



Dr. Debashish Banerjee

PhD – Strategy with AI and ML applications on decision and engineering sciences

Chartered Fellow of The Textile Institute, Manchester – C.Text – FTI

PG Cert – Business Analytics with Strategic Operations major – IIM Calcutta

B.Tech – Textile Engineering – University of Calcutta

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Head of Operations – Marshall Fowler (Engineers) Limited with the mandate to transform the organizational performances through product referrals, factoring innovations in design, strong brand presence and penetration in the competitive field of agri-equipment processing.

Marshall Fowler (Engineers) Limited is a leading OEM in the tea, coconut, coffee and food engineering equipment with footprints in Africa, India, South East Asia and Sri Lanka. Recent achievements include research presentations in Tea at the Nyeri Conference in November, 2018.

May – 2018 till date

[CEO at Blackstone Synergy Consulting group Limited to make a lasting difference to the humanity at large through consulting for operations, engineering and strategic areas of marketing, product engineering and financial re-engineering](#)

Domain: manufacturing and consulting in SME and large enterprises for effective

scaling up of profitability and sustainable growth.

USP differentiation:

- a) Initiating and implementing **successful manufacturing and value chain strategies** in enterprises.
- b) **Turnaround of sick, potentially** sick and units seeking enhancement in profitability to the tune of > 15% RONW.

Industry segments: a) Textiles, b) Fabrication industry, c) Packaging, d) Chemicals, e) Plastics, f) food processing and agro based products, g) Paints, h) hotels, tourism and commercial services value chain etc. i) Polymers, j) FMCG products like soaps, edible oils, k) Pharmaceuticals, l) Hot rolling mills, m) Flour mills, n) Leather

Deliverables in three quarters from start-up:

- 1. Q1 from start-up: a) Productivity enhancement to the tune of 10% from benchmark levels at start-up and reduction in value chain costs, b) Quality leadership in the product segments under purview,
- 2. Q2 from start-up: a) Market validation of quality leadership with pricing premium over the competition through AMR (advanced market research and brand penetration techniques), b) Productivity enhancement to the tune of 15-20% across product segments through the implementation of condition based maintenance and certain innovations that have been showcased at different international forums. c) RONW > 10%
- 3. Q3 from start-up: a) Skill enhancement to the tune of Level-3 in >80% of workforce on TPM terminology in maintenance and production functions, b) RONW > 15%, c) Stabilization of systems that can sustain the performance levels over the subsequent three years.

Professional experience:

- a *Corporate profile of organizations worked with & positions held:*

Current Position: Executive Director and CEO at the start-up company – **Blackstone Synergy Consulting Group Limited, Nairobi** – the company founded in a higher order objective of reaching out to the mankind through bringing in effective turnaround strategies in the manufacturing lines as also in very small businesses through scaling up of sales revenue at lower costs and liquidation of both long term and short term debt

Synopsis of the work done hitherto:

➤ **A. Artificial Intelligence and Machine Learning:**

- 1. The **AI and machine learning pathway** is aimed at improving the **operating fundamentals through the arrival at influence nodes** that have the **maximized impact**

in the process. INTERNATIONAL RECOGNITION THROUGH ACCEPTANCE OF RESEARCH PAPERS IN A PRESTIGIOUS AI CONFERENCE IN PARIS IN SEPTEMBER, 2017. <http://www.bayesia.com/bayesialab-conference-2017-agenda>.

2. The **elements of strategic areas of pricing mechanism, costs of conversion and the quality differentials of the branding initiatives** are also factored in the model through the **applications of advanced AI and machine learning**.

3. The **training and development initiatives** of the skilled manpower – both at the technician and supervisor level as well as at the operative levels are integrated into the model through **the extensive usage of check sheets, work orders and the formalized internalization into the system of mathematical algorithms that generate decisions and trouble-shooting way ahead of the occurrence of the problems**.

FOLLOWING LINK ON REAL TIME CASE STUDIES IN KENYA DRAWN IN FROM DIVERSE INDUSTRIES INCLUSIVE OF FMCG SHALL HELP ILLUSTRATE THE CONCEPTS VIVIDLY.

[BBN Modeling for FMCG, corrugation, hot rolling mills and Polymer packaging](#)



A. Energy Sector: Energy audits of 30 major corporations across Kenya with partners wherein the following derivatives were highlighted and agreed on in the ERC approvals:

- **Cabling:** The principles of advanced electrical engineering were brought in to analyze the issues of high CF (crest factor) in the distribution networks in the plants and the weakening effect on electro-mechanical drive systems. Demonstrated solutions through cost-effective measures that can have a lasting effect on the performance of the plant.

- **Conversion of motors into energy-efficient ones through re-engineering on the wiring:** This singularly important correction brought in paradigm changes in re-engineering motors for higher energy efficiency as also on the impact in generating greater mechanical efficiency in the drive transmissions and by implications on the quality and productivity in the process. Established these through simulated models founded on condition based maintenance (CBM) techniques that call into effect the mechanical and electrical as well as the process derivatives. The reproducibility of the results and the mechanisms adopted are well documented to show case the cost-effective solutions to the Kenyan industry.



- **Detailed engineering techniques for controls on harmonics and the derivatives on process productivity:** The audit reports across a cluster of manufacturing units highlight the fundamental approaches to controlling the harmonics in the line and bringing in the productivity derivatives to enable the plants to move into a higher level of operating efficiency.



- **Design implications on extruders and grinders in the polymer process:** The energy impact on the design derivatives are brought forth in the detailed energy audits of a host of companies in the polymer extrusion processes in Kenyan manufacturing domains and

these can be replicated with reproducible results all along.



B. Profitability Engineering in the manufacturing sector: The fundamental integration of the manufacturing philosophy into the brand strategy and innovation loop is the core delivery point worked upon at Blackstone Synergy Consulting Group Limited. Allpack Industries, Mlolongo, Nairobi is the important case study in the anvil to this effect. This is an ongoing research point for rallying around the concept of migrating into monopolistic approaches in an otherwise commodity business through knowledge integration into the process and building on the intellectual property rights (IPR). The operational transformation in terms of productivity growth and the commensurate quality profiling of the product have lent credence to market leadership in terms of quality and pricing equilibrium.

SOME IMPORTANT CASE STUDIES:

 [Major TEXTILE PLANT TURNAROUND case studies - S...](#)

 [Research invites the world over.zip](#)

 [Research Papers.zip](#)

 [TEXTILE INDUSTRY REVIVAL PROGRAMS.zip](#)

 [Research invites the world over.zip](#)

 [White Paper on the molding industry - Blow and ...](#)

 [White Paper - Paint manufacturing process.pdf](#)

 [The White Paper on the foaming plants - Tuff Fo...](#)

 [White paper on the edible oils and soaps indust...](#)

 [Apex Steel - note on manufacturing possibilitie...](#)

[PDF Panesar Kenya Limited - The White Paper on Busi...](#)

[PDF Apex Steel - note on manufacturing possibilitie...](#)

Last position: CEO at Lean Energy Solutions Limited, Nairobi and with divisions in East African countries of Tanzania and Uganda with effect from April-2014 with a mandate to scale up top line and bottom line growth within 2017-2018 in a phased manner. The organization is in the business of management consulting, energy management and re-engineering and green energy initiatives with an exponential growth potential.

Kaizen initiatives:

A. Innovation: The UCL boiler was in perpetual problem with smoke emissions that influenced the environmental issues in the neighborhood ever since the commissioning on August-2011 culminating in a NEMA case. The problem was solved in the following manner:

- a) Smoke quench tanks were created in series – 4 in numbers and the fifth was dry
- b) The flue gas was routed through the water in each of the quench tanks after the suction channels of the ID fan and along the discharge pathway
- c) The final tank was left dry to cool off the final quenched residue and allow a remnant of the residual flue gas to escape into the chimney thereby eliminating the smoke altogether

This is a flagship solution to a long drawn technical problem and is the hallmark of a Kaizen endeavor with patent implications.

B. Analysis of the design of dryer at Sasini: The dryer had a serious design defects that were not acknowledged by the OEM. The problems and feasibility studies were carried out thread bare and eventually the following solutions were recommended:

- a) [The techno-commercial feasibility studies were conducted and the design features were compared with raw data](#)
- b) [The detailed simulated studies were conducted](#)
- c) [The studies were backed up by energy analyzer interpretations](#)
- d) The analysis on the design defects were done
- e) Recommendations based on technical evidence were forwarded for corrective actions

The Kaizen method unraveled the design defects of the equipment unambiguously.

C. Structural conceptualization and design for operations, finance and marketing through Kaizen modeling:

[Financial revamp of systems and structures was conceptualized to enable the organization to move places in effecting the targeted revenue growth for FY 2014-15](#)

[Operational turnaround was riding on Kaizen methodology of deep diving into an amalgam of principles and systems to enable better SOP – standard operating procedures and followed by the skill matrix development and interpretation of operational data day in](#)

[and day out](#)

[Recruitment solutions – the Kaizen way – demonstrated in April while hiring the accountant.](#)

A significant change in marketing approaches as envisaged by the kaizen approaches to integrated marketing through the two case studies of

Creation of Kaizen model at [Flamingo Tiles for managing the furnace](#)

The Kaizen approaches to revamping financial and branding strategies are unique in the above initiatives and provide cases for further research and contemplation leading to development.

1. Last position: (April 10th 2012 – till February-28th, 2014): General Manager and Head of Unit reporting to the Board of Directors at Spin Knit Limited, P. Bo : 1478, Nakuru, Kenya with the mandate for managing profitability. **ACHIEVED:** Turnaround in the [blanket](#), [HKY](#) (worsted spinning systems) and knitting businesses and the overall profitability has improved significantly (Net profit >17% on sales turnover; up from 8% and 6% respectively over the past two years) through [process and machinery re-engineering](#) bringing down expenses (30% reduction and improving on the spread through higher productivity (+15% in a span of 18 months)

Condition Based Maintenance as the foundation of Kaizen integration:

a) Formulation of relevant policies for [quality](#). **Error! Hyperlink reference not valid.** and the organizational **Error! Hyperlink reference not valid.** and vision to found success realization drawn on Kaizen principles

b) The mechanical and electrical data were drawn in from each machine in the process to create the MQI – machinery quality index and the quality of the output was designed into the PQI – process quality index and a judicious combination of both yielded the [CQI – consolidated quality index](#). This was the foundation for the Kaizen model of data generation, creation of process control charts and the linkage of all data into a numeric index to represent the [state of the art process](#) as a prelude to corrective actions and trouble-shooting decision trees.

c) Kaizen model of [HK – Ho Shin Kanri alignment](#) to enable a sustainable model of continuous development to be in place in a successful organization.

d) 1. Major breakthroughs in [productivity: 12% overall plant](#), [2y acceptance boosted sales turnover by 30%](#) and finally 3. Kaizen innovations caused a sharp drop in [30% by value for maintenance and repair costs over the period](#)

Concluding remarks on Spin Knit Account:

Role model for all textile units in East Africa and Kenya was created.

Management pathways for decisions were founded for futuristic initiatives.

The underlying essence of **integration of manufacturing, innovation in products and processes and financial management** were the important takeaways from the Spin Knit tenure as hallmarks for future successes in enterprises.

Head- Process Re-engineering at Winsome Textile Industries Limited, Baddi, HP and headquartered at Chandigarh with the singular responsibility of bringing in changes

in productivity, process yield and quality leadership in varied products inclusive of mélange and raw white as well as dyed yarns. **WINSOME WON THE TEXPROCIL AWARD- BRONZE FOR PROCESSED YARNS ON TWO CONSECUTIVE YEARS DURING MY TENURE SO FAR (FY: 2008-09,2009-10) AND THE COVETED GOLD IN 2010-11**

TENURE: 8TH SEPTEMBER, 2008 TILL 31ST MARCH, 2012

3. Vice President- Operations at Alps Industries Limited, Haridwar with the singular responsibility of turning around this sick unit and making it a landmark for emulation for all the stake holders inclusive of lead bankers and lender consortium. Achieved a phenomenal growth from 65 MT/ day to levels of 77 MT/day with the peak touching at 80 MT/ day. The factory has achieved the milestone of breakeven point of 72 MT/day within 60 days of joining thereby vindicating the series of turnaround manufacturing strategies outlined herein.

THIS UNIT WENT ON TO BAG THE PRESTIGIOUS TEXPROCIL AWARD FOR SPECIAL ACHIEVEMENT AWARD- YARNS- GOLD IN THE FY 2009-10.

TENURE: JUNE 8TH, 2009 TILL 25TH SEPTEMBER, 2009 ON DEPUTATION FROM WINSOME FOR TURNING AROUND THE COMPANY FROM THE BANKER'S PERSPECTIVE AS DISCUSSED ABOVE

5. Chief Manager –maintenance & R&D at one of the largest spinning groups in North India–Vardhman Group responsible for **additional role**-TPM acclimatization in the organization from August, 2005 till August, 2008 ; **primary role being managing lower manufacturing expenses of 85000 ring spindles and 600 rotors through innovations in maintenance practices, improving on cotton and polyester yarn recovery levels and maintaining a sustainable quality that besides meeting customer needs help augment spinning productivity levels.**

6. Head- Manufacturing in the capacity of Plant manager and Production advisor at PT.Indorama Teknologies, Cempaka, Purwakarta in Indonesia: a part of the MNC textile giant : Indorama group that is primarily engaged in the yarn spinning business and partly in processed fabrics besides polymerization and filament yarn business. Diversification in to PET resin business has also been achieved. Manufacturing is based in Indonesia, Turkey, SriLanka, Thailand and in India. **Role definition:** *Associated with the group as Head-manufacturing & production advisor for a medium sized plant (50000 spindles) that caters to the international niche segments of the yarn business in polyester/rayon blends, rayon –100%, lyocell, modal blends, polyester-cotton blends, core spun lycra and polyester sewing thread from December, 1999 till June 2005. The responsibility for the position included plant maintenance, operations and the product quality conformance with the international market need as well as coordinating the product development activities. Customer focus included trouble shooting for problems in the weaving shed for products developed in my plant.* Group turnover is US\$500 million

TENURE: 15TH DECEMBER, 1999 – 19TH MAY, 2005

7. Vardhman group of industries is the largest yarn manufacturer & exporter in India with diversification in to processed fabrics and garment businesses well in place. *Associated with this group from May, 1993 till December, 1999 in various capacities starting from the position of Production engineer in shifts till the final position of Plant superintendent*

having overall responsibility of maintenance, operations and quality control.

8. Aditya Vikram Birla group that is a pioneer in synthetic spinning industry in India besides being a largely diversified group with a range of business interests globally. *Associated with this group in a medium sized synthetic spinning plant as a fresher from June, 1990 till May, 1993 in various capacities starting as a Trainee engineer before holding the last position as a maintenance engineer.*

Profiling core competencies

The product profiles handled:

- i. Dyed acrylic, polyester, rayon, cotton and blends of various components-ring spinning.**
- ii Grey acrylic, polyester, rayon, cotton and blends of various components-ring spinning.**
- iii Special yarns inclusive of core spun spandex with cotton, polyester, slub yarns, grindelle, mélange yarns (PC. CV. Cotton/wool/nylon and related blends), PVA zero twist yarns for terry towel industry.**
- iv. Ring spinning expertise in the cotton count range from Ne 12-100.**
- v. Fabric processing at knitting and woven stages right till stentering.**

B. The technology exposure:

- i** The technology exposure includes familiarization with the launches of card DK-803, DK-903 models of Trutzschler, C-51 cards of Rieter make, RSB D-30 drawframe of Rieter make, E-62 comber of Rieter make, the FL-100 speedframe of Toyoda, RX-240 with auto-doffer and link coner with Schlafhorst make winders AC-338 along with Loepfe yarn master spectra clearing systems and the spindle identification technology of Schlafhorst AC-338.
- ii** The familiarization program detailed above included operational trouble shooting training for each of the above mentioned state of the art machinery, the operative training for identifying output product nonconformance in the process and the imbuing of techniques for improving performance capabilities of each of the machinery detailed above.
- iii** Expertise attained in reviving the performance credentials of old and redundant technology to achieve up to 85% of the technological capabilities of latest state of art innovations.

C. The USP highlights:

Fine count products achievement between 2005-2007 April at Vardhman: Ne 60cbw : compact technology: 84 gms/ss and non compact route: 72 gms/ss with G5/1 RF, Ne 80: 48 gms with G5/1 and 52 gms/ss with Compact route,

Ne 50 cbw: Compact route: 110 gms/ss and non-compact route: 103 gms/ss with G5/1 RF. Product : Ne 50-60 yarn recovery increased to 72.5% from 69% and for Ne 70-80 it was raised to 71% from levels of 68% by optimizing card wire specifications and card

parameters. Worked on optimizing-60 PC blends where the challenges are substantial.

Optimized card wires/ gauges and critical settings at the combers to establish Ne 55 PC : 40:60 blend for Welspun during the period August- November, 2007.

Indorama-Indonesia assignment for the entire gamut of cotton yarn products established the project in 2001 and the consistencies continued for years on. Some productivity indicators are : Ne 30 combed cotton-100%: 235 gms/s.s., Ne 20: 355gms/s.s.

Melange yarn achievements: optimized card and DF parameters to establish shade consistencies with each new lots and between lots of identical shades.

Condition based maintenance is one of the critical competency models. THE DETAILS CAN BE PROVIDED ON REQUEST

INDONESIAN EXPERIENCE HIGHLIGHTED

D. Planning, execution, installation and commissioning of five state of the art ring spinning projects in the career span so far.

Technical support for achieving the highest possible productivity coupled with minimization of fabric rejection for downstream processing like weaving preparatory, weaving and knitting. Leader of the project team at Indorama, Indonesia that collaborated with Lawson Hemphil Inc, Rhodes Island, USA and Intertek testing services, Indonesia branch to evaluate and solve barre problems in knitted fabrics caused by knitting tensions. Visited Lawson Hemphil, USA; took extensive trials on the CTT and with yarn diameters to establish the relationships with barre in fabrics .

Operations streamlined through packaging operative and mechanic training on process control techniques so as to boost overall product conformance for 24-hour operations while still maintaining the productivity levels.

Singularly satisfying achievement has been in the realm of research while still working on the shop floor. Designed and applied for patents for 2 important breakthrough concepts in ring spinning technology and 1 important concept in carding technology. Patent for constatense spinning is 390/cal/99 and the Bhumika electromagnetic rings in ring spinning has the application number 290/KOL/2004. Both are in the application stage. Efforts are on to commercialize the patents once approved. One of the designs is expected to improve spinning productivity by 30% at significantly improved yarn characteristics.

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Invited to present two papers at the 83rd Textile Institute World conference to be held at Shanghai in May, 2004 and at the International Cotton conference at Bremen, Germany and International spinners committee at Zurich, Switzerland in March, 2004. One of the papers is related to the invention on magnetic rings and the other on yarn properties that can differentiate weaving and knitting performance.

Presented as many as seven papers on a range on innovations in spinning technology at the 84th Textile Institute World Conference being held at Raleigh in North Carolina , USA. The conference is jointly organized by NTC and North Carolina State University, USA. **The paper includes one on financial engineering for turning around enterprises in the textile industry generally and more specifically in the spinning industry.**

Recent acceptance of papers at the ATC-11 (Asian Textile Conference) to be held in November, 2011:

Oral presentations-

- 1: Strategy Algorithm – for textile value chain turnaround**
- 2: Energy saving couplings for the ring spinning frame**

NISTI –IIT Delhi conference n New Delhi- a paper on Turnaround strategies in the textile value chain was selected for presentation and was published in September, 2011.

E. Following are the patent applications filed in India :

a) **Bhumika electromagnetic rings**: 290/KOL/ [2004Agenda20.doc hyperlinked file](#)

b) **Vibes-level springs**: This is for enhancing productivities by absorbing vibrations at the ring frame: the paper was presented recently at the Textile Institute World conference in USA: 281/KOL/2005. This technology can be adapted on any make of ring frame to enhance productivity and save on energy substantially.

c) **Draftangle**: This is new design at the draw frame to improve on fabric appearance: there was a poster presentation at the world conference in USA. : patent application number is 282/KOL/2005.

d) **Linemont**: This is a new design that serves to ensure linear mounting of flats and helps accuracy of gauges between the flat and the cylinder at the card thereby bringing in singularly important changes in yarn characteristics that influence the spinning productivities.: This was also a poster presentation at the world conference in USA: patent application : 283/KOL/2005.

Business proposals for integrating retail-manufacturing matrix that were given to Walmart, Mexico in 2004 but were turned down. Nevertheless, these proposals have strong relevance in the present scenario of a global meltdown for the entire value chain in the textile industry. .

OEM-manufacturer integration is vital for influencing an all-round turnaround. There were proposals in the form of a business presentation to Rieter at Jakarta in Indonesia on 25th August, 2004. These were taken for subsequent discussions at Rieter headquarters in Winterthur by the senior management before being rejected on 4th October, 2004.

NEVERTHELESS, THESE PROPOSALS HAVE AND SHOULD FIND RELEVANCE WITH MAJOR MACHINERY MANUFACTURERS FOR CREATING A SYNERGY AND ESTABLISHING A DEFINITE TURNAROUND IN THE TEXTILE BUSINESS.

F. TIWC, POZNAN-2016, POLAND CONFERENCE ACCEPTANCE OF SIX PAPERS RANGING FROM ENERGY ENGINEERING TO MACHINERY DESIGN AND ONTO TURNAROUND STRATEGIES ARE A RALLYING POINT IN QUESTION

An attempt has been made all along to trigger a perpetual chain of process re-engineering coupled with the amalgam of mind matrices to replicate the turnaround in businesses.

The papers that were presented at the conference between 25th and 28th April, 2016 were as follows:

A) The cotton grading systems for productivity and quality enhancements in the textile value chain.

B) Yarn intelligence systems – the decision making for yarn manufacturing on the AI

platform

C) Ring spinning frame – energy management designs for enhanced productivity and energy conservation

D) Energy management systems for wet processing of greige fabrics

E) Aerodynamic balancing of the carding curvature – a new design for the carding breakthrough

G) Business transformation modeling for turnaround in the textile value chain

PROFESSIONAL QUALIFICATIONS:

B.Tech in Textile Engineering

University of Calcutta, Class of : May, 1990.

Chartered Associate – C.Text – ATI – The Textile Institute, Manchester, UK – February, 2005

Chartered Fellow – C.Text – FTI – The Textile Institute, Manchester, UK – February, 2017

PG Cert in Business Analytics – Strategic Operations Major - IIM. Calcutta (Indian Institute of Management, Calcutta)- session- 2009-10.

THE PROJECT AT IIM C WAS ENTITLED: “ BUSINESS TURNAROUND SOLUTIONS SYNERGY” WHEREIN THE PROVEN TENETS OF EFFECTING A SUSTAINABLE TURNAROUND IN THE TEXTILE DOMAIN WERE CRYSTALLIZED THROUGH THE APPLICATION OF ADVANCED NEURAL NETWORKS AND BUSINESS DATA MINING TECHNIQUES.

THIS PROJECT CAN BE USED AS A REFERENCE POINT BY THE BANKERS AND INVESTORS HAVING ADEQUATE RISK EXPOSURE IN THE TEXTILE INDUSTRY.

Phd - Strategy on a scroll at IIBSR, MUMBAI, INDIA (Indus institute of investment banking, strategy and research)

The dissertation proposal is entitled “Strategic decision models on a stochastic plane for scripting effective turnaround solutions” and is backed by two research notes on strategy and is founded on ongoing research in the domain.

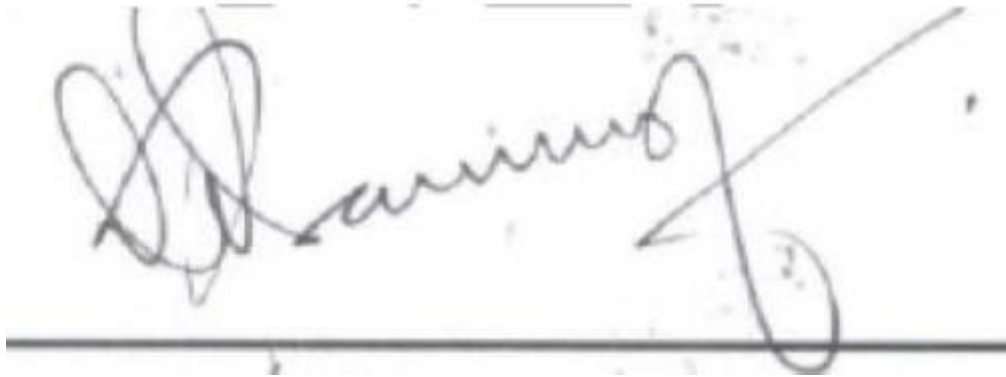
[Saving Lives through innovations](#)

[Fluid models in reengineering organizations](#)

[THE PHILOSOPHY AT WORK AND IN LIFE](#): the guide map to lasting success being pursued vigorously.

This is only a humble initiative to make a difference; whatsoever little in the lives of the humanity at large and whoever partners this endeavor is blessed abundantly.

Signed off by:

A handwritten signature in black ink, appearing to read 'Debashish Banerjee', is written over a horizontal line. The signature is fluid and cursive, with a large initial 'D' and 'B'.

*Debashish
Banerjee*