chains and redesigns products to use resources in different ways and create more inclusive markets by serving users with affordability constraints, often in a scalable & sustainable manner”. Frugal product innovations are new and innovative both from a technological and market perspective – not just cheaper and re-engineered. In most cases, existing technology is employed in a fundamentally new manner which enables accessing formerly remote and unserved areas (Zeschky et al, 2014). Even some simply refer to frugal innovations as low cost products (Ramamurti 2012), or ‘toned down’ and ‘good enough products’ (Hang, Chen, & Subramian, 2010). Sometimes frugal innovation is also referred to as reverse, jugaad, or shanzhai innovation (Wooldridge, 2010). Irrespective of different expressions in defining Innovations the underlying meaning will always remain same which is to provide affordable and good quality products but it is also argued that, many of such product innovations are not merely attractive due to cost reasons (Zeschky 2014).

Some of the terminological confusion comes from the shifting focus in the way people think about innovation from artefact, value chain, and mind-set, to impact whereas some of the confusion comes from shifts in the course of innovation as a process (Bhatti & Ventresca 2013). Various scholars (Tiwari & Herstatt, 2012c; Soni, 2013; Bhatti & Ventresca, 2013, Bhatti 2012) have begun to use the term ‘frugal innovation’ as an “integrating mechanism to bring these various concepts under one umbrella” and even however the different terms are fundamentally different in terms of their product and market novelty and the way they are designed (Zeschky et al, 2014). Though there exist similar Innovation types, the core message

![Figure 1: Hierarchy of resource-constrained innovation in emerging markets](image-url)
remains the same, i.e. addressing the emerging market needs in an emerging market fashion (Soni, 2013).

Innovations involving similarities include the following most of which are much suitable and intended for the emerging markets such as: Frugal Innovation (The Economist, 2010; Kumar and Puranam, 2011; Zeschky et al 2011), cost innovation (Peter Williamson 2010), good-enough innovation (Gadiesh, Leung, and Vestring 2007), Value Innovation (Kim and Mauborgne, 2005), Base of Pyramid Innovation (Prahalad, 2005, 2006), Reverse Innovation (Immelt et al., 2009; Govindarajan and Trimble, 2012), Inclusive Innovation (George et al., 2012), Jugaad Innovation (Krishnan, 2010; Radjou et al., 2012), resource-constraint innovation (Ray and Ray 2010) Innovation Bricolage (Halme et al., 2012), and Gandhian Innovation (Prahalad and Mashelkar, 2010).

Table 1: Similar Innovation Types

<table>
<thead>
<tr>
<th>Similar Innovation Type</th>
<th>Definition</th>
<th>Contributors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jugaad</td>
<td>An innovative fix; an improvised solution born from ingenuity and cleverness</td>
<td>Krishnan (2010), Radjou et al. (2012)</td>
</tr>
<tr>
<td>Bricolage</td>
<td>Applying combinations of the resources at hand to new problems and opportunities</td>
<td>Le´vi-Strauss(1967), Baker and Nelson (2005), Halme et al. (2012)</td>
</tr>
<tr>
<td>Gandhian Innovation</td>
<td>Innovation driven by affordability and sustainability, than by premium pricing and abundance approach</td>
<td>Prahalad and Mashelkar (2010)</td>
</tr>
<tr>
<td>Inclusive innovation</td>
<td>Development and implementation of new ideas which aspire to create opportunities that enhance social and economic wellbeing for disenfranchised members of society</td>
<td>George et al. (2012)</td>
</tr>
<tr>
<td>Bottom of pyramid innovation</td>
<td>Products and services that address the underserved or un-served markets at the low-end of the economic system</td>
<td>Prahalad (2005, 2006)</td>
</tr>
<tr>
<td>Reverse innovation</td>
<td>Products designed primarily for developing markets, and finding customers in developed markets</td>
<td>Govindarajan and Trimble (2012)</td>
</tr>
</tbody>
</table>

The most talked and debated examples of Frugal Innovations from the very past include 'Tata Nano' a car which costs approximately $2000, GE's $180 EKG machine, Mobile banking solutions in Africa, like Safaricom's M-Pesa, Nokia 1100 mobile phone is a basic,
durable, and—besides a flashlight—had few features other than voice and text, Jaipur Prosthetic leg costing $150 approximately etc. are some of the examples of Innovative products which are much light, portable and even having a good quality still costing a fraction of what is being offered in the affluent nations. These solutions are not only costing less but do not confuse the user with any un-necessary features. Companies in the West seek to push scientific and technological boundaries by designing sophisticated products with complex features and functions that customers do not really need. For instance, most people only use 10% of functionality in feature-rich productivity apps such as Microsoft Word (Radjou & Prabhu, Frugal Innovation 2014).

But now in the recent examples of the company's which have been benefitted out of Frugal Innovation are much more global and appeal much to both the developing and developed markets as cost-conscious customers are existing across all different markets. Now comes a point where we have to also discuss something about the need for such innovations in the developed markets as many of the authors have strongly argued and debated about the need for Frugal Innovations in the affluent markets as well due to the recent recessionary effects, austerity concerns and global economic slowdown, and many other aspects which are slowing down the economy of the affluent nations. Recent examples of the customer behaviour suggest the same and also the fact that customers in the West seek solutions which are more environmental friendly and sustainable.

Several profound economic changes account for the rise of frugal innovation in the developed world. First, the advanced economies have entered an age of austerity in which the notion of frugal living and consuming is becoming mainstream (Radjou et al, 2014). However, developing products in and for resource-constraint markets is far different from product development in Western countries. It means for Western companies to unlearn traditional R&D approaches including the reduction of many complex and resource intensive steps (Ray and Ray 2010; London and Hart 2004). Such capabilities are worthy for further investigation since increasing scarcity of resources came into focus in developed markets, too. The innovative concepts from emerging markets need to be considered and understood for those concepts to be applied and adopted properly for the existing companies in the West. We are limiting the discussion on the need for FI in affluent markets, as in this study we focus their on Innovation adoption for serving the emerging markets and not the developed markets though the need exists in those markets as well. This is just to give an idea on the debate of limiting frugal innovations just to the emerging markets only. Let us now see the need for FI in western firms.
2.2 Need for Frugal Innovations in Western firms:

Frugal Innovation is a critical business strategy for companies to prosper in a world where customers are both value conscious and value oriented. It challenges Western companies to create high quality products that are affordable and sustainable as well as desirable and meaningful for the end-user (Dominic Barton, Global MD, McKinsey & Company in an interview with Radjou & Prabhu). One must understand that frugal ingenuity is universal. For some reason, people decided to understand the idea of jugaad as the opposite of the Western way of creating innovation that is structured and expensive (Radjou 2014).

The problem being that only the bigger companies like Unilever, Renault, Tata Motors, Toyota, IKEA and some of the silicon valley start-ups have believed in this Innovation approach and started building their ecosystem of products not just for emerging markets but to improve the existing conditions in the western markets as well in terms of more sustainable and environmental friendly offerings. Renault started the idea of an affordable no frills car (around $6000) for the emerging markets in Eastern Europe and Middle East. To Renault's surprise, the Logan also found a market in affluent Western Europe. This very much gives an idea that Frugal Innovation is just not meant for the developing or cost sensitive customers but also in affluent Western markets as well.

This is a difficult task for Western firms, however, because their business models and organizational structures are traditionally designed for the development of advanced products for the affluent few at the top of the economic pyramid. Using Swiss weighing-instrument manufacturer Mettler Toledo as a case example, which suggests that frugal innovations are largely developed by local R&D subsidiaries of Western firms in emerging countries (Zeschky, Marco; Widenmayer, Bastian; Gassmann, Oliver, 2011). But this is mostly in case of Multi-national companies as well as bigger corporations who had the ability to setup R&D centres in developing markets to develop products using frugal innovation. To understand the same context in smaller firms where they do not have such a capability is a challenge.

The guiding principles of Frugal Innovation which are later used in the research process will be explained here. These concepts and the existing theories would be further used in the research study to achieve the research objective as well as to develop a new model and to understand the usefulness of the developed theoretical model which is solely based on smaller firms in the western world contexts. The diagram shows the diversified markets/industries in which Frugal Innovation is currently being used and it is not just about the developing or developed markets, the need and the opportunity to deliver frugal products/services to the customers exists everywhere but the current research is based on serving the needs of the emerging market customers only in a way limits our study and its scope of the study.
2.3 Frugal Innovation Principles:

Frugal innovation has arisen not from the writings of academics or experts but out of practitioner responses to unique economic, social and competitive challenges faced by firms in emerging markets (Bhatti & Ventresca, 2012). Frugal innovation, as it stands, seems to be complex, multifaceted, and can be interpreted and applied in a number of ways in different businesses (Bhatti & Ventresca, 2012). With extensive research on this field in their second book on Frugal Innovation – How to do more for less (Radjou et al, 2014) have developed six principles and also stated with many examples and case studies which clearly explains how those principles evolved and insists the practitioners of Frugal Innovation to use them to get benefitted out of this innovation. Companies from anywhere be it from developing or the developed markets could adopt it to their firms.

It is indeed very important to stress out that it is not just the guiding principles which are necessary to be able to get the most out of the Frugal Innovation strategy but it requires the right mind-set which is the core of this innovation type which in specific suited for the emerging economies. Let us now discuss the principles in much more detail.

The Six Principles of Frugal Innovation (Radjou & Prabhu, 2014): These principles are framed out of the best practices and gaining significant cost benefits by companies in the West such as Aetna, Fujitsu, General Electric, GlaxoSmithKline, Pearson, Pepsi, Renault-Nissan,
Siemens and Unilever etc. using Frugal Innovation. These principles however suit to the bigger corporations better but as the underlying mind-set is still the same, we use them in this study to understand how smaller firms use them in their FI journey as well as to identify significant problems they face during this entire process. Under each principle are given some key parameters that have to be followed by the organizations to achieve what is being stated in the key principle. These parameters are only stated and not explained in detail here and are bolded and italicized for convenience and better readability. More details explanations are given at the end of this paper under additional notes.

1. Principle one: Engage and Iterate (E&I)

Principle one is all about engaging and being very close with the customer/consumer from the very beginning. We always have to understand that consumers know much more than anyone else. If you sit and work in a closed laboratory and try to invent something new, it might be new and appealing but might not please the end-user or the consumer. It is therefore important to engage and iterate (improving product/process through iterations) with the consumer to understand what he seeks and try to develop the things which are most useful and not include anything which increases unnecessary costs as well as complexity to the product/service being offered. Rather than using insular research and development (R&D) departments that rely on educated guesses about customer needs, E&I starts with customers, observing their behaviour in their natural environment, and then considers how products can be made as relevant as possible, going back and forth between the customer and the lab to refine designs (Radjou et al, 2014). Also instead of pushing the unnecessary technological advancements (technology push) into the product/service, it should be understood what the majority of the consumers in the markets seek (market pull). In short, shifting from “technology push” to dynamic “market pull” can help firms innovate faster, better and cheaper (Radjou et al, 2014).

**Complex, expensive and environmentally unfriendly products:** R&D engineers in the developed world are trained to associate complexity with quality. They seek to push scientific and technological boundaries by designing sophisticated products with complex features and functions that customers do not really need. For instance, most people only use 10% of functionality in feature-rich productivity apps such as Microsoft Word. This complexity costs both companies and their customers dearly. **Alienating Customers:** Over 80% of customers say they are more likely to buy products and services from brands that actively listen to them and design products with their input; and 32% have no idea that brands are even listening to them (Radjou et al, 2014). The problem lies in the first place where the customers or consumers are being listened to, which ultimately leads to dissatisfaction to both the buyers and the sellers ultimately. Firms need to understand the need to change from the old and conventional model of pushing the technology which the emerging market customers do not
seek. In summary, it is no surprise that the industrial R&D model, which sustained firms’ growth during the 20th century by pushing ever more complex and expensive technology-led innovation onto customers, is beginning to crumble in the 21st century (Radjou et al, 2014). The rigid R&D model is “market-blind and excludes customers from the innovation process”, “relies on time-consuming and rigid development processes” and “values perfect solutions above general usefulness” (Radjou et al, 2014).

**Firms need a market-focused, agile R&D model:** To overcome these weaknesses, firms need to **Engage customers throughout product and customer life cycles, adapt rapidly to unexpected changes, Adapt quickly to new requirements, preferences or changes of the customers** as customers interests changes very quickly and the firms need to be agile and quick enough to understand the ever changing needs of the customers by engaging and iterating with them through this product development process. As customers **seek cheaper, good-enough solutions** it is rather important to involve them right from the start and try not to push advanced technology which sometimes is not so necessary and even at times confusing for the customers. **Involve customers from the outset- right from the start, deploy crowdsourcing and social media, immersion techniques to identify latent needs:** As in many cases, customers may be unaware of what they want or unable to articulate their needs, this helps firms to get more engaged with the customers and in this way they help the firms develop what customers actually seek by carefully listening to them and acting accordingly instead of believing on their R&D units completely for developing products.

2. **Principle two: Flex your assets**

This principle talks more about the value chain advantages a Frugal Innovation strategy offer. Customers’ needs are ever changing and firms need to understand not only how the product is designed but also know how well them package, distribute and deliver it to the consumer within the least time possible as everything is happening with the click of a button. They increasingly want tailored products and services where and when they desire. It describes the trend towards mass customisation, and how new tools (such as robotics and 3D printers) and new approaches (such as social manufacturing and continuous production) can help operations and supply chain managers “flex” their production, logistics and service assets to satisfy demanding customers better and more cheaply. The goal of flexing assets is not only about saving resources, such as carrying less inventory, but also about saving time – a business’s most valuable resource. Using alternative resources be it in manufacturing, distribution, delivery gives much more added benefits to the consumers as well as the firms to design products at lesser costs for more people. Also through the use of new kinds of distribution channel it enables faster deliver, lesser inventory as well as lower operational
costs. This is especially important for bigger companies where they deliver products/services across long distances, though not so important for the smaller firms as they serve only a limited number of customers.

New tools (3d PRINTERS), materials (alternate materials such as less weight carbon materials in electric cars) and new process for manufacturing (Decentralised manufacturing through more number of micro-factories close to the consumption), needs to be used in the whole supply chain right from product design till it reaches customer. These organizational assets not only stream-lines the entire supply chain but also saves costs for the company which automatically translates into the product/service as well.

As the conventional supply chain lacks efficiency and flexibility because of the vast distance between where a product is manufactured and where it is consumed, and because of delays in how changing information is shared along the supply chain, delivery through a frugal supply chain is essential, some of which are as reshoring, local sourcing and sharing resources.

Reshoring; Zara, a Spanish clothing retailer, has made substantial cost savings by near-shoring operations to countries like Portugal, close to its main European markets. This allows Zara to vary the styles in its stores constantly, keeping its fashions fresh. Local sourcing; Motorola, a multinational telecoms company, chose to manufacture all its Moto X smartphones in Texas so that its manufacturing engineers in Texas and its R&D team in Illinois and California could work more closely with local suppliers and respond more quickly to demanding US consumers. Sharing resources; it has long been common in Africa and India for competing telecoms providers to share mobile-phone towers, and Western telecoms companies are now doing the same. Ultimately, a company that has learned how to flex its organisational assets – by eliminating bureaucracy, empowering employees and cultivating a flexible mind-set in its workforce – might be the most frugal company of all (Radjou et al, 2014).

3. Principle three: Create sustainable solutions

Customers seek sustainable solutions in the West and in the developing markets where the populations are huge and resources are scare, sustainable solutions are rather essential than being optional. Developing sustainable solutions is a key factor for the firms which is being explained in this principle which stresses out the need to create sustainable solutions which could be shared, re-used , customized as well as offering more to cheer for the customers and also saves a lot when it comes to costs and the environment. This principle demonstrates how companies can implement sustainable practices such as “cradle to-cradle” (where components and materials are repeatedly recycled) in the design and manufacture of waste-free products.
**Essential and not optional sustainability**: for many years, companies only paid lip service to sustainability as part of their corporate social responsibility (CSR) and philanthropic activities. Recently, however, several factors have forced developed-world companies to take a more strategic approach to sustainability (Radjou et al, 2014). A few pioneering Western firms are making sustainability a strategic objective. New approaches such as cradle-to-cradle and collaborative consumption are both causes and consequences of this shift; and these trends will drive the frugal innovation revolution in the West. Unilever, Marks & Spencer and Kingfisher have made impressive progress in reducing their environmental footprint, but they face another big challenge in extending sustainability to consumers which will further be discussed in the next principle.

As the UK’s Daily Telegraph reported in 2013, Two-thirds of the greenhouse-gas emissions from Unilever’s products – and half the water consumption – come not from manufacture or transport, but from their use. So if Unilever wants to cut its environmental footprint, it has to change the way consumers use its products. Such concerns are echoed by other consumer companies. As a senior manager at a leading fast-moving consumer goods company says: The big leap will come when we can get consumers to change their behaviour, for instance, when we can get them to stop boiling an entire kettle of water every time they want to make a single cup of coffee.

Customers demand eco-friendly and healthy solutions which creates a **Circular and Sharing Economy services like AirBnb & CouchSurfing – room sharing, Uber & Carcabpool - cab sharing etc** allows people to share and save, ultimately saving a lot of resources in the entire process also being friendly to the environment. **Design multipurpose products** (easily convertible multi-purpose furniture, usage of high performing servers for heating; a tech start-up initiative ‘do good’ etc.), **digitally enrich physical products** (analogue to digital in products offers consumers to do more; Apple’s smart-watch & other smart devices) which gives user the extra value what they always seek, **create products that adapt to evolving customer needs** (Lego like apartments; modular design approaches in construction, Google’s Project Ara; initiative to work on modular phone which could be upgraded as and when consumers specifications changes), **get ecosystems to embrace sustainability** (using a standard measurement scale for measuring environmental index; Higgs Index by US clothing firm, Timberland). Conscious efforts have to be made in all these areas to embrace and understand what it means to provide value to the customers by providing unique, sustainable, environmental friendly as well as cost saving solutions to the customers. Lastly, sustainable design refers to the reuse of existing components (Balakrishna, 2012). This holds especially true both for emerging and developed markets customers.
4. Principle four: shape customer behaviour

The previous examples of Unilever and fast moving consumer goods company’s which argues that it is not just the firms but consumers who are at the end of the chain need to behave responsibly. It is that consumers without knowing how much they are wasting while consuming has become a major problem. This problem has to be understood clearly by the firms and needs to take necessary steps in shaping up customers behaviour in this whole process. Educating the customers and limiting them to use how much exactly they need of any product/service would help both the firms and customers in many ways. This principle precisely explains this phenomena and affirms the need for firms in shaping up customer behaviour so that there will be less waste and more people benefitted especially in the hugely populated areas where resources are especially scarce.

Drawing on research in psychology and behavioural economics, as well as on the pioneering work of organisations such as Barclays, IKEA, Khan Academy, Nest and Progressive, this principle shows how companies can influence consumers into behaving differently (for example, driving less or more safely) and feeling richer while consuming less. It also shows how marketing managers can improve brand loyalty and market share by tailoring frugal products and services more closely to the way customers actually think, feel and behave – and by properly positioning and communicating the aspirational value of these frugal solutions.

*Consumption is important for well-being but can erode it*; in the world of Schumacher, Ehrenfeld and Hoffman, corporate strategies would shift from compelling people to consume more to encouraging them to consume better, as profit takes a back seat to a firm’s contribution to flourishing. Modern consumers are conflicted, on one hand they worry about the environment and rising living costs, and possess greater empowerment and connectivity. On the other hand, they battle self-interest, inertia and their inability to make a difference. The challenges facing firms therefore are: to influence consumers’ behaviour without making them feel manipulated; to help consumers balance self-interest with their concern for the planet; and to balance frugality with a sense of abundance (Radjou et al, 2014).

*Consumers care about the environment and yet are profligate with resources:* Survey after survey, Western consumers say they care about the environment and that they would like to be more pro-social (voluntary behaviour intended to benefit others). Yet data on their actual behaviour (for example, their energy and water use) suggests that these noble-minded consumers frequently allow behavioural, economic and technical barriers to get in the way. *Consumers are powerful but not enough to change:* even consumers in advanced economies lack information, opportunity or motivation to consider issues around sustainable consumption. Evidently, green or sustainable consumption remains a niche, discouraging
firms from making more than incremental improvements to their products. Most importantly, consumers may not get the right information to make optimal choices (Radjou et al, 2014).

More initiatives and programs need to be developed which are context dependent, by the respective firms to educate and motivate customers and make them realize the importance of saving, sharing, consuming less and as required which eventually helps them in return through less use of resources and transforming their lifestyle to more healthy and sustainable ways of living. Firms as per the requirement needs to utilise every opportunity to bring about a positive change in the way the consumer behaves. This could be done primarily by identifying the current behaviour patterns and suggesting betterments for the future and actively engaging with them in every possible way.

5. Principle Five: co-create value with prosumers

Not just Engaging & Iterating with customers, but as sometimes firms even do not know the needs of the consumers and this principle ascertains the need for co-creating solutions with the consumers. The way especially the tech-savvy millennial generation (those born between 1982 and 2004) – are evolving from passive individual users into communities of empowered “prosumers”, who collectively design, create and share the products and services they want. As a result, R&D and marketing leaders at firms like Auchan are working with do-it-yourself (DIY) and crowdsourcing pioneers, such as TechShop and Quirky, to bolster and harness the collective ingenuity and skills of consumer communities. Additionally, big brands such as IKEA are linking up with start-ups such as Airbnb to develop a “sharing economy” in which consumers share goods and services. The principle also outlines how sales and marketing managers can build greater brand affinity and deepen their engagement with customers by co-creating greater value for all.

Allowing the consumers to be producers in the product design and development; we want to embed our customers deeply into our value chain as active partners – starting with the Mulliez, Auchen's CEO Decathlon got the public more involved in developing new ideas. It asked customers to vote on new product concepts developed by its in-house team, and the winning ideas made it into the stores. In early 2014, it launched a co-creation platform, which allowed end users to express their real needs, suggest improvements to existing Decathlon products and even propose new products.

Consumers increasingly seek personalised solutions; this inspired Google/Motorola collaborating with a Dutch start-up PhoneBloks to launch Project Ara, a free, open-source hardware platform that can be used to create highly modular smartphones and to reduce electronic waste. For $50, users will receive a kit containing a structural frame and modules (display, keyboard and battery) of their choice that can be snapped together like Lego.
blocks. This Google’s DIY phone, which will run on the open-source Android operating system, will provide longer life cycles for handsets.

**Consumers are increasingly dissatisfied with existing offerings;** According to Eric Von Hippel, professor of technological innovation at MIT, customers who are frustrated with the limited functionality of existing products often tinker with them to extend their functionality and adapt them to fit their own needs. **Consumers want a “conversation” with their brands;** Customers who love their brands also like to play an active role in supporting them. They are willing to help design and produce them, and to share this passion with others. Customers can be a powerful source of frugal innovation for companies. As this principle has demonstrated, companies’ most proactive customers – their prosumers – can help identify new ideas, validate and develop them into products.

Making use of the customers in the product design helps the firms solve a lot of uncertainties and R&D costs which would literally translate into the products and the products developed serve them better with what they need and omitting out the things they do not need.

6. **Principle six: make innovative friends**

To create more frugal products and serve the emerging market customers it is highly important for the firms to make collaborations which will further be explained in detail in this principle. Firms such as GE and Ford are ensuring that the R&D function is lean, flexible and highly networked. This principle shows how R&D and operations managers can develop frugal products, services and business models more efficiently by collaborating with diverse external partners (such as suppliers, universities, venture capitalists and start-ups) than by working alone. Businesses alone cannot solve these complex problems alone. It is no longer the case that knowledge is power; now sharing knowledge is power. The brokering function is also relevant when sourcing ideas in fast – growing markets in Africa, India and China – regions that pioneered frugal innovation. How can firms maximize the value of our intellectual capital through partnerships? The point is that companies invest billions of dollars in R&D, millions to patent their innovation, and yet more millions defend them. Companies therefore need to open up their IP (Intellectual Property) portfolio and share their intellectual assets with external partner with whom they can use the IP as the basis for co-creating new products can maximize the return more cheaply.

As part of this strategy, GE decided to make innovative friends. As GE CMO, Comstock explains “There are millions of clever folks out there – restless entrepreneurs, ingenious tinkerers and passionate scientists – with brilliant ideas and solutions ... We want our R&D and marketing teams to tap into this ‘global brain’ ”. In 2013, GE partnered with Quirky, a crowdsourcing platform, to make its patented technologies available to ordinary people to create internet-connected consumer products. GE Ventures’ portfolio includes Rock Health
(an accelerator of digital health-care start-ups), Stem (whose intelligent battery storage can reduce peak energy charges by 20%) and Mocana (a provider of embedded security systems for the industrial internet). Partnering with these start-ups not only gives GE access to disruptive technologies, but also creates a disruptive working culture. Despite spending around $6 billion on R&D each year, GE recognised the need for external partnerships, and is creating a lean, flexible, highly networked R&D operation accordingly. Following explains the ways to collaborate with various stakeholders.

**Talk to suppliers who think originally;** German carmakers are approaching auto suppliers such as Bosch (which developed the Nano’s core engine and fuel-injection technologies) to explore how to leverage those frugal technologies to create affordable cars. **work with partners to serve Mecosystems;** Simon Mulcahy, senior vice-president and managing director of financial services industry at Salesforce.com, which offers a customer relationship management platform based on cloud computing, encourages companies to adopt a wide lens to perceive their customer needs through the diverse perspectives of other industries, and to address these needs by borrowing best practices from other sectors. For example, diverse industries such as construction, interior design and renovation, food, retail, entertainment, logistics, health, financial services, energy and communication all share a single customer in one particular location: "their home". **Engage competitors in realising big hairy audacious goals;** arch rivals in the food industry, Nestlé, Mondelez and Mars, along with agribusinesses, such as Volac and Ingrédion, and retailers, such as Kingfisher and ASDA, have joined the Natural Capital Leaders Platform. Together, they hope to identify new business opportunities and frugal solutions, such as reducing waste and increasing farmland yields with less water.

**Share assets and resources with other companies – and make big savings;** Industrial firms should together implement the sharing and circular economy in two important ways. First, they should integrate their own value chain with those of other manufacturers, as often in business "one man’s trash is another man’s treasure". Second, they should monetise under-utilised assets by sharing them with companies that need them more. **Work with the social and public sectors;** large companies are facing growing pressure from governments, customers and employees to act as responsible corporate citizens by solving pressing social issues such as health-care access and financial exclusion. **Engage restless entrepreneurs, hackers and tinkerers** which helps in building the best for the consumers. Jacques Birol, a serial entrepreneur and strategy consultant who teaches and mentors entrepreneurs in France, explains: Entrepreneurs are a frustrated and restless bunch who refuse to put up with the status quo. Adversity fuels their creativity. Unlike scientists, they create breakthrough solutions out of sheer (personal) necessity.
Collaborations helps in better understanding of how to deliver better products/services as well as in saving subsequent costs using the shared assets and knowledge which is profitable for the partners involved as well as helps in leveraging the costs ultimately creating the best and affordable solutions to the consumers.

These principles which are discussed gives an understanding of what needs to be considered and used while developing solutions for the customers who seek frugal products both in Emerging and developed markets. It is estimated that around 5% of companies in developed economies are advanced in their frugal innovation journey; 15% have adopted frugal innovation in some parts of their organization but not organization-wide; and the remaining 80% have yet to formulate a coherent and comprehensive frugal innovation strategy (Radjou et al, 2014). There exists a lot of possibilities to utilize and adopt Frugal Innovation as a winning strategy to create and launch their products/services in the intended markets as affirmed by (Radjou et al, 2014) that as huge scope exists even in the developed markets.

Table 2: Frugal Principles and Key Characteristics

<table>
<thead>
<tr>
<th>Frugal Principle</th>
<th>Key Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engage &amp; Iterate</td>
<td>Principle one is all about engaging and being very close with the customer/consumer from the very beginning</td>
</tr>
<tr>
<td>Flex your assets</td>
<td>It describes the trend towards mass customisation, and how new tools approaches can help operations and supply chain managers “flex” their production, logistics and service assets.</td>
</tr>
<tr>
<td>Create sustainable solutions</td>
<td>Demonstrates how companies can implement sustainable practices such as “cradle to-cradle” (where components are repeatedly recycled) in the design and manufacture of waste-free products.</td>
</tr>
<tr>
<td>Shape customer behaviour</td>
<td>Describes how companies can influence consumers into behaving differently (for example, driving less or more safely) and feeling richer while consuming less</td>
</tr>
<tr>
<td>Co-create with prosumers</td>
<td>The tech-savvy millenial generation are evolving from passive individual users into communities of empowered “prosumers”, who collectively design, create and share the products and services they want.</td>
</tr>
<tr>
<td>Make innovative friends</td>
<td>Describes how R&amp;D and operations managers can develop frugal products, services and business models more efficiently by collaborating with diverse external partners than by working alone.</td>
</tr>
</tbody>
</table>
2.4 Smaller enterprises:

As the idea behind this article is to see the Frugal Innovation adoption in smaller enterprises in the Western market, it is good to get some understanding of the differences between the smaller, medium and micro-enterprises to have some clarity with which the discussion moves onto finding the problems smaller firms face in the process of Frugal Innovation adoption. As the case company is located in Europe, the European definition of smaller enterprises is taken into consideration which is as follows.

In Europe, there are three broad parameters which define SMEs:

- Micro-enterprises have up to 10 employees
- Small enterprises have up to 50 employees
- Medium-sized enterprises have up to 250 employees.

The European definition of SME is as follows, "The category of micro, small and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding 50 million euro, and/or an annual balance sheet total not exceeding 43 million euro."

But in this study only the small-sized firms having up to 50 employees is taken into consideration and not SME's as a whole. As it was more suitable for conducting the research and to answer the research question. The study is very specific to smaller firms in understanding the adoption of frugal innovation in the western markets and the firm chosen for the purpose and the research methodology chosen is apt and suits the purpose precisely.
3. Methodology:

This section gives an overall understanding of how research is going to be conducted and what methodology is used in this study. The type of research methods, theories, data collection and analysis methods will also be detailed upon in each section individually.

3.1 Research approach:

For this research a Qualitative research methodology along with an action research based approach is being used. Required amount of knowledge on frugal innovation and a frugal thinking mind-set are deemed as the pre-requisites for this research purpose as it is dealing with an Innovation type which is quite new and not so familiar in the current setting. Though according to historical perspective (Bhatti, 2012) frugal mind-set existed in the West before the World War II, this aspect is missing in the current market settings. As in the current scenario, as they lack the required knowledge on FI and the mind-set to think frugally, external sources involvement is therefore a necessity. As the researchers on Frugal Innovation and belonging to India, the land where this approach is getting popular and proven successful and having the essential mind-set and knowledge of FI, “we” as university students will be fully involved working with the case company. Further we would be working on the new product development as well as the whole FI strategy implementation of FI. A more prominent local presence and a fundamental new-product development effort may be necessary to develop a truly effective frugal innovation process (Williamson 2010). Firms must learn to incorporate knowledge and capabilities gained in emerging markets and leverage them globally (Zeschky et al, 2011), affirms that required knowledge and FI capabilities comes from the emerging markets.

An action research approach along with qualitative research methodology with a single case-study is going to be used. Action research helps in collaboration with the company, which gives us good information and insights about how the FI strategy is being used for the new product development as well as the entry strategy for the emerging markets. Action Research (AR) could be defined as an approach in which the action researcher(we) and a client(case company) collaborate in the diagnosis of a problem and in the development of a solution based on the diagnosis (Bryman & Bell, 2011). While qualitative research strategy usually emphasizes words rather than quantification in the collection and analysis of data (Bryman & Bell, 2011). This will be more useful as we are looking to formulate a new theoretical model of FI with regards to the smaller firms in the west which is completely based on this research outcome. This research is more usually regarded as denoting an approach in which theory and categorization emerge out of the collection and analysis of data (Bryman & Bell, 2011, p 389).

The empirical data collected from the case study would help us formulate a new theoretical model which is done through several qualitative research methods including semi-
structured interviewing, secondary data study, participant observation, semi-structured interviews and analysis of web-content etc. This ensures better understanding of the views of the case company on this FI journey and their experiences in using FI for their new product and market entry strategies for the emerging markets. This qualitative case study is an approach to research that facilitates exploration of a phenomenon within its context using a variety of data sources. This ensures that the issue is not explored through one lens, but rather a variety of lenses which allows for multiple facets of the phenomenon to be revealed and understood. Research approach is abductive, which is a combination of the inductive and deductive approach where empirical data are the basis for generating new theories, and previous theories and literature serve as 'a source of inspiration for the discovery of patterns that bring understanding' (Alvesson & Sköldberg, 2009). Using the existing principles of FI, we would apply them to the case company in their product development for a new market entry to understand how well the company is able to use this Frugal Innovation and identify the problems during this process. Using this empirical data we propose a new theoretical model which would list the factors that a smaller firm needs to consider while developing new products for the emerging markets using FI.

Action research leads eventually to re-education, changing patterns of thinking, and action. The primary reason for engaging in action research is to assist the “actor” in improving and/or refining his or her actions (Richard, 2000). To understand the firm behaviour and to identify and understand their problems in adopting FI we felt that this method is quite suitable. In this approach the main idea is to assist and guide the company in their FI strategy as well as to offer useful insights on this innovation which is not quite familiar to them. As well it helps us gain more understanding of the company and their products which would be more useful at later stages. Together in a mutual way the research strategy helps the involved parties in this university-industry collaboration to better use the FI approach.

**Innovation Action research:**

Coming to the type of Action research employed in this research, we have to look at the “Innovation Action research” theory (Kaplan, 1998) which states that it engages the researcher in an explicit program to develop new solutions that alter existing practice and then test the feasibility and properties of the innovation. As this theory is designed solely on the purpose of working with Innovation, we hence used this in our research approach.

Innovation action research, let’s scholars actively engage in helping organizations to implement a new idea. Through such active engagement, the scholars learn not only about the idea itself and how to improve it, but also about the successful implementation in organizations (Kaplan, 1998). This also gives us lot of scope in learning about Frugal Innovation and to use the innovation principles within the company which act as an enabler in realizing the frugal innovation strategy for the company. The scholars must be able to produce
changes in the status quo in organizational design and practices (Kaplan, 1998), by actively engaging with the case company. Many organizations espouse that they desire change and improvement. But almost all organizations actually practice a theory in-use that is quite hostile to change (Kaplan, 1998), which is true in case of mature small companies.

In innovation action research, scholars work with client organizations to enhance and test an emerging theory that has been proposed to improve organizational performance (Kaplan, 1998), in this case we are going to use the FI principles and help the company in the innovation adoption process with an outcome which is finally going to be a frugal innovative product or a service. This research is very much experimental, especially in the early stage of implementing the new theory, since both the scholars and the client organization want to learn more about the emerging theory and how it can be successfully implemented (Kaplan, 1998). We see how this new innovation strategy is going to be implemented in the company and learn more about the innovation adoption process which would be essential for us to answer the research question and to build a theoretical framework based on the observations and outcomes of this action research.

INNOVATION ACTION RESEARCH CYCLE: Following are the steps involved in the Innovation action research cycle proposed by Robert Kaplan.

- STEP1: Observe and Document Innovative Practice
- STEP2: Teach and Speak About the Innovation
- STEP3: Write Journal Articles and Books
- STEP4: Implement the Concept in New Organizations

Due to the time limitations we are going to work with only one case company and hence the cycle is going to stop after the first iteration. Also we are not going to publish any articles or books during this limited time, but that would be substituted by reading and learning more on frugal innovation and related concepts during this time which keeps us updated on the latest information on the subject. This knowledge would again be used during the adoption process while engaging with the company. This makes sure that there is no knowledge gap existing and also the researchers are updated about the concepts quite clearly.
3.2 Research strategy:

The present thesis can be classified as an exploratory study. According to Robson (2002) an exploratory study is especially useful when the research questions aim “to determine what is happening; to seek new insights; to assess phenomena in a new light”. As the purpose of this thesis is to explore the use of frugal innovation it is reasonable to classify the present work as an exploratory study.

The case company chosen for this purpose is a matured small firm looking to enter a new emerging market to deliver products/services suitable for them. Further as the product/service should be made more affordable and easy to use. We, therefore suggested them to use Frugal Innovation which other bigger firms operating in emerging countries are currently using for developing product offerings for the emerging market customers. As they do not have any knowledge of FI to use it for the new product development, using action research approach both parties i.e., the company and we (researchers on FI) will be working closely together.

Further to develop the new product and entry strategy for the new market, the current FI principles are going to be used in this process to adhere to the concept and use the existing principles effectively and not get deviated in the whole process. This allows the company to develop a new product and select a suitable entry strategy to enter the emerging market which is made possible through this innovation process. Finally, based on the inputs from the new product development process and the entry strategies, a new theoretical model is going to be
formulated. The theoretical model thus generated is going to be the final outcome of this research, which is context dependent and very limited in scope, the context being smaller firms in the west working with a frugal innovation strategy in health & lifestyle sector.

3.3 Research design:

In this study a single case-study approach is being used to analyse and observe the use of FI in the smaller firms in the west. According to the relevant literature, case study research is appropriate in settings where the researcher aims to: gain a deep understanding of the research context and the processes at hand (Morris & Wood, 1991); generate theory (Gersick, 1988); and answer the “why” and “how” in a specific context (Eisenhardt, 1989).

The basic case study entails the detailed and intensive analysis of a single case (Bryman & Bell, 2011). Case study research is concerned with the complexity and particular nature of the case in question (Stake 1995). The case study approach is a very popular and widely used research design in business research (Eisenhardt and Graebner 2007). As the researchers are also deeply involved with the company in this Frugal Innovation strategy, we limited our study to a single case study as it gives ample time and freedom to carefully observe the findings which are very much relevant to the context and to answer why and how questions of the research.

Coming to the selection of the company for doing this research is that initially we did not have any company or product in our mind to be thinking to use frugal innovation on to achieve something like a frugally innovative product or something like which happens in most of the cases. For example, a fuel efficient and low cost no frills model or a refrigerator which runs on low electricity and environmental friendly etc. This is what happens in most of the cases who work with frugal innovation. Our thinking is completely different, different in terms of how we would like to use and see the application of frugal strategy. For this purpose we need a company who believes in the frugal strategy as a whole and do not think in terms of developing a no frills or a low cost alternative of something. We did not search for the companies of this kind to do our research, but one of our professors who knew a company already working with the university got us introduced to them. After a few initial meetings and a little research at a very initial stage of our thesis helped us understand that this is the kind of company we would like to work with as they are a company looking which are looking to expand to an emerging market and are completely new to the idea of frugal innovation. This is how our selection process went through in choosing this company for this research purpose.

Using this single case study approach, we aim to develop: a) an understanding of applicability of Frugal Innovation strategy by the western smaller firms; b) aims to generate new theory; and c) is of exploratory nature. In this case study, we work closely with the company using an action research based research methodology for sharing the knowledge, mind-set and information between each other which is further helpful in the new product
development and determining the market entry strategies for the new emerging market context. The Chief Executive officer, a product designer and a marketing head were involved with us in this research, for working on the product design, concept and marketing of it for the emerging market customers. To be specific, the emerging market chosen by the company for their entry is India and to offer health/lifestyle services to its customers. More details on this would be presented during the case analysis.

3.4 Data collection:
As this thesis is completely context dependent it is desirable to completely rely on data from both primary and secondary sources to gain more understanding of the context that we will be working later with i.e., FI usage in smaller firms. Data collection started with the analysis from the secondary sources like websites and company related documents. This gave us a clearer picture of what their product offering is and how it is suitable for the emerging market customers. This affirms our stand on choosing this as our case company further.

As an action research approach is employed every information is collected by taking notes, memos as and when required which acts as a major contributor of data. Further the primary data collected from the semi-structured interviews, group talks and fika (coffee with anything) breaks, helped us to get more data during the innovation adoption process. Conducted 3 semi-structured interviews one with the CEO before we are involved working with the company to understand what they are planning to do further and challenges associated with it. During the phase where the product concept is being developed conducted one more interview to get insights and feedback of how well they are getting involved and engaging the Innovation type is. Third is after the product development and the entry strategy is finalised, to see how satisfactory are they with the adoption process and to see if the desired outcomes are achieved. This served as the major part of data collection from the company which served as inputs for the important part of this thesis, to develop a theoretical model.

3.5 Data analysis:
In a Qualitative research approach, analysis starts after some of the data have been collected and the implications of that analysis then shape the next steps in the data collection process (Bryman & Bell, 2011). Having collected the data from the secondary sources some sort of analysis started which let us understand the problems the case company currently face. Analysing the data from documents and face-to-face meetings it became rather evident and clear of the aims of the firm, which helped us get involved with the company in designing products for the emerging market customers. Secondary data helped us understand more about the company policies and their product offering while primary data helped us during the analysis phase.
Because qualitative data deriving from interviews or participant observation typically take the form of a large corpus of unstructured textual material, they are not straightforward to analyse. Moreover, unlike quantitative data analysis, clear-cut rules about how qualitative data analysis should be carried out have not been developed. (Bryman & Bell, 2011). So, using a large amount of data resulted out of action research and other qualitative data collection methods we tried to understand the adoption process as a whole, to feed us with inputs for constructing the theoretical model. This data analysis helped us understand the implications of adopting the FI for the smaller firms and from here we carried onto to analyse the data further to develop each construct of the model which will be further discussed in the analysis section.
4. Empirical Findings

In this section, the case company is going to be introduced along with the current challenges they have are going to be listed. Followed by the Innovation adoption process and finally conclude with the outputs of this section which will later be used as the inputs for formulating the theoretical model.

4.1 Case study – HPI AB, Stockholm, Sweden

In this research study we are going to be working with a company in Stockholm, which is in smaller in size, under healthcare & lifestyle industry operating for over 30 years as a leader in the market. As researchers on FI, we would be working very closely in their new business strategy and new product design using the principles of Frugal Innovation for their new foreign market entry. This study starts with an overview of the company and its currently provided services, followed by the specifications in detail upon which further study is to be done. All this is carried out following an Innovation Action research (Kaplan, 1998) which allows researchers on Innovation to get engaged and participate in this innovation strategy to generate new theories to be tested later with more empirical data or quantitative studies.

4.1.1 Company Overview

Health Profile Institute (HPI) has over 30 years of experience in Health Promotion in Europe, mainly in Sweden. The HPA Health Profile Assessment® method was developed by Dr. Gunnar Andersson and Dr. Sture Malmgren in the early 1970’s. The research has been documented in their doctoral theses in medicine in 1987, at the Department of Preventive and Social Medicine, University of Linköping, Sweden. HPA, a scientifically based method, is a tool for motivating individuals to improve their lifestyle and become healthier. HPA has an interdisciplinary basis and draws upon theories of behavioural medicine as well as international scientific research. It was developed through the fusion of proven physiological testing techniques with methods of motivational communication. It is a method that is designed to create awareness, insight and to encourage an individual’s personal responsibility for his own health and lifestyle related habits.

Health Profile Institute has educated over 15,000 Health Profile Assessors, and so far more than 1.5 million Health Profile Assessments’ have been performed in Sweden alone. The method has been translated in several languages, and today many international companies are using the HPA Health Profile Assessment in their Employee Health Programs. It is a valuable asset in company’s effort to improve and maintain employees’ health and lifestyle. HPI has vast experience in Health Promotion and wellness in Europe and its technique is also spreading across other parts of the world like Norway, US and South Africa. HPI focus is mainly on lifestyle and health issues which assess people using a method called ‘HPA’ which proved successful and well established in the Swedish market. The HPA as a service includes
a questionnaire which reviews health habits, exercise, tobacco and alcohol use, diet, symptoms, stress, perceived health, leisure time, work time etc., followed by medical and physiological assessments and motivational interviewing. This will allow an individual about the awareness of current health situation and potential risk factors. This results in empowering individuals to make necessary changes towards improved health.

Developed these methods since 1976 and software since 1988, they are pioneers in health and providing IT health services and have one of the market leaders in Sweden. HPI works with method development, software development, training, and writing and research in health and wellness. Their market is for health development for organization, group and individual levels. HPI’s clients are the leading occupational health, fitness, health actors, and universities and colleges. They save money for their customers by being a total supplier with methods of health development, information technology, education and research and development on health and lifestyle by making them more healthy and motivating them to lead a better lifestyle. Apart from the health screening, HPI also has different products/methods in assessing participant’s health, diet, lifestyle and work habits. They have developed methods like HPI fitness test on a bike, HPI Workplace Profile, AUDIT (Alcohol Use Disorders Identification Test) and HPI Blood Profile.

1. Fitness Test: This is to calculate the strength both in everyday life and at work. A trained test manager adapt fitness test to the participant's circumstances. The fitness test is gentle on the body, does not require the high technology and is safe to carry out. Everyone could participate in the HPI fitness test on a bike, whether the participant is physically active or not.

2. Workplace Profile: The questionnaire for the HPI Workplace Profile answered on the company’s website about the work situation, working, leadership and work environment. This Questionnaire takes 5 minutes to complete and includes stimulus, job satisfaction, stress, workplace co-operation, efficiency and physical work. The answers are treated confidentially and this will be followed by an individual talk.

3. Audit: It is a leading method for identifying hazardous consumption of alcohol habits in an individual and is developed by the World Health Organization, WHO, and quality assured for Sweden by Karolinska Institutet. AUDIT consists of a questionnaire with 10 questions about drinking habits. AUDIT gives the employer a survey to prioritize the right actions for different groups within the organization. The goal is that the employer using the AUDIT can avoid the consequences of risky use, such as illness, absenteeism, less productivity, increased risk of accidents at work and alcohol abuse.
4. Blood Profile: Blood profiling is carried out for the patients in the higher risk zone. This is carried out for the participants with special needs apart from the general health and lifestyle screening. Either participants could voluntarily request and avail this service to get their blood levels checked or it would be mandatory for the participants who crosses a certain age limit to have a check on their levels to suggest better health and lifestyle habits to keep the blood levels in the normal range. This constitutes results for Total cholesterol, LDL cholesterol, HDL cholesterol, LDL / HDL ratio, Triglycerides, Glucose, and Haemoglobin from the blood sample collected.

4.1.2 Product Specification in detail: HPA

As this is the product/service we would be working with, a detail specification of the Health Profile Assessment (HPA) is going to be made here for more clarity while working with it during the innovation adoption process.

Developed the method HPA in the year 1979 which includes a series of steps and a discussion on health and lifestyle to see whether the participant is healthy or not and depending upon the case, gives feedback to the participant to engage him in leaning towards healthier lifestyle habits in the future. HPI even trains the health coaches or health assessors to conduct this method in their client companies. Every year they train about 1 200 people in occupational health care, higher education and in other health aspects. This method is quite mature and had been successful in achieving its objectives in Sweden and starting to spread over to the other European countries as well.

The HPA method includes a questionnaire which reviews health habits, exercise, tobacco and alcohol use, diet, symptoms, stress, perceived health, leisure time, work culture etc. Questionnaire approximately consists of a set of 20-25 questions which are categorized into Leisure time, Physical activity, diet, Tobacco, Alcohol, medication, perceived symptoms, perceived stress, perceived loneliness and perceived health aspects. Once the questionnaire is complete, all the necessary physiological and cardiovascular tests are performed as part of the assessment to assess blood pressure, height, weight, skeletal mass, fat free mass, BMI (body mass index) and heart rate monitoring followed by sub-maximal test which calculates the oxygen uptake. All these measures are required to perform the risk analysis on the participant to determine and categorize the health groups (healthy/risk groups). The entire process along with an individual one to one discussion with a health profile assessor or a health coach takes place around 60-75 minutes. This will also create awareness of the current health situation and potential risk factors.

The results of the individual tests which are conducted as part of the assessment are evaluated by the HPA assessors and a detailed health report is generated and explained in a detailed discussion with the participant. A desired health form is also given along with the
assessment results to help individuals identify what their future health goals are and to help them initiate their efforts to achieve desired lifestyle habits for the future. This encourages them to take responsibility of their own health by suggesting the necessary changes. The follow-up HPA is conducted to review the results and measure the progress since the last assessment. HPA follow-up is either after 3-6-12 months, which determines the changes that took place between the successive HPA’s and suggests further improvements based on the current health and lifestyle profile of the participant. This method is very popular in the current Swedish market and they are looking to expand further in the new markets. Step-wise procedural details are presented as follows also mentioning the time consumed per each step:

**Step 1: Questionnaire:** Questions about lifestyle, health and motivation (5-7 minutes)

This questionnaire usually takes 5-7 minutes to complete and includes leisure habits, physical activity, nutrition, tobacco, alcohol, medications and symptoms, stress, loneliness, health and motivation.

- Reviews health habits: exercise, tobacco and alcohol use, diet, symptoms, stress, perceived health, leisure time, etc.
- Gives an opportunity to discuss individual life habits with an authorized Health Profile Assessor.
- Creates awareness about the current health situation and risk factors.
- Empowers individuals to make changes towards improved health.

**Step 2: Physiological Assessment:** Fitness test on a bicycle from the participant's own potential (15-17 minutes)

Participant bikes for 6-12 min at a level that only allows the participant slightly out of breath. This means that anyone can perform the test without any discomfort, whether you are physically active or not.

- Goal: Discover your personal Oxygen Uptake and Fitness Status.
- Sub-maximal test (you will be working at 50% of your individual effort level). Duration: 6-12 minutes.
- Performed on a cycle ergometer.
- Safe and easy to complete.
Step 3: **Medical Assessment:** Height, weight and blood pressure (7-9 minutes)

The participant and Health Profile Assessors together go through the answers in the questionnaire while the height, weight, and blood pressure are being measured at the same time. Following is the measurement of diabetes and asthma for the needed individuals and later are recorded using the software. All these values are recorded in the software.

- Blood pressure
- Height and weight
- Skeletal measurements
- Fat-free mass
- Healthy weight range (based on your individual body frame)

Step 4: **Motivational Interviewing:** A detailed conversation with a psychologist or a health expert focusing on both the present situation and the future (20-25 minutes).

This gives the participant an opportunity to understand the importance of lifestyle for health. Participants will also reflect on what results she is most happy and how a future health vision might look like. The participant thus becomes aware that it needed its own responsibility, their own decisions and their own choices for the success of a lifestyle change.

Step 5: **Group Report:** Reporting at the organizational level on how the org. as a whole is performing (8-10 minutes).

The individual results are compiled into a group report with the opportunity for in-depth report on, for example, department, profession, sex and age. The report is the basis for the employer’s strategic health work.

Step 6: **Health Vision:** A detailed future vision on one’s own health (5-7 minutes)

Participants will be given a form to fill in and detail out the future vision on his own health. This gives an opportunity for the participants to set their own goals for the future and also motivates them to stay healthier in the future.

- A useful tool for changing your life habits and becoming healthier.
- Provides an opportunity to set your personal goals.
- Encourages you to take responsibility for your own health.
- Guidance will be provided in order to obtain your desired results.

Step 7: **Follow-up HPA:** HPA performed to see the changes with the previous results

This follow-up HPA is usually conducted periodically either every 3-6 months to see if there is any change in the participant’s health and lifestyle habits. This acts as an indicator to
validate the organization in terms of health and to track the progress made. Possibility to review results and measure your progress since your last HPA.

- Set new goals for the future.
- We recommend a follow-up within 3 – 6 months

Table 3: HPA Method Description with time taken

<table>
<thead>
<tr>
<th>Step No.</th>
<th>Assessment steps</th>
<th>Short Description</th>
<th>Time taken (in minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Questionnaire</td>
<td>Questions about lifestyle, health and motivation</td>
<td>5-7</td>
</tr>
<tr>
<td>2</td>
<td>Physiological Assessment</td>
<td>Fitness test on a bicycle from the participant’s own potential</td>
<td>15-17</td>
</tr>
<tr>
<td>3</td>
<td>Medical Assessment</td>
<td>Height, weight, skeletal mass, fat percentage and blood pressure</td>
<td>7-9</td>
</tr>
<tr>
<td>4</td>
<td>Motivational Interviewing</td>
<td>A detailed conversation with a psychologist or a health expert focusing on both the present situation and the future</td>
<td>20-25</td>
</tr>
<tr>
<td>5</td>
<td>Group Report</td>
<td>Health Report at the organizational level</td>
<td>8-10</td>
</tr>
<tr>
<td>6</td>
<td>Health Vision</td>
<td>A detailed future vision on one’s own health</td>
<td>5-7</td>
</tr>
<tr>
<td>7</td>
<td>Follow-up HPA</td>
<td>HPA performed to see the changes with the previous results</td>
<td>-</td>
</tr>
</tbody>
</table>

Advantages of the HPA method:

HPA for an Individual:
- Scientifically estimates the participant’s current health and fitness status.
- Indicates areas for improvements in overall health.
- Inspires the participant to make positive changes in their lifestyle.
- Helps set attainable goals for a healthier life.
- Gives the participant the opportunity to review their progress over time.

HPA as part of a Company’s Wellness Campaign:
- Leads to increased profitability by reducing healthcare costs.
- Compiles statistical data for groups of clients.
- These statistics can be used as an aid in creating effective wellness campaigns, customized for the group’s needs.
- Identifies the risk factors related to both individual lifestyle and workplace environment.
- Aids in creating healthier workplace environments.
- Allows for the measurement of the effectiveness of a wellness campaign.
- Measures the individual and group’s progress over time.
- Allows for comparing of different groups (professions, genders, different life habits, etc).
Desired Health Profile:
- The trainer receives information regarding the client's personal goals.
- Motivates the client to take responsibility for their own health.
- Provides information about other health-related activities the client wishes to begin aside from exercising.

Specific Training Program:
- Provides the trainer with the possibility to adjust the workload, schedule and/or exercise program specifically for the client according to their:
  - Life habits
  - Health situation
  - Weight status
  - VO2 max
  - Perceived exertion
  - Personal goals

Progress Monitoring:
- HPA’s performed at different stages of training.
- Allows the trainer to adjust the exercise program scientifically, according to the client's progress.
- Allows the client to measure their own progress, which is a great motivational tool.

This method offers values for individuals as well as the organization in promoting health and lifestyle perspectives and allows them to be more active and thereby enabling a healthy workplace. The idea behind this study is to offer more value to the customers in the emerging countries by charging them less essentially with similar health services. This is going to be done through Frugal Innovation strategy which is going to be discussed in the next steps. The challenge for the company working on this FI is to see how well they make use of the strategy in bringing down the overall costs for the company and the consumer and make it much more appealing offering much more added value affordably. This translates to ‘doing more with less’, a core principle of Frugal Innovation. In the next section, we see how we have established the contact with the company and our involvement in this process.

4.1.3 Current challenges for the company:
This company is long associated with our university for performing research in exercise and health psychology and the main project objective is to design an interactive tool which ground on comprehensive knowledge from the field of psychology combined with the latest expertise from information technology (IT) and business model innovation, based on e-health industrial requirements and user needs. “A project in research for Innovation” has been
marked to understand design, apply and market new methods developed during this project. As part of this initiative one of the projects of the company is to export their services and grow internationally. Following is the main challenge that the organisation has had which would be discussed in detail to see how all this had started.

Peter Wallin, CEO, HPI visited us for a casual meet-up at the university campus and expressed his interest in working with this new innovation strategy for entering a new market and also expressed his desire in getting something good back to Sweden. The initiative is thus to grow internationally as well as to improve the conditions in the current market based on the learnings from the international experience (often referred as reverse innovation). The main challenge thus as stated in the follow-up document sent to us states,

“**How can HPI export their services and grow internationally?**”

Taking this as a source and as a problem statement we started working trying to understand about the current services they had while looking at potential customers in different markets around the world. Then we went back to the company with the identified market which is India and suggested adopting Frugal Innovation strategy for entering the new market as it provides the necessary framework to understand the needs of the emerging market customers and build services accordingly which suits bests for the emerging market consumers where spending capabilities are much lesser. As this is an emerging market we thus informed them of the advantages that we have adopting frugal innovation which allows us to think in a much simpler way during the product development process offering more value to the consumers.

HPI as a company is quite small as well as mature, where they have been working with different client companies in Sweden from a very long time. But as more companies providing better health and lifestyle related services are coming up in this area it has become a challenge for them to stay strong within the market competition. To compete as well as to improve what they currently do, they were seeking to enter new emerging markets to learn something from those markets which could be brought back here (Reverse Innovation, Immelt et al., 2009; Govindarajan and Trimble, 2012)). This is what we have learned from Peter that they want to explore the new markets as well to bring something back from them which is going to somewhat change the way things are in the current market to stay competitive.

“**Experiences in the emerging markets will definitely will help us to develop our Swedish products and services in the Home market as well.**’

The main challenge is well defined and it is serves as a platform for us to perform the research within the organization to see how they could export their services to other international markets in this case an emerging market. In this study as we are working with an emerging market innovation called Frugal Innovation, this research would therefore be limited
to the emerging markets and new product development for those markets using FI by smaller firms (less than 50 employees; according to EU small firms definition) in the West.

4.2 Innovation Action Research - working with the company:
---

This whole process will be carried out in two separate steps, one is to see why India is a potential market as well as the possible entry modes. The other being adopting Frugal Innovation principles to develop a product/service for the emerging market customers.

The motivation has come up while looking up at firms’ current challenge they had in the Swedish market as well as other operating countries and to assist them in their desire to export their services and grow internationally. After carefully going through the current challenge and their previous experiences in other markets which did not do well, we have requested them to outline the details of what didn’t go well. Being a stable and matured firm for almost 30 years, they started very late in new markets and had only two small offices in US and South Africa. They are looking to grow globally and currently their operations outside Sweden are doing not so good. As explained regarding their current problems in South Africa, Peter explained as saying,

"We have a small office in South Africa. But from experiences what we felt was the assessments are too expensive, they want less expensive service. Operation costs are also too much since assessment takes 90 minutes for each participant."

As understood from above statement, the main problem being ‘affordability’ and the others being ‘operation costs’ and the ‘time’ it takes for each assessment. Taking these three characteristics ‘affordability’, ‘time consumption’, ‘operational costs’, which affects both the firm and the customer very dearly as it takes more time for the participant and the company, which proportionate to spending money. Now, as they are looking to enter a new market these aspects have to be looked upon very carefully or else it is going to be the same situation again as the emerging markets have quite cost conscious customers. With the South African experience, it became very evident that the cost structure they currently had is not suitable if they are looking for operations in the emerging markets and even the time for performing assessments is also worrying factor if they have to serve huge populations in an emerging market. The cost for a single assessment is around 1000 SEK (Swedish Kroner) approx., which is way too expensive for the companies to bear for their employee’s health or for the individuals which is much beyond their spending capability.

To target an emerging market like India, with a product/service designed for Swedish market and especially affluent customers, it is rather a challenging task to make it appealing to the bottom of the pyramid customers (The Fortune at the Bottom of the Pyramid, Prahalad, 2009). We as researchers undertaken this challenge to work with the company which also gives us required amount of experience and information needed for developing a theoretical model on Frugal Innovation.
After an initial analysis on the company and its HPA method for two weeks, a report is made on the possibilities of taking up the task to develop a product using “Frugal Innovation”, which is especially suitable to design products/services for the emerging market customers. The other aspect for it is choosing a potential market for the entry. To do this study, two groups have been identified, one which worked on the possibilities of entering Indian market while other group looked into the Indonesian market, both are emerging countries from Asia. Finally, the company after hearing the ideas each group had, decided to choose India as a possible potential market and asked us to go ahead working more with it for developing a business model as well as a product development process.

For working on this project employing an action research methodology, we requested them for working as project/product management interns at their Stockholm office. They have agreed for us to work along with them for a period of 2 months. The whole process is done in two separate steps, one is to see why India, a potential market as well as the possible entry strategies. The other being using Frugal Innovation principles to develop their product/service for the emerging market customers. From now on the terms product, service, method will be used interchangeably for the HPA method.

4.2.1 Discuss Entry Strategies/Market Entry Options

In this we are going to discuss about how we identified the target customer group, and the relative entry strategies for targeting them in this market. This would again be done in two steps A and B for easy understanding where in step ‘A’ only the market is analysed to understand the business potential as well as to understand who to target in the identified market. In ‘B’ various market entry options are going to be discussed in which we try to understand the different approaches to reach the emerging market local customer.

A. Evaluating Market Potential:

The following section presents an overview of the economy and health assessment scenario in the Indian market to see how HPI methods could find an opportunity to enter the Indian market. As part of this evaluation of the potential market, challenges in the current scenario in regards to health assessments in India is discussed followed by the customer selection and the market entry modes.

A general scenario of India in terms of economic and health assessment awareness is a factor which initiates the discussion. The overall idea is to identify the business opportunities and market potentiality for HPI to enter Indian market and also to reduce some of the operating costs of the service through Frugal Innovation within the firm to develop cost effective solutions for the target customers. This is to be achieved through Frugal Innovation, which is an emerging markets Innovation through redesigns to the products and processes to cut out unnecessary costs” (Woolridge, 2010) and to provide them at an affordable cost maintaining...
the required quality. The frugal innovation techniques would bring down the overall costs which make HPI successful and profitable in India and to develop similar practices in the other HPI operating countries.

1. General Economic Scenario - India:

India has become one of the most attractive destinations for investment owing to favourable government policies and reforms in the past few years. The approval of foreign direct investment (FDI) in several sectors has allowed investments to pour into the economy. According to the data provided by Department of Industrial Policy and Promotion (DIPP), the cumulative amount of FDI inflows in the country in the period April 2000-September 2014 was US$ 345,073 million* (http://www.ibef.org). In spite of a lots of ups and downs and the problems which India has faced in recent years, the base economic stability stayed strong.

The economy of India is slowly regaining momentum, and both the domestic and the external conditions are improving. Favourable demographics and recent government reforms are expected to accelerate expansion over the medium term, making India the world’s 5th fastest growing economy by 2015. Recently new structure formed in support of varied and extensive growth includes the raised FDI ceilings for the medical, retail, airline, telecoms, financial and defence sectors (EY, October 2013; Partha Sinha).

Healthcare in the past in India is characterized as follows with a GDP expenditure of less than 4% which is least among the developing nations. This situation rightly explains the healthcare scenario in India as a whole and in terms of Individual care and wellness it is rather a herculean task where the spending on healthcare is not so encouraging. The following pointers rightly explains the current situation in terms of expenditure on health.

- Low levels of public sector(government) expenditure on health
- Low levels of private health insurance coverage
- High levels of out-of-pocket payments for healthcare
- High levels of catastrophic healthcare payment

The Government has increased its focus on variation growth, giving several different companies to come and explore India and tap in their business growth with the manpower and the open opportunities available for the healthcare revival. India is always ready to welcome innovative business models as they bring new avenues of growth to the market. Innovation is a strategic priority for firms, as it helps them to grow, achieve market leadership and define their future. Many successful companies have created new demand for their products and services in India. The country has a young and dynamic population with the potential to adapt to various consumption patterns. However, businesses must also be sure to develop customer loyalty by maintaining high levels of quality. It is very important that companies’ products and services suit the Indian mind-set. “Globalization” is the accounting for local tastes while maintaining a global outlook, is the key to sustainable business operations in India. Local management teams and alliances with domestic companies can help enhance the understanding of the local culture. The size of India’s domestic market and its workforce present a lot of opportunities to companies. Companies should also keep their cost structures tight and have the ability to manage volatility. Businesses entering the Indian market must also have necessary contingency plans in place.

As the current economic scenario is looking very strong in India and also growing very rapidly among the BRIC (Brazil, Russia, China and India) nations there is a lot of potential for the foreign investors to invest in these markets be it any industry. The FDI norms have been very relaxing in the recent times as the current government is attracting companies from foreign countries to setup their business and even assisting them in this quest. There are still a lot of gaps to fill and quality and efficient methods like risk prevention methodologies are the need of the hour. As HPI is a global player in healthcare and looking to spread its operations in the other parts of the world, India seems to be a right option exactly now as the prospects are looking very bright in the country. There is a lot of potential in the market as well as more people are now showing interest in personal healthcare and lifestyle in the current scenario where it is transforming from a traditionally agricultural country to a technology based country. The major change is the emergence of major IT corporate/MNC’s coming into the country. The growth in this area is quite drastic and is still growing multi-fold. Even to compare the size of India it is 7 times more than Sweden geographically which could be seen as a major business opportunity for launching any product involving volumes and people and where demands are not met yet.
2. Overview about health-care assessments in India:

In India to just give an opinion on the health assessments in corporate sector there is not much of awareness and only a little attention is being given by the organisational heads, in terms of individual health and lifestyle even though the need and demand exists. The current spending on healthcare in both public and private sector is quite low in India as compared to any other developing or developed nations but the prospects are looking better in the future especially in the private healthcare stream. In this an overview about health assessments is presented and see if there are any competitors existing in the Indian market and also the existing scenario of health-care assessments in India.

In general if considered for the second most populated country in the world it is difficult to have individual attention and care, even if people seek that they need to have. The problem being ‘there is only 1 doctor for every 1700 individuals’ which is one of the reasons for not having an individual attention. The other reason being the amount of time individuals spend on healthcare assessments. Within the corporate sector every employee is covered through a general health insurance policy. But the most important problem being that the Insurance cover does not include health and lifestyle related costs. This is why people do not give much attention as they have to spend huge costs for getting simple assessments done in a diagnostic centre from their own pockets. Eventually they end up paying huge amount of money if the risk is not assessed at an early stage. ‘Prevention is better than cure’, this is not still understood by the Indian public and hence people fall ill quite often. Hence if proper measures are taken through regular and periodic assessments most of the potential health risks can be avoided by keeping track of the health and lifestyle related aspects of an individual.

Looking at the current trend in India especially within the corporate sector, even for a small health check they visit a clinic and pay the amount out of their pocket for any health assessment being done. This situation could be avoided if the Insurance Company does regular health checks for the employees periodically. There is a need and someone has to fulfil this especially in bigger organisations where this is helpful in keeping employees fit and strong which in a way brings more productivity. Currently there are no measures to identify risk beforehand and no preventive measures that could be taken to avoid future risks and no monitoring on employees health in most of the corporate companies. The facilities are quite less for faster and quicker diagnosis. There are not much clinics or organisation for lifestyle related diagnosis in India currently

IT and corporate pressure is increasing more stress on employees in the recent years. The focus on health is also increasing but as there is no research based organisation with a proven method and a history of keeping a healthy workforce in India. Currently Milliman Inc.,
an US based organisation is currently operating in India and it is also in its very initial stages. There is much more scope for a health, lifestyle and wellness company which has a potential to fulfil the gaps and address key healthcare related issues in the Indian corporate workplace.

To conclude there is not much of a health assessment service or health risk prevention methods available in India currently. It is a challenge therefore which needs to be taken up who is capable enough and experienced to function in a multi-dimensional country like India. A constant insight and updated information on health and lifestyle is required in order to meet the challenges and make the Indian workplace a much better one. This is looking very bright for a healthcare company like HPI which has over 30 year experience in this area to enter the market as there is a lot of demand existing and even has not much competition in the market. HPI having a vast and a proven experience in health assessments has a rewarding opportunity to enter Indian market.

After looking at different segments of customers like common public, government employees, employees from corporate/multi-national companies and finally picked employees from corporate employees as our target customers as we see them as potential target customers. A study on the Indian corporate employees reveals the facts that the stress levels among the mid and high level working employees is rather very high. The reasons being highly demanding, globalization, rapid technological advancement and the un-satiated need for growth led to increased incidence of poor mental health among working executives. Because of the various levels of stress and pressure, most of the employees are falling sick and in some cases of extreme pressure, some valuable lives are also being lost. Due to busy schedules round the clock and no time for personal care, the efficiency levels of the employees as well as the organizations in the current scenario are being at risk.

To avoid these scenarios and improve the efficiency in the Indian corporate, periodic health assessments for the employees are very much an essential thing. The people are aspiring for a change and looking for a better ‘work-life balance’. These facts suggested and affirmed our choice of target customers much more and in the next, we see more of the need for health assessment scenario for the corporate employees and also a study about the interest levels of the customers which we termed as a bigger question to ask before proceeding.

3. Bigger question: Need for Health Assessments in Corporate India? Are Indian Corporate People interested in Health/Lifestyle related Assessments?

Understanding employee’s health status, lifestyle, stress levels etc., would help an organization to predict the effectiveness of the employee and also act according to what the majority of the people seek rather than planning work without considering the health profile of the employee which is currently happening at the corporate workplace. This is specifically
happening in the current corporate companies in India where the mid and higher level management only speaks about work without much care for the employees which is leading to higher stress levels and other psychological disorders.

The question of whether people are interested has to be discussed too as no product or service would work without interest being shown by the target interest groups who would be availing it. From an entry level employee to the CEO of the organization the stress levels and the work pressures evidently stresses out the need to maintain a better lifestyle where 57% of the corporate employees are currently feeling stressed out at work. The following line is stated by a managing director of Milestone Capital India, stressing out the need for maintaining a healthier lifestyle.

For one, he switches off for 4-5 hours each day after getting home from work. After years of struggling with the stress of the top job, Ved Prakash Arya, managing director of Milestone Capital, found the mix he was looking for. He runs six kilometres each day, apart from playing squash four days a week, and also spends 10 days in Jindal Naturecare every year. "These activities are stress busters, an investment I make on myself. It's hard finding the right balance but then once you decide on a way of life, it's easier to maintain a healthy lifestyle," he says.

There are many people who believe the same but none really spends time and money, which helps them as an individual to work better and have a balance between work and life. So if there exist a system or a service, which does the preventive health measures and assess the future risks and thus by creating a health vision, would definitely bring about a change to current scenario of the corporate sector.

The whole step ‘A’ is carried out to see the potentiality of the market and also to assess and find out the target customer for the company which in this case is the employees from a corporate company. The next step gives a brief idea about various entry modes, and presents analysis on which is the best entry strategy to be taken forward.

B. New Market Entry Modes:
A mode of entry into an international market is the channel which the organization employs to gain entry to a potential new international market. The target customer segment is the employee from corporate/MNC IT Company in India, it is a greater advantage if we consider to either look to target them directly or through a joint venture with an already established contact with the MNC offering their services.

To analyze and understand whom to choose as a strategic partner, the following has to be considered.

a) The partner should already be associated with the MNC/Corporate Company in India already offering their services. This allows easy and faster access for HPI to enter into an agreement through this partner.
b) The partner should also be associated with a product within the same industry as HPI preferably within health-care.

c) The services of HPI should be an add-on to the current partner offered services

d) The partner looking for someone to be associated with for their own advantage as well as a mutual benefit.

When we analyze all the above four options, it becomes very clear what and who needs to be considered as a potential partner to be engaged in this relationship. The most suitable and closely related partner in this case should be insurance companies. It is mandatory for majority of the established IT employees in India to have a health insurance. This potentially suggests that Insurance companies would be one of the partners through which corporate employees could be served. While others being hospitals (diagnostic clinics) and gyms which could be potential partners as well looking at the way they are growing in India these days.

In this section various entry modes for HPI in India are discussed along with how each involved stakeholder in the partnership is going to be benefitted. The basis for choosing target as the employees of the corporate companies is that, these assessments are expensive and also for the one’s looking for a work-life balance through a healthier lifestyle. Only corporate companies can afford these in light of growing corporate stress in India and as the need exists within their workplaces which needs to be served.

Following are the entry modes for HPI in India which are discussed in detail.

**Targeting Corporate/MNC employees:** In this various factors will be outlined and discussed to see is there a necessity for a health assessment in the corporate sector in more detail and also to see why only the corporate companies have to be targeted. As already mentioned they could be targeted in 3 different ways, one targeting them directly as a separate entity providing assessments services for the company, second is targeting them through a joint venture with an Insurance company and third is to target through hospitals & gyms. Let us now see each one of them in detail.

1. Corporate/MNC’s directly:

**Higher level of Stress at workplace:**

Has the Indian workplace turned into a stress-filled minefield? The booming Indian economy seems to have added to the stress levels of those making the boom possible. ‘Almost six in every ten corporate employees in India say they have experienced stress at workplace’. A recent survey released by the US-based Regus Group, a corporate consultancy, found that 57 per cent of Indians thought that their stress levels had become "higher" or "much higher" since 2007. What lies behind the stress that seems so typical of today’s corporate sector?

Psychologists insist that if a scheduled and balanced life is maintained, then
professionals will be more stress-free and find work more exciting. Dr Bharati Bose, Consultant Psychologist with Calcutta Medical College says, "In India most companies grade the attendance of their employees based on the number of hours they work in office, and not the number of calendar days. Getting scheduled leaves sanctioned is a big issue. Thus many tend to work extra hours and balance the office attendance structure to earn the leaves. This attitude leads to serious health hazards, too." The risk of heart attacks and high cholesterol levels are high among young professionals working in IT companies, BPOs and other Multi-national corporate companies where work hours are very demanding. The alarms on health hazards led the health ministry in India to finally think of drafting an exclusive health policy for the BPO sector.

These are some of the scenarios which suggest that there is a lot of stress and work pressure on the employees of the current corporate India. The opportunity is very much visible and this is the time to act upon in it. As the opportunity exist let us see why we have to target the corporate companies’ employees only as our target customers.

**Why only Corporate Companies?**

Due to busy schedules round the clock and no time for personal care, the efficiency levels of the employees as well as the organizations in the current scenario are being at risk. To avoid these scenarios and improve the efficiency in the Indian corporate, periodic health assessments for the employees are very much an essential thing. The people are aspiring for a change and looking for a better ‘work-life balance'. If these assessment procedures are implemented in India, it is going to be a major advantage in bringing back the situation of the ongoing corporate stress to normal by suggesting healthy lifestyles and showing more care on the employee’s health. It is very much evident that such assessments are required only in the corporate sector right now and not very much needed for other working class public where affordability poses here as a potential hindrance.

Following are the summarized reasons “Why” HPI should invade Indian corporate companies directly. For companies looking to pay extra costs for health assessments without the intervention of the other partners like Insurance companies, diagnostic centres etc., to perform the assessments this would be an option.

- **Huge number of small and mid-sized IT companies could be easily targeted as currently there is no health assessment trend in Indian corporate.**
- **Using the already existing gym equipment in the IT companies for performing tests without any extra expense on the infrastructure (in case of Human Resource policies of the corporate company allow the assessment company to use the existing equipment).**
- **This plan will help corporate industries to reduce the absentees. So the corporate**
industries in the long run will be benefited.

- Less competition and huge market potential for health assessment companies.
- Employee satisfaction/retention could be achieved as corporate companies are directly involved here without the intervention of a partner carrying out assessment services for them.
- There is a benefit of customization of HPI in an organisation according to their personal choice and interest.
- Would also be easy for HPI as no partners would be involved in this entry mode.

Considering the above advantages of this entry both the corporate companies and HPI would get benefited in their own ways, where there will not be an external intervention for HPI and they could also provide tailor made services for the corporate industry.

2. Joint ventures with Insurance companies:

Let us now see the second entry mode which is through a joint venture with an Insurance company. In a recent survey conducted to see the satisfaction level of the employees in Accenture in several locations all over the world along with India, most of the people participated in the survey opined that the services offered should improve. Insurance companies therefore need to look out for additional services to satisfy the existing customer group and also to stay competitive in the booming Indian health insurance market. The following statement explicitly explains the same.

Edwin Vander uderaa, global managing director of Accenture’s Analytics group for financial services, said: "This gap suggests that consumers have low expectations rather than that they are delighted with the experience they receive. But this means there is an opportunity for insurers to differentiate themselves and gain market share by leveraging analytics to assess which products and services are working best and which need to be changed to deliver a better customer experience."

The need arises from the key point that currently no insurance company is bothered to look out for the well-being of the individual having more concern of their customer’s through additional health services. Health insurance is established in many countries, however, still remains largely untapped in India. Less than 15 percent of India’s 1.1 billion people are covered through health insurance. It mostly covers government employees; share of public financing in total health care is just about 1 percent of GDP. Over 80 percent of health financing is private financing, much of which is out-of-pocket payments and not by any pre-payment schemes.

The future looks interesting for the insurance industry with several changes in regulatory framework which will lead to further change in the way the industry conducts its business and engages with its customers. India’s insurable population is anticipated to touch 0.75 Billion people in 2020, with life expectancy reaching 74 years. Furthermore, life insurance
is projected to comprise 35 per cent of total savings by the end of this decade, as against 26 per cent in 2009-10. Demographic factors such as growing middle class, young insurable population and growing awareness of the need for protection and retirement planning will support the growth of Indian life insurance (IRDA Journal, 2015).

As HPI devised these techniques and has a core competence in the field of health and lifestyle related services in particular would act as an enabler for the insurance companies in India to differentiate themselves among competitors. Even the health insurance market has grown significantly in India in the last 10 years and the future for the insurance services is also looking very bright. These kind of add-on services like health and lifestyle assessments would boost the growth potential of insurance market in India.

**Why through Insurance companies??**

Following are the summarized reasons why HPI should invade Indian market through a joint venture with insurance companies.

- With this entry mode HPI would be able to target large pool of customers as majority of the employees are insured by the insurance companies.
- This would even be an advantage for the insurance companies to save huge claims, through preventive measures offered by HPI services.
- This will also help corporate companies to reduce the number of sick leaves as HPI services would improve their health and lifestyle through their engagement.
- Insurance companies in India currently do not offer any add-on services such as this.
- Increases the employee satisfaction on insurance provider services, which is currently a worrying factor for them.

**3. Hospitals and Gyms**

India is growing extremely in the sector of health awareness. People of India seem to get more aware about the general health issues. They are becoming much conscious about their health. To maintain the health people started regular routines with gyms. This regular and awareness in the society has led to the opening of new gym centres all across Indian. From swanky gymnasiums with imported equipment to gyms that run on shoestring budgets, the city offers several choices for the health- and fitness-conscious.

*The notion that gymnasiums were only for bodybuilders has undergone a tremendous change in the last few years as awareness about fitness has seen a steady rise, especially among women, say representatives of city fitness centres. Shopping for fitness equipment is also a trend, as several people prefer home gyms (Fitness Awareness Building up, The Hindu, Dec, 2007).*

*With a growing number of Indians willing to pay big bucks to feel good, the fitness and wellness industry is blossoming, and will grow immensely by 2015(The 'Fit' in Profit, Business Today, Jan 2014). The first thing every person goes to gym want to know is what kind of*
exercise he/she has to do to get fit. For these kinds of analysis, full body analysis has to be done and body weight ratio and body composition is taken. There is heavy expense to get through the normal assessment of the individual in gym and even gym uses sophisticated tools and instruments to measure the same. To measure the normal body condition and to suggest an individual about the type of exercise it takes lots of expertise and it's not easy even for the trainers. So there is lack of simple instruments and simple way to analyse the body composition. Every individual needs motivation as well as trainer should be able to resolve his or her problems. While wellness concepts in India are dominated by mainstream and generic benefits today emerging niche categories are likely to result in new opportunities for players. In order to attract new customers and retain interest levels, organized fitness service providers are looking beyond plain-vanilla services and adding new service offerings like free health assessment, Pilates, spinning, zumba and power yoga to boost revenues.

Product innovation has become a key differentiator with manufacturers launching fitness equipment with entertainment options, low energy consumption (green machines), etc. (PwC research and analysis 2012). The healthcare service scenario in India is expected to evolve into a more developed stage. More emphasis has been given on patient satisfaction, as this is an important consideration for the assessment of the hospital services. The concept of patient satisfaction is also rapidly changing and the hospitals are using variety of techniques to improve patient care and organizational efficiency. Patient satisfaction questionnaire is a validated instrument to assess the level of the satisfaction of adult patients. The questionnaire was administered on those patients who were admitted in hospital for at least three days. In our study 88% patients were satisfied with treatment and medical care they had received. About 86% patients found that the hospital services were excellent. However, it is felt that patient values and culture should be explored for further improving patient doctor communication. There is hence a scope for improvement in meeting patient's needs and preferences and rendering hospital services. This can be achieved by some feedback system, which could be available to the patients and later worked upon by the management, to improve the patient care by bridging the gap between senior management and patients.

After analysing different target customers and entry modes, presented the same to the case company and they have agreed on our reasoning in choosing corporate employees as target. In the current scenario of growing corporate workforce especially in IT companies as well as the high levels of stress at workplace serves as a reason for the product positioning (uniquely distinguishes) and product strategy (targeting right customers). To target these customer groups, the company needs to identify the corporate/MNC’s in India for the direct entry mode of operation or an interested Insurance company as a strategic business partner for an entry through them.

Note: The next steps in this first part of this business strategy is to identify the interested
corporate companies, insurance companies, hospitals and gyms as business partners for going forward with the strategy initiated with an initial research/analysis on the market. This we are currently doing with the company in their Stockholm office and as this part has got nothing to do with the Frugal Innovation, we would not update the progress on this part from here on. As this is an action research we have been mentioning every step in detail tough they are not so relevant to the context we are working with.

4.2.2 New Product Development – Using Frugal Innovation

The market research in choosing the target customer and the entry modes are discussed as part of first step and in this we discuss more about the new product development (NPD) for the new market and see how the company uses FI principles in their NPD process.

To understand the whole method and to suggest changes it is required to experience the assessment procedure in the first place. As the first frugal principle ‘Engage & Iterate (E&I)’ suggests that, E&I starts with customers observing their behaviour in their natural environment, and then considers how products can be made as relevant as possible, going back and forth between the customer and the lab to refine designs (Radjou et al, 2014). Also instead of pushing the unnecessary technological advancements (technology push) into the product/service, it should be understood what the majority of the consumers in the markets seek (market pull).

As we are from the same geographic location (India) and having previously worked in the IT industry, treated ourselves as the first customers to be involved in this process of engaging & iterating. We went as participants of HPI at Halmstad office, which is in the same city where our university is located. The first experience we had during the assessment is recorded and notes is taken. We ourselves described the first experiences that we had regarding the assessment in the following table with assessment steps and initial observations which helped us understand the service in detail and further give suggestions.

Table 4: HPA Observations, Participant: Praveen Adari

<table>
<thead>
<tr>
<th>Step No.</th>
<th>Assessment steps</th>
<th>Time taken (in minutes)</th>
<th>Initial Observations (Praveen Adari)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Questionnaire</td>
<td>5-7</td>
<td>Question grouping needs to be modified from the existing</td>
</tr>
<tr>
<td>2</td>
<td>Physiological Assessment</td>
<td>15-17</td>
<td>As the procedure involves much effort and strenuous alternative methods needs to be identified as well</td>
</tr>
<tr>
<td>3</td>
<td>Medical Assessment</td>
<td>7-9</td>
<td>More tests needs to be added</td>
</tr>
<tr>
<td>4</td>
<td>Motivational Interviewing</td>
<td>20-25</td>
<td>Discussion is a bit lengthy process and takes time</td>
</tr>
<tr>
<td>5</td>
<td>Group Report</td>
<td>8-10</td>
<td>No experience</td>
</tr>
<tr>
<td>6</td>
<td>Health Vision</td>
<td>5-7</td>
<td>Just okay</td>
</tr>
<tr>
<td>7</td>
<td>Follow-up HPA</td>
<td>-</td>
<td>Might be useful</td>
</tr>
</tbody>
</table>
Table 5: HPA Observations, Participant: Murali Ganesh

<table>
<thead>
<tr>
<th>Step No.</th>
<th>Assessment steps</th>
<th>Time taken (in minutes)</th>
<th>Initial Observations (Murali Ganesh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Questionnaire</td>
<td>5-7</td>
<td>Took time to understand a few questions</td>
</tr>
<tr>
<td>2</td>
<td>Physiological Assessment</td>
<td>15-17</td>
<td>Cycling is stressful but good</td>
</tr>
<tr>
<td>3</td>
<td>Medical Assessment</td>
<td>7-9</td>
<td>Felt they are quick and something missing</td>
</tr>
<tr>
<td>4</td>
<td>Motivational Interviewing</td>
<td>20-25</td>
<td>Detailed but time consuming</td>
</tr>
<tr>
<td>5</td>
<td>Group Report</td>
<td>8-10</td>
<td>No experience</td>
</tr>
<tr>
<td>6</td>
<td>Health Vision</td>
<td>5-7</td>
<td>Didn’t find it useful</td>
</tr>
<tr>
<td>7</td>
<td>Follow-up HPA</td>
<td>-</td>
<td>Felt it will be good for future</td>
</tr>
</tbody>
</table>

4.2.2.1 Using Frugal Innovation Principles:
Summary of Observations: (E&I)

After exchanging the thoughts between ourselves, the same feeling we both had is the time it takes for the entire procedure. It is a bit lengthy process and felt the need to be quicker and shorter (time-constraints). The procedures in the assessment are relevant but felt something is missing which is like less value for the amount of time spent. In terms of the cost for the assessment which costs around $100, we felt like a lot expensive for the service which is being offered (affordability concerns).

By E&I, which suggests as customers seek cheaper, good-enough solutions it is rather important to involve them right from the start. We see initially how we can improve the product as well as provide more value for the cost as low as 50% less from the existing and even less going forward, which I suppose an ambitious goal but much work needs to be done.

“Involve customers from the outset- right from the start”, “deploy crowdsourcing and social media” are some of the guidelines for E&I with the customer groups which enables the product developer to identify and understand their problems. As part of this we identified a sample group of participants from a reputed IT company in Chennai, India and sent them the questionnaire and also mentioned about the procedures involved in the health assessment service. Requested for a feedback from them on what they feel about the current set of questions, method and to suggest if anything important is missing. We will discuss it step by step what kind of suggestions we have got from the participants. We have had included our suggestions as well, as they do not have much information about the service in detail to give an opinion on. We refer to these participants as Participant 1, Participant 2, and Participant 3 and the following lists out how we have gone back and forth engaging them in this whole process for developing a new service targeted at those customers. Using E&I principle we go through each step and record the suggestions from the participants.
Once we got feedback we spoke to the method creator Dr. Gunnar Andersson for suggestions and listed our views on the questionnaire for improvements which should be more relevant to the local context. As we know that Indian people are not so open about answering questions about their sex life, mental health condition and alcohol habits (for women) etc., questions need to be asked in an alternative manner or not asked at all. On doing more research on the questionnaire with Gunnar, we identified the questions which we felt relevant and which are not. Also as suggested we included questions on workplace environment as well.

After doing the suggested changes sent the questionnaire for the feedback again. They looked satisfied with the questions but mentioned they needed to be grouped much properly. Even I (Adari) had the same opinion initially. Later worked on the questionnaire with 20 questions in total 3 sections instead of having 5 sections. We categorized the questions into health perspective, lifestyle perspective and workplace perspective with 5-6 questions in each. Thus by eliminating the not so required questions for the local Indian context also making it much compact by having 3 perspectives so that participants will not have questions while answering the questions as some questions sound similar but when considered along with the proper perspective becomes more clear to understand. This improves the time for filling out the questionnaire also maintaining much clarity of the questions being answered without the need for a health coach in assisting participants who do not understand certain complicated questions.

Felt the need to identify any other alternatives for the people who are aged above 40. This assessment is one of the key procedures which assess health risk of an individual and needs to be a part of the method but for people aged above 40, sometimes it is not suggestible.
as they might not be regular with gym or exercise habits and 15 on a bicycle might be extra strenuous.

<table>
<thead>
<tr>
<th>Step No.</th>
<th>Assessment steps</th>
<th>Adari</th>
<th>Ganesh</th>
<th>Participant 1,2,3</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Medical Assessment</td>
<td>Felt diabetic test to be added for participants above 40</td>
<td>Eye and ear assessment would be required</td>
<td>Eye/Ear tests are essential</td>
</tr>
</tbody>
</table>

As suggested by the participants and also as we are targeting IT employees in India, it is rather essential to include the ear/eye assessment. For participants above 40 the blood glucose test is a good procedure to be added. But the challenge lies in identifying the cost effective solutions for conducting these tests.

<table>
<thead>
<tr>
<th>Step No.</th>
<th>Assessment steps</th>
<th>Adari</th>
<th>Ganesh</th>
<th>Participant 1,2,3</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Motivational Interviewing</td>
<td>Felt the need to either cut down the time or do it in a different way.</td>
<td>More time taking. Alternative is needed</td>
<td>-</td>
</tr>
</tbody>
</table>

This is a one to one discussion with the participant in which the health coach tries to understand the participant in depth which is more like understanding the inner side and how the person is feeling deep inside. This gives ample time and opportunity for the employee to express his desires and discuss health and lifestyle habits in detail.

What I (Adari) personally felt was that, it is more like a session with a psychologist or a therapeutic session which is essential for people with problems related to loneliness, drug usage and relationship issues. In India majority of the people live with the families and as compared to Europe, the drug usage among working class is quite less (personal experiences; I have been in the same environment for many years). Also to see if we have to keep the time of the assessment low, I consider though this is essential not so relevant for this market context. It is also essential to understand the importance of employee's time. Also for HPI to manage time and to perform more assessments this step is not much essential as there will be at least 500 – 1000 people working in a small IT company in India which is quite hard if more time is taken for this step. Much on this would be discussed in the later steps.

<table>
<thead>
<tr>
<th>Step No.</th>
<th>Assessment steps</th>
<th>Adari</th>
<th>Ganesh</th>
<th>Participant 1,2,3</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Health Vision</td>
<td>Useful but the form should be digital and simple or should suggest options.</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
This step is essential but should be done in a way which doesn’t take time and could be done anytime the employee feels like. Currently this is working the same way except that the participant has to type in as a notes or write on the form and submit it. Instead if there is something like a digital sheet with options on what level the participant would like to reach. It would be much more useful to track, what similar interests the organization has in terms of future health.

<table>
<thead>
<tr>
<th>Step No.</th>
<th>Assessment steps</th>
<th>Adari</th>
<th>Ganesh</th>
<th>Participant 1,2,3</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Follow-up HPA</td>
<td>Felt the need to be done at least once a year.</td>
<td>Need at least once a year.</td>
<td>Needed a follow-up periodically.</td>
</tr>
</tbody>
</table>

Currently it is done either for 3-6 months duration to see how the organization is performing from the previous assessment. But as we have to consider the cost associated as well as the number of participants, it is suggestible to conduct this once a year.

In summary of the use of this principle E&I, we were able to understand what consumers needs by engaging and iterating with them in the new product development. Without this engage & iterate it would be difficult to understand and include what consumers need and re-design products with the much needed features which eventually helps us in developing frugal products. Thus this helps us in understanding their needs and go back and forth with the product development process. Rather than using insular research and development (R&D) departments that rely on educated guesses about customer needs, E&I starts with customers, observing their behaviour in their natural environment, and then considers how products can be made as relevant as possible (Radjou et al, 2014).

**Principle 2: Flex your assets**

This principle talks more about the value chain advantages and new tools, approaches, delivery streams. In the current case study we had a service currently in place and have to identify new approaches which makes the entire service cost effective and at the same time delivering good value to the customers.

This started with identifying new tools which are cost effective as well as easy to use which costs less both for the company as well as the consumer. In the previous step we have identified 2 additional procedures in Step 3: Medical Assessment which are eye and ear tests. This not only takes additional time but also requires additional investments from the company to purchase the products for conducting those tests on the participants. To solve this problem of investing more and also the additional time it takes, we decided to look for alternatives. Following are the series of events in this search with observations and study made.
Product Development Process week 1: Praveen Adari & Murali Ganesh – April 11 2015

Purpose: To identify innovative and cost effective medical devices either available in the market or currently being designed for performing basic health checks and assessments.

Current Status: Currently working with the objective of finding cost effective and innovative health check machines other than what our case company is working with. As we are targeting a new market our strategy is to experiment and use approved new medical devices in the target country to see how effectively the current assessment process could be improved. The main target however is to find the best alternative versions for the conventional devices and being innovative in the approach at the same time.

Problems faced and Future plans: The only problem we are facing right now is about, not getting regular updates from the case company. I suppose it is better to do a consultation with them about what other things we could include in assessments and then try finding suitable medical devices. In spite of that in the coming weeks we are planning to talk to medical device companies in India and get some information regarding the same.

Product Development Process week 2: Praveen Adari & Murali Ganesh – April 19 2015

Purpose: To identify innovative and cost effective medical devices - either available in the market or currently being designed - for performing basic health checks and assessments.

Current Status: As we target Indian market and more specifically corporate companies, we propose to introduce Eye test and Hearing Test in the health assessment which is currently being done by the case company. As we are looking for low cost and innovative products to do these things, checked online for the products and decided to use ‘online’ as a medium to perform tests as these tests are only basic and doesn’t require any additional equipment for the assessments. We found a few online tests for the ‘Eye’ and the ‘Ear’ assessment which are referred below. These tools are easy to maintain and could be updated very easily as and when required.

Problems faced and Future plans: We do not know if we can rely on software for doing the health related assessments. We would like to further discuss about the scope of these tools with the case company and see if we can move forward with this idea which we propose. Our idea is not just to use the externally available software’s or methods but to create something similar and full and incorporate it in the mobile application itself which we are planning to develop, so that there will not be any hassle while doing the assessment and it will also save a lot of time with the use of technology itself.
Purpose: To identify innovative and cost effective medical devices - either available in the market or currently being designed - for performing basic health checks and assessments.

Current Status: We have identified the most effective health assessment procedures which we propose to the case company to consider for more user value addition to their current set. The tests include the following,

A. Blood Glucose Test
B. Blood pressure Examination
C. Urine Analysis
D. Lung Age Test
E. Eye Test
F. Hearing Test

Here the choices of these procedures are based on two things, one, is the ease with which these assessments could be performed without the need of a medical practitioner to perform the tests. Second, is these are very basic but effective indicators which gives an understanding of the overall health aspect of an individual.

Coming to the selection of the devices used for performing these assessments, we considered the cost effectiveness for being frugal and at the same time use the advanced mobile and digital Technology to achieve the cost effectiveness factor by also achieving the ease with these devices could be operated and understood.

Problems faced and Future plans: The devices found were still new and some of them are not yet available for commercial use. To get a holistic picture of how effectively they fit to the current assessment context has to be identified and for the same reason we setup a meeting with a person having knowledge of these procedures and medical devices. The cost analysis to identify the approximate savings that we could achieve using these frugal products will be performed in the following week. Following list gives the assessment and its related standard and identified device comparison.
### Table 6: Standard vs Identified Frugal device

<table>
<thead>
<tr>
<th>Standard Device</th>
<th>Identified Frugal Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood test (glucose and Cholesterol)</td>
<td>These test done in lab cost is &gt; Easy touch -350 SEK</td>
</tr>
<tr>
<td>Blood Pressure</td>
<td>Prestige Medical Basic Aneroid Sphygmomanometer with Sprague Lite Kit-370 SEK</td>
</tr>
<tr>
<td>Lung test</td>
<td>Cosmed pulmonary equipment which size is bigger and higher cost</td>
</tr>
<tr>
<td>Urine test</td>
<td>Earlier stages done in lab, cost is &gt; Craig medical- URS – SEK 180 approx. (100 strips)</td>
</tr>
<tr>
<td>Basic Eye and Hear Test</td>
<td>The stranded eye test requires ophthalmologist and standard equipment.</td>
</tr>
</tbody>
</table>

### Table 7: Identified New Medical Procedures

<table>
<thead>
<tr>
<th>Blood test</th>
<th>Product is simple and easier device which gives basic result.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Glucose test</td>
<td>1.Easy touch- 350 SEK</td>
</tr>
<tr>
<td>2. Cholesterol test</td>
<td>2.Life max – NA</td>
</tr>
<tr>
<td>3. BPL lifephone plus -1500 SEK</td>
<td>4.Accu Check -120 SEK</td>
</tr>
<tr>
<td>Blood Pressure</td>
<td>Time 3 min</td>
</tr>
<tr>
<td>1. Heart rate</td>
<td></td>
</tr>
<tr>
<td>2. ECG</td>
<td></td>
</tr>
<tr>
<td>3. Pulse Oximetry</td>
<td></td>
</tr>
<tr>
<td>Product</td>
<td>1.Scanadu scout -1800 SEK</td>
</tr>
<tr>
<td></td>
<td>2.BPL lifephone plus -1500 SEK</td>
</tr>
<tr>
<td></td>
<td>3.Omron -120 SEK</td>
</tr>
<tr>
<td>Ear and Eye Test</td>
<td>Basic test done through online Existing online test website</td>
</tr>
<tr>
<td></td>
<td>1.zeiss-</td>
</tr>
<tr>
<td></td>
<td>2.Beltonearing test- NA</td>
</tr>
<tr>
<td></td>
<td>3.Blink -which is another simple eye test</td>
</tr>
<tr>
<td>Lung Age Test</td>
<td>Product</td>
</tr>
<tr>
<td></td>
<td>1.PTgear Lung Function test kit –approx. 200 SEK</td>
</tr>
<tr>
<td></td>
<td>2.MicroGP and MicroDL spirometer</td>
</tr>
<tr>
<td></td>
<td>Time 5 min</td>
</tr>
</tbody>
</table>
Figure 5: Miniature ECG machine

Figure 6: Blood Cholesterol Monitor

Figure 7: Peak Flow Meter - Lung Age Test
Figure 8: Lung Age Test device

Figure 9: Multi-Purpose physiological Test device

Figure 10: Urine Test with Strips
Figure 11: Blood Pressure Monitor

Figure 12: Online Vision Screening

Figure 13: Hearing Test Online

Speech-in-Noise Test

Welcome
Welcome to the short, 5 step Speech-in-noise Test!
The test will help you determine if you will benefit from hearing hearing devices.

Test how clearly you can hear in different levels of background noise. Make sure your headphones are closed tightly around your ears.

Click Next to go to step 2
As part of the research conducted within a month we have identified the required medical devices which could be used as alternatives to the existing conventional devices thereby providing the same value at very much the lesser costs. This search is mainly intended to identify devices for Eye/Ear assessments and we found that this could be done using online as a medium and as this assessment service is only a basic level service in India, we would like to proceed with resources we have identified. If this is a case where more detail level analysis on eye/ear has to be done, certainly the standard devices are a priority. This case is different and so we proposed the list of alternatives we have identified to carry out the tests to HPI. The costs are extremely low and due to time constraints we did not go till the cost comparisons. In this case we only use a mobile/web application for performing these tests, which would cost only a fraction and doesn't need a medical expert to perform the tests.

Now coming to delivery with the concept of sharing resources (like sharing mobile networks between carriers in India), we decided to use the equipment in the gyms available at the corporate workplace to carry out these assessments. This aspect is helping lower the cost of operations as well as other logistic advantages (no need to carry machinery to different places) once an agreement is made with the corporate company. This also helps the company during its entry as it doesn’t have to purchase the cycle ergometer/thread mills for conducting sub-maximal tests as well.

In summary, this principle helps us in achieving the lost costs for the current assessment procedure. In order to achieve this we followed this principle carefully looking at the alternative approaches for carrying out these assessments. Through this we could not only be able to lower costs of the entire assessment but also were able to add more value by bringing in additional procedures like eye/ear assessments through the use of unconventional medical procedures through the use of advanced medical technology. Also through identifying shared resources like using the existing gym equipment we are able to considerably reduce
the cost of operations which ultimately helps in reducing the assessment costs. Without this principle it would have been difficult for us to provide tailored services at affordable costs.

Principle 3: create sustainable solutions

Creating sustainable solutions is the key where resources are scare in emerging markets. This idea led us to identify what all areas we could use this principle and make the service more sustainable.

First impressions of the assessment procedure left us an impression to utilise less of a standard computer as it involve a participant (answering questionnaire) and a health coach (recording the assessment values) to make use of it during the assessment. To save costs of buying new computers and printers for performing and distributing results, a new sustainable alternative is essential. We therefore, proposed to develop an application for HPI which involves the aspects of answering the questionnaire/viewing results for participants and for recording values/generating results for the company. This could be done through a mobile based application which does all the required tasks for both the parties at their convenience. This reduces the need of heavy computers and they could be replaced by tablets which are more strong, eco-friendly and powerful. The mobile application is just not for operational purposes but could also be utilised for continuing the relationship with the company by sending updates directly to the application installed on the phone. This interaction is much more powerful, which gives more value to the participant and also lets HPI continue the relationship with regards to health and lifestyle with the participant. The following analysis on the mobile application is explained in detail which explains the need of mobile based application for this purpose.

Mobile Application Development for HPI:
Overview of latest advances in Mobile Apps in Healthcare:

Mobile applications let customers find and access information from devices they use the most. Mobile applications or simply "apps" are everywhere and for everything we do in our daily life. Right from the start of the day till the night, they maintain a kind of relationship with the user over time. Mobile devices are outselling personal computers, and an increasing percentage of internet access is made through mobile devices. These developments have driven the rapidly growing usage of apps. It has therefore become increasingly important for companies to invest in and develop mobile applications which have more advantages than the stand-alone software’s or web-sites. Mobile applications have the potential to revolutionize preventative care.

Based in California, an application known as Lift is working to make an impact now. The motto on the Lift home page says it all: “Unlock your potential. Change your life”. Working with researchers at UC Berkeley, Lift’s designers are now studying the effectiveness of
individual diet plans on overall health and wellness. Many more applications are being built on Health and lifestyle in the recent times and some of the results have been exceptional.

Software and Mobile giants like Apple Inc., and Microsoft have ventured into this health and lifestyle industry through mobile applications. When examined at the available applications found at the Apple App Store, Android Play store and Windows Marketplace Store, it is evident that medical mobile applications continue to be developed at a remarkable pace. Following figure 2: Apple iOS HealthKit Mobile App is launched recently in 2014 with the new iOS 8 software upgrade which it boasts as a major selling point now for the phone. This clearly points out the importance of Mobile Apps in everyday lifestyle we are in. Same is the case with Microsoft Health App which very much concentrates on lifestyle tracking and health habits.

The Mobile App is a very strong software tool which penetrates very rapidly to the public and has the same features and additional functionality to make life simple and easier whoever is using it. The very subject of developing a mobile application for HPI comes with the current trend of mobile app usage.

Also the mobile application is efficient and do not need software to be installed separately in any PC’s and laptop to carry out the assessments by the HPI assessors and also the results of the assessments to be shared seamlessly without the burden of paper and printing costs. As we continue to work on to engage our clients and motivate them to take
individual responsibility of their own health, we must take the advantage of mobile applications. As we know that simple applications may result in significant changes and bring about a positive change in an individual. The overall structure of the mobile application for HPI, its main functions and how it is going to be an added advantage will be discussed in the next section.

**Structure of Mobile Application:**

In this the basic structure of the mobile application is given an introduction and the benefits of the mobile application are discussed in detail. The prototype of the application is already developed for the presentation and will be sharing the details of the links very soon.

The mobile application will be having two major functionalities as follows.

- For the participant to answer the Questionnaire and check the results and history records of the previous assessments on the go.
- And for the HPI assessors to perform the other part of the assessment (Physical and Cardiac measurements) using the mobile application itself which is very flexible and easy to use.

Mobile application has got many other advantages like instant updates, mobile alerts, daily health and lifestyle changing tips, news and information on HPI and other assessment related notification etc. The mobile application can be a very good package which binds the user and HPI can utilise this as a simple yet robust idea to market the product and bring in more public as the application based service derives a lot of attention.

The idea of using technology came in as part of frugal innovative approach to see how the technology could bring down the cost of operation for HPI. The current way of operations involves a lot of expenditure on IT and hardware as well. The expensive part is buying new PC’s, printers and a lot of office tools as part of day to day proceedings. The use of mobile application could bring down some of these extra costs doing pretty much the same work. Instead of using PC’s the same mobile as application could be installed on a much cheaper and faster Tablet computer (simply a Tab). For doing the assessment there is no need of any extra Personal computer and also as the size is almost 10 inch it will be good to view the data as well on a tablet. The printing costs of giving a report could be easily done by sending mails or alerts using the application directly. Apart from the key functionalities additional functionality is also helpful for the individuals as they receive health and lifestyle related information and tips regularly. Also a benefit for HPI to penetrate much faster where this mobile application looks much more advantageous in all other ways. The other advantages of the mobile app are as follows.
Replace use of website/software for Assessments

- Replace use of website/software for Assessments
- Book/cancel/modify the appointments
- Mobile alerts on assessments and results
- History of previous assessments
- Health Tips/Newsletters

To conclude, the concept of developing a mobile application will not only be useful in India but this can be translated to any part of the world where HPI is operating. This app based approach will bring in a lot of exposure of HPI to the public and also brings in a unique way of bonding the customer and the company. More details on how this is going to work and what all features would the application have, will be discussed once the complete research is made on this topic in the coming future.

In summary, this principle helped us understand the need to implement sustainable practices which helps in reducing waste as well as un-necessary costs. Also through the use of current mobile applications we could not only reduce paper use but also could engage more with the consumers through regular health updates. This principle helped us again in reducing the overall costs for the company and allowing them to be more responsible to the environment.

**Principle 4: Shape customer behaviour**

Customer behaviour is an essential factor here for HPI. How do we shape their behaviour? During my talks with the healthcare adviser and the HPA method developer Gunnar Andersson, here in the company in Stockholm, I got to understand from him that customers should not be compelled about change but it should be within their own self to change which is why a Health vision form is developed by the company and is operational from June 2015. The health vision helps an individual to identify what goals he has for the future and what he is going to do for achieving his goals. This is one of the way the company is shaping individual behaviour by just setting up a platform and all other work is actually being done by the participant himself. The other thing we thought of during this process is to shape customers behaviour through updating him daily/weekly about basic health related updates through the mobile application. This enhances his knowledge on health and lifestyle as well as it slowly shapes him up to follow a good and a balanced lifestyle. Using the mobile application by sending results, health tips etc, we are expecting a change in behaviour of the customer. This is still not tested, how it is going to shape his behaviour but in the coming days we would be updating some more information on this approach.

In summary, this principle helped us in understanding the need to shape customer behaviour as well as to direct him towards his heath goals through constant engagement with
him. This could however be done through the mobile platform that we talked about earlier. Also the company is using something called as a detailed health vision which enables a participant in shaping his own behaviour in terms of health and thus enabling him/her to lead a better life in the future. Without this principle we wouldn’t have worked on to work with the consumer in shaping their behaviour as most of the emphasis would have been made in improving the quality of the service. Thus this principle helped us in understanding the consumer more and also helped us in identifying his needs and also gives the company a chance to engage more with the consumer.

Principle 5: Co-creating with prosumers

As researchers on Frugal Innovation and also the participants right from the start for this new product development process for the emerging markets. We consider ourselves as the prosumers involved with the company in co-creating solutions for the emerging market customers. Many of the details have already been specified in the first principle, we are not going to discuss much on this principle here in this section. **Allowing the consumers to be producers in the product design and development;** as this principle states, which let us identify procedures like including eye and ear assessments in the current method. I (Adari) previously having been worked as a software professional, could clearly see what is lacking in the current HPI service and suggested to include eye test. The reason for this suggestion is, as a software developer we work on the system for more than 8 hours/ day which is why it I thought it is quite an essential thing to get eyes checked periodically to see how the eye sight is remained. This lets us keep track of one’s eyesight from year to year and also could prevent further damage to eyes in the future. Coming to the experience of Ganesh, working heavily in the telecom sector, the task of talking continually on the phone for hours and hours during critical escalations, the damage to the ears is obvious. But we never think of these things as they affects are not immediate but could affect an individual in the future. Because of these reasons, as prosumers involved in this research, we suggested HPI to mandatorily include these tests under the medical assessment step of the procedure.

In summary, this principle helped us in identifying the needs of the consumers by actively engaging the prosumers in this new product development approach, without which I would have been difficult for us to understand the exact needs of the consumers.

Principle 6: make innovative friends

This principle is more about collaborating with partners to develop frugal products/services than by working alone. In case of HPI, during the business strategy and entry modes we decided to partner up along with MNC/corporate companies as well as Insurance companies. As the market which is being operated is an emerging market the
spending capabilities are quite low and to make this service available to them at a decent price point with more value offering as compared to the developed markets, it is essential to collaborate with partners. This allows both the involved parties share information, services and infrastructure among themselves. In this case HPI offers services to the MNC/Corporate companies and with their collaboration they would make use of the onsite equipment for performing assessments at a lower cost as they do not have to buy additional equipment. Coming to the insurance partners, it gives an edge for the insurance partners within their competitors having HPI’s services as a differentiating factor for them. Also HPI offerings helps them in saving huge claims to Insurance companies through monitoring of individual’s health as well as preventive healthcare by assessing the risks beforehand.

The advantages for all the existing stakeholders for HPI entry to India are discussed here. The benefits are at all levels and following lists the advantages each stakeholder is going to have in this partnership.

**For MNC/Corporate companies:**
- Employee satisfaction/retention is maintained
- Organisation responsibility
- Creates loyal Employ base
- Reduces absentees
- Increase in the overall organisational efficiency
- Reduces stress levels through suggestions from Doctors
- Healthy/Happy employee

**For Insurance companies:**
- Differentiate among competitors
- Enhance its current services using HPI
- Stronger relationships with organisations
- Avoiding claims by alerting employees of future risks
- Attract more customers for Insurance services in the long run.

**For HPI in India:**
- Business Expansion to an emerging market
- Lack of proper Health assessment services in India
- Trying out new way in service offering
- Cost of operations will be lower
- Acts as a testing ground
- No major competitors in the current market
New modified HPA method for the Indian Market:

In this section the suggested steps for HPI operations in India are outlined as follows. According to Indian standards and the keeping in view of the needs to the Indian market this section explores the steps and also the deviations from the existing HPI method in the comparisons section.

Steps involved in the process are as follows:

- Step 1: Questionnaire about lifestyle
- Step 2: Physiological Assessment
- Step 3: Medical Assessment including Eye & Ear Screening
- Step 4: Group talk by doctor – Employee and organizational health report along with future health vision
- Step 5: Detailed Health Profile report handed over/emailed to employee

In order to compare and contrast the existing model Individual timelines are also predicted to see the deviation in the time taken for operation in India and other countries. This will be in line with the frugal thinking which reduces the time of assessment which ultimately reduces the costs of operation for HPI India. If this method works well within India then the same practices could be deployed in other HPI operating countries. This way entering to India would help HPI in other countries too and also to explore other developing nations in the future.

Now let us see the importance of each step in detail.

**Step 1: Questionnaire (5-6 minutes)**

The questionnaire covers different aspects like health habits, exercise patterns, tobacco and alcohol consumption, sleep time, free time, diet, stress and other lifestyle related questions which typically does not require any physical tests. During this step no individual discussion with any authorized personnel will be done. This actually will cut down huge costs as Indian people do not require individual attention as the psychological and other drug related problems rarely exist in India. Also the service offered is not a premium service in India like in other countries which is giving an additional service to the employee from the Insurance Company. The main motto is to find out how the employee is currently leading his life in a stressful workplace.

**Step 2: Physiological Assessment includes Eye Screening and Ear Examination (10-12 minutes)**

All the existing physiological measurements are carried out using simple equipment for measuring height, weight, skeletal wrist measurements, fat free mass, blood pressure etc. As the target being the multi-national companies in India especially in IT and software related organisations, people will be working on computers for an average 8 hr. /day which will have adverse effects on the eye-sight. Therefore as part of other physical tests a simple eye test or
a retina test should be included as part of HPI model for India.

**Step 3: Cardiovascular Tests (10-12 minutes)**

To be performed using a cycle ergometer or a thread-mill which is safe and easy way to do. In this step the equipment cost can be reduced as in every organisation a gymnasium exist. In case if the HRM (human resource management) allows HPI to use their machinery it will be an added advantage for HPI. The HR policies for each organisation are different and it is only an assumption for now.

**Step 4: Group talk by doctor – Employee and organizational health report (15-20 minutes)**

Once the assessment is complete for a group of employees in an organisation a statistical report is generated and presented in a group talk by a doctor. The presentation includes overall health status of the organisation and also the suggestions for the group as a whole for improving their lifestyle. This gives a feeling for the employees that a doctor is actually involved in this process. As in India the concept of diagnostic centres will not clearly give an impression of health related care unless a doctor is directly involved. This will also show the organisation that HPI involves not only trained professionals but also doctors. The benefit of doctor giving the report in a group talk will have more of a positive effect then given over by the HPA's. As this group talk is held for a group of employees, it is an advantage over having individual talk as it saves lot of time for both the company and the participant. As this is a group task, the time taken is on a group level and done at once for all of them, so from the overall time for the entire assessment the time spent by the employees on a whole is negligible. This is the reason why we will not be including this time for the individual assessment time calculation.

**Step 5: Detailed Employee health report (1 minute)**

Once the diagnosis is complete a detailed health report is emailed out to the employees reducing the time for individual distribution and also a lot of paper and printing costs. Using Email or an App will allow extra security and the distribution can be done in a much efficient way. The concept of mobile application and its features will be discussed in the next section under technology changes.

**Traditional HPA vs. Indian HPA**

In this differentiation is made to understand what is going to be unique and different about the suggested steps of operations for HPA in India comparing it with the Traditional HPA model. The main motto being translating the Swedish way of healthcare and lifestyle methodology for a developing nation like India keeping in view of the Indian corporate
employee and also the Swedish way of taking care of employees. With the time-lines noted for each step now we compare how it differs with Traditional HPA model.

The estimated total time per assessment should be under 25-27 minutes approximately per person in contrast with the Traditional HPA where it takes around 55-60 minutes. This eventually brings down the cost of the assessment service therefore becoming affordable and accessible to the current market. This is currently a challenge as well as an opportunity to provide assessment services for more number of people in a preferably less time. Following figure represent the differences and the additions that are suggested for Indian HPA in blue and omissions in red.

Table 8: Traditional vs. Indian HPA

<table>
<thead>
<tr>
<th>Traditional HPA</th>
<th>Indian HPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Lifestyle Questionnaire</td>
<td>1) Lifestyle Questionnaire</td>
</tr>
<tr>
<td>2) Physiological Assessment</td>
<td>2) Physiological Assessment</td>
</tr>
<tr>
<td>3) Medical Assessment</td>
<td>3) Medical Assessment with Eye &amp; Ear tests</td>
</tr>
<tr>
<td>4) Result Presentation &amp; Discussion</td>
<td>4) No individual Presentation &amp; Discussion</td>
</tr>
<tr>
<td>5) Motivational Interviewing</td>
<td>5) No Motivational Interviewing</td>
</tr>
<tr>
<td>7) Follow-up HPA</td>
<td>7) No Follow-up HPA</td>
</tr>
</tbody>
</table>

As the assessment cost should be affordable and within reach these steps are suggested and using much more frugal innovation techniques the cost of operations would be reduced. More analysis needs to be done on the type of equipment to be used for conducting the tests as part of assessment.

In summary this principle helped us in collaborating with various external partners in developing this new product as well as to deliver the services in the new emerging market through various partners that we have identified in this study. This principle ths enabled us to think broadly and let us understand the importance of collaborations with various partners in achieving low costs for the products as well as for the company to deliver their services in the emerging markets as these small companies wouldn’t be able to be successful in doing that all alone on their own.
4.3 A Frugal Outcome:

When started off with this project we as a group of three all being from India tried to figure out frugal methods to improve the current situation and came up with many ideas which are more of a strategy based. Later the thought process went in terms of technology i.e., identifying new age health devices and mobile application development. Later when the idea of exploring a new destination for HPI we picked India a developing country with a lot of highly skilled and professional workforce and infrastructure. To see whether any demand exists in India for a product like HPI in India we closely observed the economic and health scenario and especially the lifestyle health and wellness industry in specific.

Finally found out from the initial research that the demand exists in Indian corporate or multi-national companies where employees feel a lot of stress. Also when it comes to the affordability factor only the middle and higher section income groups would be interested in products such as health and lifestyle assessments as they feel more cautious about health and lifestyle in particular. Later when the opportunity existed there should be a means to target and then the entry modes are discovered. Initially all three entry modes (corporate directly, corporate through Insurance companies, gyms and hospitals) are discussed in detail. Finally as the most relevant and possible approach of entering the corporate either directly or through Insurance companies is considered as most feasible and further developed into a complete idea combing both strategy and technology together in developing a new method for the Indian market customers using FI principles. Keeping this in mind the model and concept of HPI for India is developed in detail and the benefits out of the suggested model are discussed further. Linking the strategy with technology is made possible with the inclusion of designing a much faster, easier and robust mobile application which sums up the concept of being frugal as well as using the technology to our advantage.

Further listing out the FI principles we tried to see how those principles could be used in this Innovation strategy. All the 6 principles however helped us to build a complete package service with which HPI could start their operations in India. Thus to conclude the outcome of this research approach is a health and lifestyle related assessment service which is suitable for emerging nations which is built on the ground principles of Frugal Innovation which is affordable, simple, less time consuming while offering more value to the end-user. By bringing down the time of assessment from 60-75 minutes to 30-35 minutes, adding important aspects like assessing ear/eye which is essential for the target customer, also bringing down the seven step standard procedure to a 4 step simplified method. However, currently the cost comparisons are not yet made but as outlined in the previous sections, on how we are going to share resources, use sustainable methods and availability of skilled workforce at lesser costs in India, mobile application etc., the overall cost for the assessment would be very much less than what is currently in the Swedish market which could be considered as a frugal
outcome of this research through mass customizations as well as scale economies. Frugal innovation does not just reduce cost of new product design with price-performance as key design parameters for every module and reduced cost through process redesign, but also targets mass markets and uses scale economies to push back costs further (Sharma and Iyer 2012). Further in the next section on analysis and discussions, we try to identify how did this FI strategy went on, taking the key activities we try to define our own theoretical model.
5. Analysis

In this section, using the outcome of the case and based on the experiences from the research, a theoretical framework is going to be defined also giving viewpoints about each component of the model in detail and also the pointers identified during this Frugal Innovation strategy.

The main focus of this research is to understand the process of how smaller firms in the west use FI in entering the emerging markets and develop their products for its customers. In this section using the empirical evidences and also the experiences from the action research a new theoretical model is going to be proposed. The inputs for this analysis are from the research case study and as we concentrated only on a single firm which is in healthcare industry, we would like to stress out the scope of our model lies within these contextual parameters.

"Many companies don’t pay enough attention to the local customer needs in their sales markets, and their products are too expensive for their potential customers," criticizes Sebastian Durst, Principal at Roland Berger. Tailored, affordable solutions are needed.

Also while starting with this whole research process in looking at how smaller firms adopt FI, it was evident of the need for having the required knowledge of the local market and mind-set to think frugally, to start off with doing some initial analysis on the target market needs. When asked about the FI and how it is going to be an advantage for the company, which we are currently working with, Peter explained as follows,

I (HPI) have a lack of knowledge on the Indian market, but it's sounds very inspiring. It could be something successful idea and we are also thinking same way.

I have basic the understanding of frugal Innovation, I know the overall perspective. I don't know to go further with it, I don't know the essential frugal principles, for which I need to read books.

I have not done anything till now, knowledge I gained is only form you, and the university professors. I don't know exact academic terms to explain, I haven't gone in deep into the concept.

To grow internationally it is always important to understand the local context and a right mind-set is essential in this Innovation process. As already mentioned bigger firms with their local subsidiaries in the emerging markets are able to be Innovative in this aspect but when it comes to smaller firms neither having any international subsidiaries nor huge R&D budgets, becomes much difficult to acquire the required mind-set and knowledge of the local markets to serve them better. This is where an external collaboration is required. In this case study this was solved through the industry-university collaboration platform, where we (students from

73
emerging market) jointly worked with the company in Stockholm, made it possible. For other cases these external linkages are essential for a smaller firm.

**Pointers identified in terms of Knowledge & Mind-set on FI:**

- Lacks idea and mind-set of Frugal - They have to depend on people from the emerging markets as they do not have a frugal mind-set which cannot be acquired by reading books.
- Lacks Openness - They lack openness as they are small and rigid. This could be known for not changing much in the Swedish market for a very long time of 30 years.
- Lacks Knowledge of emerging markets - This knowledge of the emerging markets and its local customer is important for the firm to understand. To fulfil this gap it is best for them to work with people who already have knowledge and a network in the existing emerging market. In this case as we do have the required knowledge and local market conditions it sounded easy but for the one’s not having this support would have problems for doing business in new International emerging markets with FI.

**5.1 Theoretical Model for Western smaller firms using a FI strategy:**

From our empirical study we deduced main categories of interest in terms of the factors which would enable a smaller firm to use FI to serve emerging markets. The three main guiding principles essential for the smaller firms in this FI strategy are ‘external knowledge/support’, ‘choose the target customer’, ‘design a frugal product’ and ‘enter the market’.

As already mentioned there are two parts in the case study, one is about the business strategy which discusses about choosing the target customer and respective entry modes, while other focusses entirely on the new product development using FI principles. To bring these two factors together which are essential for the smaller firms looking to develop products/services using FI approach, we propose a new theoretical model. The theoretical model essentially explains the important phases of a new market entry, identifying the customer needs and developing products for its customer. First we try to explain all the three listed essential primary constructs which are ‘choose the target customer’, ‘design a frugal product’ and ‘enter the market’ and finally look at the secondary construct ‘external knowledge/support’ which supports all the primary constructs during this FI strategy.

Now, let us see each construct in detail as follows.

**A.) Choose the target customer:**

Entering a new market, requires good understanding of the local market needs and untapped opportunities. It is therefore essential to understand the potential customer for the company’s products/services. The needs of the market are always widespread over different customer groups. It is therefore not a good strategy for a smaller company to serve different
and larger sections of customers as it requires more time and money investments in developing products for different type of customers across the market. To manage this initial phase, focusing on a niche market is essential where it only serves the target customer group. Having this as a strategy makes the company have a strong focus in understanding the customer needs as well as to design the products/services as per their need. Therefore this FI strategy for a smaller firm in the west starts with identifying the target customer and understanding their needs as well as opportunities for the company in the current market. This would help them better in the second and third phases of product development for this customer as well as while entering the market with the developed frugal outcome. The external factors that are essential during this phase is a strong local presence who already knows the local market better who makes a strong contribution while identifying the target customer. This will be explained further in the later stages. The output of this stage i.e., the identified customer group serves as an input for the next step in this sequential order where the phase of designing a new frugal product comes next.

B.) Design a frugal product:

While designing a frugal product the company needs to encourage the employees to think frugally with the aim of serving customers with special needs (offering more value with less) which is not just about the affordability. Focusing too much on the cost component invariably results in stripped-down versions of existing products that fail to meet the unique needs of emerging market customers (Tiwari & Herstatt, 2012b). Therefore frugal innovation recognizes the fact that a good value proposition is equally important to having an affordable low-cost product (Tiwari & Herstatt, 2012c). Firms need to understand this fact and during all the phases of their strategy, they need to think openly and on a broader perspective. As smaller firms in the west do not have R&D capabilities in the emerging countries or have any resources with good knowledge on FI principles for implementing a FI strategy. It is important for them to rely on the external resources again in this phase as well while designing the products/services for a specific identified target customer group. In this case study as the company do not have good knowledge about the FI for adopting a FI strategy in their company, we suggested them to rely on the Frugal Innovation principles as their external resource which gives insights and helps them in their journey towards a FI strategy. Using these FI principles we identified what kind of changes that are needed in the existing product and also what needs to be done to add more value and more affordable to the customer segment. These principles thus enables, the FI adopters in their company in designing their products/services which the company could make use of in their FI journey.
C.) Enter the market:

After designing a frugal product, it is the time to enter a market to serve its customer. How do we actually do this in case of a smaller firm where it doesn't have a stronger network to market its product in their newly entered territory? Asking this question at the very beginning it is deemed essential as it gives a good idea of delivering a finished product/service to the customer group. The finished frugal product/service which is an output in the previous step acts as an input in this step. With the developed frugal product the company could look for a strong business partner who is already established and having a client network within the same area. In this case study, we have identified Insurance company as a business partner through a joint partner to server its already establish client network of corporate/mnc employees with an add-on service along with its insurance offering. This kind of market entry option through a collaboration is essential in case of a small firms as they could not be in a position to invest time and money to establish a network to serve them later. More of this collaborative advantages would be explained in the next step.

D.) External knowledge/support:

As already discussed before a strong local presence is very essential to understand the requirements of the target market and in order to translate or modify the existing products/services from the western markets as per the local needs. This could be substituted having a strong local presence for the firm looking to enter the market. A more prominent local presence and a fundamental new-product development effort may be necessary to develop a truly effective frugal innovation process (Williamson 2010). In case of a smaller firm it is indeed difficult for them to have a local presence to do the initial market research and to understand the requirements of the local customer. In this case study, the company had a similar problem and through an external support (university-industry collaboration) the company worked with students having the local knowledge and substituted with the lack of having a local presence as well as a local subsidiary as a bigger company would have. Xerox research center India, launched in 2010, enables Xerox scientist and engineers to partner with leading universities, research labs, start-ups and industry partners in India. As a result, they have co-created affordable, high quality and innovative solutions for global market (Vandebroek, CTO, Xerox, 2014). This thereby enables them to access knowledge through an external medium. This external presence is not only in the initial market research but also plays a key role in the remaining two phases of new product development as well as while entering the target market. Developing frugal innovations requires local organizational structures and resources to help develop an understanding of the needs of the resource-constrained consumers who are the target market for frugal innovations (Zeschky, 2010).
Coming to the new frugal product development phase, what kind of external knowledge is required? As the western companies which are more rigid and needs a shift in their culture to embed FI within their organisations. They can do this by fundamentally shifting the mind-set of all employees at all levels in the organisation, allowing them to create more value with less (Radjou, 2014). This being said, the principles proposed by the author in his book, serves as a platform for the companies to understand and implement a frugal strategy. These external resources thus form as a source of support (knowledge) for the company to use the FI principles having no previous knowledge of it, just by shifting the mind-set of the employees to serve emerging market needs. Thus a company find this as a resource and these principles as a guide for them in their FI journey with a motive of serving emerging market needs. Thus, this although helps a company in their entire FI journey, but mostly it is important in the NPD process for developing a frugal outcome.

Coming to the externalities while entering a new market after a frugal product or outcome is achieved, it is essential to have collaborations with partners. As the current context is especially linked with the smaller firms, these collaborations would help them in various segments of the value chain. Collaboration with external partners, across geographies and segments of the value chain enables access to proprietary knowledge, which could otherwise be subjected to time compression diseconomies. It further lowers the innovation risk Tiwari and Herstatt (2012). External collaboration serves three key purposes: 1) lowers the risk of venturing in an uncharted territory where the firm lack knowledge about the customers and institutional mechanisms; 2) it accelerates the time to market by shortening the learning curve and allowing the firm to build upon the strengths of its network partners and 3) allows generating of new insights as now there are more than a few disciplines that intersect at the firm (Soni, 2013). To avail these advantages even the bigger MNC’S collaborate with external partners through joint ventures. In India, Suzuki collaborated with Maruti, Honda with Hero motor corp., and every insurance company entering the Indian market collaborates with an Indian partner like German insurer Allianz with Bajaj insurance, British plc. Aviva India,
collaboration with Dabur group an Indian conglomerate etc. These would let companies an
easier and faster entry into the market. In case of smaller firms, as they wouldn’t already have
client networks ready to serve, they have to collaborate with a partner already having the
required network to serve. Smaller firms in the west however have to take this up as a pre-
requisite in the very early stages in the business strategy itself to identify the external partners
through which the market entry would be much easy and which requires less investments in
time and money in searching for the clients to serve with their product/service offerings. In
this case study the external partners are identified as Insurance companies. As every
MNC/Corporate company employee who is our target customer is insured by one of the
insurance companies, it is a good choice to enter the market through their partnership which
should serve both party interests in the collaboration.

Figure 19: Enter the market

**Theoretical Model on FI strategy for western smaller firms:**

Having explained each step in detail of this whole FI strategy, the following theoretical
model explains the overall idea of this research which defines the necessary steps that needs
to be followed by a smaller firm in the west to work with frugal innovation to serve emerging
countries.
6. Conclusions:
The aim of this chapter is to answer the present conclusion of our thesis, from the results of the research and the theoretical framework we developed. Furthermore, the shortcomings of the research as well as the scope for the further study are going to be discussed.

6.1 Conclusion:
The main motive for developing a theoretical model on frugal innovation came from the fact that not so much contextual relevance is given to the smaller firms especially in the west by the previous researchers. Initially while searching for a suitable topic to write upon in the field of frugal innovation, we came to understand that only a few authors (Bhatti & Ventresca 2012, Soni 2013, Simon 2014,) have tried to develop conceptual frameworks and that too no special emphasis is given to the smaller firms while others (e.g. Govindarajan & Trimble, 2012; Zeschky, Widenmayer & Gassmann, 2011) have explored the features of frugal innovation and the elements that play a role in the creation of frugal innovations. Hence the research started with the very fact of developing a theoretical model as well as to identify what problems western smaller firms face in their innovation strategy. This study also lists out a framework and suggested solutions to the problems firms face while implementing their FI strategy.

The theoretical framework developed has the three essential phases which are sequential and to be followed by the western smaller firms in their FI strategy. Identified the
essential primary steps of this journey as 'choose a target customer' where the journey of the firm starts understanding the local market needs and customer behaviour and finally choose a target customer group to serve or develop custom solutions for them which vary considerably over their product offering in their existing markets. In 'develop a new product', the company need to develop their products considering all the value parameters (low-cost, simple, and good-quality) for the target customer with the help of the current guiding principles. Last comes the market entry which would be more profitable through an external collaboration which successfully completes the journey of the company in working with FI strategy. This model however would help any western small firm which looks for entering a new emerging market to serve their local market needs. Thus this theoretical model helps us in answering the research question of “How do smaller firms in the West use Frugal Innovation?” and overcome the problems they face through the effective use of external partners listed in each phase as well as going through a similar sequence in their frugal innovation journey for developing and delivering frugal solutions to the emerging market customers which would still have to be tested for further as already stated in the limitations.

However, having a proper flow of knowledge/information from the external firms would always enhance the firm’s chance in making this venture more successful as a frugal mindset and the knowledge of local markets is always a deciding factor for an outside firm operating in a foreign territory.

6.2 Shortcomings of the study:

The outcome of this research gives an idea to the smaller firms in the west in setting off their journey towards frugal innovation in an emerging market. However, this framework is developed only for the smaller firms in the west and not located in the emerging markets. This scope is very limited and hence should be treated in isolation within these contextual parameters. While developing this model due to time constraints we focussed only on a single case company involving in an action research approach which gave us deep understanding of the phenomenon, however we might miss other factors which needs to be considered as well to complete the model. The context we did our research is on health care and lifestyle in which we identified our external partners very easily however for other areas it might be difficult to identify or to at least understand the need to collaborate. There are still various other firms in various industries that have to be identified and explored in their FI strategy to get more perspectives out of them. As the research is carried out using as an action research, our involvement might as well have affected the findings as we are not just noting the observations, but also responsible in carrying out the research which are very much the limitations that we have in this kind of research. This might be a limitation in terms of reliability and generalizability of the results as well as we are involved fully right from the start and in fact acted as the primary subjects in carrying out this process which might have influenced the
results to a certain extent. The single case study however is just not enough which also effects the outcomes of this study.

6.3 Further Research:

Further research needs to be carried out in testing the framework developed which is the primary outcome of this research. More emphasis has to be made in other smaller business areas as well in the west to further enhance the model. We only developed the model and more quantitative studies have to be carried out within this context to see the applicability of the model and its effectiveness in helping a firm in its FI journey. There are many other aspects in this context that needs to be researched as well besides a framework. What kind of leadership styles are essential, how more knowledge of the local markets could be acquired etc. It is also important to understand and identify the external resources in detail for the firms to rely on this developed framework. A lot of future research is needed especially in the western smaller firms as no author has touched upon this subject in the past and also a need exist as it gives an opportunity for smaller firms to explore the emerging markets. Also it would rather be an interesting study to see how these firms stabilises and continues to develop Frugal Ideas and adapt their mind-set without much involvement from the external sources for implementing a FI strategy.
References:


Kaplan, Robert S 1998, Harward University, Innovation action research: Creating new management theory and practice; Journal of Management Accounting Research;


Richard D. Sagor (2000), The Action Research Guidebook;A Four-Stage Process for Educators and School Teams; Second Edition- Washington State University, USA


http://www.ibef.org/industry/insurance-sector-india.aspx
http://www.hear-it.org/Online-Hearing-Test?qclid=CNyn__7gsUCFesMcwodSykA0w
http://www.beltonehearingtest.com/us/
http://myhearingtest.net/
http://www.eyeexamonline.com/eyeexam-result.html
http://www.beltonehearingtest.com/us/
http://www.amazon.co.uk/Easy-Touch-ET-202-EasyTouch-Cholesterol/dp/B007MMTOI8
http://www.ebay.co.uk/itm/LifeMax-Cholesterol-Test-10-Strip-Home-Blood-Testing-Monitoring-Professional-Kit-/251642316059
http://www.ptgear.co.uk/fitness-tests/lung-function-tests/
http://www.cosmed.it/en/products/pulmonary-function/quark-pft-pulmonary-function-testing-lab
https://www.scanadu.com/
http://www.craigmédical.com/urine_diagnostics.htm
http://www.hear-it.org/Online-Hearing-Test?gclid=CNyin__7gsUCFesMcwodSykA0w
http://www.beltonehearingtest.com/us/
http://myhearingtest.net/
http://www.eyeexamonline.com/eyeexam-result.html
http://www.forbes.com/sites/michaelskok/2013/06/14/4-steps-to-building-a-compelling-value-proposition/
http://indiabudget.nic.in/es2013-14/echap-01.pdf
http://indiabudget.nic.in/survey.asp
http://www.windowsphone.com/en-us/store/app/microsoft-health/0168b504-ca18-46b8-b60a-0f6fde271c81
http://www.imshealth.com/portal/site/imshealth/menuitem.762a961826aad98f53c753c71ad8c22a/?vgnextoid=eo913850c8b1410VgnVCM1000076192ca2RCRD&vgnextchannel=a64de5fda6370410VgnVCM1000076192ca2RCRD
http://businesstoday.intoday.in/story/indias-fitness-and-wellness-industry-is-blossoming/1/201850.html
http://www.ibef.org/industry/insurance-sector-india.aspx
**Additional Notes:** Additional Notes on 6 FI principles which are only mentioned in Section 2 are given some additional explanation for providing more clarity on the subject.

**Principle 1: Engage & Iterate**

**Complex, expensive and environmentally unfriendly products**

R&D engineers in the developed world are trained to associate complexity with quality. They seek to push scientific and technological boundaries by designing sophisticated products with complex features and functions that customers do not really need. For instance, most people only use 10% of functionality in feature-rich productivity apps such as Microsoft Word, and 90% of customers use merely 10–15% of features in computer networking devices. This complexity costs both companies and their customers dearly, because over 70% of a product’s total life-cycle costs result from R&D design decisions. The more complex its design, the more costly it is to build, sell and service a product. This in turn makes the product more expensive for the customer to buy, use and maintain.

Furthermore, products are designed with planned obsolescence, forcing customers continually to upgrade – an expensive proposition at best. Mobile phones, for instance, are designed to make them hard to disassemble. This complexity and planned obsolescence is a cost to customers and increases environmental waste. Cramming cars with more microchips, for instance, makes them heavier and less fuel efficient. Similarly, American consumers typically replace their mobile phones every two years, which may cheer up Apple and mobile operators, but 125 million obsolete phones end up in landfills every year as a result.

**Alienating customers**

Ask the CEOs of North American, European or Japanese corporations if their companies engage customers, and most will emphatically respond with a loud “yes”, and point to the vast sums they spend on marketing and social-media campaigns. And yet customers rarely feel engaged with these companies or their products. According to a 2013 survey by NetBase, a social-media analytics company, 93% of customers consider marketing ads (across all media channels) disingenuous. They also feel that, far from engaging customers and genuinely trying to understand their needs, companies are simply pushing products their way. Furthermore, over 80% of customers say they are more likely to buy products and services from brands that actively listen to them and design products with their input; and 32% have no idea that brands are even listening to them.

**A market-focused, agile R&D model**

As outlined above, the industrial R&D model has at least three inherent weaknesses:

- It is market-blind and excludes customers from the innovation process.
- It relies on time-consuming and rigid development processes.
- It values perfect solutions above general usefulness.

**Engage customers throughout product and customer life cycles**

Rather than relying on second-hand market data or on the outcomes of others’ focus groups, engineers and scientists must engage directly with customers, specifically in their natural settings – their homes, factories and offices – to unearth new or unmet needs. As well as engaging existing customers, R&D teams should interact with users in new market segments.
by actively involving customers in new product design processes, as well as tracking customers’ use of the product after purchase. The focus on customer needs will enable R&D to replace its costly and scattered approach to product development with more efficient, user-focused investment.

Adapt rapidly to unexpected changes

In today’s unpredictable business environment, customers’ requirements are constantly changing and new competition is emerging seemingly from nowhere, as are new technologies and market opportunities. R&D teams, and their rigid, time-consuming design and development processes, are ill-equipped to deal with the unexpected. But by adopting dynamic portfolio management techniques and agile design processes, they can re-prioritise projects and re-allocate resources frequently, and therefore better anticipate and respond to market shifts. With faster innovation and improvisation, a new, nimble approach will also help firms to constantly improve existing solutions as well as develop new solutions.

Seek cheaper, good-enough solutions

R&D teams too often reinvent the wheel and end up with over-engineered products (at great cost to the firm) that are too complex for customers. Customers, however, are more likely to be impressed by products that solve their problems than by mere technological prowess. R&D should be guided first and foremost by customer insight, and produce easy-to-use offerings that may lack bells and whistles but are good enough, especially if they come at a lower price. Moreover, the good-enough approach will be simpler and cheaper for companies too, to say nothing of lessening the environmental impact.

Involve customers from the outset

Actively engaging customers at the front end of innovation is likely to result in products that they prefer, thus increasing their loyalty while reducing product cycle times and waste. Yet the Booz study estimates that only 8% of large R&D budgets are spent on digital tools that, among other things, track changing customer needs and help firms work with customers to create solutions.8 It is an obvious way to improve front-end innovation performance and, thanks to plummeting technology costs, affordable digital tools and techniques now exist to improve the depth and breadth of customer engagement.

Deploy crowdsourcing and social media

Crowdsourcing is a cost-effective technique for collecting customers’ ideas and ascertaining specific, explicit needs. For instance, SoapBox, a Toronto-based online crowdsourcing site, provides companies with a platform for individuals to talk about their ideas and gauge initial public reactions through its thumbs-up or thumbs-down voting system. Ideas that garner sufficient support are packaged with supporting data and sent to the relevant managers, who in turn signal their view of its potential to executives responsible for taking such ideas forward.

Use immersion techniques to identify latent needs

In many cases, customers may be unaware of what they want or unable to articulate their needs. Companies like Intuit can study customers in their natural settings to unearth these latent needs. Such ethnographic research enables R&D teams to pinpoint customers’ “pain points” and design solutions that are most relevant for each situation. For instance, in Japan, two Fujitsu R&D engineers, Tomihiro Yamazaki and Daisuke Kawai, got their hands (and feet) dirty by working closely with mandarin farmers at Sawa Orchards in Wakayama. They spent days in the field, sharing agricultural tasks with farmers. Their aim was to find ways to increase
mandarin yields. Japan’s agricultural workforce is ageing (currently averaging 65), so Fujitsu decided to investigate how technologies such as mobile phones and wireless sensors could raise productivity and output, and capture farmers’ tacit knowledge of agricultural practices to pass on to future generations.

**Share prototypes with end-users**

Rather than develop over-engineered products in their ivory tower, R&D teams can now quickly design good-enough prototypes that they can share with customers, and then adapt them based on early customer feedback. Not all product categories lend themselves to online discussion. Often high-quality customer engagement needs to happen in the physical world. Customer immersion labs – such as the customer demonstration lab at Caterpillar, a US construction and mining equipment manufacturer – invite customers to play with new prototypes or models and give instant feedback directly to R&D teams.

**Make use of big data analytics**

Consumer and industrial products of all kinds are increasingly connected to the internet. Mobile phones and the Internet of things (identifiers for different physical objects) allow researchers to collect large amounts of detailed data to predict customer needs and respond with tailored solutions.

**Principle 2: Flex Your Assets:**

**New materials**

Materials used in products – whether in mobile phones or cars – are a major source of cost and waste, at the start and throughout a product’s life cycle. For example, a car’s fuel efficiency depends on its weight, and therefore its materials. Carbon fibre, combined with resin, is half the weight of steel but just as strong. It is increasingly used in planes and space travel, and can be produced in large single-piece sections, eliminating the need to rivet individual components together, and making overall construction more robust and secure.

**New tools for manufacturing**

3D printers are responsible for a major breakthrough in manufacturing. When combined with computer aided design and other digital tools, 3D printers can dramatically reduce manufacturing costs while increasing the capacity to customise products. Robots are also quicker learners than humans and more versatile. For this reason, carmakers Ford and GM are using robot-powered assembly lines with interchangeable tooling that can be programmed to switch rapidly between car models.

**New approaches to manufacturing**

New digital tools, including 3D printing and affordable robotics, are enabling frugal approaches such as social or collaborative manufacturing, continuous processing and decentralised production.

**Reshoring**

After several decades of unbridled offshoring to low-cost destinations from China to Mexico, manufacturing is now returning to the developed world, as a way to cut costs. Much of the savings involve a product’s physical distribution. The 20th-century industrial model worked only as long as cheap labour and economies of scale outweighed shipping costs. This is no
Frugal Innovation in Western smaller firms

longer always the case. Zara, a Spanish clothing retailer, has made substantial cost savings by near-shoring operations to countries like Portugal, close to its main European markets. This allows Zara to vary the styles in its stores constantly, keeping its fashions fresh.

Local sourcing

The business world is now witnessing a shift from low cost to local sourcing. Western multinationals are already sourcing from local suppliers in emerging markets as part of localisation strategies; apart from meeting local sourcing requirements, this also allows firms to create more affordable products. This trend is becoming more evident in mature economies too, where sourcing smaller quantities from smaller firms located near factories and R&D facilities reduces costs and risk. Motorola, a multinational telecoms company, chose to manufacture all its Moto X smartphones in Texas so that its manufacturing engineers in Texas and its R&D team in Illinois and California could work more closely with local suppliers and respond more quickly to demanding US consumers. (Chinese tech giant Lenovo acquired Motorola’s handset business in early 2014.) US’s biggest importer, committed to doubling the sales of locally sourced products in the US by 2015. Waitrose, a UK supermarket chain, sources nearly 70% of its food from suppliers located within a 30-mile radius of a store.

Sharing resources

Rather than keeping their production and distribution assets idle, some manufacturers now allow other firms, including rivals, to use them. It has long been common in Africa and India for competing telecoms providers to share mobile-phone towers, and Western telecoms companies are now doing the same. For instance, Ericsson and Philips recently unveiled a project that combines city street lighting with mobile phone infrastructure. The two companies will incorporate mobile-phone antennae into energy-efficient LED streetlights that can be placed in parts of cities where carriers want to increase their network coverage.

Principle 3: Create Sustainable solutions

The rise of circular economy

The dominant model of production and consumption in the 20th century was linear. Firms made products, and consumers used and disposed of them. More recently, however, firms and consumers have started to reduce, recycle and reuse products, thus giving rise to a circular economy (thanks in large part to ideas from the Ellen MacArthur Foundation). According to McKinsey & Company, adopting circular economy principles could save the global consumer-goods sector alone $700 billion annually. This is perhaps a modest estimate, given that the $3.2 trillion consumer-goods sector accounts for 60% of total consumer spending, 35% of material inputs, 90% of agricultural output and 75% of municipal waste, and that only 20% of materials in this value chain is currently recovered and reused or recycled. In 2014, the World Economic Forum estimated that circular business models could increase the value of the global economy by $1 trillion annually by 2025, and create 100,000 jobs over the next five years.

Widening the sharing economy

In a circular economy, a product undergoes multiple incarnations – with its materials being recycled and reused again and again – thus sustaining its value over multiple lifetimes. During any particular lifetime, however, the product is most likely to be owned and used by just one customer. But what if, during even a single lifetime or incarnation, the same product could be consumed by many users? then the same inputs could be made to create greater value for more and more users. That is the underlying premise of the sharing economy – also known
Frugal Innovation in Western smaller firms

as collaborative consumption – in which participants aspire to share access to goods and services rather than to have individual ownership. Sharing economy firms include Airbnb (sharing homes), RelayRides, BlaBlaCar and easyCar (sharing cars), ParkatmyHouse (sharing parking spaces), BringBee (sharing trips to the grocery store), Wish it or Wear It Share It (choosing clothes), Eatwith (sharing your dinner), yerdle.com (sharing household equipment with neighbours), Skillshare (sharing skills and knowledge) and TaskRabbit (outsourcing small jobs and errands). As we saw in Chapter 1, these services typically take advantage of the web and social media to enable ordinary people to monetise their time, space, knowledge or skills. The sharing economy contributes to environmental sustainability because it reduces individual consumption by allowing, for instance, four people to share the same car rather than having to buy four different cars.

Design multipurpose products

Qarnot Computing, a French high-performance computing services provider, makes digital radiators which contain microchips that can download and process computational jobs, such as scientific calculations or 3D rendering, submitted by developers and scientists anywhere in the world. The heat harvested from the microprocessors is then used to warm homes and offices. Qarnot's founder, Paul Benoit, an engineer by training who quit his job in the financial sector to launch a start-up to "do good", explains that the digital radiators act as mini supercomputers for one set of customers – offering them high-end computation services at low cost – while providing free heating for others. Digitally enriching physical products Analogue products can be upgraded into digital products, thus allowing them to do more. For instance, Berg, a design company, hacked a Zanussi washing machine to make it a connected device, thus dramatically improving the user experience. Smart companies are increasingly tapping into user communities to generate new digital content that can improve their products. Ford has extensively open sourced the electronics of its cars' telematics systems so that third-party developers (including DIY customers) can upgrade them as they wish, thus prolonging the life of the car and increasing its value. (Chapter 7 discusses how Ford is engaging makers and tinkerers to create more value for car users without spending more on R&D.)

Create products that adapt to evolving customer needs

Bouygues Immobilier, one of Europe’s largest property developers, is building apartments that can evolve with their inhabitants at different stages of their life. The modular design enables effortless reconfiguration of space so the same room can serve, say, as a private gym and later as a place to receive at home care.

Get ecosystems to embrace sustainability

Visionary firms such as Timberland, a US clothing manufacturer, are building coalitions of employees, suppliers, retailers and even competitors to cultivate value spirals within their industry. The firm has teamed up with 60 other apparel and footwear manufacturers to create an environmental index called the Higgs Index, the likely future industry standard for measuring the environmental performance of branded apparel. This benchmarking tool could move other apparel-makers towards more sustainable design and supply chain practices.
Principle 4: Shape customer behaviour

Consumers are powerful – but not enough to change

In the 20th century consumer power rose steadily, particularly in free-market economies. With continuously rising incomes and greater competition among firms, today’s consumers are more powerful than ever. Their spending drives over 70% of the US economy. The internet and mobile telephony are further enhancing consumer power by creating more informed buyer communities. Government regulation has also helped. The European Commission has emphasised the need for more consumer choice, better information and stronger rights as it builds its single EU market.

Is all this working? The European Commission’s Consumer Empowerment Index, based on a Eurobarometer survey of 50,000 consumers in 29 countries in 2010, examined consumer skills, awareness and engagement. The index found that consumers in Norway, Finland and Germany scored highly, while those from Belgium, France and the UK were on average 13% lower; the gap between the top group and Poles and Romanians was 31%. Italy, Portugal and Spain also scored poorly, especially in consumer skills, where the gap with the top performers was 30%. Women scored worse than men; the old were less empowered than the young; and poorer and less educated consumers also scored relatively badly. Among the least empowered were those without internet access.

Therefore, even consumers in advanced economies lack information, opportunity or motivation to consider issues around sustainable consumption. Evidently, green or sustainable consumption remains a niche, discouraging firms from making more than incremental improvements to their products. Most importantly, consumers may not get the right information to make optimal choices.

Consumption is important for well-being but can erode it

For most of the 20th century, the West’s dominant economic model placed consumption at the heart of growth. Since the Bretton Woods Conference in 1944, a nation’s gross domestic product (GDP) has become the benchmark for measuring economic health and progress. Consumption is normally the largest component of GDP, consisting of household expenditure on durable and non-durable goods and services. From this viewpoint, the more people consume, the greater the incentive for firms to produce. The more firms produce, the more the economy grows and the better off people are. GDP was a poor measure of well-being and argued that consumption is merely a means to human well-being. According to him, societies should aim to achieve the “maximum amount of well-being with the minimum amount of consumption”. The challenges facing firms therefore are: to influence consumers’ behaviour without making them feel manipulated; to help consumers balance self-interest with their concern for the planet; and to balance frugality with a sense of abundance.

Principle 5: Co-create with prosumers

Consumers want a “conversation” with their brands

Customers who love their brands also like to play an active role in supporting them. They are willing to help design and produce them, and to share this passion with others. Such co-creation is not simply centered on the product itself, but also on the user experience and the lifestyle surrounding the product. And yet most companies continue their monologue marketing, pushing messages out to consumers rather than drawing in activist customers. is despite the fact that 90% of consumers say they would rather buy products from brands with which they can “have a conversation”. Some 40% of the tech-savvy millennial generation
Frugal Innovation in Western smaller firms

(those born between 1982 and 2004) wish to co-create products, services and experiences with desirable brands, especially via social-media channels. Firms that fail to engage in this way miss a powerful frugal opportunity to build and maintain their brands. In some cases, these firms also risk alienating their most loyal customers who, in searching for a more meaningful experience, may form their own powerful communities independent of the brand, which in some cases can even turn against it.

Consumers now design, build and sell products themselves

Some Eastern philosophy views creative expression as a basic human need on a par with food and shelter, a notion that is supported by Western psychology. In Happy Money, Michael Norton, associate professor of marketing at Harvard Business School, demonstrates that investing time, labour and money affects how people value products and people. Norton’s 2012 study with Daniel Mochon and Dan Ariely on the so called IKEA effect shows that people value products much more when they assemble the products themselves. Customers are increasingly able to express their creativity and emotional investment in physical objects by designing and building them.

The rise of the horizontal economy

Vertically integrated value chains, controlled by companies that exclude customers, are being challenged by new value ecosystems orchestrated by customers themselves. New ecosystems allow consumers to design, build, market, distribute and trade goods and services by and among themselves, without the need for intermediaries. This bottom-up approach is creating the horizontal economy. In a 1937 essay, Ronald Coase, a Nobel Prize-winning economist, argued that the reason Western economies are organised vertically – like a pyramid with a few large producers at the top and millions of passive consumers at the bottom – is because of transaction costs (the intangible costs associated with search, bargaining, decision making and enforcement). But with the explosion of the internet, mobile technologies and social media – think of the 1.3 billion interconnected Facebook users – these transaction costs have all but disappeared in many sectors. This has allowed a horizontal economy to emerge in the US, western Europe and Japan. The foundations of a new, self-sustaining commercial system are now being laid.

Crowdfunding platforms that finance new ventures

Platforms like Kickstarter, Indiegogo or KissKissBankBank enable lone inventors to raise funds to start and scale up an enterprise. This is particularly appealing to the millennial generation, who no longer trust the safety of a job. For instance, 40% of young millennia’s say that they want to be their own boss. But most banks and venture capitalists will not risk investing in start-ups launched by these 20-somethings. This doesn’t bother the 20-somethings; they just try to emulate Eric Migicovsky who, aged 27, launched Pebble, a start-up that makes smart watches which connect to phones and notify users about e-mails, text messages, incoming calls and social-media alerts.

Talk to suppliers who think originally

As strategy consultants to large companies for a number of years, this book’s authors have often informed senior executives about a breakthrough technology or solution developed by their suppliers. The usual response is: “That’s an amazing invention. Why didn’t our suppliers tell us about it?” But the suppliers did tell the company’s purchasing managers, who showed no interest. And the purchasing managers cannot be blamed either; they are under pressure to cut costs, too often by squeezing their suppliers. Like the Titanic’s captain asking the
mechanics to save coal as the ship headed for an iceberg, too many companies on a similar collision course are responding irrationally.

To change course, companies must now work more strategically with suppliers on new business models. For instance, in the late 2000s, many Western original equipment manufacturers (OEMs) – especially in Germany – dismissed the $2,500 Nano as a cheap car for the developing world. But now that Renault’s low-cost Dacia’s are selling like hot cakes in core European markets, German carmakers are approaching auto suppliers such as Bosch (which developed the Nano’s core engine and fuel-injection technologies) to explore how to leverage those frugal technologies to create affordable cars. Similarly, Marks & Spencer (M&S), a UK multinational retailer, hosts an annual conference of more than 1,000 of its global suppliers to learn how to implement its “Plan A” to become the world’s most environmentally sustainable major retailer by 2020. It has dedicated websites for various supplier communities, such as the Food Supplier Exchange for its agricultural suppliers, where they can share best practices.

Work with partners to serve Mecosystems

In developed economies, cost-conscious and eco-aware customers are assembling different products and services to meet their individual needs. Typically, these customers do not care if these products and services are branded. So companies must work with others in their sector (for example, carmakers, railways and airlines from the transport sector) to integrate their respective capabilities and provide their common clients with seamless experiences. For instance, French railway operator SNCF is collaborating with Renault on disruptive R&D projects to deliver affordable end-to-end transport solutions to shared customers. These frugal mobility solutions will seek either to optimise existing infrastructure – by, say, combining a long-distance train ride with last-mile travel in an electric vehicle – or to leverage radically new energy-efficient transport assets co-developed by SNCF and Renault. SNCF has also tied up with Orange and Total to launch Ecomobilité Ventures, Europe’s first multi-corporate investment fund, which invests in a portfolio of promising start-ups that can collectively deliver end-to-end solutions in sustainable mobility. Non-competing brands can also work together, not only to respond to the current needs of their shared customers, but also to anticipate their future needs. Simon Mulcahy, senior vice-president and managing director of financial services industry at Salesforce.com, which offers a customer relationship management platform based on cloud computing, encourages companies to adopt a wide lens to perceive their customer needs through the diverse perspectives of other industries, and to address these needs by borrowing best practices from other sectors. For example, diverse industries such as construction, interior design and renovation, food, retail, entertainment, logistics, health, financial services, energy and communication all share a single customer in one particular location: their home. This is why Orange, Kingfisher, Carrefour, Legrand, La Poste, SEB and Pernod Ricard – seven leading companies in the above industries – have set up InHome, a cross-industry innovation incubator run by InProcess, an innovation consultancy.

Senior executives from these companies participate in a series of workshops facilitated by InProcess. There they gain deeper insights into the behaviour and needs of typical families who will be living in tomorrow’s homes, and an understanding of new emerging usages and practices (from flat-sharing to living in contemporary yurts to hosting strangers at home) that reflect our rapidly changing lifestyles and values. (The workshop is itself based on a year-long, in-depth ethnographic study conducted by InProcess with real families.) During the workshop, each participant is asked to “get into the skin” of another participant and try to understand how his or her future needs can be met from another industry’s perspective. Once empathy and trust have been established among participants, they consider scenarios in which they can integrate their respective offerings and capabilities to best serve their common customer. At the end of these workshops, according to InProcess’s CEO, Christophe Rebours
Participants are able to remove their “industry blinkers” and see things from their shared customer’s viewpoint. The participants’ motivation also shifts from maximising their individual share of what they believe is a fixed pie to maximising the size of the entire pie for the benefit of everyone. For Rebours, InHome is successful because its members avoid the problem of a few big firms dominating smaller members. Instead, the Goliaths want to reinvent themselves as nimble Davids. Finally, collaborating companies reduce risk and save money because they invest in solutions collectively.

Engage competitors in realising big hairy audacious goals

Firms that hyper-collaborate pay heed to Sun Tzu’s advice: “Keep your friends close but your enemies closer.” This competition among rival companies is a frugal strategy because by jointly investing in a highrisk/high-reward innovation project driven by a big hairy audacious goal (BHAG), they collectively reduce their risk exposure. Similarly, by working together they can help establish – and accelerate the adoption of – a new industry standard that could benefit them all. For instance, the Natural Capital Leaders Platform is run by the University of Cambridge Institute for Sustainability Leadership (CISL) to address a BHAG: how to mitigate the rapid loss of natural capital, such as water and agricultural land. By 2030, the UK will be short of two-sevenths of the agricultural land needed for food, space and renewable energy. Similarly, it faces the paradoxical threat of both frequent flooding and severe drought. In 2020, if the UK were to face a dry year, it would be short of 120 billion litres (31.7 billion gallons) of water, equivalent to the amount used by farmers to irrigate crops in a typical year.

Share assets and resources with other companies – and make big savings

Industrial firms should together implement the sharing and circular economy in two important ways. First, they should integrate their own value chain with those of other manufacturers, as often in business “one man’s trash is another man’s treasure”. Second, they should monetise under-utilised assets by sharing them with companies that need them more. This dual strategy allows manufacturers to slash costs, maximise efficiency and generate new revenue streams. More importantly, it changes how a business is run, leading to lucrative opportunities in the process. For example, by-product synergy (BPS) is a process of using the waste stream from one production process to produce either raw materials or finished products. As outlined by Deishin Lee, professor of operations management at Boston College’s Carroll School of Management, BPS has been successfully adopted by Chaparral Steel, a Texan firm now part of Gerdau Corporation, which uses recycled steel to manufacture new products. Slag waste generated during the production process is sold to a nearby cement manufacturer, Texas Industries (which in 2014 merged with Martin Marietta), which uses it to make Portland cement. Lee discovered that this BPS strategy not only profits both manufacturers but also brings environmental benefits, by cutting carbon emissions by 10% and reducing energy consumption by up to 15% in the concrete production activity. This was possible largely because the steel slag had been pre-processed to add value to cement production. Fortune 500 companies are also now embracing industrial symbiosis, a large-scale version of BPS, which turns waste streams into profit centres. With the help of its partner Protomax, ASDA, a UK supermarket chain, upcycles its George plastic hangers and coffee waste into light, stable plastic panels to make the coffee tables used in its stores’ cafés. The panels can be recycled later to make new panels.

Sharing waste is only half the story

Companies can also share underused assets and resources. FLOOW2 is a business-to-business marketplace that enables companies to share and exchange under-utilised equipment, services, skills and knowledge. By tightly integrating their supply chains,
companies can keep their fixed assets fully utilised and also save on costly raw materials and energy. For instance, in the logistics sector, Mars, a global food manufacturer, has developed a sustainable distribution network in Germany by sharing its vehicles with rivals.

Work with the social and public sectors

Large companies are facing growing pressure from governments, customers and employees to act as responsible corporate citizens by solving pressing social issues such as health-care access and financial exclusion. It is too often assumed that corporations are just profit-hungry monsters that ignore social problems. In fact many of them do care, but they lack the knowledge, skills, resources, or the right business model to tackle social challenges systematically and profitably. They may even be too proud to admit their ignorance or inexperience.

Engage restless entrepreneurs, hackers and tinkerers

Airbnb, an online short-let rental company, was launched in 2008 by Brian Chesky and Joe Gebbia, two young people with no experience of the hotel industry. By 2014, Airbnb had become the fifth largest hotel chain in the world, filling more room nights than all the Hilton hotels put together (and Hilton began in 1919). Similarly, in 2006 Frédéric Mazzella and Nicolas Brusson founded BlaBlaCar which, by 2014, had emerged as Europe’s largest car-sharing firm. BlaBlaCar now transports over 1 million passengers a month, which is more than Eurostar, a high-speed railway service connecting London with Paris and Brussels. The same applies to Uber, a mobile service directly connecting passengers with drivers for hire. Co-founded in 2009 by Garrett Camp and Travis Kalanick, Uber has disrupted the traditional taxi industry. In 2014 it was valued at $18.2 billion.
Interview guide:

Introduction about ourselves

Name/Age/Country
Students at Halmstad University, master in Technical Project and Business Management.

Introduce the topic (Frugal Innovation in smaller firms in the west)
Smaller firms in the western countries have problem in using a frugal innovation strategy. Frugal innovation helps to create good-enough products/service.

How will the interview be conducted (discuss research ethics, language, how structured etc..)?
Interview will be held in English
After our introduction, we would like to ask you to introduce yourself and the company
Afterwards, we will have some introduction questions regarding the emerging markets
Finally, we have a few questions to wrap the interview up, which was meant to know about what company is planning for the future.
In general, our questions are rather open, meaning that you will get to answer them freely

Permission to record the interview, meaning information and names:
We sought permission to record the interview and also use it for publishing used for later purpose of the research.

Start interview

Introduction of interviewee and company
Could you please introduce yourself? What role do you have in the company?
What does the company do (background/short history)?

Introduction questions
Semi structured interviewing.
Action Research Notes (Only for reference purpose):

Date: Dec-02-2014
HPI – Health Profile Institute

Strategy
In this we define the plans for the Indian entry and also what changes are being done to the existing HPI service offering. Also the cost perspectives, advantages to all the stakeholders are discussed in brief.

Market Entry: Targeting MNC/Corporate companies through Life Insurance companies.

Target Audience: Indian corporate employees

HPI Service offering – India: These services are altered specially for the Indian people keeping in mind of the affordability, need and value.

Steps involved in the process are as follows:

Step 1: Questionnaire about lifestyle
Step 2: Physical Tests conducted by the lab technician. Here the entire basic tests are done. Especially for IT people the eye-sight test is going to be introduced in India.
Step 3: Using the existing software a computer generated report is prepared.
Step 4: Under the supervision of the doctor a group talk is conducted and a detailed organisational health status is presented and required suggestions will be made
Step 5: A detailed health profile report is emailed/handover to the employee during a group talk with a doctor

Using the above steps mentioned we can avoid individual assessments saving a lot of time for the employee as well (keeping in mind of the occupancy of employee) which is going to be a major cost cutting factor for HPI

Advantages for HPI:

- Business Expansion to an emerging market
- Trying out new way in service offering
- Cost of operations will be lower
- Acts as a testing ground
- Advantages for Insurance companies:
  - Differentiate among competitors
  - Enhance Insurance company services using HPI
  - Setting up stronger relationships with organisations as well Avoiding some claims through regular/frequent assessments by alerting employees of future risks

Advantages for Corporate companies:

- Employee satisfaction
- Increasing organisations responsibility
- Creates loyal Employ base
- Reduces absentees from organisation(risk of falling ill will be less)
- Overall organisation efficiency is going to increase
- Healthy employees
Frugal Innovation in Western smaller firms

- Reduces stress levels through suggestions from Doctors
- Cost Savings
- Cost of entry is low (tie ups with partners)
- Cutting down steps like individual assessments/Seminars which reduces cost for HPI services
- Use of cheaper Tablet/Smartphone in place of laptops/pc's for assessments and office use
- Making use of high skilled people in India and training them through HPA Training program
- Create a strategy to maximize the use of Technology

Technology:

How technology is used to minimize the cost of operations of current HPI services. In this we also define how we are going to achieve the objective along with the future prospects.

Mobile Application:

This will be used in place of a software/website both by the employee (for Questionnaire), and by HPA’s to carry out tests for the participants.

Once the questionnaire is complete participant will be able to book/cancel/modify the appointments using the app

Mobile alerts on assessment results
- History of Assessments results
- Health Tips and monthly newsletters sent though app

Note: Employees not having a Smartphone could be able to give responses to the Questionnaire through website or using the tablet provided by the HPA trainer.

Nov-11-2014

HPI – Health Profile Institute

A comprehensive supplier of methods of health development, IT, training and development

HPI Health Profile Institute works with method development, software development, training, and writing and research in health and wellness. Our market is for health development organization, group and individual.

Our clients are the leading occupational health, fitness, health actors, and universities and colleges. We save money for our customers by being a total supplier with methods of health development, information technology, education and research and development.

We are the founder and developer of the Health Profile Assessment - the leading method to motivate people to change lifestyle. We also develop HPI Health screening, HPI fitness test on a bike, HPI Workplace Profile, AUDIT and HPI Blood Profile.

You are using our methods by software Plustoo besides recording data also offer you advanced stats opportunities for analyzing, screening, mapping and evaluating health development. For Plustoo we also offer our own website Todaytoo.com for participants to answer surveys and questionnaires.

We have trained in the method Health Profile Assessment since 1979 and every year we train about 1 200 people in occupational health care, higher education and in other health actors.

We have developed methods since 1976 and software since 1988, we are pioneers in health and IT and one of the market leaders.
**Businessconcept**
To improve the health of our user customers by delivering a whole with the methods, IT and training for health development.
http://www.hpinordic.se/
This is from FeelGood website about HPI
http://www.feelgood.se/vara-tjanster/produkt/article/hpi-haelsoscreening/
Feelgood Services -
Attractive working environment

Alcohol and drugs - Management Education
Occupational Training for Managers
Ergonomics
Ergonomics and health in computer work
Feelgood assesses health and health work
Physical environment
Basic training in occupational
Health Promoting Leadership

Better Health

Feelgood Funktionsanalys
Occupational health and lifestyle survey (HALU)
Health Promoting Leadership
Health check
HPI- Hälloscreening
Fitness Test on bike
Courses in health
Massage at work

Sustainable living

Feelgood Funktionsanalys
Healthy heads
Occupational health and lifestyle survey (HALU)
Health Profile Evaluation
HPI- Hälloscreening
Inspirational lectures in lifestyle
Fitness Test on bike
Red to green - a change

Healthier rehabilitation

Arbetsförmågebedömning
Case manager
Feelgoodsamtalet
Fresh Line
Rehabilitation Training for Managers
Early action against alcohol in the workplace

HPI- Hälloscreening
The first step in a healthy strategic work
HPI- Hälloscreening
An easy way to get an overview of the entire organization's health
The foundation for understanding and choosing the right actions and the right priorities
A web survey with well thought out questions

Taking the pulse of the entire organization by HPI Health Screening ™
It should be easy to take the pulse of your employees' health and an overview of how the entire organization feels. Feelgood HPI Health Screening ™ consists of a balanced set of questions asked via an online questionnaire. This will give you a quick overall check on how things are with your employees.

Sound analysis puts his finger on what groups should be given priority and create the conditions to choose the right health initiatives.

By all employees respond to online questions about health habits, health experiences, health data and motivation for change, they are placed in three categories: risk group, possible risk group or healthy group. The grouping makes it easier and more cost effective to bring in help, advice and support to employees who are in need of health interventions.

Web questions in HPI Health Screening ™ provides sufficiently substantiated answers to the health status of your employees. Questions rings in health habits, health experiences, health data and motivation to change.

Healthy Habits include questions about:

- Physical activity and perceived physical fitness
- Tobacco
- Perceived stress in the lives and work
- Symptoms in the form of back / neck pain, pain, insomnia, upset stomach and fatigue
- Perceived health
- Weight Situation linked to health

The answer to the questions online gives you a transparent overview of categories in which your employees' ports:

- Risk group. The group that has the greatest need to change their lifestyle.
- Possible risk group. Here there is a possible need for lifestyle changes.
- Healthy group. A group with good lifestyle and health data.

After completing the process, the next step to strategically and continuously work with health, with a focus on those groups which are most in need of change. The responses of screening becomes an informed picture of how health promotion can have the best effect. On the Feelgood, we can help you move forward toward becoming a healthier company.

Continuously measure the impact of your work on health
Do you work continuously with this tool, you can measure the impact of your work on health by comparing the health changes between the different measurements.

For employees who fall into the risk group or possible risk group, it is about the individual level, adjust measures to achieve improvements in health. By measuring the impact of health management, employees themselves track their progress toward a healthier life.

Customers to HPI – FeelGood, Avonova, Previa, SATS
Avonova Link – About the company
http://avonova.se/sv/om-oss.aspx
Avonova Health AB - Sweden’s closest business health, one of the leading players in the company’s health, primary care and leadership support. With service in over 120 locations, 900 employees and a turnover of 900 million is Avonova a nationwide provider of health services. Our services will be an effective and profitable investment for our customers through increased productivity will lower health costs. Quickly and innovatively with local presence.

Link - http://avonova.se/sv/karnomraden.aspx
Previa is Sweden's leading business health. We help private companies and public organizations to create healthy and profitable workplaces where executives, managers and employees are happy and performing.
Previa offers a full range of services in health, leadership, work and rehabilitation. Our business is nationwide with units at 70 locations across the country. With services tailored to the individual and the organization, we develop your business and create tangible results that will help you achieve your business goals. We will help you develop your leadership skills, engage your employees, create a positive work environment and streamline your organization. We contribute actively to the companies or organizations increases the attractiveness, efficiency and competitiveness in the market.
Previa has approximately 1,000 employees at more than 85 sites around the country
Approximately 7,000 companies and organizations with 950,000 employees using Previa services
Previa's turnover in 2013 amounted to 870 million
Certified according to Quality (ISO 9001), Environment (ISO 14001) and Occupational (OHSAS 18001)

Our promise is that we create -
Results through people
Our vision -
Always requested
Our mission -
We get the human factor to work for you. We create results through the development of individuals and organizations.
Our offer Streamline your organization
Create an organization increases employee deliverability and operational competitiveness.
Develop your leadership
Do your managers into leaders who can develop the business by its employees.
Engage your employees
Involve the employee and working toward the organization's common goals.
Develop a work environment that helps employees do a better job.
H. Business Models:
1. Value chain analysis (HPI in India):

<table>
<thead>
<tr>
<th>INFRA</th>
<th>Small offices in Metro cities, IT and manpower outsourcing</th>
</tr>
</thead>
<tbody>
<tr>
<td>HR</td>
<td>HPI Assessors training, Employ personnel within India, Giving training to gym personal trainer</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>Data analysis using existing data base to understand Indian lifestyle conditions, Market testing, Developing mobile app and software for Mac os.</td>
</tr>
<tr>
<td>PROCUREMENT</td>
<td>Initial market investments, Supplier management, Sub contracting</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LOGISTIC IN</th>
<th>OPERATION</th>
<th>LOGISTIC OUT</th>
<th>M&amp;S</th>
<th>SERVICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Importing medical Kits from HPI to India, Distribution</td>
<td>Preparing Questionnaire, Invoicing and Billing, Tie-ups with Insurance providers, Hospitals and Gyms</td>
<td>Client visits for Knowledge sharing, Transportation to various Corporate offices</td>
<td>Events, health assessment camp in corporate company, gyms, college (health profile institutes courses), Sales analysis</td>
<td>Service offering based on customer requirement, follow-ups, education</td>
</tr>
</tbody>
</table>

a. Administrative and Firm Infrastructure:
- Small offices in Metro cities (As the entry is through Insurance and Corporate)
- IT and manpower outsourcing
- Legal and Finance management

b. Human Resource Management:
- HPI Assessors training
- Employ personnel within India
- Giving training to gym personal trainer.

c. TECHNOLOGICAL DEVELOPMENT: (R & D)
- Data analysis using existing data base to understand Indian lifestyle conditions.
- Market testing
- Developing Mobile application

d. PROCUREMENT:
- Initial market investments
  - Supplier management
  - Sub contracting
Frugal Innovation in Western smaller firms

e. INBOUND LOGISTICS:
Importing medical kits from HPI to India
Distribution

OPERATIONS:

Preparing Questionnaire
Invoicing and Billing

Tie-ups with Insurance providers, Hospitals and Gyms

g. OUTBOUND LOGISTICS:

Client visits for Knowledge sharing
Transportation to various Corporate offices

Order handling

MARKETING AND SALES: □ Client management,
□ Sales analysis

□ Market research to cater Indian needs
□ Events, health assessment camp in corporate companies

SERVICE:

Service offering based on customer requirement,

Maintaining customer relationship through follow-ups,

Educating them about healthy lifestyle on a regular basis

Analysis:

Value chain for HPI India:

In the primary activities main operation is transportation like importing equipment from Sweden and distributing to client place and on the other business travelling. Events, health and lifestyle camps to be conducted in corporate companies, gyms to grab attention. After sale and before sale Service is very much required like that giving proper education about the product offering and based on feedback should offer better service.

In the Supporting activities HPI required minimal capital investment to setting up new offices and hiring employees. HPI requires fewer infrastructures because IT and manpower could be outsourced or sub-contracted. Hiring skilled local people and giving proper training (like HPI ASSESSOR TRAINING). Setting up small R&D team to develop mobile application and software development and also to analysis the data using existing data base to understanding Indian lifestyle and market situation.

2. Business Model Canvas:

Following is the canvas model for HPI India developed to see all the key functionalites fit in a single model and this will further be developed once the complete research on the topic is complete
3. Product Life Cycle:

Figure 6 - PLC for HPI India
Analysis PLC- HPI India:

To understand where the existing product lie when it ventures into India through the Insurance companies is the reason for doing the PLC. As the assessment trend is very much non-existence the entry of HPI is termed out to be in the Introduction stage. As the entry for HPI is through an Insurance company which is already in the growth stage the entry of HPI thus can be deemed under the growth stage as the Insurance companies. HPI could very much enjoy the benefits of the growth stage as the Introduction stage costs and market penetration are often risky and costly.
Praveen Adari,
A tech enthusiast, programmer and a project manager. Looking to dedicate my time to work with Frugal Innovation and related innovation types. Maybe a future Entrepreneur.

Lakshmipathy Ganesh,
A telecom engineer who worked with robust networks and configurations. Hoping to make a mark in the field of low cost Innovation, and a wannabe Entrepreneur.