Defining a Fashion Industry Value Stream in a Small Island Developing State

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***Abstract* - The economies of the Small Island Developing States (SIDS) of the Caribbean have traditionally been based on low-value adding activities within global value streams even where there was opportunity and knowledge for industrial upgrading to occur. This study investigates the participation of Trinidad and Tobago in the global fashion industry and investigates whether there exists opportunity for owning or occupying lead positions in global fashion industry value streams. It utilises expert opinions and a Q-Study specifically focused on Fashion Industry Development. A single dominant viewpoint, termed the 'Value Chain Diversification' view identified the opportunity for product, functional and inter-sectoral upgrading in the T&T fashion industry. The study demonstrated how a SIDS could participate in higher value added activities in a global fashion value stream.**

***Keywords* -** *Industrial Upgrading, Small Island Developing States, Fashion Industry, Q-Study*

1. Introduction

Can dominant enterprises in global value streams originate in Small Island Developing States (SIDS)? SIDS' spending on infrastructure and institutions per capita, is high compared with larger countries and there exists little opportunity to achieve economies of scale within their industries and enterprises (1). This makes it particularly challenging to command important positions within global value streams, even while the primarily middle income countries are seen as lucrative markets for exports from developed and large developing nations (2).

The economies of the SIDS of the Caribbean have traditionally been dominated by a single raw material such as cocoa, bananas, sugar cane and, in the case of Trinidad and Tobago, hydrocarbons (3) (4) (5) (6) (7). Lack of diversification within the island states of the Caribbean has taken a toll on their economies, with T&T presently suffering the effects of sustained low global prices of oil and gas.

Even where the Caribbean SIDS have engaged in other economic activity, the focus has been narrowed on a single element of the value stream, while entities in other countries have benefitted the most from value created in the entire value stream. One example of this has been in the cocoa industry, where T&T sells its fine flavoured cocoa for approximately $3. US per kilogram (8) while chocolate produced from the cocoa may fetch $200. US per kilogram. Producers have never traditionally concerned themselves with other parts of the fine flavoured chocolate value stream despite the fact that only five (5) percent of the world's cocoa qualifies to be called fine flavoured, the world's cocoa gene bank exists in T&T and the technology and science required for manufacturing chocolate is somewhat basic by T&T's standards.

The case of the fashion industry is a little more complex since T&T's sole element of competitive advantage seems to lie in an intangible asset called 'creativity'. While it may be argued that since T&T is only competitive in the garment design aspect of the industry, every other part should be purchased or outsourced, this may not be desirable or advisable. Carugati et al argue that products with the most creative content should not be outsourced, except under close supervision and control (9) and important industry stakeholders advocate for a local manufacturing base despite labour related issues such as cost, training and motivation (10) (11). The work of T&T's designers has however, been acclaimed in many spheres, with occasional sales inquiries to which the designers have not adequately been able to respond. This study therefore takes a look at the

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entire fashion value stream and explores the opportunities for T&T to participate more widely in it.

2. Literature Review

The T&T fashion industry has remained small and fragmented over the years with most participation having occurred under the protection of tariff barriers in the 1980s (12) (13) (14). Subsequent to the liberalisation of the market, the industry suffered tremendously, with massive closure of factories and sales of designer clothing diminishing as citizens reverted to purchasing imported items (11) (13). There is also the effect of the large informal industry, where individuals purchase fabric from the predominantly Syrian/Lebanese fabric retailers and have their clothing custom-made by village tailors and seamstresses, who either learned their trade in one of several technical/vocational schools, or were self-taught (13).

While value stream analysis has typically been more narrowly used to reduce wastes within the operations of enterprises (15) (16) (17), its use to holistically evaluate industries has been increasing (18) (19). Value stream analysis may be used to investigate entire industries to identify opportunities for improvement or further development as demonstrated by Womack and Jones who defined the value stream for a private label cola brand from the mining of the aluminium ore for the cans to the soft drink aftermarket where the cans were returned for recycling (18). The time taken within the value stream was approximately three hundred and nineteen (319) days of which less than one (1) month was actual processing time in factories (18). This information was critical in devising a means of increasing value to the consumer since the final value provided to the consumer is an amalgamation of value contributed at each stage of the value stream. Later, a nineteen (19) country study conducted throughout the European hotel industry identified challenges and opportunities for improvement using value stream analysis (20).

A view of global fashion industry value streams (GFIVS), reveals powerful brand owners and retailers concentrated in North America and Europe, with garment production occurring in Asia or North Africa and raw material production in Asia (21) (22) (23). Dominant firms compete based on brand equity. T&T's designers do not generally possess the type of status that would allow stakeholders to compete globally based on brand equity. However this may be possible within limited markets characterised by geographical or psychological/cultural proximity such as within the Caribbean and its diaspora in North America and the United Kingdom, specifically in New York City, Miami, Toronto, and London.

Womack and Jones (18) discovered wide variation in the value created at different stages in the value stream when they mapped the production of cola starting from the mining of aluminium ore for the can, to the aftermarket where customers would recycle the can. In the case of the global fashion industry value stream, a similar situation is observed, with primary raw material producers and manufacturers typically benefiting least from their contributions (24). Brand owners, fabric manufacturers and retailers earn the most from the value created in this global value stream.

3. Conduct of the Empirical Study

The empirical study was exploratory, and sought to gain an understanding of the key issues facing the T&T fashion industry, particularly where these issues could affect its transformation into a key local sub-sector. Expert informants were utilised and a Q-Study was conducted among definitive stakeholders to capture the perspectives on the reconfiguration of the T&T fashion industry.

The study started with a stakeholders' analysis using Mitchell, Agle and Wood's Power, Legitimacy, Urgency Model. Subsequent to a stakeholder identification exercise which was validated by three (3) key industry stakeholders, the stakeholders were scored based on their possession of the three (3) attributes, power, legitimacy and urgency. The model then dictated the separation of identified groups into eight (8) categories including Dormant, Discretionary, Demanding, Dominant, Dangerous, Dependent, Definitive and Non-Stakeholders. Definitive stakeholders were the primary target of the study. Expert informants and desk research provided the material needed for the Q-Study on the possibilities for developing the T&T fashion industry. A summary of the conduct of the study is shown in Figure 1:

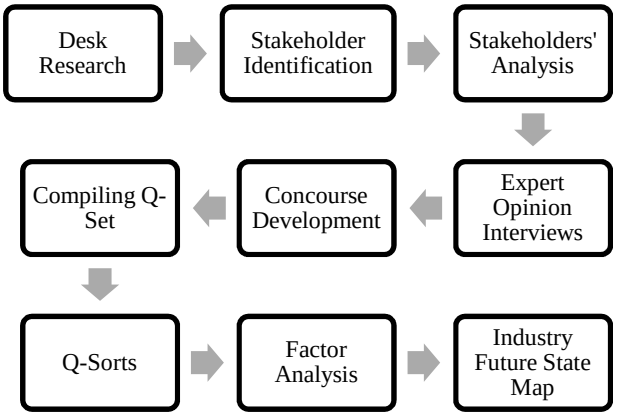

Figure 1: Conduct of the study

This qualitative study utilised thirty-two (32) key industry personnel, of which at least one-third (1/3) possessed exceptional international or regional experience, with one (1) international consultant to the fashion industry lending his expertise based on industry experience spanning thirty (30) different countries. The Q-study was used as a means of concisely capturing the dominant and latent expertise resident in the target stakeholders and started with a concourse of statements based on desk research and structured and unstructured interviews. In the end, thirty-six (36) statements, in the form of an unstructured 'Q-Sample' were subject to sorting according to a forced quasi-normal distribution pattern. The Q-study methodology was popularised by William Stephenson, a physicist and psychologist. It has been used in the medical field and in the humanities and social sciences, in exploratory studies, to gain better understanding of phenomena or people (25) (26) (27). It is a means of measuring subjectivity.

At this stage in the industry's development, it was necessary to capture the perspectives concerning its ultimate configuration, in moving away from low value adding activities and micro-niches to building a robust sub-sector. Examples of Q-Statements included: *i) This industry should be developed based on 'design only' approach; ii) Local manufacturing is necessary for speed of delivery; iii) The industry should vertically integrate into the manufacture of cotton fabric; iv) the industry should target niche market(s) only.*

Analysis of the Q-Sort using Principal Components Analysis (PCA) with orthogonal VARIMAX rotation resulted in six (6) factors with eigenvalues (EVs) greater than one (1). Using the Scree Plot from the initial dimension reduction exercise, it was observed that the curvature changed at points (1) and four (4). As such, another PCA was run with four (4) factors extracted for analysis. Ordinarily, four (4) perspectives may be expected from a Q-study containing nineteen (19) to twenty-four (24) Q-Sorts (26). For a significance level of $p<0.01$, the minimum factor loading accepted was:

$$MFL = 2.58 * (1/\sqrt{No.of\ items\ in\ Q-Set}) \quad (1)$$

In this case: $2.58 * (1/\sqrt{36}) = 0.43$. The Q-Sorts loading significantly on the extracted factors were then analysed. In order to make legitimate comparisons between the Q-Sorts weighing significantly on the respective factors, a standardized measure was required (26). The process used to analyse the Q-Sorts involves: *i) Calculation of Initial Factor Weights (IFWs); ii) Calculation of the Factor Weights; iii) Calculating the Final Factor Estimates (FFEs); iv) Calculating the z-scores; v) Creating a Final Factor Array vi) Interpreting the Final Results.*

4. Findings and Analysis

The majority of informants held similar views regarding the development of the T&T fashion industry. This was evidenced by the fact that sixteen (16) of the twenty (20) sorts loaded significantly on the first perspective, which has been termed the Value Chain Diversifier perspective. There were a total of eight (8) confounded cases, however, which reduced the number of defining sorts for the VCD, to nine (9), with the number of defining sorts for the other three (3) factors, just one (1) apiece.

For the purpose of this study, items which tied for the highest and lowest scores among the arrays, were included rather than excluded. The perspectives were determined based on the following (26):

- Items scored at extreme ends of the scale ie +5, -5, +4, -4
- Items ranked highest in current factor array compared to the other arrays among the Q-Sorts for the respective Q-Sample
- Items ranked lowest in current factor array compared to the other arrays among the Q-Sorts for the respective Q-Sample
- Confounded cases – these are cases that loaded significantly on more than one factor. As such they were not used in the calculation of aggregate scores

The defining Q-Sorts for the four perspectives are shown in Table 1 and the Final Factor Array is shown in Table 2. The dominant perspective was that of the *Value Chain Diversifier (VCD). VCDs* argue that branding is critical to the success of the industry. They contend that globalization should be pursued in order to take advantage of attractive opportunities and that vertical integration into designing and printing fabric is desirable.

VCDs oppose the mere importation of fabric for use by the local industry and advocate for the development of a cotton fabric production facility in industry locally, in support of the fashion industry. They strongly disagree with just selling the same products the industry has always sold, into different markets, or that it should limit itself to producing resort wear, or focusing on women's wear.

Table 1: Defining Q-Sorts for Factors 1 to 4

Factor	Q-Sorts	Total	Cum
1	2, 4, 5, 8, 13, 15, 18, 19, 20	9	9
2	12	1	10
3	17	1	11
4	6	1	12
Confounded	1, 3, 7, 9, 10, 11, 14, 16	8	20
Non-significant	N/A		

VCDs are the most likely to support use of the internet to generate and transact sales, equally supporting the click-and-brick or full online approach typical of born globals in small markets. In summary, Type 1s argue for true diversification for the industry in the development of new products and new markets. They strongly advocate participation at all stages of the Fashion Value Chain instead of limiting the industry to focus on the design element.

The second perspective, the *Domestic Designer* (DD) was defined by just the number 12 sort. Another four (4) sorts were confounded. The *DD* does not support venturing into new markets, but rather, developing new products to sell into existing markets, a product development strategy. Q-Sort Number 17 weighs strongly on the third perspective, with another sort being almost diametric, but confounded. The participant holding the *Global Couture* view is strongly opposed to the local industry downgrading on the fashion pyramid to win sales or focusing on resort wear. Finally, the *Fast Design Exporter* was defined by Q-Sort Number 6, with four (4) other sorts confounded. This perspective favours a market development approach where current products are sold into new markets, primarily to avoid competition in the home market environment.

The future state value stream for the T&T Fashion Industry was therefore proposed based on the Value Chain Diversifier perspective. In the case where the industry is underdeveloped, it is appropriate to use a qualitative methodology which utilises the views of expert informants. In this case, Q-methodology was used to harness these viewpoints.

Design

- The industry should not focus on the traditional resort wear or women's wear but be more general in its approach
- Designers do not have to base their output on unique custom products, however higher value added designer items are required - not mere commodities such as jeans and T-shirts

Table 2: Final Factor Array

Item Description	Factor			
	1	**2**	**3**	**4**
1. Design only	-2	2	1	-3
2. Triple wages for workers	2	3	-1	0
3. Local manufacturing for speed	0	-3	4	3
4. Niches only	0	1	0	-3
5. Target diaspora market	2	-2	2	3
6. Target global market	2	-1	1	0
7. Local market not worth the	-3	2	-3	0
8. Global - attractive	4	-2	1	-2
9. Global - they recognize value	0	0	-1	-3
10. Global - too much	-1	-1	-4	2
11. Target emerging or BOP	1	-1	2	-1
12. Target developed countries	2	0	2	-1
13. We must retail	1	-5	-1	3
14. Brands critical	5	2	0	-5
15. International fashion events	3	3	4	1
16. Target foreign specialty	0	1	1	-4
17. Click AND brick stores	1	0	-2	-1
18. E-Business only	1	-2	-2	-2
19. Joint venture global approach	-1	-4	5	0
20. Unique, one of a kind	-1	0	1	-4
21. Resort wear focus	-4	5	-5	1
22. Focus on womenswear	-4	2	-3	-2
23. Focus- men/children/mature	-2	1	-3	1
24. Sell jeans/tees initially	-1	4	-4	4
25. Spring/summer/fall/winter	0	-3	0	0
26. New designs <7days	-2	-3	-1	4
27. Produce cotton fabric locally	3	1	2	2
28. Design and print fabric	4	0	3	2
29. Import fabric - focus	-3	1	-2	-2
30. Produce cheaper designer	1	-1	-2	1
31. Same products - new markets	-5	-4	-1	5
32. Same markets - new products	-3	4	3	2
33. New products - new markets	3	-2	3	-1
34. Dominate local market first	0	-1	0	0
35. Fashion enterprises - born	-1	3	0	-1
36. Design only focus	-2	0	0	1

Design continued

- New design frequency may or may not follow the traditional fashion seasons, it is not a necessity for T&T designers who may release collections at any time
- Cheaper versions of designer clothing are also desirable

Raw Materials

- Fabric production (cotton), design and printing should be done locally
- The industry should not be based solely on imported fabric

Production

- Local JIT production is not an absolute necessity but may be desirable
- Workers' compensation should be significantly enhanced

Logistics/Export Networks

- Joint Ventures are not exactly favoured for developing the T&T fashion industry

Marketing

- Branding is critical for development of the T&T fashion industry
- International fashion event participation is essential
- There are attractive opportunities available globally and global markets should be targeted however local and diaspora markets are also important
- While developed countries are attractive, the T&T fashion industry should not ignore developing or BOP economies, but also explore these markets
- New design frequency of less than one week is not considered necessary

Sales/Distribution

- Fashion industry development should include retailing, this may occur both online and offline
- The industry could target foreign specialty stores/boutiques but must not rely on them

Sustainability

- A diversification strategy is favoured, where new products are introduced to new markets
- Developing new types of products is particularly critical
- The T&T fashion industry may or may not choose to target niches only. It is not the only way to achieve growth
- Despite the competition in the domestic market, it should not be ignored
- The T&T industry should participate in different parts of the Fashion Industry Value Chain apart from design only

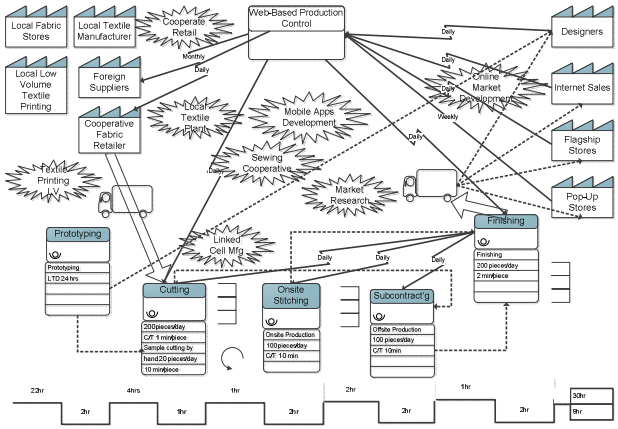

Figure 2: Future State Value Stream Map

5. Conclusion

Industries within Small Island Developing States such as Trinidad and Tobago (T&T) have not traditionally participated in high value added activities within global value streams, because of challenges associated with lack of economies of scale, small market size, low labour and goods efficiency, high relative cost of infrastructure, reliance on imported raw materials and remoteness from major markets.

This study investigated the T&T Fashion Industry's potential for increased participation in global fashion industry value streams. Expert informant interviews and a 36 item Q-Study were the major methods that lead to a dominant conclusion, based on the Value Chain Diversifier perspective. Vertical integration into specialised fabric production and small batch finishing, universal rapid prototyping facilities, fast response, flexible manufacturing and ownership of online and traditional distribution channels were among the areas identified for development.

Research and development activities toward a focussed goal are critical to guide the development of the industry locally and regionally because its path to development would be quite different to the industry in developed or powerful, large developing economies. The experiences of the latter economies therefore, should not be used as blueprints.

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