

**BLACK AMERICANS PAST AND PRESENT
CREATED FRUGAL INNOVATIONS AND
EMBRACED CIRCULAR ECONOMY PRINCIPLES:
THE MARKETING DILEMMA**

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ROCK HILL, SC, USA
SEPTEMBER 2018**

BACKGROUND

- **Frugal innovation is the practice whereby the rich learns from innovations developed in poor countries, and there is purportedly a current rivalry between India and China in the frugal innovation arena.**
- **Frugal innovators in India and China are pursued by venture capital and other investors**

RESEARCH QUESTIONS

- **Did the concept of frugal innovation did not originate in Asia or India with poor, frugal innovators?**
- **Should the poor innovators that reside in rich countries be excluded from the frugal innovator category if frugality was indeed used to innovate?**

LITERATURE REVIEW

WHAT IS A FRUGAL INNOVATION?

- The use of local resources to develop and deliver affordable, functional technological products that provide value (Chakrabarti, 2014, Prabu, 2017)
- Innovating cost effectively and quickly under severe resource constraints with local resources in an affordable way (Radjou, 2012, Chakrabarti, 2014, McNicoll, 2014)
- **Innovating with efficiency, low cost, safety standards and quality standards (Chakrabarti, 2014)**
- They are sustainable related to profitability, the support of environmental aims, and the social benefits such as affordability (Rao, 2013, Chakrabarti, 2014, Wohlfart, 2016)

LITERATURE REVIEW

WHAT IS A FRUGAL INNOVATION?

- Simple changes that improve stakeholders' experiences, deliver great value at low costs, and can help companies generate new revenues (Henley, 2016)
- Make use of reduced amounts of materials, repurpose, reuse and are cheaper (McNicoll, 2014)
- Frugal innovations are products and services created by local innovators adopted to the needs of their local population (Lehner, 2016)

LITERATURE REVIEW

WHAT IS A FRUGAL INNOVATION?

- Frugal innovations require little financial investments (Prabhu, 2014, Hemsley, 2017)
 - They are sought after because they are affordable
 - Renault-Nissan has developed electronic cars and low cost vehicles using frugal engineering observed among India's frugal innovators (Radjou, 2012, Radjou, 2015).
 - General Electric and Tata Sons are also multi-national companies producing low cost products by harnessing frugal innovations.

LITERATURE REVIEW

WHAT IS A FRUGAL INNOVATION?

WHAT ARE CIRCULAR ECONOMY PRINCIPLES?

- They are sustainable related to profitability, the support of environmental aims, and the social benefits such as affordability (Rao, 2013, Chakrabarti, 2014, Wohlfart, 2016)
- A circular economy embraces material and product reduced use, reuse, recycling, redesign, remanufacture, and the repair of old goods. These practices close the loop in industrial ecosystems and minimize waste (Stahel, 2016, Winans, 2017).

LITERATURE REVIEW

FRUGAL INNOVATIONS/ CIRCULAR ECONOMY PRINCIPLES

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LITERATURE REVIEW

FRUGAL INNOVATIONS/ CIRCULAR ECONOMY PRINCIPLES

There are three (3) specific principles advocated in the Ellen MacArthur Foundation's Outline of a Circular Economy which include:

1. Preserving and enhancing natural resources by controlling and balancing the stocks of renewable resource flows through regeneration, virtualization and exchange;
2. Optimizing resource yields by circulating and optimizing the use of products, components and materials to regenerate, share, and creating a close loop economy; and
3. Revealing and designing-out negative externalities to foster system effectiveness.

(Ellen MacArthur Foundation)

LITERATURE REVIEW

EXAMPLES OF FRUGAL INNOVATIONS IN DEVELOPING COUNTRIES: INDIA, CHINA

Tata Chemical	No power drinking water filter Low cost of \$0.65 for a family of five (Caploe, 2010)
India Institute of Technology	Laptop Low cost of \$35
Prajapati	Miticool Fridge made of clay that cools food up to 5 days with no electricity (McNicoll, 2014)

LITERATURE REVIEW

WERE FRUGAL INNOVATIONS NEWLY CREATED IN CHINA AND INDIA?

- No, there have been frugal innovations in America as well
- Not a new phenomenon because companies in Silicon Valley and Santa Clara University's Frugal Engineering Innovation Lab has been innovating frugally as well (Wohlfart, 2016)
- Also, in times of craftsmanship and hand production before the industrial revolution, material waste was unknown (Strasser, 2000, Lieder, 2016)

LITERATURE REVIEW

EXAMPLES OF FRUGAL INNOVATIONS IN DEVELOPED COUNTRIES: BLACK FRUGAL INNOVATORS

- Henry Baker, 1917
- US Patent and Trademark Office Patent Examiner
- Searched for patents by Black Americans



LITERATURE REVIEW

EXAMPLES OF FRUGAL INNOVATIONS IN DEVELOPED COUNTRIES: BLACK FRUGAL INNOVATORS

- Black Americans were impoverished during slavery and during the reconstruction period when slaves were emancipated. They had no choice but to be frugal when engineering and inventing solutions to problems that they faced in harsh work conditions.
- The cotton gin: A slave named Sam invented this combing device to alleviate the harsh laborious conditions associated with removing seeds from picked cotton. In addition, the slave named Ned of inventor Oscar J.E. Stuart developed the innovative double plow (Aoki, 2007, Yancy, 1984).
- When the slaves Isaiah and Ben Montgomery invented a boat propeller, their slave owner recommended to the United States Congress an amendment to the patent law to allow the slave owner to receive patents for inventions by slaves (Baker, 1917).

LITERATURE REVIEW

EXAMPLES OF FRUGAL INNOVATIONS IN DEVELOPED COUNTRIES: BLACK FRUGAL INNOVATORS

- In 1853, Jan Matzeliger developed a way to hold shoes on their lasts, grip and pull the leather down to the heel of the shoe, and drive in nails (Kaplan, 1955, Baker, 1917).
- This invention was bought by the United Shoe Machinery Company and reduced the cost of making shoes by more than fifty percent. This certainly meets the definition of frugal innovation.
- It resulted in increased worker wages, decreased worker hours, improved factory conditions and made the President of the United Shoe Machinery Company a multi-millionaire.



LITERATURE REVIEW

EXAMPLES OF FRUGAL INNOVATIONS IN DEVELOPED COUNTRIES: BLACK FRUGAL INNOVATORS

- George Washington Carver invented more than 100 products from peanuts including gasoline, shampoo, soap, ink, ...



A "Short" List of Peanut By-Products Discovered by G. W. Carver:

Peanut Punch	Flavoring Paste
Peanut Beverage Flakes	Meat Substitutes
All Purpose Cream (cosmetic)	Peanut Brittle
Antiseptic Soap	Peanut Cake
Baby Massage Cream	Peanut Flour
Face Bleach and Tan Remover	Peanut Popcorn Bars
Facial Lotion	Peanut Relish
Facial Powder	Peanut Tofu Sauce
Glycerine	Salad Oil
Hand Lotion	Vinegar
Peanut Oil Shampoo	Worcestershire Sauce
Shaving Cream	Castor Oil Substitute
Tetter and Dandruff Cure	Emulsion for Bronchitis
Vanishing Cream	Iron Tonic
30 different Dyes for Cloth	Laxatives
19 different Dyes for Leather	Axle Grease
17 different Wood Stains	Charcoal (from the shells)
Hen Food (from the peanut hearts)	Diesel Fuel
3 different kinds of Stock Food	Gasoline
Bar Candy	Glue
Caramel	Insecticide
Chili Sauce	Linoleum
Chocolate Coated Peanuts	Lubricating Oil
Curds	Nitroglycerine
Dry Coffee	White Paper (from the vines)
	Printer's Ink
	Plastics
	Rubber
	Laundry Soap
	Sweeping Compound

FINDINGS

THERE'S A MARKETING DILEMMA

- So far, researchers have not gone back far enough in the history of developed countries
- The notion of frugality has been solely focused on those created in “developing, poor countries”
- However, there are frugal innovations which were developed by “the poor in developed countries”

RECOMMENDATIONS

- “And when one considers the enormous part played by American inventors in the economic, industrial and financial development of our country, it became a matter of importance to ascertain what share in this great work is done by the American Negro. The average American seems not to know - **Not knowing it, he does not believe it, and not believing it he easily advances to the mental attitude of being ready to assert that the Negro has done absolutely nothing worthwhile in the field of invention.**”

Henry E. Baker

Assistant Examiner, US Patent and Trademark Office (Baker, 1917)

RECOMMENDATIONS

- It is important to market the fact that there are poor frugal innovators in developed countries because it proves that they are contributing to the field of invention
- It is also important to seek out frugal innovations from the poor frugal innovators such as the Blacks and other marginalized populations so that those inventions can benefit from investor financing

ANY QUESTIONS?

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