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Concepts of innovation for and from emerging markets

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Concepts of Innovation for and from Emerging Markets

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Abstract

A closer look at innovation for and from emerging markets respectively developing economies reveals that a variety of different terms and concepts related to this type of innovation exist. The goal of my conceptual paper is to present a comprehensive overview of related terms and concepts and to suggest theoretical based classification criteria in order to differentiate them. After a first investigation in relation to innovation for and from emerging markets the keywords 'reverse', 'frugal', 'jugaad', and 'bottom of the pyramid / bottom of pyramid / bop' were identified and used for searching the database of Google Scholar. For further investigation only texts were considered with at least eight various terms. 19 different texts were identified which classified for a further analysis. As results 33 identified terms in relation to innovation for and from emerging markets, various spellings and synonyms and references with at least two mentions in the identified texts are presented. As theoretical based classification criteria 'market orientation', 'determinants' (of innovation for and from emerging market), 'nature' (of innovation for and from emerging markets), 'sophistication', 'sustainability', 'novelty' and 'innovator type' were identified.

Keywords

Innovation, Emerging Markets, Developing Economies, Classification Criteria, Frugal Innovation, Bottom of the Pyramid, Reverse Innovation, Jugaad



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1 Introduction

A closer look at innovation for and from emerging markets respectively developing economies reveals that a variety of different terms and concepts related to this type of innovation exist. This terminological confusion is hard to keep track of and blurs the underlying concepts, since many of them are used synonymously or the understanding is rather vague. The goal of my conceptual paper is to present a comprehensive overview of related terms and concepts and to suggest theoretical based classification criteria in order to differentiate them.

2 Method

After a first investigation in relation to innovation for and from emerging markets respectively developing economies the following keywords were identified: ‘reverse’, ‘frugal’, ‘jugaad’, and ‘bottom of the pyramid / bottom of pyramid / bop’. These keywords were used for searching the database of Google Scholar. The search revealed (at 30.03.2016) the following number of search results (bracketed) relating to various combinations of the keywords (and in combination with the Google search operators ‘allintext:’, ‘OR’, and “ ” “”):

- (201) allintext: reverse jugaad “bottom of the pyramid” OR “bottom of pyramid” OR bop
- (263) allintext: reverse frugal jugaad
- (279) allintext: frugal jugaad “bottom of the pyramid” OR “bottom of pyramid” OR bop
- (479) allintext: reverse frugal “bottom of the pyramid” OR “bottom of pyramid” OR bop

All texts were scanned for terms in relation to innovation for and from emerging markets. Primarily I looked for reviews, overviews, surveys and summaries in order to cover the greatest possible term diversity. Therefore, for further investigation only texts were considered with at least eight various terms. I identified 19 different texts which classified for a further analysis. I present these identified texts in Table 1 along with the type of the texts and the mentions of various terms.

Text	Type of Text	Mentions of various Terms
Bhatti and Ventresca (2012)	Working Paper	17
Bhatti (2012)	Working Paper	11
Brem and Wolfram (2014)	Journal Article	13
Bubel, Ostraszewska, Turek, and Tylec (2015)	Conference Paper	8
Chataway, Hanlin, and Kaplinsky (2014)	Journal Article	9
Hamacher (2014)	Master Thesis	16
Millard (2014)	Literature Review	8
Ostraszewska and Tylec (2015)	Journal Article	8
Pansera (2013)	Journal Article	20
Pansera (2014)	Doctoral Thesis	23
Pansera and Sarkar (2016)	Journal Article	16
Prabhu and Jain (2015)	Journal Article	18
Rawat (2015)	Conference Paper	10
Rosca, Arnold, and Bendul (2016)	Journal Article	18
Soni and Krishnan (2014)	Journal Article	18



Terrio (2014)	Master Thesis	13
Von Zedtwitz, Corsi, Sjøberg, and Frega (2014)	Journal Article	12
Zeschky, Winterhalter, and Gassmann (2014a)	Conference Paper	10
Zeschky, Winterhalter, and Gassmann (2014b)	Journal Article	8

Table 1: Texts with (at least eight) various terms in relation to innovation for and from emerging markets

In the following chapter I present the identified 19 different texts and the mentioned terms and concepts related to innovation for and from emerging markets as well as the possibly stated classification criteria.

3 Overview

Bhatti and Ventresca (2012) look at 17 various terms related to the rhetoric surrounding of Frugal Innovation: Appropriate Technology, Below the Radar Innovation, BOP Innovation / Bottom of the Pyramid Innovation, Catalytic Innovation, Cost Innovation, Disruptive Innovation, Extreme Affordability, Frugal Engineering, Frugal Innovation, Inclusive Innovation, Innovation for Underserved / Market for Underserved / Underserved Population / Underserved Segments / Underserved Clients / Underserved Markets / Underserved Niches, Innovation under Constraints, Lean Engineering / Lean Product Development / Lean Manufacturing, more with less and for more people / MLM Innovation, Reverse Engineering, Reverse Innovation, Trickle up Innovation / Bottom up Innovation. Although no classification criteria are explicit stated, some commonalities are named as classification of ‘how’ activities and ‘why’ reasons in relation to the various concepts. ‘How’: cost efficiency, minimally viable product, optimizing supply chains, rebuilding value chains, user centric design, local capacity building, creative improvisation, business model innovation. ‘Why’: profiting from new markets, investing with social impact, serving with an ethical mission.

Bhatti (2012) mentions 11 various terms in relation to innovation in emerging markets: Bricolage, Bottom of the Pyramid Innovation, Creative Improvisation, Design Thinking, Frugal Innovation, Innovation for Underserved / Underserved Market / Underserved Customer / Underserved Communities, Jugaad, Lean Engineering, more with less and for more people / MLM Innovation, Reverse Engineering, Reverse Innovation / Reverse Diffusion. Although no classification criteria are stated some indications of the theoretical model for Frugal Innovation for dealing with the challenges of innovating for the underserved in emerging markets may be of use: social innovation deals with affordability constraints (Design Thinking), institutional innovation deals with institutional voids (Social Movements, Social Capital), business innovation deals with resource constraints (Bricolage, Improvisation, Jugaad, Reverse Engineering).

Brem and Wolfram (2014) analyze 13 various terms of innovation regarding to innovative approaches from emerging markets and following their research question “What are applicable characteristics to delineate the terms from emerging markets?”: Bottom-of-the-pyramid Innovation, Catalytic Innovation, Constraint-based Innovation, Extreme Affordability, Frugal Engineering, Frugal Innovation, Gandhian Innovation, Grassroots Innovation, Indigenous Innovation, Jugaad, more with less for more people / MLM Innovation, Reverse Engineering, Reverse Innovation. The following categories are stated to evaluate and assign the various types of innovations in order to differentiate them from each other: sophistication, sustainability, and emerging market orientation.



Bubel, Ostraszewska, Turek, and Tylec (2015) specify 8 various concepts of innovativeness that originates from developing countries: BOP, Cost Innovation, Disruptive Innovation, Frugal Innovation, Gandhian Innovation, Good-enough Innovation, Jugaad Innovation, Reverse Innovation. They differentiate Cost, Good-Enough, Frugal, and Reverse Innovations in terms of technology (low, medium, high) and market novelty (low, medium, high), based on Zeschky, Winterhalter and Gassmann (2014b).

Chataway, Hanlin, and Kaplinsky (2014) mention 9 various terms in relation to Inclusive Innovation: Appropriate Technology, Below the Radar Innovation, BOP Innovation, Frugal Innovation, Grassroots Innovation, Inclusive Innovation, Jugaad Innovation, Pro-Poor Innovation, Reverse Innovation. Thus the paper emphasize Inclusive Innovation no overall classification criteria are stated.

Hamacher (2014) looks at 16 various terms behind emerging market innovation: BOP Innovation, Bricolage, Creative Improvisation, Disruptive Innovation, Frugal Engineering, Frugal Innovation, Gandhian Innovation, Good-enough Innovation, Inclusive Innovation, Innovation for Underserved / Underserved Markets, Jugaad Innovation, Low-cost Innovation, MLM / more with less for more (people), Resource-constrained Innovation, Reverse Innovation, Value Innovation. He doesn't state explicit classification criteria, but refers amongst others to Bhatti (2012) and his indications of the theoretical model for Frugal Innovation for dealing with the challenges of innovating for the underserved in emerging markets: affordability constraints, institutional voids, and resource constraints.

Millard (2014) mentions 8 various innovation theories in development contexts: Appropriate Technology, Bottom of the Pyramid / Base of the Pyramid / BoP, Frugal Innovation, Gandhian Approach, Inclusive Innovation, Jugaad Innovation, Reverse Innovation / Trickle-up Innovation. Although no classification criteria are explicit stated, some indications of the summary may be of use as commonalities: openness, inclusiveness, participation (consumers, producers, business partners, innovators), focus on local resources, and independency from outside demands or inputs.

Ostraszewska and Tylec (2015) specify 8 various concepts of innovativeness that originates from developing countries: BOP, Cost Innovation, Disruptive Innovation, Frugal Innovation, Gandhian Innovation, Good-enough Innovation, Jugaad Innovation, Reverse Innovation. To specify and differentiate the considered concepts of innovation they stated the following main characteristics along with examples of enterprises and products, based on Christensen (1997), Zeschky, Winterhalter, & Gassmann (2014b), Brem & Wolfram (2014), and Prahalad & Mashelkar (2010): orientation, aim, description, innovative strategy, and specificity. Furthermore, the various types of innovation are classified according to their ability to introduce changes (same for less, adapted for less, new for less) and the market where they are offered (emerging markets, developed markets), based on Zeschky, Winterhalter and Gassmann (2014b).

Pansera (2013) mentions directly or indirectly 20 various terms to provide an overview of theoretical approaches to describe innovation at the BOP respectively innovation in a resource-constrained environment: Appropriate Technology, Below-the-Radar Innovation, Blowback Innovation, BOP Innovation, Bricolage Innovation, Catalytic Innovation, Disruptive Innovation, Empathetic Innovation, Frugal Innovation, Frugal Reengineering, Gandhian Innovation, Grassroots Innovation, Inclusive Innovation, Indigenous Innovation, Innovation for Underserved / Underserved Markets, Jugaad, Low-cost Innovation, more with less and for more people / MLM Innovation, Reverse Innovation, Trickle-up Innovation. Although no overall classification criteria



are stated, the author depicts main determinants that move heterodox innovators (Below-the-Radar Innovation as umbrella term for BOP, Grassroots Innovation, Inclusive Innovation, and Jugaad): social needs, resource constraints, market affordability, institutional voids, and environmental concerns. Furthermore, he states that entrepreneurship and innovation at the BOP are classified in three types: poor framed as consumers (creation of new markets at the BOP), poor framed as co-producers (creation of alliances at the BOP), and poor framed as entrepreneurs/innovators (creation of institutional framework to include grassroots innovation in public policy).

Pansera (2014) looks at 23 various terms related to innovation for development: Appropriate Technology, Below-the-Radar Innovation, Blowback Innovation, BOP Innovation / Bottom of the Pyramid Innovation, Bricolage, Disruptive Innovation, Empathetic Innovation, Frugal Innovation, Gandhian Innovation, Good-enough Innovation, Grassroots Innovation, Inclusive Innovation / Inclusive Growth / Inclusive Development / Inclusive Innovation Systems / Inclusive Business Models, Indigenous Innovation, Indovation / Hindolence, Innovation for Underserved / Underserved Markets, Jugaad Innovation, Long Tail Innovation / Long Tailoring Innovation, Low-cost Innovation, more with less and for more people / MLM Innovation, Pro-Poor Innovation / From-the-Poor, Resource-constrained Innovation / RCI, Reverse Innovation, Trickle-up Effect. He states no overall classification criteria, since he argues that “[i]t is virtually impossible to classify the literature analysed into a set of clearly defined and fixed categories.” (p. 55) and that “[a]ny taxonomy will degrade the complexity of each approach and would not take into account the fact that ideas, meanings and principles overlap and are dynamic in practically all the works considered.” (p. 55).

Pansera and Sarkar (2016) mention 16 various terms in relation to innovation at the BOP respectively innovation by the poor: Appropriate Technology, Below-the-Radar Innovation, Blowback Innovation, BOP Innovation, Bricolage Innovation, Disruptive Eco-Innovation, Empathetic Innovation, Frugal Innovation, Gandhian Innovation, Grassroots Innovation, Inclusive Innovation, Innovation by the Poor, Innovation for Underserved / Underserved Market / Underserved Customer, Jugaad Innovation, Long Tail Innovation / Long Tailoring Innovation, Reverse Innovation. Thus the paper emphasizes Frugal Innovations of Grassroots Entrepreneurs no overall classification criteria are stated,

Prabhu and Jain (2015) look at 18 various innovation constructs and theoretical domains related to Jugaad: Bricolage, Design Thinking, Disruptive Innovation, Effectuation, Frugal Engineering, Frugal Innovation, Gandhian Innovation, Grassroots Innovation, Improvisation, Inclusive Innovation, Indian Innovation, Indigenous Innovation, Innovation for Underserved / Underserved Communities, Jugaad Innovation, Lean Experimentation, Low-cost Innovation, more with less for more people / MLM Innovation, Reverse Innovation. The following elements are used to classify the various innovation constructs: frugality, flexibility, and inclusivity.

Rawat (2015) mentions 10 various terms inspired by Indian innovative traits: Bottom of the Pyramid Innovation, Frugal Innovation, Gandhian Innovation / Gandhian Engineering, Global Innovation, Grassroots Innovation, Inclusive Innovation, Indovation / Indian Innovation, Jugaad Innovation, MLM Innovation / More value for less cost for more people, Reverse Innovation. Thus the paper emphasizes India's National Innovation System no overall classification criteria are stated.

Rosca, Arnold, and Bendul (2016) specify 18 various terms of innovation in the light of Frugal and Reverse Innovation: Blowback Innovation, Bottom of Pyramid Innovation, Catalytic Innovation, Cost Innovation, Disruptive Innovation, Frugal Engineering, Frugal Innovation,



Gandhian Innovation, Global Innovation, Good-enough Innovation, Grassroots Innovation, Inclusive Innovation, Indigenous Innovation, Jugaad Innovation, Resource constrained Innovation, Reverse Engineering, Reverse Innovation, Trickle-up Innovation. Thus the paper emphasizes Frugal and Reverse Innovation no explicit classification of the various terms is undertaken. Implicit they state the following commonalities: impact, market opportunities, point of origin, target markets, sustainability impact. Furthermore, they distinguish the direction of innovation between (a) from developing countries to developing countries, (b) from industrialized countries to developing countries, (c) from developing countries to industrialized countries (reverse), and (d) from industrialized countries to worldwide customers.

Soni and Krishnan (2014) look at 18 various key concepts that depict Frugal Innovation: Appropriate Technology, Bottom of pyramid Innovation, Bricolage, Disruptive Innovation, Effectuation, Frugal Engineering, Frugal Innovation, Gandhian Innovation, Grassroots-level Innovation, Improvisation, Inclusive Innovation, Indian Innovation, Innovation for Underserved / Underserved Markets / Underserved Customers, Jugaad, Lean Engineering, more with less for more / MLM Innovation, Reverse Engineering, Reverse Innovation. The various concepts are related to the nature of Frugal Innovation with three differentiations: mindset (Jugaad, Bricolage, Effectuation, Improvisation, Gandhian Innovation, Inclusive Innovation), process (Frugal Engineering, Lean Engineering), and outcome (Appropriate Technology, Disruptive Innovation, Bottom of Pyramid Innovation, Reverse Innovation). Furthermore, frugal innovators are classified in three types: grassroots-level, domestic-enterprise level, and MNC-subsiary level.

Terrio (2014) looks at 13 various innovation concepts in developing countries: Blowback Innovation, Bottom of the Pyramid / BOP, Cost Innovation, Disruptive Innovation, Frugal Innovation, Gandhian Innovation, Global Innovation, Good-enough Innovation, Inclusive Innovation, Jugaad Innovation, Resource-constraint Innovation, Reverse Innovation, Trickle-up Innovation. Thus the paper emphasizes Reverse Innovation no useable classification criteria are stated.

Von Zedtwitz, Corsi, Sjøberg, and Frega (2014) define 12 various terms relating to frequently used concepts of innovation for and from developing economies: Blowback Innovation, Cost Innovation, Disruptive Innovation, Frugal Innovation, Global Innovation, Indigenous Innovation, Innovation at the Bottom of the Pyramid, Jugaad / Gandhian Innovation, Resource-constrained Innovation, Reverse Innovation, Shanzhai Innovation, Trickle-up Innovation. Thus the paper emphasize Global Innovation no overall classification criteria are stated, but they distinguish the direction of innovation in 16 different possible combinations of two different specifications (advanced countries and developing countries) and four different categories (concept, development, primary market, and secondary market).

Zeschky, Winterhalter, and Gassmann (2014a) mention 10 various terms in relation to Resource-constrained Innovation: Base of the Economic Pyramid / Bottom of the Pyramid, Cost Innovation, Frugal Innovation, Gandhian Innovation, Global Innovation, Good-enough Innovation, Jugaad, Resource-constrained Innovation, Reverse Innovation, Trickle-up Innovation. They state the following criteria for a typology of Resource-constrained Innovation (as an umbrella term for Cost Innovation, Good-enough Innovation, Frugal Innovation, and Reverse Innovation) along with typical innovation traits and examples: product description, target customer, innovation strategy, type of innovation, and novelty of innovation.



Zeschky, Winterhalter, and Gassmann (2014b) mention 8 various terms in relation to innovations aimed at resource-constrained customers in emerging markets: Cost Innovation, Frugal Innovation, Gandhian Innovation, Good-enough Innovation, Jugaad, Resource-constraint Innovation / Resource-constrained Innovation, Reverse Innovation, Trickle-up Innovation. The following classification criteria are stated to categorize Cost, Good-enough, Frugal, and Reverse Innovations: market novelty and technical novelty. Furthermore, they state the same classification criteria as in their previously mentioned paper Zeschky, Winterhalter, and Gassmann (2014a).

4 Results

As an initial result I present in Table 2 the 33 identified terms in relation to innovation for and from emerging markets, classified by total mentions in the 19 texts.

Term	Total Mentions
Frugal Innovation	19
Reverse Innovation	19
Jugaad Innovation	18
BOP Innovation	17
Gandhian Innovation	16
Cost Innovation	12
Disruptive Innovation	12
Inclusive Innovation	12
Grassroots Innovation	9
MLM Innovation (respectively phrase in conjunction with 'More', 'Less', 'More')	9
Resource-constrained Innovation	9
Trickle-up Innovation	9
Good-enough Innovation	8
Frugal Engineering	8
Innovation for Underserved (respectively phrase in conjunction with 'Underserved')	8
Appropriate Technology	7
Bricolage Innovation	7
Blowback Innovation	6
Indigenous Innovation	6
Below the Radar Innovation	5
Global Innovation	5
Reverse Engineering	5
Catalytic Innovation	4
Improvisation	4
Indovation (respectively 'Indian Innovation' or 'Hindolence')	4



Lean Engineering	4
Design Thinking	3
Empathetic Innovation	3
Pro-Poor Innovation	3
Effectuation	2
Extreme Affordability	2
Long Tail Innovation	2
Value Innovation	1
Vernacular equivalents in other languages	x

Table 2: Terms in relation to innovation for and from emerging markets

Moreover, I further specified the identified terms and their various spellings and synonyms (c.f. Table 3). Different versions with hyphen are not included in Table 3. Along the combination of the main expression (e.g. ‘frugal’) with the phrase ‘innovation’ (e.g. ‘frugal innovation’), other phrases can be found in the literature, for example ‘solution’, ‘technology’, ‘product’, ‘service’ or ‘alternative’ (e.g. ‘frugal alternative’), and are also not included in Table 3.

Furthermore, the terms and concepts in relation to innovation for and from emerging markets were sometimes categorized in superordinate concepts. So considered Millard (2014) these types of innovations as theoretical approaches to Social Innovation and Bhatti (2012), Hamacher (2014), and Pansera (2013, 2014) see these innovations embedded in the concept of Social Innovation. Pansera (2013, 2014) also name these types of innovation ‘Heterodox Innovation’ respectively “[...] different, heterodox formulations of innovation and technical change in the so-called ‘developing world’.” (Pansera 2014, p. 14)

Term	Various Spellings / Synonyms
Appropriate Technology	Intermediate Technology
Below the Radar Innovation	as umbrella term for BOP, Grassroots Innovation, Inclusive Innovation, and Jugaad
Blowback Innovation	Innovation Blowback, South-North Innovation Transfer, Reverse Innovation, Trickle-up Innovation
BOP Innovation	in conjunction with ‘Innovation’: BoP, Bottom of Pyramid, Bottom of the Pyramid, Base of the Pyramid, Bottom of the economic Pyramid, Base of the economic Pyramid, Bottom of the Economic Development Pyramid, Inclusive Innovation
Bricolage Innovation	Bricolage, Social Bricolage, Grassroots Innovation
Catalytic Innovation	
Cost Innovation	Low-cost Innovation, Frugal Innovation
Design Thinking	
Disruptive Innovation	
Effectuation	
Empathetic Innovation	



Extreme Affordability	
Frugal Engineering	Frugal Reengineering, Constraint-based Innovation
Frugal Innovation	Gandhian Innovation, Jugaad Innovation; as umbrella term for Jugaad, Bricolage, Effectuation, Improvisation, Gandhian Innovation, Inclusive Innovation, Frugal Engineering, Lean Engineering, Appropriate Technology, Disruptive Innovation, Bottom of Pyramid Innovation, and Reverse Innovation
Gandhian Innovation	Gandhian Engineering, Jugaad Innovation, Frugal Innovation
Global Innovation	Reverse Innovation
Good-enough Innovation	Frugal Innovation
Grassroots Innovation	Grassroots-level Innovation, Social Bricolage
Improvisation	Creative Improvisation, Jugaad Innovation
Inclusive Innovation	Inclusive Growth, Inclusive Development, Inclusive Innovation System, Inclusive Business Model, BOP Innovation, Gandhian Engineering
Indigenous Innovation	
Indovation	Indian Innovation, Hindolence
Innovation for Underserved	Innovation serving the Underserved, Solutions for Underserved, Innovating for the Underserved, Underserved Costumer, Underserved Communities, Underserved Population, Underserved Segments, Underserved Clients, Underserved Markets, Underserved Niches, Frugal Innovation, BOP Innovation, Jugaad
Jugaad Innovation	Jugaad, Gandhian Innovation, Frugal Innovation
Lean Engineering	Lean Engineering, Lean Product Development, Lean Manufacturing, Lean Experimentation
Long Tail Innovation	Long Tailoring Innovation
MLM (More value for Less cost for More people) Innovation	more with less for more, more with less for more people, more with less and for more people, more value for less cost for more people, Frugal Innovation
Pro-Poor Innovation	From-the-Poor-Innovation, Innovation by the Poor, Innovation for the poor by the poor
Resource-constrained Innovation	RCI, Resource-constraint Innovation, Innovation under Constraints, Constraint-based Innovation, Frugal Engineering; as umbrella term for Cost Innovation, Good-enough Innovation, Frugal Innovation, and Reverse Innovation
Reverse Engineering	
Reverse Innovation	Reverse Diffusion, Trickle-up Innovation, Blowback Innovation
Trickle-up Innovation	Trickle-up Effect, Reverse Innovation, Blowback Innovation, Bottom up Innovation



Value Innovation	
Vernacular equivalents of Bricolage, Frugal Innovation, and Indigenous Innovation in other languages	Arrangiarsi (Italy), Chapuza (Spain), DIY (USA), Gambiarra / Jeitinho (Brazil), Jua Kali (Kenya), Jugaad (India), Kanju (parts of Africa), Solution D / Systeme D (France), Zizhu Chuangxin / Jiejian Chuangxin / Shanzai (China)

Table 3: Various spellings and synonyms of different terms in relation to innovation for and from emerging markets

In Table 4 I present stated references with at least 2 mentions in the identified texts of the various terms in relation to innovation for and from emerging markets.

Terms	References (at least 2 mentions)
Appropriate Technology	Kaplinsky 1990, Kaplinsky 2011, Schumacher 1973, Smith 2005
Below the Radar Innovation	Kaplinsky 2011
Blowback Innovation	Brown & Hagel 2005
BOP Innovation	Kanter 2008, London & Hart 2004, London 2009, Prahalad & Hart 2002, Prahalad 2004, Prahalad 2006, Prahalad & Mashelkar 2010, Prahalad 2012
Bricolage Innovation	Baker et al. 2003, Baker & Nelson 2005, Gundry et al. 2011, Lévi-Strauss 1966
Catalytic Innovation	Christensen et al. 2006
Cost Innovation	Von Hippel 2005, Williamson 2010, Zeng & Williamson 2007
Design Thinking	Brown & Wyatt 2010
Disruptive Innovation	Christensen 1997, Hart & Christensen 2002
Effectuation	Sarasvathy 2001
Empathetic Innovation	Gupta 2010, Gupta 2012
Extreme Affordability	(no reference)
Frugal Engineering	Kumar & Puranam 2012, Radjou et al. 2012, Sehgal et al. 2010
Frugal Innovation	Bound & Thornton 2012, Gupta & Wang 2009, Sharma & Iyer 2012, Woolridge 2010, Zeschky et al. 2011, Zeschky et al. 2014b
Gandhian Innovation	Prahalad & Mashelkar 2010
Global Innovation	Von Zedtwitz et al. 2014
Good-enough Innovation	Gadiesh et al. 2007, Hang et al. 2010, Zeschky et al. 2014b
Grassroots Innovation	Seyfang & Smith 2007
Improvisation	(only one mention) Bound & Thornton 2012, Feldman & Pentland 2003, Miner et al. 2001
Inclusive Innovation	George et al. 2012, Hall et al. 2012



Indigenous Innovation	Lazonick 2004, Lu 2000
Indovation (respectively 'Indian Innovation' or 'Hindolence')	(only one mention) Birtchnell 2013, Krishnan 2010, Sarasvathy 2001, Tiwari & Herstatt 2012
Innovation for Underserved (respectively phrase in conjunction with 'Underserved')	Prahalad 2004. Prahalad & Mashelkar 2010
Jugaad Innovation	Cappelli et al. 2010, Krishnan 2010, Petrick and Juntiwassarakij 2011, Prahalad & Mashelkar 2010, Radjou et al. 2012, Sharma & Iyer 2012
Lean Engineering	(only one mention) Ries 2011, Womack et al. 1991
Long Tail Innovation	Anderson & Markides 2007
MLM Innovation (respectively phrase in conjunction with 'More', 'Less', 'More')	Prahalad & Mashelkar 2010, Prahalad 2012
Pro-Poor Innovation	Gupta 2012
Resource-constrained Innovation	Ray & Ray 2010, Ray & Ray 2011
Reverse Engineering	Samuelson & Scotchmer 2002
Reverse Innovation	Agarwal & Brem 2012, Govindarajan & Ramamurti 2011, Govindarajan 2012, Govindarajan & Trimble 2012, Immelt et al. 2009, Trimble 2012
Trickle-up Innovation	Hart 2011
Value Innovation	(only one mention) Kim & Mauborgne 2005
Vernacular equivalents in other languages	Pansera 2014, Prabhu & Jain 2015, Radjou et al. 2012

Table 4: References in relation to innovation for and from emerging markets

5 Classification Criteria

As a first step to differentiate and classify the different terms and concepts related to innovation for and from emerging markets, I elaborate the following classification criteria from the analyzed papers, which I present in the following sections:

- market orientation
- determinants (of innovation for and from emerging market)
- nature (of innovation for and from emerging markets)
- sophistication
- sustainability
- novelty
- innovator type



5.1 Market Orientation

According to Brem and Wolfram (2014) “[t]he terms vary concerning emerging, developed, or international markets in matter of sales or supply market.” (p. 12). In Emerging Market-oriented terms and concepts emerging markets are the target market. In the Global (respectively International) Market-oriented ones emerging and developed markets are combined, “either the concept originated in emerging markets but is applied in both or the BoP is the general focus without a specific sales market direction.” (Brem and Wolfram 2014, p. 15). Developed Market-oriented terms and concepts focus on developed markets as target markets.

Emerging Market-oriented	Global Market-oriented	Developed Market-oriented
<ul style="list-style-type: none"> • Jugaad Innovation • Gandhian Innovation • Frugal Innovation • Indigenous Innovation • Catalytic Innovation • Cost Innovation • Good-enough Innovation 	<ul style="list-style-type: none"> • Reverse Innovation • Gandhian Innovation • Frugal Innovation • Frugal Engineering / Constraint-based Innovation • Grassroots Innovation 	<ul style="list-style-type: none"> • Reverse Innovation

Table 5: Classification Criteria ‘Market Orientation’, based on Brem and Wolfram (2014), Ostraszewska and Tylec (2015), and Zeschky, Winterhalter, and Gassmann (2014a, b)

For a more comprehensive classification, I suggest the classification criteria, stated in Table 6, in relation to Emerging Market orientation (so there is no category ‘From Developed Markets to Developed Markets’), inspired by Rosca, Arnold, and Bendul (2016). This classification distinguishes between origin market (‘from’) and target market (‘to’).

From Emerging Markets to Emerging Markets	From Emerging Markets to Global Markets	From Emerging Markets to Developed Markets	From Developed Markets to Global Markets	From Developed Markets to Emerging Markets
<ul style="list-style-type: none"> • Jugaad Innovation • Gandhian Innovation • Frugal Innovation • Indigenous Innovation • Catalytic Innovation • Cost Innovation • Good-enough Innovation 	<ul style="list-style-type: none"> • Reverse Innovation / Global Innovation • Gandhian Innovation • Frugal Innovation • Frugal Engineering / Constraint-based Innovation • Grassroots Innovation 	<ul style="list-style-type: none"> • Reverse Innovation / Blowback Innovation / Trickle-up Innovation 	<ul style="list-style-type: none"> • “Classic Innovation” • (Grassroots Innovation) 	<ul style="list-style-type: none"> • Appropriate Technology



Table 6: Adapted Classification Criteria ‘Market Orientation’, based on Brem and Wolfram (2014), Ostraszewska and Tylec (2015), Rosca, Arnold, and Bendul (2016), and Zeschky, Winterhalter, and Gassmann (2014a, b)

For an even more detailed classification in relation to ‘Market orientation’ I refer to von Zedtwitz, Corsi, Sjøberg, and Frega (2015). They divide the idea of the origin market in ‘concept’ (the type of market respectively country, where a product is conceived) and ‘development’ (the type of market respectively country, where a product is developed). The idea of the target market is divided into ‘primary market’ (market, where the product is initially commercialized) and ‘secondary market’ (market, where the product is commercialized after the first commercialization). In my opinion the division in ‘primary market’ and ‘secondary market’ is merged in the concept of ‘global market’, without consideration of the chronological sequence (first and second). However, with two different specifications (advanced countries and developing countries) in four different categories (concept, development, primary market, and secondary market) there are 16 different possible combinations in von Zedtwitz, Corsi, Sjøberg, and Frega (2015) “Map of Global Innovation Flows” (p. 18).

5.2 Determinants (of Innovation for and from emerging market)

Determinants of Innovation for and from emerging market describe “[...] challenges of innovating for the underserved in emerging markets” (Bhatti 2012 p. 22) respectively main determinants that move innovation and technical change in the so-called ‘developing world’ (Pansera 2013, p. 15). According to Pansera (2013, p. 16) the determinant ‘Social Needs’ describe solving social problems such as tackling poverty and its consequences, ‘Resource Constrains’ refer to the coping with scarce or inappropriate resources, ‘Market Affordability’ respectively ‘Affordability Constraints’ (Bhatti 2012) describe the factor, that the offered products or processes must be affordable, ‘Institutional Voids’ characterize the dealing of innovators with faulty institutions, corruption, unclear property rights, inappropriate infrastructures and cultural barriers, and the determinant ‘Environmental Concerns’ refers to the awareness of the environmental degradation caused by a fast development.

Social Needs	Resource Constraints	Affordability Constraints	Institutional Voids	Environmental Concerns
<ul style="list-style-type: none"> • BOP • Grassroots Innovation • Inclusive Innovation • Gandhian Innovation • Indigenous Innovation • Catalytic Innovation 	<ul style="list-style-type: none"> • BOP • Bricolage • Frugal Innovation • Frugal Engineering • Grassroots Innovation • Gandhian Innovation • Improvisation • Jugaad Innovation • Reverse Engineering 	<ul style="list-style-type: none"> • BOP • Design Thinking • Frugal Innovation • Jugaad Innovation • Inclusive Innovation • Gandhian Innovation • Cost Innovation • Good-enough Innovation 	<ul style="list-style-type: none"> • Frugal Innovation • Inclusive Innovation • Jugaad Innovation 	<ul style="list-style-type: none"> • Grassroots Innovation • Frugal Innovation



	<ul style="list-style-type: none"> • Reverse Innovation • Resource-constrained Innovation • Cost Innovation • Good-enough Innovation 	<ul style="list-style-type: none"> • Reverse Innovation 		
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Table 7: Classification Criteria ‘Determinants’, based on Bhatti (2012), Brem and Wolfram (2014), Ostraszewska and Tylec (2015), Pansera (2013), Prabhu and Jain (2015), and Zeschky, Winterhalter, and Gassmann (2014a, b)

5.3 Nature (of Innovation for and from emerging markets)

Soni and Krishnan (2014) “[...] highlight that “frugality”, as a concept, has existed in various disciplines for a long time.” (p. 33) In their opinion frugal innovations involve some combination of frugal mindset, frugal process, and frugal outcome. “[...] [A] frugal mindset is encouraged by a resource-scarce environment, weaker institutional intermediaries, and a higher tolerance for uncertainty. Frugal processes are espoused by poor property rights regime and a critical size of lead market; and frugal outcomes are influenced by the network-position of innovators, and the presence of critical lead-markets.” (Soni and Krishnan 2014, p. 29)

Mindset	Process	Outcome
<ul style="list-style-type: none"> • Jugaad • Bricolage • Effectuation • Improvisation • Gandhian Innovation • Inclusive Innovation 	<ul style="list-style-type: none"> • Frugal Engineering • Lean Engineering 	<ul style="list-style-type: none"> • Appropriate Technology • Disruptive Innovation • Bottom of Pyramid Innovation • Reverse Innovation

Table 8: Classification Criteria ‘Nature’, based on Soni and Krishnan (2014)

5.4 Sophistication

According to Brem and Wolfram (2014) sophistication of a term related to innovation for and from emerging markets “[...] is evaluated by the complexity of inherent processes as well as the interaction of the categories involved (communication and coordination level).” (p. 12)

Low Sophistication (almost no coordination or systematic communication)	Low-Medium Sophistication	Medium Sophistication (at least a minimum level of communication between people of the same group to coordinate them)	Medium-High Sophistication	High Sophistication (sophisticated level of coordination, communication, and process complexity)
<ul style="list-style-type: none"> • Jugaad Innovation 	<ul style="list-style-type: none"> • Gandhian Innovation 	<ul style="list-style-type: none"> • Catalytic Innovation 		<ul style="list-style-type: none"> • Reverse Innovation



• Grassroots Innovation	• Frugal Innovation	• Frugal Engineering / Constraint-based Innovation • Indigenous Innovation		
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Table 9: Classification Criteria ‘Sophistication’, based on Brem and Wolfram (2014)

5.5 Sustainability

When we take a closer look on the determinant ‘Environmental Concerns’ we can distinguish it in a more detailed way. Brem and Wolfram (2014) suggest a classification in low/medium/high consideration of two claims of sustainability: social responsibility and ecological responsibility.

Low Sustainability (no social and ecological responsibility included)	Medium Sustainability (social or ecological responsibility focused)	High Sustainability (social and ecological responsibility focused)
• Jugaad Innovation • Frugal Engineering / Constraint-based Innovation • Reverse Innovation	• Gandhian Innovation • Frugal Innovation • Catalytic Innovation • Indigenous Innovation	• Grassroots Innovation

Table 10: Classification Criteria ‘Sustainability’, based on Brem and Wolfram (2014)

5.6 Novelty

Zeschky, Winterhalter, and Gassmann (2014a) “[...] employed the established dimensions of product and market novelty (Ansoff 1965) as a conceptual framework to analyze if and how the product examples [related to cost, good-enough, frugal, and reverse innovation] were new compared to existing standards.” (p. 5). “In the Ansoff matrix, innovations are distinguished according to their technical and market novelty; the matrix thus classifies innovations by whether they are market extensions based on existing technologies, original product development activities for existing markets, or newly developed products for entirely new markets.” (Zeschky, Winterhalter, and Gassmann 2014b, p. 3)

Low Technical Novelty	Low-Medium Technical Novelty	Medium Technical Novelty	Medium-High Technical Novelty	High Technical Novelty
• Cost Innovation	• Good-enough Innovation • Jugaad Innovation • Reverse Innovation	• Good-enough Innovation • Gandhian Innovation	• Good-enough Innovation • Frugal Innovation	• Frugal Innovation • Disruptive Innovation

Table 11: Classification Criteria ‘Technical Novelty’, based on Ostraszewska and Tylec (2015), and Zeschky, Winterhalter, and Gassmann (2014a, b)



Low Market Novelty	Low-Medium Market Novelty	Medium Market Novelty	Medium-High Market Novelty	High Market Novelty
<ul style="list-style-type: none"> • Reverse Innovation • Cost Innovation 	<ul style="list-style-type: none"> • Reverse Innovation • Good-enough Innovation 	<ul style="list-style-type: none"> • Reverse Innovation 	<ul style="list-style-type: none"> • Reverse Innovation 	<ul style="list-style-type: none"> • Reverse Innovation • Frugal Innovation • Disruptive Innovation

Table 12: Classification Criteria 'Market Novelty', based on Ostraszewska and Tylec (2015), and Zeschky, Winterhalter, and Gassmann (2014a, b)

5.7 Innovator Type

Soni and Krishnan (2014) state that frugal innovators operate at three levels: grassroots, domestic-enterprises, and MNC-subsidaries. "Grassroots-level frugal innovators are individuals or a group of people who attempt to solve a given problem adopting locally available ingenuity, and in doing so creates a novel solution. [...] [T]here are several domestic firms which have reconfigured their processes and business models to address the fledging domestic market mostly located at the base of economic pyramid. We call them as domestic-corporate frugal innovators. [...] The last category includes the MNC-subsidary frugal innovators. The large domestic market, coupled with cheap and good quality talent available in India and China has attracted several MNCs [...]." (Soni and Krishnan 2014, p. 35)

Grassroots Innovators (single entrepreneurs, local communities, micro firms, clusters of micro-firms)	Domestic-Enterprise Innovators (cooperatives, small firms, network or clusters of firms)	MNC-Subsidiary Innovators (national or public firms, multinational corporations)
<ul style="list-style-type: none"> • Frugal Innovation • Grassroots Innovation • Inclusive Innovation • Jugaad Innovation 	<ul style="list-style-type: none"> • Frugal Innovation • Jugaad Innovation 	<ul style="list-style-type: none"> • Frugal Innovation • BOP Innovation

Table 13: Classification Criteria 'Innovator Type', based on Pansera (2013), and Soni and Krishnan (2014)

6 Summary and Outlook

In this paper I provided a comprehensive overview of 33 terms and concepts related to innovation for and from emerging markets and confirmed the synonymously use as well as different levels of view. Furthermore, I presented seven classification criteria, suggested from different authors to differentiate these terms and concepts. As a suggestion for visualize the classification (except for the criteria determinants and nature of innovation for and from emerging market) I present in Figure 1 a radar chart using the example of Frugal Innovation and Reverse Innovation.

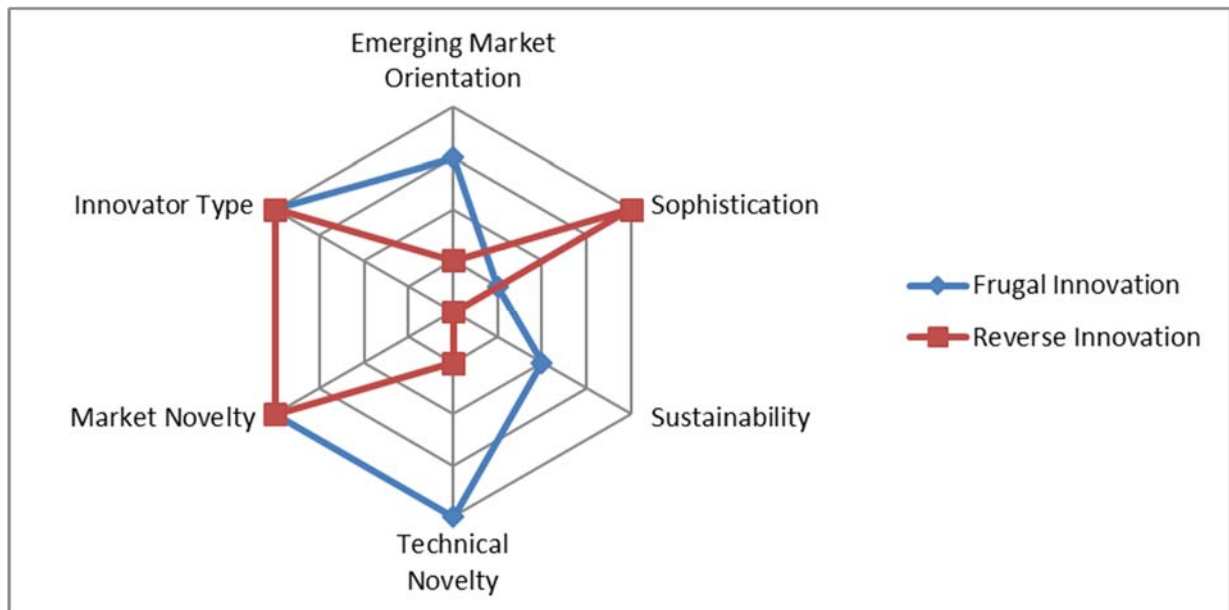


Figure 1: Radar chart for the classification of Frugal Innovation and Reverse Innovation

The next step should be to classify the remaining terms and concepts that have not yet been classified in the existing criteria. In the course of this classification it may be possible that some categories need to be modified and that new categories get identified or need to be created. It will be a challenge to classify all terms and concepts related to innovation for and from emerging markets “[...] into a set of clearly defined and fixed categories” (Pansera 2014, p. 55), due to the fact that the definitions of terms related to innovation for and from emerging markets are various and dynamic (e.g. definition of BOP Innovation with regard to Prahalad (the poor as consumers) or to London and Hart (the poor as co-creators)) and the concepts are complex and full of overlapping ideas, meanings, characteristics, principles, and examples.

However, based on the findings in this paper I want to focus in my further research on the theoretical and empirical consideration of the aspect of sustainability in concepts related to innovation for and from emerging markets. I see the potential in innovation for and from emerging markets to contribute to the idea of sustainability, e.g. frugal products as a concept for growth-neutral corporations (in the context of de-growth) or as a concept for a circular economy.

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