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VALUATION AND INCEPTION OF ETHICAL FASHION SMART WEARABLE BORN-GLOBAL SPECULATIVE START-UP (BGSS)

Prafulla Kumar Padhi* Department of Textile Engineering, ggllc2009@gmail.com
University of Minho, Guimarães,
Portugal

*Corresponding author

ABSTRACT

- Aim/Purpose** Since the valuation of a born-global speculative start-up (BGSS) has been a guessing game and there is no framework in the literature from ethical fashion smart wearable (EFSW) venture valuation perspective, this research explores to create a holistic model using multi-stage valuation method to value BGSS at its inception and investigates how ethical is ethical fashion?
- Background** The concept of 'Born-Global' firm was introduced into business theory during 1988. Nowadays, ventures start with a global vision from their inception to introduce products and services in overseas markets. Speculative investment has been a common practice to start-up expedition. Investors gamble on speculative start-ups. The inception phase of any start-up is the embryonic phase and is, therefore, more speculative than successive phases for additional investments. BGSS at its inception possess no operating history. Today fashion industry is one of the largest industries globally, growing leaps and bounds with valuation at 3 trillion U.S. dollars. The emerging smart fashion wearable market projected to cross US\$ 30 billion during 2017. Fashion exists not only in garments but also other wearables such as the bracelet, watches, jewelry, and other accessories. Ethical fashion is all about betterment for the people and community at large. This paper identifies the relevant actors and their impact on the ethical aspects and status of the fashion industry.
- Methodology** The methodology used in this research both qualitative and quantitative approach. Since ethical fashion is a social phenomenon, the qualitative approach is appropriate to deal with various perspective analysis of ethical fashion using case study on four ethical fashion smart wearable ventures. The quantitative

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	<p>method calibrates the valuation of a BGSS at the inception stage using a noble pragmatic multi-stage valuation method because it provides the incentive to focus on achieving the best risk/cost ratio.</p>
Contribution	<p>This research bestows valuable insight using a noble multi-stage valuation method that has been proven successful based on author's extensive practice to value BGSS at its inception contributing new knowledge to the literature. The application of informing system to frame the discussion on the inter-disciplinary domain of ethical fashion smart wearable creates awareness for fashion industry stakeholders and academic researchers.</p>
Findings	<p>The analysis shows that BGSS is a contemporary phenomenon since so many smart fashions wearable companies have gone through thought provoking and compelling stories to become successful in a highly competitive smart fashion wearable industry. BGSS concept is a brand-new perspective in the EFSW academic research. The findings of this research provide information to various stakeholders of the fashion industry and benefit to a global community at large with a more nuanced understanding of the changes and challenges of the emerging EFSW industry and the way to measure the valuation of a venture at its inception.</p>
Recommendations for Practitioners	<p>This paper reveals nuance understanding for the practitioners in the BGSS valuation at its inception. Since all the traditional valuation methods have their drawbacks when applied to the inception stage of BGSS, this study recommends using multi-stage valuation method because it provides incentive for the best risk/cost ratio. Fashion brands (designers and other stakeholders) should abide by the ethical criteria to make a difference in the global community at large by reducing degradation of the environmental conditions. For the future of ethical fashion, ethical choices must be an available alternative to customers. Fashion companies need to embark upon design to not only be ethical but also stylish, therefore need to create trust by adopting transparency and integrity throughout the value chain. Fashion brand should take advantage of ethical fashion criteria to provide assurance to consumers with socio-cultural aspects in mind, to promote their fashion collections effectively.</p>
Recommendation for Researchers	<p>More research work needs to be accomplished to have a clear analysis of the ethical fashion perspective to cover environmental, socio-cultural, fair trade, human rights, animal rights and other aspects. It is important to study the various stages of BGSS valuation from growth stage to initial public offering stage and beyond to bridge the gap between academic research and practitioners using the multi-stage valuation method.</p>
Impact on Society	<p>Since ethical fashion is of great significance for the contemporary society, raising awareness among various cultural communities globally to promote avant-garde ways regarding ethical fashion criteria, specifically to curb the degradation of the environment, stopping the cruelty on animals and protecting the human rights among consumers is paramount.</p>
Future Research	<p>This study will bridge the gap between practice and academic research, scholars should embark upon creating a total addressable market (TAM) theory and empirical analysis studies because the total addressable market is the key and practical determinant of BGSS success. Ethical fashion academic research should be pursued beyond sustainability on smart wearable.</p>
Keywords	<p>EFSW, BGSS, Informing Systems, Multi-Stage Valuation</p>

INTRODUCTION

Companies like Apple, Google, Microsoft, Twitter, Facebook, Yahoo, Amazon, Zara, Patagonia, H & M, Cicret, OMsignal, Ringly and Beddit have the following in common: (i) these firms with a global vision emerged from speculative start-up to multi-national enterprises, (ii) the phenomenon known as “Born-Global” has changed the internationalization process whose genesis stems from a major focus on foreign markets, and (iii) early investors made investment on a speculative basis based on the potential market opportunity (Oviatt & McDougall, 1994). Hence, the author has coined such companies as BGSS acronym to refer to “Born-Global Speculative Start-up” (<http://www.apple.com>, <http://www.google.com>, <http://www.Microsoft.com>, <http://www-Twitter.com>, <http://www.Facebook.com>, <http://www.Yahoo.com>, <http://www.Amazon.com>, <http://www.Zara.com>, <http://www.Patagonia.com>, <http://www.H&M.com>, <http://www.Cicret.com>, <http://www.OMsignal.com>, <http://www.Ringly.com>, & <http://www.Beddit.com>).

Today fashion industry is one of the largest industries globally with valuation at 3trillion U.S. dollars (Fashion United, 2016). The smart wearable market projected to cross US\$ 30 billion during 2017 (Woods, 2017). The emerging wearable technology developments and the looming ethical fashion smart wearable market growth has the significant impact on regional and global economic growth. Fashion industry is greatly influenced by socio-cultural mindsets to shape and reflect socio-cultural practices in the contemporary society. Fashion exists in not only garments but also other wearables such as the bracelet, watches, jewelry, and other accessories. Since the fashion industry is the second-largest polluter in the world, ethical fashion is of great significance for the future to make a symbolic and meaningful difference for the contemporary society. Ethical fashion domain knowledge is not familiar to most of the consumers. Some consumers are aware, but most are not that concern with environmental issues, social problems, fair trade, human rights, animal rights and other factors. Fashion creators and designers are not adopting ethical criteria fully yet keeping the status quo because they must thrive (Ethical Fashion Forum, 2017 and Ethica, 2017). Entrepreneurship as an informing discipline provides perspective on the entrepreneurial endeavors of ethical fashion to the broader goal of innovating economies and contemporary society. Entrepreneurial endeavors and innovation in the EFSW field that crosses boundaries between many disciplines related to fashion creation, fashion design, wearable technology, aesthetics and other disciplines. Cross-pollination of many disciplines to create and design EFSW product should be considered as informing systems of inter-disciplinary to inform stakeholders of the fashion industry and to wider audience of researchers, consumers, investors and entrepreneurs. “Born-global” (Oviatt & McDougall, 1994) start-ups in the ethical fashion industry are swiftly emerging and the market opportunity is supposed to be the next grandiose thing. The valuation of an ethical fashion smart wearable BGSS at its inception is a central matter to fashion industry stakeholders, especially to investors and entrepreneurs. Generally, a convenient method of evaluation from the investor perspective, which is accepted among entrepreneurial practitioners, is to better manage negotiations between investors and entrepreneurs. Such biased negotiations are unsubstantiated and speculative for evaluating a BGSS, therefore calibration of EFSW ventures valuation at the inception stage is the research focus. This research will focus on:

- (i) Presents a qualitative (multiple case study method) research on four EFSW companies (Cicret, OMsignal, Ringly and Beddit) that provides analysis on various perspectives of ethical fashion,
- (ii) Application and validation of quantitative (multi-stage valuation) method to an EFSW company (Beddit) for the calibration of valuation at its inception, and
- (iii) Provides a holistic view on informing systems of inter-disciplinary regarding the wearable technology, fashion creation, fashion design, aesthetics and entrepreneurial financial

management that can contribute to the broader goal of innovating economies, and informs the contemporary society.

RESEARCH MOTIVATION & STUDY JUSTIFICATION

Fashion industry is the second most polluter in the world causing tremendous environmental degradation and violation of human rights as well as animal rights. It is high time that the fast fashion (Fletcher, 2014) industry must adopt ethical practices to minimize the eco-logical degradation. Some consumers are aware of ethical fashion, but most are not that concern with environmental issues, social problems, fair trade, human rights, animal rights and other factors. Fashion designers are not adopting ethical criteria fully yet. Fashion industry keeping the status quo because they must carry through to thrive. It is understood through investigation; ethical fashion is of great significance for the future to make a symbolic and meaningful difference for the contemporary society. Hence, one of the research question of this study: how ethical is ethical fashion? “Born-global” start-ups in the ethical fashion smart wearable (EFSW) industry are not researched yet. As a fashion wearable investor and practitioner for more than three decades, the author has the firsthand experience regarding the guessing game negotiations pursued to value a BGSS. Hence, the author poses the main research question: how to calibrate valuation for EFSW start-ups, specifically at the inception stage? Strikingly, historical research has not provided a holistic framework as it fails to recognize the dynamics of the inter-relationships taking place between various elements in an EFSW venture. Thus, this research justifies filling the void in the literature to provide new knowledge important for various stakeholders of the fashion industry community to understand the changes and challenges the fashion design world need to comply with ethical fashion criteria contributing to the discourse within the knowledge domain of valuation of a BGSS at its inception. Considering the above scenarios, it is worthy of attention to fill the knowledge vacuum by conceptualizing a holistic model to valuate ethical fashion smart wearable BGSS.

PROBLEM STATEMENT

Entrepreneurs and investors have oblique points of view due to lack of understanding about the total addressable market (TAM) and its potential, the practical determinant of BGSS valuation. In other words, their views do not intersect during the negotiation process to invest in a venture. More fundamentally, neither understands what is called “divergence” (Villalobos, 2007, p.3) of valuations. Understanding the market and its potential, the divergence can reduce contentiousness and ensure building an effective working relationship between investors and entrepreneurs to attain BGSS success. Fashion creators and designers are not adopting ethical criteria for the fashion wearables yet.

RESEARCH QUESTION & SUB QUESTIONS

The overarching idea in this research was to valuate ethical fashion smart wearable BGSS at the inception stage. Hence, the research focus is on the main question: how to valuate ethical fashion smart wearable BGSS at its inception? Sub-questions include: (i) how ethical is ethical fashion? In addition (ii) why focus on BGSS?

DEFINITIONS & ASSUMPTIONS

BGSS or speculative start-up or start-up or venture or fledgling business or firm or company or enterprise is synonymous with each other in this study.

Total addressable market (TAM)

TAM called simply “market potential” because it offers a sense of scope. Investors and entrepreneurs want to know the size of the market opportunity. But market size is relative, dynamic and changes fast. A BGSS should have the crystal ball on the customer needs and should have the sustaining ability to exploit within the venture context. Calibration of the total addressable market

(TAM) is a considerable part of contemplating value creation (Mauboussin & Callahan, 2015). Calculation of TAM is delicate, particularly when both the market and the technology are new and is comprised of three factors: the population, the percentage likely to adapt, and the percentage of first adopters to the goods or services, and the projected revenue.

How do TAM matters?

What characteristics investors use for investment in a start-up to make the decision? The most relevant industry report on venture valuation is Hill and Power (2001) that enquires investors to rate following key aspects of the characteristics to value a venture with a rating of five (5) being the most significant and one (1) being the least important are (Ge et al; 2015, p.10):

1. Quality of Management -- 4.5
2. Size of the market -- 3.8
3. Product qualities -- 3.7
4. Rate of market growth -- 3.5
5. Competition -- 3.5
6. Barriers to entry -- 3.4
7. Company's stage of development -- 3.2
8. Industry that the company is in- 3.0

Based on the above factors, assuming the start-up has a formidable top leadership team (TLT), in other words quality of management, then the total addressable market is the key and practical determinant for a BGSS success.

Smart Wearable

Wearables are 'wearable devices or wearable systems' and can provide communication either directly or indirectly through wireless connectivity or through another device. Wearables are not just 'used', they are also 'worn'. Wearable technology for fashion crosses many disciplines and is defined as the technologies worn close to the body, on the body or even in the body" (Lee et al; 2015). Smart wearable is sensory device that can sense the user who wears them and can control, communicate, store and actuate capabilities (Häkkinä, 2017). Smart wearable is defined as smart textiles (Park & Jayaraman, 2011), smart watches (Xu & Lyons, 2015), smart bracelets (Angelini et al; 2013), smart jewelry and smart accessories (Elmer, 2017) for different applications in the fashion industry. New generation smart wearables are malleable, stretchable, adjustable, and invisible and functions integrated with less power consumption and higher computing power. When integrated with smart mobile communication and internet of everything (IOE) technologies, they can convert the "world of smart wearables" into "Internet of smart wearables". For the smart fashion wearable (SFW) world, minimalism is the design trend and will continue for the future. Minimalist design is both appealing and flexible for every SFW platform and content ought to be the epicenter of creating a design (Naked et al; 2007).

Ethical Fashion Smart Wearable (EFSW)

The author has coined EFSW acronym to refer to "Ethical Fashion Smart Wearable" and the concept of EFSW should be seen to unite the various terminologies used to describe the EFSW phenomenon in focus. Ethical fashion is an approach to the design, sourcing, and manufacture of wearable, which maximizes benefits to society while minimizing impingement on the environment (Jahdi et al; 2016, p. 223). "Smart", means the wearable contain electronics to transmit and receive wireless data. Wearable is a term denotes products such as the watch, bracelet, clothing, and jewelry and needs to be personal. Smart Wearables require real-time connections to transmit or receive data. (Hunn, 2015). The ethical fashion industry is swiftly emerging, and the market opportunity is supposed to be the next grandiose thing.

Born-Global

The concept of 'Born-Global' or International New Venture (INV) firm was introduced into business theory in 1988 by Welch and Luostarinen. During the 1970s, the foundation of the theory on internationalizing of the firm was of export development - where a company's internationalization begins with its entry into an international market. In the 1980s, start-ups had 'global vision' from 'inception', with export sales. It has been observed that many firms now do not develop in incremental stages with respect to their international activities. Nowadays, ventures start international activities right from their inception, to enter international markets immediately or, even to introduce products and service multiple foreign countries at once. When it comes to the terminology used surrounding the born global phenomenon, Svensson (2006) argues "the different terms International New Venture--INV, Born-Global, Global Start-Ups, etc. seem to refer to the same phenomenon" (Svensson, 2006, p.1311).

Speculative Start-up

Speculative investment is fundamental to start-up expedition. Venture capitalists (VCs) and angel investors gamble on speculative start-ups. Essentially, investors are laying odds on founder(s) ideas and making bets that a given team has the personality and experience to create value from the combination of challenge and opportunity technology solution they have embarked upon and the market potential. Seed stage investment is done during initial phase or at the inception stage of a start-up. It is an exploratory investment stage to harness founder(s) goals of their venture. The seed phase of any start-up is the embryonic phase and is, therefore, more speculative than additional investments in future and is there to establish the start-up to develop a product for the market. Robehmed describes, "a start-up is an entrepreneurial entity born to create the solution to a problem where the solution is not obvious, and success is not guaranteed" (Robehmed, 2013, p.1). There are no rules for what a start-up really is. According to Paul Graham from Y Combinator "A company five years old can still be a start-up. Ten years old would be a stretch" (Thomsen, 2016, p.1). The vital characteristic of a start-up is traction that is designed to scale fast.

HOLISTIC VIEW OF EFSW INTER-DISCIPLINARY

Cohen describes "the Informing Science Philosophy of conducting research that crosses disciplinary boundaries and explores how best to inform clients using information technology" (Cohen, 2009, p. 1). EFSW inter-disciplinary holistic view, as shown in the figure 1, signifies a strategy that crosses many disciplinary boundaries to create a comprehensive approach and engages to research applications focused on two or more disciplines, such as ethical fashion, smart wearables, aesthetics, fashion design, innovation, information systems and entrepreneurial marketing finance that deals with BGSS valuation at its inception. In the spirit of the informing system and inter-disciplinary research, this study addresses: (i) inter-disciplinary community of clients in the fashion industry, (ii) informs various stakeholders of the fashion industry regarding the cross-pollination boundaries of many disciplines related to ethical fashion creation and design (smart fashion wearables such as apparels, jewelry, bracelet, watches, and other accessories for health fitness, sports), aesthetics, wearable technology, information communication technology, entrepreneurial innovation and multi-stage valuation approach to value BGSS at its inception. The extensive publicity around smart wearables is not just a promotion anymore but has already turned into a sizable global business. The wearable technology isn't just for viewing information; it represents a fusion of the physical and digital worlds. Reliable and real-time information flow is the most consequential knowledge between the stakeholders of a fashion enterprise to be successful. Fashion brands will have to adapt to paradigm changes, whether it is in the context of consumers or other stakeholders of various institutions. The Internet may never connect with everything, but wearable technology is emerging to impact any hypothetical Internet of everything (IOE). The extent of innovation in the smart wearable market is huge, and there's immense potential for more effective, efficient, and cost-effective management in health, and sports fitness wearable products and services. However, the application of information communication

technology and Internet of Things (IOT) seamless integration and adequate security protocols are still to be innovated to meet the market need. To maximize the valuation, continuous innovation in smart fashion wearable with cutting edge technology and aesthetic is the prime driver. However, the application of information communication technology and IOT seamless integration and adequate security protocols are still to be innovated to meet the market need. To maximize the valuation, continuous innovation in smart fashion wearable with cutting edge technology and aesthetic is the prime driver. Wearable technology is about convenience, comfort, immediacy, and availability – but those qualities and efficiency cannot be facilitated without a proper level of support at the infrastructure level. Smart wearable products sales growth by 2017 is going to be 75 million devices (Mahoney, 2013). The common requirement for these devices needs an intelligent infrastructure (Information Communication System) that manages the information flow and human communication between users and devices. Information communication systems is a tool that is increasingly being used by fashion industry to manage the business operations that is aligned with the company strategy.



Figure 1: EFSW Inter-Disciplinary Holistic View

The “smart information communication system” for the fashion industry brings the fashion trends in fashion information systems and insights to support fashion business operations, e-commerce platforms, various communication technologies such as radio frequency identification (RFID), smart sensor devices, and enterprise resources planning systems to drive and sustain innovation. Also, SICS operates, mimic elements of the human brain designed to interpret, derive meaning from human forms of communication, context, dialogue management including speech, language, visual cues, gesture, touch to provide appropriate informing systems of inter-discipline between the global community at large and fashion stakeholders as shown in the figure 2. The range of applications for SICS is to enhance consumer choice, customer service, support design creation and implementation, execute intelligent procurement systems to manage inventory management control.

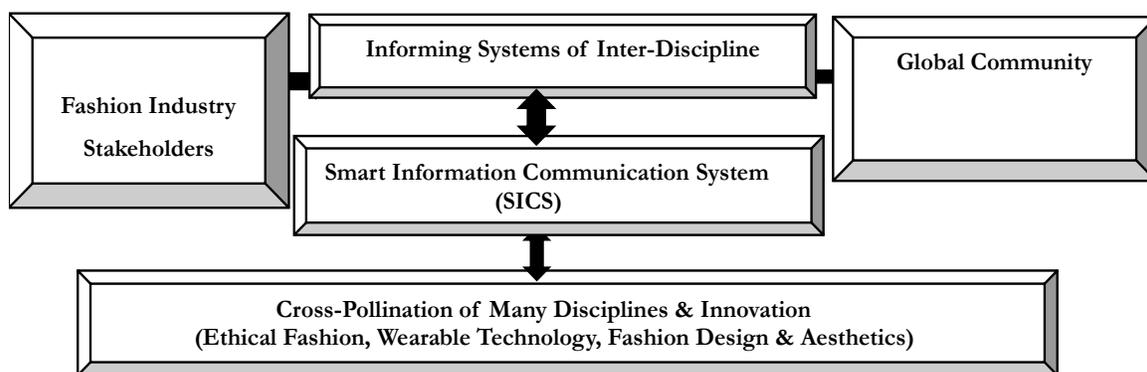


Figure 2: Informing System of EFSW Inter-disciplinary domain

WHY FOCUS ON BGSS?

Many ventures have the vision to enter international markets right from their birth. Tanev states that “the born - global label originated with Michael Rennie in 1993 (Tanev, 2012, p.5)”. Born-global firms focus on how to satisfy the needs of consumers in a global niche from their inception. Internationalization of the enterprises has become a pervasive phenomenon, which highlights the significance of the born-global concept and the need for researchers and practitioners to focus on. BGSS is a risky business with tremendous uncertainty. Most of the times the founder(s) and investor(s) have the diverging views on various aspects of a venture including top leadership team, and total addressable market (TAM) for the product or service. In fact, during the inception stage, the founder and investor do not even speak the same language with respect to building a successful BGSS. Moreover, both parties do not understand what is called “divergence” of valuations (Villalobos, 2007, p.3). Understanding “divergence” can ensure building a compelling working relationship to attain the valuation for investors to invest in the venture. During last decades, the BGSS phenomenon has emerged and escalated in the fashion and technology industry with companies like Google, Apple, Microsoft, Facebook, Yahoo, Twitter, Amazon, Patagonia, Zara, H & M, Cider, OMSignal, Ringly, Beddit and much more have ventured into smart fashion wearable and technology products and are the best examples of successful BGSS and became multi-national giants. The rationale is the following: These firms are relevant and paramount because they play a significant role in the transformation and growth of local, regional, national as well as global economy. From an economic point of view, these BGSSs are the potential multi-national corporations of the future. These EFSW start-ups operate in an extreme uncertainty and unpredictability where the wearable technology challenges are often on the edge of scientific possibility with a scarcity of resources. In the technology sector, business survival is dependent on identifying and exploiting a predictable innovation strategy before other firms enter the market. EFSW companies meet the ethical criteria, thereby design, sourcing, development, manufacture, and production of wearables maximize benefits to society while minimizing impingement on the environment, fair-trade and other practices adopted. BGSSs are often at the leading technological edge of their industry and are founded to exploit business opportunities based on the development of new products or services, like EFSW products, that are better designed and higher quality than competitors’ offerings. Most BGSS leverage information communication technologies to process information efficiently and communicate with various stakeholders including partners and customers worldwide at minimum cost. Considering the above rationale and justification BGSS focus is relevant to the ethical fashion smart wearable industry. More and more ventures try to explore the opportunity and prosperity of born-global concept and have gone through intriguing and impressive stories to evaluate at the inception stage and have performed under speculative and awe-inspiring uncertain environment to justify why this study should focus on BGSS.

HOW VALUATION AT ITS INCEPTION MATTER?

Value creation is the driver for valuation. Valuation of a company is derived from the net worth. The net worth represents how much value creation is anticipated or how much value would remain if the company's business closed its operations (Fernandez, 2007, p.15). Net worth is estimated through the simple formula: total assets less the total liabilities. Assets are items of value and are realized primarily from sales revenue (Lawrence, 2017). Sales revenue is realized from the total addressable market (TAM). Assuming the BGSS top leadership team (Loikkanen, 2010) is formidable, then TAM (Mau-boussin & Callahan, 2015) in an industry greatly affect the value of the BGSS. Valuations can change fiercely over time and they should if the information warrants such a change. Valuations can change fiercely over time and they should if the information warrants such a change. Generally, there is bias in valuation because of some information was published in the press or based on experts' opinion. Sometimes additional information compounds the bias. It is imperative that the valuation of a BGSS should be considered objectively based on projected total addressable market (TAM) which enables the projected financial numbers to attain risk-adjusted cash flow, terminal value (TV) and net present value (NPV) for valuation calibration at the inception stage using multi-stage valuation model quantitative analysis of this study. Valuation concerns to founders because they must offer equity in their company to investors. Divergence in valuation can be reduced or even can be eliminated through better communication and understanding of: (i) how various stakeholders interact and influence each other, (ii) who is the customer, (iii) what activities are needed to create the value for the customer, and (iv) what resources are essential to carry out the activities to attain BGSS success. At the inception stage the valuation of a start-up is close to nothing, but in the real world, the valuation may be higher. The following determinants to value a BGSS at its inception as shown in the figure 3:

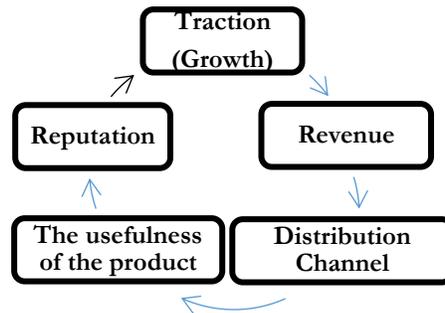


Figure 3: Determinants of Valuation at its Inception

Traction

Among all determinants of a start-up, traction (growth) is the paramount element that may convince investors. The primary objective of an enterprise is to attract customers, and if the investor sees the prospect of increasing customer usage, then the valuation may be higher. Slow growth means lower valuation. However, start-up is about growing fast while making revenue.

Reputation

Higher valuation is possible based on the reputation of founders. Entrepreneurs with prior proven record of success tend to get higher valuations.

Revenues

Revenues are fundamental for start-up success and makes easier to value. At the inception stage of a BGSS, no revenue is generated.

Distribution Channel

Distribution channel is key to reaching users, therefore it is essential to have cogent execution strategy to reach the customers, even prior to the development of the commercial product.

The usefulness of the product

If the product offers value and the company can grow fast, investors generally, would like to pay a valuation premium.

There is an inadequacy in research about valuations of BGSSs at its inception because of scarcity in the research regarding the determinants of valuations. Investors and their investment decisions are based on the following issues: The first and the most important issue related to the following unknown, unexplored and untested characteristics of a BGSS at its inception: (i) idea is an intangible form, (ii) founder(s) have no proven track record of success, (iii) total addressable market (TAM) is a future projection (iv) customer is nebulous, (v) value proposition is still a dream, (vi) distribution channel is not defined, (vii) key partners and activities are assumed, (viii) no key resources available yet, (x) no operating history, and (xi) revenue, and cost structure is speculative, and (x) no net worth.

The second issue is information asymmetry, which becomes discerning when investors evaluate companies. Information asymmetry can lead to sensitive and cagey nature. For this reason, investors' strife to achieve reliable information and focus on (i) internally generated information on the BGSSs innovative capability, and (ii) externally verifiable information on the inter-company network attributes.

HOW ETHICAL IS ETHICAL FASHION?

Upon review of the existing literature, My Source™ database and as per Ethical Fashion Forum and Ethica (2017), "ethical fashion encompasses the stringent set of criteria and a brand cannot be considered ethical unless and until the following criteria are met": (i) impeding fast fashion, (ii) safeguarding fair wages, (iii) defending working conditions and workers' rights, (iv) serving to give support to sustainable livelihoods, (v) inscribing to eliminate toxic pesticide and chemical use, (vi) usage of eco- friendly fabrics and components, (vii) reducing water use, (viii) recycling waste, (ix) safeguarding energy efficiency, (x) advocating sustainability standards for fashion, (xi) promoting awareness raising initiatives, (xii) guarding Animal rights, (xiii) fair trade, and (xiv) demonstrable commitment to human right. Ethical fashion is all about people and community. Ethical means endeavor to undertake an impelling role in poverty depreciation, sustainability creation, minimizing and preventing environmental concerns. Ethical fashion smart wearable (EFSW) needs to be design-led and will not succeed as a market until it is designed from the fashion position—not as a technology that can be worn, but as- "Fashnology" (Rauschnabel et al; 2016) fashion design that contains technology. Ethical fashion is an approach to the design, sourcing, and manufacture of wearable, which maximizes benefits to the society meeting ethical fashion criteria while minimizing impingement on the environment and is much more than sustainability as shown in the figure 4. Abrahamson (2011, p. 615-629) argued that "fashion, more than any other industry in the world, embraces obsolescence as a primary goal". The ethical fashion spread a sense of responsibility that relates to (i) the materials used and the production environment, (ii) a fair wage and the gratifying working condition is guaranteed for the people involved, (iii) the purchase goods are long lasting for the consumers (Fletcher, 2014).

EFSW MODEL

The rendition of ethical fashion has a big focus on the responsibility of the providers and the consumers of unethical fashion elements. To provide a fair picture of the locus, this paper identifies the relevant actors and their impact on the ethical aspects and status of the fashion industry

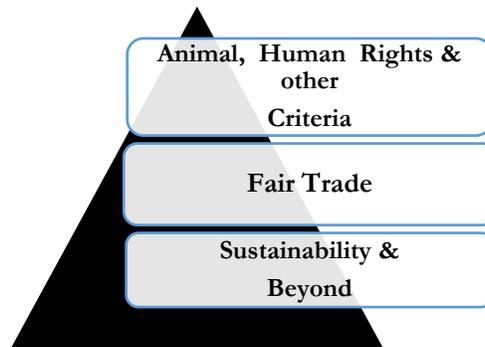


Figure 4: Ethical Fashion over & above Sustainability

Definition of ethical fashion smart wearable (EFSW) is the creation, design, development, sourcing, manufacture and production process of wearable which maximizes benefits to the society meeting ethical fashion criteria - not as the technology that can be worn, but as fashion creation and design that contains technology.

The overview of the EFSW model is as follows:

Emergence: Mid – the 1990s (Ethica, 2017)

Focus: Aesthetic and technology-based

Underlying models: Opportunity – pull model, Designer-push model (Sull & Tuconi, 2008); Make - and- sell model (Day, 2011)

Features: Ethical, Quality over quantity, Balance, Responsibility, Fair Wages, Beyond Sustainability with triple bottom line, Eco-Friendly, Transparency, Animal & Human Rights

Production & Materials: Recycling, high-quality Organic Fabric, Fair-trade, Safeguarding Energy Efficiency, Eliminating Toxic Pesticide, Reducing Water Usage

Price: Value driven pricing, Competitive Pricing

Criticism: High-end price, Questionable trendiness

Company examples: Apple, Google, Zara, Patagonia, H&M, OMSignal, Cicret, Ringly, Beddit, & other companies.

The current research shows not a single brand (mentioned above) yet meet the full criteria (i to xiv) requirement as outlined above (Ethical Fashion Forum, 2017 and Ethica, 2017). However, there is a hope towards meeting the ethical fashion requirement.

Principles behind the EFSW manifesto

- (i). The top most priority is to satisfy the consumer through ethical compliance.
- (ii). Fashion industry stakeholders must work together to meet the ethical criteria.
- (iii). Impressive method of funneling information is face to face stakeholder conversations.
- (iv). Simplicity is essential.
- (v). Welcome change to create innovation and sustainable competitive advantage.
- (vi). Continuous innovation to technical excellence.

EFSW INTER-DISCIPLINARY DOMAIN

Ethical fashion should be ecologically friendly and ought to relate to working conditions throughout the entire supply chain, and the environmental footprint of the fashion production process. Literature provides the simplistic view on fashion actors ethics and responsibility. To provide a clarion picture of the ethical fashion status one should identify the relevant actors and their cumulative influences. The application of informing system to EFSW inter-disciplinary domain, as shown in the figure 5, the stakeholder actors are the backbone of the fashion industry, they have the power and should take the responsibility for transforming the fashion industry to ethical and fashionable. There is an increased focus on making ethical products fashionable to solve the socio-cultural and ecological aspects of the fashion industry as demonstrated by the cases (Cicret, OMSignal, Ringly & Beddit) presented in this study. The stakeholders of the EFSW industry include actors that may be defined as follows: (i) market regulators define laws and regulations for the consumer market in relation to marketing, distribution channel, materials, production etc. (ii) supplier regulators define laws and regulations for the production area in focus, (iii) consumers of the fashion industry, (iv) mediators those who are involved magazines, news media, forums, activist organizations, etc. (v) designers of the fashion wearables, (vi) creators those who create value for the fashion wearable, (vii) marketers promote advertising for selling, (viii) producers make the decisions on which fashion items to produce, and how to produce them, (ix) suppliers those who produce item materials (xi) workers employed by the suppliers.

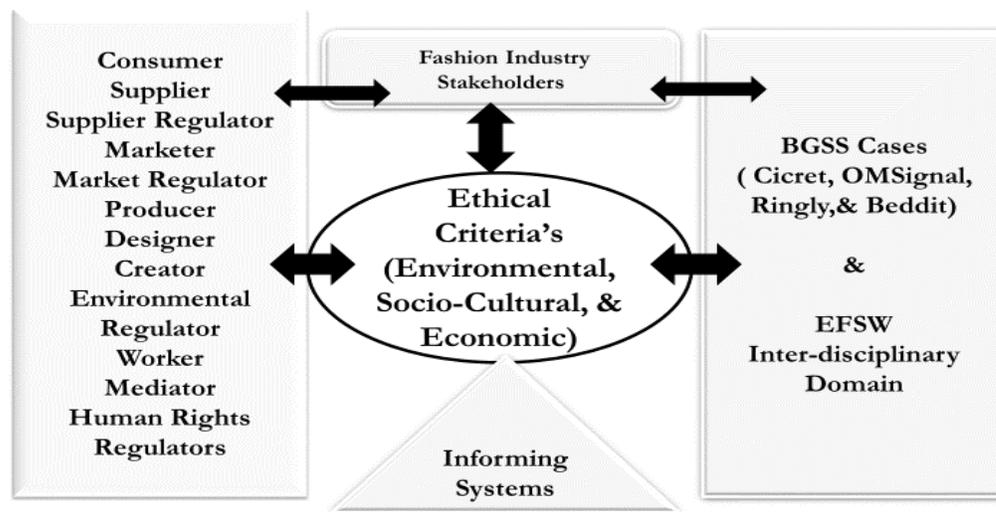


Figure 5: Application of informing system to EFSW Inter-Disciplinary Domain

LITERATURE REVIEW

Thorough literature review including My Source™ Database (the world's most comprehensive database for ethical fashion businesses and research) was done to position this study within the current body of literature, and provide the context (www.ethicalfashion forum, 2017). The main topic involves the valuation of an ethical fashion smart wearable BGSS, and an array of literature surrounding this context. Information system in value creating network was researched extensively to understand information is the important flow between the stakeholders of BGSS. Furthermore, all other flows (material, resources, key activities and capital) need reliable and real-time information to attain success of a BGSS. Wearable technology and aesthetic literature was also given the focus in this study. The other paramount context is the existing theories related to valuation (Modigliani & Miller, 1958), informing science (Cohen, 2009), ethical fashion (Haug & Busch, 2016), opportunity recogni-

tion (Ardichivili et al, 2003), market opportunity (Josephson, 2011), total addressable market (Mau-boussin & Callahan, 2015), born-global (Oviatt & McDougal, 1994), imprinting (Mathias et al, 2015) and Emerging Davids (Hockerts & Wustenhagen, 2010) literature. A thorough review was done on the available information in the public domain in the year 2017 concerning BGSS cases (Cicret, OMsignal, Ringly & Beddit) related to valuation at its inception and ethical fashion criteria. Literature review covers an array of important aims of this study that includes (i) investigation of the knowledge domain that is relevant and important to the research questions, (ii) priority was given to build substantial knowledge of the field and the key issues at stake regarding the research scope and objective by putting forth innovative, coherent view and new perspective of the research topic, (iii) credit was given to the authors through proper APA conformity and citation to lay down the foundation of the research following strictly the APA style and referencing convention to make sure not to miss any document in the final list of bibliographies or vice versa. The author has used Internet for this study as rich source of literature and data collection. The essence of this research is making a new knowledge contribution to the literature; therefore, it is certainly an excellent starting point to investigate the valuation of ethical fashion smart wearable BGSS at its inception. Benfield & Szlemko (2006) describes “Internet, increasingly is being treated as a rich source for literature and social science research” (Benfield & Szlemko, 2006, p.1).

THEORETICAL FOUNDATION

Literature review shows that the historical approach has the exclusive focus on one or two theories to address into a complex and interactive process-taking place in a technology-driven venture. Such simplistic approach misleads the process. The valuation process of a BGSS is complex due to the multiplicity of uncertainty factors that come into play. Figure 6 depicts the theoretical foundation of this research and the focus is on the valuation of ethical fashion smart wearable BGSS, specifically when the ventures are at the inception phase. The entrepreneurship, born global and strategic management literature provide substantial insight on the BGSS performance and how value is created in an entrepreneurial process. Therefore, several theories have been described in the theoretical framework of this study to discuss the ethical fashion transformation and predict venture performance, and valuation. To gain insight into the research process and relevant factors for ethical fashion BGSS valuation, the following theories has been given the focus. The theories are selected from a variety of sources such as scientific articles and books. A brief explanation of the following theories is of relevance to BGSS valuation at its inception from an ethical fashion smart wearable context is presented below:

VALUATION THEORY

In 1958 the valuation theory was pioneered by Modigliani & Miller (Modigliani & Miller, 1958). Many scholars have worked on various valuation theories. The author in this study deals with holistic framework from total addressable market perspective to explain the valuation of an ethical fashion smart wearable BGSS.

INFORMING SCIENCE (IS) FRAMEWORK

Cohen (2009) describes “that the informing science framework has three components that must be present in an Informing System: the informing environment, the delivery system, and the task completion system”. In the real world of ethical fashion smart wearable market such systems as described in Cohen (2009) are seldom that simple.

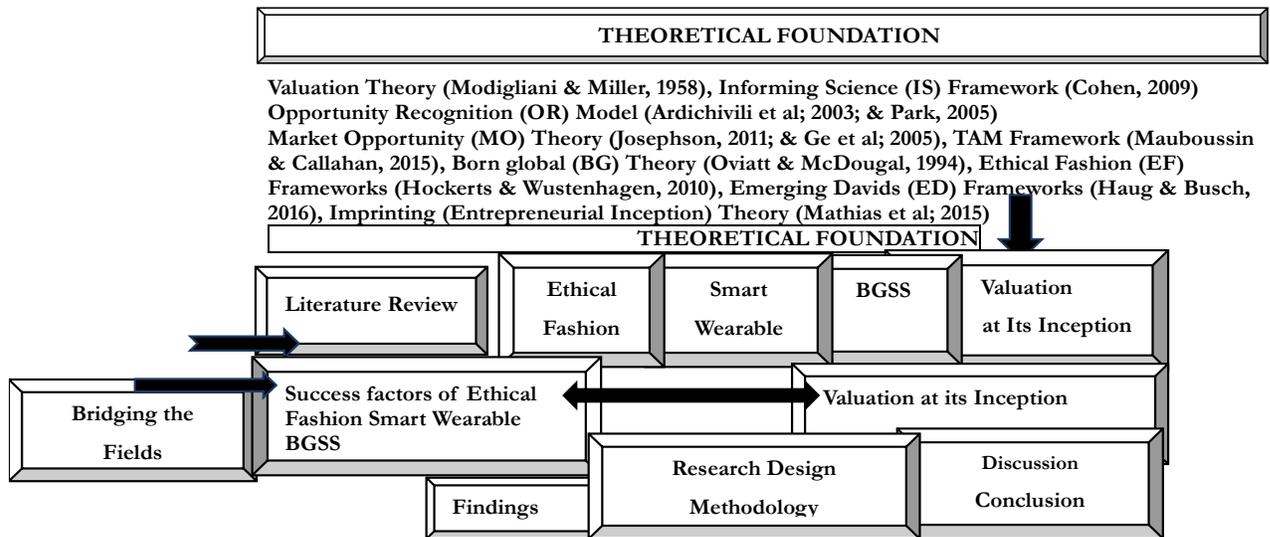


Figure 6: Theoretical Framework

OPPORTUNITY RECOGNITION (OR) THEORY

An idea origination is the first step to identify the opportunity recognition (Park, 2005) prior to forming an EFSW venture. The origin of opportunity recognition in the entrepreneurship literature explains the process of new firm creation and growth with an almost exclusive focus on the entrepreneur's traits and personalities. Opportunity recognition (Ardichivili et al; 2003, p.105-123) process involves interaction of three main elements, the founding entrepreneurs, knowledge/ experience of the firm, & technology to create innovation for the BGSS.

MARKET OPPORTUNITY (MO) THEORY

Smart wearables are emerging market opportunities. Market data often imperfect thereby increases risk. The market opportunity approach provides a BGSS with means to analyze market opportunities. In an emerging market like EFSW where technological innovation is essential, the foundation of market opportunity should be viewed with three dimensions: (i) the product or service, (ii) the need, and (iii) the potential customers. Using this framework, it is possible to analyze any potential market rationally and is rigorous enough to provide usable conclusions. Hence, the structure of a market opportunity helps funding and valuation decisions (Josephson, 2011).

TOTAL ADDRESSABLE MARKET (TAM) THEORY

The market opportunity is always the starting point of valuation negotiations of a venture. Calibration of the total addressable market is a significant part of foreseeing the value creation. TAM is defined as the revenue of a company if it had 100 percent share of a market. This study proposes a framework to project TAM (Mauboussin & Callahan, 2015) based on three elements: population, product or service, and conversion (the number of adopters).

BORN GLOBAL (BG) OR (INTERNATIONAL NEW VENTURE—INV) THEORY

The born global (international new ventures—INV) organizations that are international from inception- has emerged as an important framework that describes the phenomenon by integrating international business opportunity, entrepreneurial focus, and technology centric (Oviatt & McDougal, 1994). Researchers have interchangeably used the terms "international new venture" (INV) and

"born global" (BG) as an emerging phenomenon (Knight & Cavusgil, 2004). Foreign markets offer larger market opportunity than the local market where the company is established. and when it is complemented by the right business model that maps out the value creation of a Born-Global (BG).

GREEN GOLIATHS AND EMERGING DAVIDS (ED) THEORY

The above frameworks are used in the sustainability of a firm which was coined by Kai Hockerts and Rolf Wustenhagen (Hockerts & Wustenhagen, 2010). In this study, application of Emerging Davids (ED) theory is appropriate because the multiple cases study companies (Cicret, OMsignal, Ringly & Beddit) are new entrants and abide by the sustainability development criteria of the fashion industry. Hockerts and Wustenhagen (2010, p.7) conceptualized and coined two terms: Greening Goliaths for large incumbents and Emerging Davids for small start-ups, as shown in Table 1, describing the characteristics.

Table 1: Characteristics of Goliaths vs. Davids

CRITERIA	Goliaths	Davids
Age	Old & Incumbent	Rather New
Size	Large	Small
Objective \ Function	Economic objectives Dominating, social, environmental.	Social and environmental Objectives are as important as economic ones.

However, Emerging Davids (Cicret, OMsignal, Ringly & Beddit) may reach the mass market and co-evolve as Goliaths because of their continuous innovation and target the objectives of BGSS concept. Application of Emerging Davids is only considered because this study deals with nascent ethical fashion ventures.

ETHICAL FASHION (EF) FRAMEWORK

Haug & Busch presented the framework that explains the focus should be on “ethical consumer” in the context of fashion and the consumer is the victim. Ethical fashion should be ecologically friendly and ought to relate to working conditions throughout the entire value chain, and the environmental footprint of the fashion production process (Haug & Busch, 2016).

IMPRINTING (ENTREPRENEURIAL INCEPTION—EI) THEORY

The imprint (entrepreneurial inception - EI) theory provides the understanding of the navigational process of a venture during inception (Mathais et al; 2015). Imprinting theory explains how individuals and organizations develop characteristics from experiences during a sensitive and formative period. The characteristics of a venture at its inception greatly influence a new venture, which in turn may imprint throughout the venture’s lifecycle. The use of the imprinting concept in organizational theory dates to Arthur Stinchcombe’s 1965 (Marquis & Tilcsik, 2013) paper on “social structure and organizations”. The theoretical contributions offer threefold: (i) the role of imprinting in entrepreneurial action to be examined, (ii) how various sources of imprint greatly influence which opportunities entrepreneurs select, and (iii) experiences may guide the development of individual’s paths toward entrepreneurship.

METHODOLOGY

The choice of research methodology is dependent on the nature of the problem. Morgan and Smircich (1980) argue, “the actual suitability of a research method, derives from the nature of the social phenomena to be explored”. This research explores the emerging EFSW phenomenon and the BGSS valuation contemporary phenomenon using “Internet research” methods and My Source™ database (the world’s most comprehensive database for ethical fashion businesses and research), as shown in the figure 7.

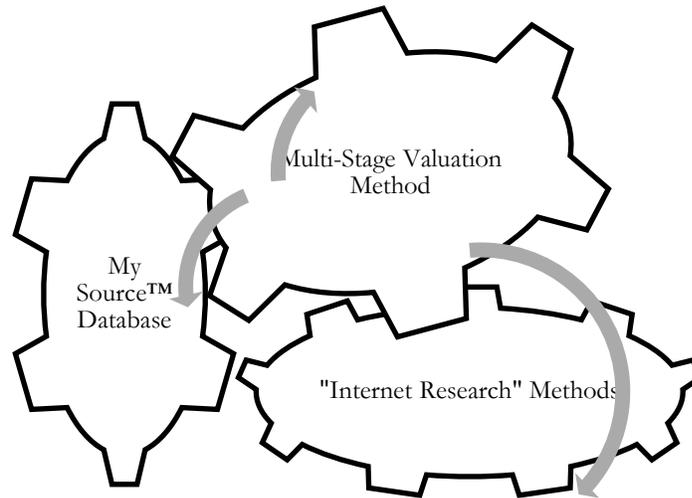


Figure 7. Methodology (Qualitative & Quantitative Approach)

“Internet Research” Methods

The author argues “*Research*” term is an immense and extensive term and “Internet Research” can meaningfully compare data of larger population like in the fashion industry. “Internet research” methods (Hewson, 2003) has had an intellectual, meaningful, thoughtful, scholarly, discerning, orphic and enlightened encounter on the way ideas are formed and knowledge is created. In this research “Internet Research” means searching “on the Web” to investigate and identify a topic, activity and collecting information for the purpose on nuance understanding and includes post-collection analysis for quality and synthesis of the fashion industry, specifically for the ethical fashion smart wearable market. “Internet research” methods provide fast, immediate, and global access to information, although results may be biased, sometimes writer's credentials difficult to verify. Therefore, the researcher must have sufficient skill to draw meaningful results. It should be noted that popularity of specific information might not always be correct or representative of the breadth of knowledge and opinion on a topic like fashion. There are search tools for finding information on the Internet that includes Web search engines, meta search engines, Web directories, and specialty search services. A Web search engine uses software to provide easy to use, billions of Web page indexes, good in identifying defined information, provides the optimum results when keywords are concise, facilitates powerful search features and can retrieve vast amount of results. Hence, search engines enable academic researchers to perform inter-disciplinary research topics like ethical fashion, smart wearable, wearable technology, fashion design, fashion creation, aesthetics, market needs, and valuation of various companies using different valuation methods. A Meta search engine enables users to enter a search query for academic researchers and users creating a list of aggregated search results. The Web directories are generally extensive that includes a wide range of topics (Hewson, 2003). This study also used the Internet and the computer as a tool for conducting research for fashion design and/or fashion marketing related information. For example the book on “how to use Internet for Fashion?”

written by Katheleen Colussy provides a companion CD contains over 1,600 URLs including links for business, marketing, forecasting, global trade shows, global sourcing markets by country, and a global list of online museums and other historical and art resources and teaches to research beyond Google™, such as how to use Boolean Logic and Search Engine Math, to conduct an Advanced Search online, and give them a better understanding of how to mine the Deep Web (Colussy, 2007). Benfield & Szlemko describes that “the use of Internet to aid research practice has become more popular in the recent years and Internet data collection may revolutionize many disciplines by allowing for easier data collection, and therefore more representative data” (Benfield & Szlemko (2006).

MY SOURCE™ DATABASE

My Source™ Database (the world’s most comprehensive database of ethical fashion businesses and research) is used in this study (www.ethicalfashion.com, 2017) to search and collect data on ethical smart wearable technology, products, companies like Cicret, OMsignal, Beddit and Ringly and their certification to meet ethical criteria as defined by Ethical Fashion Forum. The Database offers online solutions for academic researchers, consumers, fashion designers, and other stakeholders to find individual brands and what is happening in the market regarding the various brands through the My Source™ Database. The case study method (qualitative approach) investigates various ethical fashion perspectives. and describes an EFSW model and principles behind the EFSW manifesto that identifies the criteria for various fashion stakeholders. The qualitative approach (case study research) using “Internet Research” method (Hewson, 2003) and My Source™ Database (Ethical Fashion Forum, 2007) has answered the research questions of this study: (i) why BGSS focus? and (ii) How ethical is ethical fashion? The quantitative methodology is employed suitable for this research based on proven practice using the multi-stage valuation method (Schootbrugge & Wong, 2013, p.53; Damodaran, 2006), to value BGSS at its inception. The methodology used in this research involved a thorough review of the literature encompassing ethical fashion, wearable technology, venture valuation methods, examination of four born-global ethical fashion smart wearable firms, and various relevant theories. All most all entrepreneurs, nowadays, create a website to convey information to various stakeholders and operate a business. In fact, the website of a company is the medium of communications to the stakeholders of the business. The four BGSS cases run their business through website to reach more potential customers, develop a business relationship with potential customers, streamline operations, reduce costs, improve efficiency, maximize profit, minimize waste, devote talent to core business instead of overhead, provide better service to customers, and support better relationships with key partners. Considering the above scenario, the “Internet research” source of data is the relevant, appropriate, compelling and representative online sources for data collection to explore this study.

JUSTIFICATION FOR QUALITATIVE AND QUANTITATIVE METHODS

This research explores ethical fashion, smart wearable, and valuation of a BGSS at its inception. Since ethical fashion is a social phenomenon, the qualitative approach is appropriate to deal with various perspective analysis of ethical fashion using case study on four ethical fashion smart wearable (i.e. Cicret, OMsignal, Ringly, & Beddit) ventures. The quantitative method calibrates the valuation of a BGSS (i.e. Beddit) at the inception stage using a noble pragmatic multi-stage valuation method because it provides the incentive to focus on achieving the best risk/cost ratio. Furthermore, the case study research method is the most widely used qualitative research method in information systems research (Borkowski & Baroudi, 1991; Myers, 1998), and is well suited to understanding the interactions between technology related innovations and organizational contexts related to EFSW phenomenon. The underlying motive in this study was to deal with an explorative approach to the problem setting since it is appropriate to analyze the application of the concept of ethical criteria and valuation of a BGSS at its inception in the fashion industry. Therefore, the exploratory approach through case studies was used to find new insights and to assess a phenomenon in a new light, therefore no hypothesis was tested (Robson, 2002). This study also explores the context of the ethical fashion

smart wearable ventures with case comparative analysis. Multiple case study is appropriate for this kind of study to offer cross-case analysis and the design provides more data to the research enabling the research work to be robust and vigorous (Yin, 2009). There are various valuation methods to value a BGSS at its inception. Traditional financial valuation approaches all have fundamental flaws and are not scope of this research. The rationale for proposing a multi-stage valuation approach because it is not only proven in practice as a pragmatic alternative to grasp the valuation of a BGSS at its inception but also provides less risk due to staged investment. Considering the above scenario, this research deals with qualitative (multiple cases study approach with relevant ethical fashion perspectives) and quantitative analysis based on multi-stage valuation approach, a pragmatic methodology proven in practice.

QUALITATIVE APPROACH

The qualitative methodology includes the following steps: (i) case study research and information system, (ii) research orientation & strategy, (iii) data collection and presentation from the sources of the “Internet research”, and (iv) various ethical fashion perspectives analysis using four EFSW cases (Cicret, OMsignal, Ringly, & Beddit).

CASE STUDY RESEARCH AND INFORMATION SYSTEM

An information system inter-disciplinary is an applied discipline and case study research has increasingly attracted the interest of information systems researchers as a useful means of investigating a phenomenon that enables to capture and understanding of the context and environment, especially in EFSW domain because many disciplines cross boundaries play the role. The application of information system to the smart wearables is relevant to the fashion industry stakeholders, specifically to the entrepreneurs and investors. Information systems are essential parts of every enterprise today. Moreover, for every business to compete effectively, information is a vital element. For EFSW industry, information is both a cost of doing business and an opportunity to do more business. The EFSW academic research is at the nascent stage and is relevant to the fusion of fashion, information communication technology, and other emerging technologies. The results of the study provided a set of data that serve to inform various stakeholders that represent a complex relationship involving the informing the entire supply chain including the consumers, market environment, and key partners of a BGSS. These four ventures (Cicret, OMsignal, Ringly and Beddit) were identified based on the following criteria: (i) the ventures had the global vision and meet the BGSS criteria, (ii) all the ventures are complying with the ethical fashion criteria to some degree. While these four EFSW (Cicret, OMsignal, Ringly & Beddit) ventures are different in their vision, internationalization from the beginning using online to do the business was implemented. This case study research was completed with an intense curiosity about the emerging EFSW phenomenon, and a desire to communicate the results of the research to various stakeholders of the fashion industry.

RESEARCH ORIENTATION & STRATEGY

Saunders et al; (2009) states "research is something people pursue to investigate the unknown topic to enhance their knowledge in a systematic way and define research methodology as the theory of how research should be explored". To map the key activities connected to ethical criteria in the fashion industry, investigation of the market was done on a wider scale. The explorative approach was suitable for achieving this general overview when knowledge of the ethical phenomenon in the fashion industry is scarce and not clearly defined. Furthermore, there was a research gap in the academic literature with regards to BGSS phenomenon and valuation of EFSW venture at its inception. The four case studies generally work well for qualitative research (Eisenhardt, 1989) and are considered useful in research as they enable researchers to examine data at the micro level and allows the exploration and understanding of complex issues. The construction of the research process synopsis begins in the initial stage, as shown in the figure 8, with researching the objectives of possible research areas, then followed by a review of theoretical frameworks of various theories.

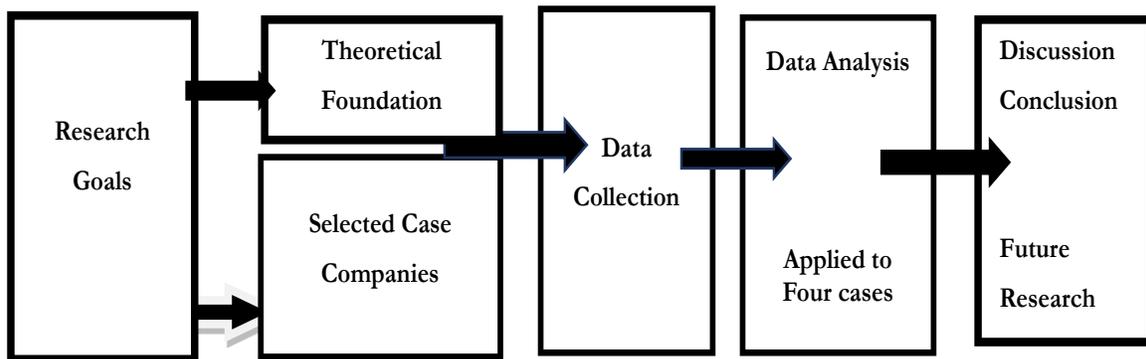


Figure 8: Research Synopsis Process

When one deals with fashion industry it is difficult to obtain big sample population, hence case study was a practical alternative. Also, case study approach is considered a robust method particularly when an in-depth investigation is required to explain the social and behavioral problems in question-related to ethical fashion phenomenon (Zainal, 2007). However, case studies are not always supposed to provide statistical generalization. Informing Science theory was chosen to shape the research with the intelligence acquired through the data collection of the four case (Cicret, OMsignal, Ringly & Beddit) companies. The rationale behind selecting informing science framework was because of case study research has increasingly attracted the interest of the fashion industry stakeholders as a useful means of investigating a phenomenon that enables to capture and understanding of the context and environment.

DATA COLLECTION

Access to data collection achieved through Internet medium and My Source™ Database (the world's most comprehensive database for ethical fashion businesses and research) is defined to secure ways to obtain data for this study (www.ethicalfashion forum, 2017). As shown in the Table 2, the research was based on qualitative and quantitative methods utilizing data collection online using Internet as the medium (online sources from company websites, media reports, academic books, research reports, dissertations, scientific articles, blogs and other competitors) and My Source™ database (World's most comprehensive ethical fashion database). The theoretical part of this research was structured encompassing the existing relevant literature on (i) ethical fashion, (ii) smart wearables, (iii) born-global concept, (iv) speculative start-ups, and (v) valuation. Most of the times the venture companies (as private companies) during inception stage do not want to disclose their valuation and investment matters because of sensitive and delicate nature.

Table 2: Data collection from the selected case study companies

Source	Research Type	Objective
For qualitative research: Cicret, OMsignal, Ringly & Beddit	Qualitative: Data was collected using "Internet research": various sources such as websites, research reports, media reports, blogs, books, s articles and other reports, and My Source™ database.	Ethical implementation

For quantitative research: Beddit (www.Beddit.com)	Quantitative: Data was collected using the same approach mentioned above.	Multi-Stage Valuation
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To date, it is important to note that all investment related data in the high-tech ventures are speculative. Even if the founders and investors divulge the data through question are or interview, the data is speculative. In this research data was collected in an exhaustive manner through online (Internet research). The case companies' websites and various reports facilitated the necessary, adequate and representative information to complete the research and collect the data. The data was collected online to fulfill the purpose: (i) to explore how the valuation is made at the inception stage, and (ii) to meet the ethical fashion criteria transformation requirement. Benfield & Szlemko explains “as a vehicle for data collection, “Internet research” promises increased sample size, greater sample diversity, easier access and convenience, lower costs and time investment, and many other appealing features” (Benfield & Szlemko, 2006).

DATA PRESENTATION

Considering the ethical fashion smart wearable scenario as a contemporary phenomenon and when the boundaries between the phenomenon and the context are not clear, case study is an enquiry that investigates within the findings from online data sources (My Source™ Database, websites, media reports, blogs, scientific articles, and books) were analyzed and conclusion were drawn from each perspective. The practical aspect of this research is depicted in figure 9, the conceptual study model, as to enable better perceive the research process and describe an overview of how the theoretical framework links to how the case studies has been executed.

THEORY SUPPORT TO CONCEPTUAL STUDY MODEL

This research paper provides information systems (IS) researchers with a theoretical framework to apply to the fashion phenomenon and the research questions were carried out through an interpretive and analytical procedure to conceptualize and analyze the findings. the theoretical contribution of ethical fashion (EF) theory, born-global (BG) framework, emerging David (ED) theory and informing science (IS) framework was applied to ethical fashion criteria of BGSS, as shown in figure 9, in the conceptual model applied to 4 BGSS cases.

Furthermore, this research provides the relevant theories applicable for the multi-stage valuation of BGSS at its inception as shown in the figure 10.

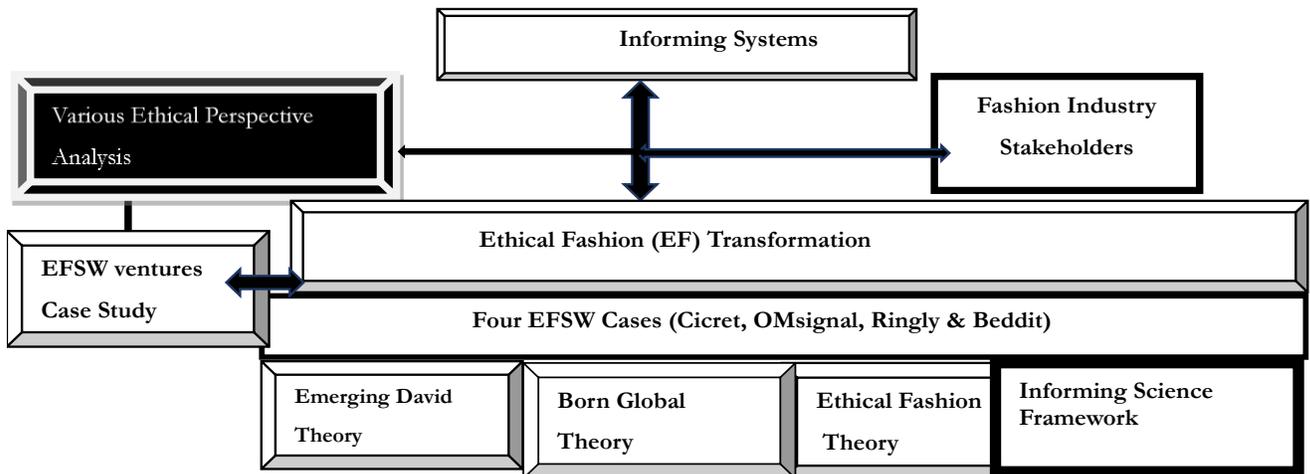


Figure 9: Conceptual Study Model Applied to the four case ventures

OVERVIEW OF THE CASES & ANALYSIS

As per the literature, websites and other online sources, these entrepreneurial smart wearable ventures have aimed for international markets soon after their incorporation and serve as a foundational space to serve their customers to create value. Yin (2003) suggested, the data analysis procedures associated with the case study method relied “strongly on argumentative interpretation, not numeric tallies”. Accordingly, each BGSS case was reviewed from the theoretical foundation perspective. Relevant data was gathered of each venture related to ethical fashion smart wearable criteria and how valuation was done for seeking the investment during inception phase. Interpretation and analysis was done, after collection of the data, related to theoretical frameworks and perspectives. Literature review and My Source™ Database review shows that the four selected case companies, as shown in Table 3 and 4, meet the following criteria: (i) ethical fashion smart wearable, (ii) born global speculative start-up. It is debatable how reliable the statements mentioned above about the degree of conformity to ethical criteria.

Table 3: Summary of the four BGSS cases

BGSS	CICRET	OM SIGNAL	RINGLY	BEDDIT
Founded	2014	2011	2013	2007
Vision	Replace Smartphone & Tablet	Sports Bra that captures deep and accurate body signals	To make jewelry smart- fundamentally change the perception of jewelry as a wearable	Sleep Tracker-for Wellness
Market	Ethical Fashion Smart Wearable (EFSW)	EFSW	EFSW	EFSW
Founding Members	Co-Founders Pascal Pommier Guillaume Pommier	Co-Founders Stephane Marceau Mr. Frederic Chanay	Co-Founders Christina Mercado, and Logan Munro,	Founder(s) Lasse Leppokorpi Joonas Paalasmaa Kim Dikert Mikko Waris
Product	Smart Bracelet	Smart Bra	Smart Jewelry-Ring	To make sleep monitoring device for wellness
Technology	An array of sensors that manipulate emails and make phone calls	Sensor embedded technology clothing	Rings support iOS and Android operating	Sensors for Sleep Monitoring and wellness
Funding @ its Inception	Crowd Funding	Angel Investors & Venture Capitalist (VC)	Angle investor and VCs	Crowd Funding & VC funding.

Using the definition of ethical fashion and based on the careful review of the relevant data of the four BGSS cases, the evaluation about meeting ethical criteria is as follows:

Table 4: BGSS cases accordance to ethical fashion criteria

Cicret	OMsignal	Ringly	Beddit	Meeting Ethical Fashion Criteria
X	X	X	X	Smart fashion wearable
X	X	X	X	Designed for longer term use
X	X	X	X	Produced in an ethical production system (Childfree labor, Sweatshop-free, not harming workers)
X	X	X	X	Little or NO environmental impacts
X	X	X	X	Eco-Labels (Fair Trade)
X	X	X	X	Eco-friendly Materials (Recycled, Biodegradable, Organic materials)
X	X	X	X	No animal cruelty
X	X	X	X	Reducing water use & Energy efficiency
X	X	X	X	Commitments to human rights

The research on various perspectives on the environmental, social, technological, economic aspect, and fair trade is as follows:

ENVIRONMENTAL

In the environmental aspect, several trends have an impact on companies in the EFSW market. First, global warming poses tremendous challenges to fashion companies in the future. Unforeseen events like droughts, floods, tsunamis, hurricanes, tornados, volcanoes, or earthquakes are often unforeseeable and can harm the growth of cotton and the maintenance of manufacturing facilities. Since many fashion brands have manufacturing facilities in developing countries (Asia and Africa), they are aware of environmental risks for such unforeseen events. To counteract and minimize the implications of the climate change, fashion companies are demanded by stakeholders to reduce their carbon footprint and implement environmental practices throughout the supply chain. Growing non-organic cotton is inexpensive than organic cotton and requires a lot of chemicals, water, and pesticides that harm human health and have a considerable influence on the environmental contamination. The idea of smart clothing has floated around for many years; little has come of it yet. Companies like Patagonia, Zara, H & M, Apple, Google, and others have begun thinking and encourages disposability. Fertilizers generate contaminated water and volatile emissions. Fashion companies should adapt to these macro environmental factors to differentiate the selves from key competitors, consumer characteristics, and the economy. To maintain loyal customers the fashion brands, need to abide by ethical criteria.

ECONOMIC

An economic aspect constitutes the increase of household disposable income. This means more money left for consumers to purchase wearables, which increases revenue of fashion companies.

SOCIAL

The fashion industry is mostly influenced by the impingement of socio-cultural trends. This social trend may lead to a greater customer interest in the materials used, their origin and their processing methods, demanding more transparency and accountability on behalf of the fashion firms. Hence more and more customers have gone for ethical fashion companies.

TECHNOLOGICAL

The fashion industry has always been subject to technological changes. The emergence of the Internet and improvements in wearable and information communication technologies has accelerated the information flow of contemporary trends and brands from the customer to the retailer. Innovations like matrix coding, the co-creation of products and online shopping has made the decision and purchase of fashion easier and more convenient for customers.

FAIR TRADE

Fair-trade is about value offered related to price, satisfactory working conditions, sustainability compliance, fair terms of trade in the developing world, and addressing the injustices that discriminates against weakest producers. The Internet research on the four BGSS cases shows prices are fair related to the value and benefits to the consumer.

QUANTITATIVE APPROACH

My Source™ Database was used to review the Beddit (www.Beddit.com) data. The noble multi-stage valuation methodology was applied to one knowledge intensive ethical fashion smart wearable start-up (www.Beddit.com) whose business model was available. Beddit was chosen because risk profile and complex uncertain and unpredictable environments with the wearable technology development. An Excel model was formed for the multi-stage NPV valuation calculation at the inception stage with the application of valuation model (Schootbrugge and Wong, 2013; Damodaran, 2006), as shown below. For any high-tech, start-up like EFSW ventures at its inception the following three prerequisites should be satisfied before calibrating the valuation:

1. Thorough knowledge of the wearable technology in the fashion domain is imperative.
2. The BGSS capital requirement should be of a long-term nature even though the investment and valuation at its inception is a central matter in this research.
3. The BGSS business should be in stages, making phased investment decisions possible.

Wearable technology in the ethical fashion development is characterized by tremendous uncertainties. One needs a comprehensive understanding of the wearable technology and the related market need to appraise the risk. Technology development uncertainties and limitations over time also looms at large, hence it makes sense to make investment per stage. Since the fashion trends constantly changes, the investment decision itself should change any time. Hence, the rationale for the above prerequisites is rather self-evident. As a first step, converting the idea to concept to the vital wearable technological principles must be demonstrated for the ethical fashion market. The inception stage is pure research and development (R & D) to meet the market need. There is huge uncertainty to justify any degree of refinement in valuation, risk assessment, and funding decision; therefore, at the inception stage it is essential to keep funding requirement and decision simple. Villalobos and Payne confirms that “to manage the uncertainties at the inception stage, the following guidelines should be followed (i) seed investment valuation should be between US\$ 1 Million and US\$ 3 Million depending on the quality of the top leadership team and the size of the market opportunity, and (ii) experts need to agree about the likelihood of technology development success, (iii) technology competitive advantage need to enhance customer value and offer unique value proposition” (Villalobos and Payne, 2007). George Lipper confirms “since the dot com bubble burst (1995 – 2001), inception stage (seed-stage) investment valuation by institutional venture capitalists has hovered around US\$2 million regardless of variations in other stages of investment” (Lipper, 2007). Furthermore, Dow Jones Venture One, hovered around US\$ 2Million, underscores valuation at its inception (seed valuation) (Lipper, 2007). The author has described various stages of venture below citing a BGSS (www.Beddit.com) example for multi-stage valuation. However, the scope of this research deals with BGSS valuation at its inception stage for the Beddit venture as shown in the Table 5 and 6.

EXAMPLE - MULTI-STAGE VALUATION: BEDDIT (WWW.BEDDIT.COM)

The Idea Stage (The Inception Stage)

The founders conceived an idea to develop a smart wearable device for sleep monitoring to offer services to track sleep time, heart rate, respiration, snoring, sleep cycle and much more enabling consumers to better understand their sleeping patterns and adhere to good daily habits to get sound sleep. The start-up was established, and the venture named “Finsor” in Finland during 2007. After founding the company, the founders looked for investment. Later the company name was changed to “Beddit”. Through crowd, funding the founders wanted to raise US\$80,000 (Comstock, 2017). At this stage, valuation of the BGSS (www.Beddit.com) is a central matter of this research.

Design & Development Stage

Most of the team members associated with the venture was optimistic of technology development success in the beginning but the probability of success was not measured.

Alpha & Beta (Technology) Testing Stage

After development of the technology, based on the testing, some chances of success of the wearable technology for sleep tracking have improved. Fund raising continued and eventually Beddit raised US\$ 503,000 through crowd funding (Comstock, 2017). Based on Beta testing, the technology has given results close to what was expected.

Commercial Product Development Stage

The founder and the team developed the product after the product being commercially tested rigorously. Beddit shipped on time to its backers and even opened for additional pre-orders. A total fund raised at this stage was US\$4,003,472 (www.crunchbase.com). Comstock confirms, “Beddit raised onetime funding US\$8 Million in 2014 from a Finnish investor Inventure” (Comstock, 2017). Hence, for simplicity, the author has considered total investment in Beddit ≈ US\$12 Million.

Scaling Stage to Production

Beddit started up scaling to industrial volume. This is done in several progressive steps, which took a long time since the production method should be developed further to overcome fundamental difficulties. Apple acquired Beddit during 2016 for an undisclosed amount (Comstock, 2017).

MULTI-STAGE VALUATION MODEL

The following model represents the calibration of BGSS Value at its inception:

(Schootbrugge & Wong, 2013; Damodaran, 2006):

$$\text{BGSS value at stage "i"} = \text{BGSS NPV}_i = \text{PVTV}_i - \sum_{t=i}^n (1/s^2) \$t$$

where

“i” denotes the BGSS at the inception stage,

“s” is the chance of success at that stage,

“\$” funds needed at stage “i” to reach the next milestone,

“NPV_i” net present value at the inception stage

“PVTVi” denotes the present value at time i of the BGSS weighted average Terminal value (TV) discounted at a conservative government bond yield at 4.6% for a 10-year bond as of 2007 as reflected in the US Federal Reserve Data (www.federalreserve.gov)

“(1/s)” is the chance of success that one can alter.

“1/s²” accounts for risks at various stages and to replace the discount rate and can be altered based on circumstances. All the investment numbers are in US\$ as shown in Table 5 & 6.

Assumptions: (The Beddit founders may not have compiled the data same way as the assumptions outlined below).

TV- discounted at a conservative bond yield at 4.6% in 2007 (www.federalreserve.gov)

PVTV is the present value of a BGSS’s weighted average terminal value (from various scenarios) after completion of the technology development successfully.

The total investment US\$12 Million that has been distributed from 2007 to 2014 as shown in the Table 5. The free cash flow of Beddit in the year 2014: US\$ 1.2 Million.

The accumulated cash investment that is risk adjusted is US\$ -30.02 Million at the inception stage. Therefore, the Terminal Value at the end of the year 2014 is $1.2 / (4.6\% - 2\%) = \text{US\$}46.15$ Million which is the present value of all free cash flows in all years, to infinitely if the constant growth rate is 2% per year and the discount rate is 4.6%. Damodaran describes “the calibration of PVTV: $\text{TV} / (1 + \text{Discount rate})^{\text{Years}} = 46.15 / (1 + 4.6\%)^8 = \text{US\$}32.2$ Million (Damodaran, 2006). Hence the NPV of Beddit at the inception stage: US\$ 2.18 Million.

Table 5: Risk Adjusted Cash Flow at the Technology Development Stages

Year	2007	2008	2009	2010	2011	2012	2013	2014	Total
Investment in Beddit	0.08	0.42	0.5	0.5	0.5	1	1	8	12
Success Rates	0.2	0.3	0.4	0.5	0.6	0.6	0.8	0.8	
s ²	0.04	0.09	0.16	0.25	0.36	0.36	0.64	0.64	
1/s ²	25	11.11	6.25	4	2.78	2.78	1.56	1.56	
Risk Adjusted Cash flow	-2	-4.66	-3.13	-2	-1.39	-2.78	-1.56	-12.5	-30.02

Table 6 shows the following simulation results of Beddit valuation at the inception stage:

Table 6: Valuation Simulation Results using Multi-Stage Model

Valuation at its inception	Growth Rate	Discount Rate	Terminal Value	PVTV	Cumulative Risk Adjust Cash Flow	BGSS(Beddit) NPV
	2%	4.6%	46.15	32.2	-30.02	2.18

THEORETICAL AND CONCEPTUAL FRAMEWORK

VALUATION & EFSW INTER-DISCIPLINARY DOMAIN

Based on the various relevant theories, as shown in figure 10, the following steps describes the entire value chain of a EFSW inter-disciplinary from the concept to consumer delivery that generates revenue enabling the valuation of a BGSS at its inception:

- (i) An idea generation is the first step to identify the opportunity recognition (Park, 2005) of a BGSS.
- (ii) Born-Global (BG) vision provides foreign markets penetration to offer larger market size and share enabling a BGSS to play a significant role in projection of valuation.
- (iii) The application of Emerging David's (ED) is considered because this study deals with nascent ethical fashion ventures.
- (iv) The characteristics of a venture during the entrepreneurial inception (EI) greatly influence a new venture that in turn may imprint throughout the venture cycle.
- (v) The informing system (IS) of EFSW inter-disciplinary research that crosses many disciplinary boundaries creates a comprehensive view enabling a systematic way of addressing the fashion wearable stakeholder communities on the challenges of calibrating the valuation through multi-stage valuation method.
- (vi) The foundation of the market opportunity (MO) is viewed as probability of BGSS success assuming the other components of the business model is executed effectively. The total addressable market (TAM), in other words the market opportunity (MO), is the starting point of valuation negotiations of a venture and applied to the calibration of the BGSS multi-stage valuation model.

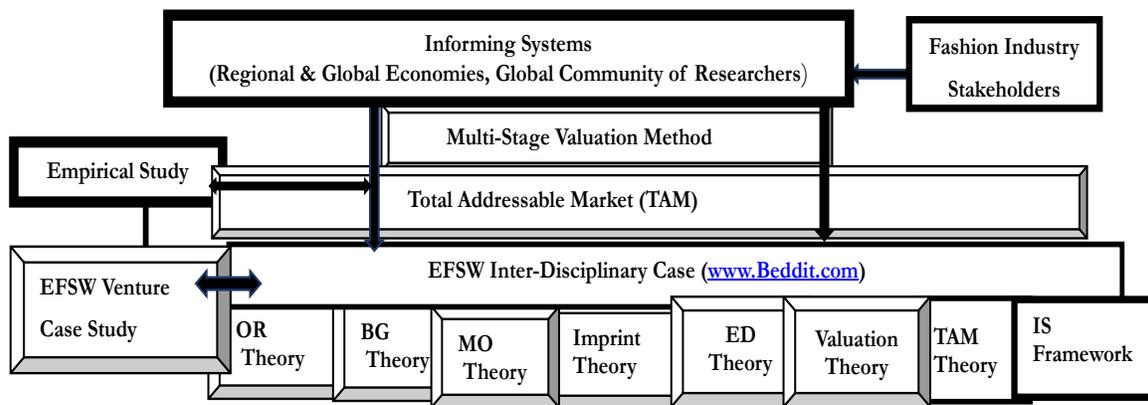


Figure 10: Valuation & EFSW Inter-Disciplinary Domain

INTERPRETATION OF THE RESULTS

In investment negotiations to value a BGSS between the entrepreneurs and investors, the significance is to prepare comprehensively with all the possible risk and accepted valuation approaches. In BGSS negotiations, the top leadership team shows the risk as low as possible and proposes costs of equity regarding the valuation. It is practical and pragmatic to choose a valuation method that offers low risk, particularly at the inception stage of a BGSS when the uncertainty is very high. Based on author's extensive experience in the investment negotiations for BGSS at its inception, multi-stage valuation method is a pragmatic approach suitable and brings the company value to an objective basis, eliminating unnecessary details and the loss of a comprehensive view. Generally, the discount rate, related to the capitalization rate as the required return on equity reflects the capital costs of a BGSS (Damodaran, 2006; Koller et al; 2010). To determine the capitalization rate, the characteristics of young high-tech BGSS like Beddit must be considered during the investment negotiations. Very seldom, a company's investment need be decided by just one decision. The outcome of the research & development (R&D) of a BGSS may be different from what one expects. Moreover, the possibilities of different results may change during the technology development as one learns more from the

market dynamics, the costs, and the technology applications to match the market need. All the traditional valuation methods have their drawbacks when applied to the inception stage of a high-tech BGSS. The main thread that runs through all methods is that they all use a Discount Cash Flow (Damodaran, 2006) type analysis in which risk is accounted for by a “high” discount rate, which is not appropriate for a high-tech BGSS like Beddit. Real option analysis (ROA), which is used in this study, in the valuation strategy considers that a BGSS may evolve in different ways. At various stages of the venture, one can postpone investments until uncertainty is lessened before making the decision to fund the next stage. The multi-stage approach incorporates the varying level of risk at different stages of a BGSS. Multiples are also used to value companies based on revenue generation that have rather stable operations. This paper also uses some of the strategies described by McKinsey’s & Company consultants Tim Koller, Marc Goodhart, & David Wessels in “Valuation – Measuring and Managing the Value of Companies – 5th Edition” (Koller et.al; 2010). During the inception stage of a BGSS, the idea must be converted to concept first. Then the important technological principles must be demonstrated as a proven success in a high-tech BGSS like Beddit. At this stage it is vital to keep funding decisions simple. There is too much unpredictability to justify any degree of sophistication in valuation, and risk assessment at this stage. PVTV is the present value (PV) of the company’s estimated weighted average terminal value (TV- from various scenarios) after successful completion of the technology development stage. The discounting of this value to the present is calibrated at the appropriate government bond yield to a specific investment situation. Therefore, in Beddit case, 10 years bond with a yield at 4.6% as reflected in the US Federal Reserve data for the year 2007 (founding year of Beddit), has been considered for the valuation calibration since profits will almost certainly start to come once the technology has been developed successfully.

“s” - The chance of success alters greatly at each stage of the BGSS development. First, there need to be assumptions that must happen. As assumptions come true, the BGSS becomes less unstable. Hence, the risk of BGSS failure depends upon the stage and the investment decision varies from one milestone to the next bears the relative risk. **“s²”** (instead of s) also follows the use of a discount rate. The investment at the inception of a BGSS must wait longer time before it is paid back to the investors. The time span is difficult to project. “s²” is used in the model instead of an interest rate. This adaptation is provisional because of practical reasons to do so. For example-based on the model, the investment required for each consecutive milestone during the development stage is inversely proportional of the projected success. Projecting the chance of success is daunting in a complex high-tech BGSS at the inception stage. Since entrepreneurs are very excited about the chance of success during the inception, discounting the chance of success factor given the uncertainty and complexity of technology development makes sense. Furthermore, the adaptation weightage can easily be changed, say, from s² to 2s depending on the BGSS. By designating probability of success to every stage of the BGSS development one can project the risk in the following manner. If the stage of the technology development has a one-third chance of success, then on average it requires three attempts to have one successful result. This means multiply the stage investment by 1/s. For example, if from milestone 0 (at the inception stage) to milestone 1 (development stage), the success chance of success projected to be 20%, the investment required for milestone 1 should be weighed 5 times more since out of five similar investments, only one will succeed. The entire weighted investment amount should be summed up and deducted from the discounted terminal value of the BGSS at the production stage after the development stage is completed. Based on the model (Schootbrugge & Wong, 2013) used, the investment required during the inception stage costlier than the investment needed at the subsequent stages. By using “s²” instead of “s”, the investment required at the inception stage is weighted much more heavily than during the successive stages. If the chance of success is 20%, then the investment to be deducted from the net present value (NPV). In this manner, correction should be executed for high upfront costs during uncertainty and vice versa. When the results become more certain, larger amounts of investment amount can be invested. By investing stage wise and valuing the BGSS should be valued provides incentive to focus on the BGSS that give the best risk/cost ratio. If varying chances of success are incorporated into the model (Schootbrugge

& Wong, 2013), then the calculations will be rather cumbersome and too complicated. Dividends are expected to be paid but inception stage high-tech development does not have positive cash flow and cannot pay any dividends, so this issue is not relevant in this context. It is paramount to note that there are great variations among industries. In this research, for a high-tech BGSS like Beddit, the development of new technology based on new knowledge that is very difficult to copy. Hence, the degree of probability was high to create revenues and free cash flow once the technology is proven successful. The logic of this approach mentioned above is that entrepreneurs tend to intuitively base their decision on the dollar value of the BGSS rather than on some abstract discount rate. Based on the above interpretation and using the multi-stage valuation model, the NPV amount US\$2.18 Million in Beddit case, as shown in Table 6, matches with valuation at its inception (seed valuation) underscored by Dow Jones Venture One, hovered around US\$ 2Million (Lipper, 2007).

MEASUREMENT AND QUALITY OF THE RESULTS

Validity was achieved through consistency throughout the data collection linking to the main purpose of the research questions and evaluating the relevance of findings. Since the purpose of four cases websites is to promote their brands, the validity of the information was verified independently through My Source™ database sources and other reports. Reasonableness, credibility, reliability and conscientiousness was retained in this research work through honesty and commitment throughout the online (Internet) research to attain trustworthy results by appropriate measurements. Every precaution was made to ensure the gathered information in a trusted and reliable manner.

FINDINGS/CONTRIBUTION/RECOMMENDATIONS

Instead of guessing based on proforma financial numbers for the valuation of an ethical fashion smart wearable BGSS at its inception, this study contributes a holistic framework to value for the first time bestowing new knowledge to the literature. BGSS valuation, particularly at its inception, is a fresh perspective since so many EFSW companies like Apple, Google, H &M, Zara, Patagonia, Cietet, Ringly, OMSignal, Beddit and others have gone through thought provoking and compelling stories and became successful in a highly competitive fashion industry. BGSS, a contemporary phenomenon (Knight, 2015), is a brand-new perspective in the fashion academic research. This paper reveals the view and understandings of the practitioners in the BGSS valuation at its inception. Since all the traditional valuation methods have their drawbacks when applied to the inception stage high-tech BGSS, it recommends using multi-stage valuation method because it provides incentive to focus on the BGSS that give the best risk/cost ratio. Fashion brands (designers and other stakeholders) should abide by the ethical criteria to make a difference in the global community at large. For the future of ethical fashion, ethical choices must be an available alternative to customers. Fashion companies need to embark upon design not only to be ethical satisfactory but also stylish. Trust need to be created by adopting transparency and integrity throughout the value chain. Fashion designers should take advantage of ethical criteria to provide assurance to consumers the ethical fashion wearable is produced with socio-cultural aspects in mind, to promote their fashion collections effectively. This research contributes to the application of informing system to frame the discussion on the inter-disciplinary domain of ethical fashion smart wearable. Furthermore, demonstrates the use of multi-stage valuation approach with a real life BGSS at the inception stage and provides valuable insight for both practitioners and academic researchers with "both qualitative (multiple cases study approach from ethical fashion perspectives) and quantitative method.

DISCUSSION & CONCLUSION

The rationale behind the multi-stage valuation approach is that the entrepreneurs tend to make their funding decisions on the dollar value of the total addressable market (TAM) rather than the hypothetical discount rate. Given the tremendous uncertainty involved in BGSS at the inception stage, traditional financial valuation methods are poorly suited. Hence, this article deals with a multi-stage valuation method and demonstrates the use of multi-stage valuation method at the inception stage as

the practitioners' value ventures at the inception stage and at each definable stage the de facto required investment is considered separately. Due to the complexity, and untested characteristics of an ethical fashion smart wearable BGSS at its inception, it is essential to call upon inter-disciplinary research that crosses many disciplines related to entrepreneurial marketing finance, born-global, fashion creation, fashion design, wearable technology, and aesthetic. In the Internet era when all most all the business is conducted through websites and online, the author would argue researchers should pursue "Internet research" and "Web based research" because it has already revolutionized for easier data collection and a promising as well as popular way to collect representative data. This research uses "Internet Research" methodology and My Source™ database which is appropriate for fashion industry research as explained in the methodology as per Benfield & Sseko description "Internet research" appears to be a very promising medium for fashion industry research and future researchers should consider as a vehicle for data collection." (Benfield & Sseko, 2006) and Lefever et al; concludes, "Online data collection in academic research might be replacing paper-and pencil surveys or questionnaires soon" (Lefever et al; 2006). Prior to incorporation of technologies in fashion design, it is essential to understand the impact of technology on the design, development and production process to achieve an ethical way of producing smart wearables. In the smart fashion wearable business, the presence of a motivated entrepreneur is not enough. Wearable technology requires the essential knowledge in fashion to exploit it and the relevance of prior experience and market knowledge. To date based on the literature review; academic research on wearable technology to meet the fashion market need has come up short. To be truly useful, usable and desirable for people, it is vitally important to see the future improvements in aesthetic appeal and application-oriented wearable technology that blends seamlessly into fashion. Fletcher describes, "Fast fashion that is cheap, quickly discarded and that spirals into ever shorter and faster production has a role in environmental degradation" (Fletcher, 2014). Fashion is the second largest polluting industry on the planet, after oil. There is a dire need for the fashion industry to reduce its environmental impact. Joy et al; states "Sustainability, involves complex and changing environmental dynamics that affect human livelihoods and well-being, with intersecting ecological, socio-cultural and economic dimensions for both global and local communities" (Joy et al). Ethical fashion is much more than sustainability and is the next frontier in the fashion industry and a thought-provoking, intriguing and relevant topic of the day and in future. Research shows fashion brands have a visibly poor support for ethical fashion. At present, the adaptation of ethical criteria from ethical fashion perspective by various stakeholders of the fashion industry has been too simplistic and the relevant actors are using sustainability and ethical fashion interchangeably, which is misleading. Ethical fashion smart wearable has a wider scope involving not only the wearable technology but also people, processes, design, eco-system that has benefits for the contemporary society. However, the fashion industry needs to understand to abide by the ethics required to be ethically compliant and to develop new trustful ways of offering ethical value to the consumers. For the ethical fashion future, ethical choices must be an available alternative to the consumers. This means fashion companies need to embark upon design to not only be ethical but also aesthetics and need to create trust by adopting transparency throughout the supply chain. An important implication - defining ethical fashion criteria is vital to avoid challenges, such as animal and human rights. Fashion brands and organizations should take advantage of ethical fashion criteria's, particularly the criteria provide assurance to consumers the ethical fashion wearable is produced with socio-cultural aspects in mind, to promote their fashion collections effectively. This article describes an EFSW model and principles behind the EFSW manifesto that identifies the criteria for various fashion stakeholders and organizations. A limitation is related to case study research based on the four-selected EFSW cases may not be applied in general to the findings of the ethical criteria compliance. Raising awareness among various cultural communities globally to promote avant-garde ways regarding ethical fashion criteria among consumers is paramount. Future research should address awareness creation of ethical fashion in the minds of various cultural communities of the world at large to curb the degradation of the environment, stopping the cruelty on animals and protecting the human rights.

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BIOGRAPHY



Prafulla Kumar Padhi, serial entrepreneur, has held Founder, CEO and Chairman of the Board positions for more than 25years and managed up to US\$1.2 Billion revenue operations with over 41 years of global business experience. His education qualification includes a Master of Science degree from the prestigious Massachusetts Institute of Technology (MIT), Cambridge, USA and a graduate of the Ivy League Wharton School of Business, University of Pennsylvania (USA) and holds three diploma certificates from the Ivy League Columbia University (USA), the Ivy League Dartmouth College (USA), and Kellogg School of Management (USA). For more than 40 years, Mr. Padhi has been involved in entrepreneurial venture endeavors. He has raised US\$386 Million funds for disruptive technology and smart fashion

wearable ventures globally. So far, he has done business in 46 countries and traveled to 142 countries. He is an author, independent researcher, innovator and pioneer (with patent/copyright holding) in creation, design, marketing disruptive technologies and products.