Data Insights — Data Science

MSC (MicroSave Consulting)

The world's local expert in financial, economic, and social inclusion in the digital age

August 2024

MSC
MicroSave Consulting

We are MSC

The world's local expert in financial, economic, and social inclusion

- MSC is a boutique consulting company that drives financial, economic, and social inclusion by partnering with participants in digital ecosystems.

- We work with our clients and partners across the globe to achieve sustainable performance improvements and unlock enduring value.

- With our support, you can seize the digital opportunity, address the mass market, and future-proof your operations.

International financial, economic, and social inclusion consulting firm with **25+** years of experience

>300 staff in **10** offices around the world

Projects in **~68** developing countries

>550 clients	>1,400 publications
Assisted development of digital G2P services used by **>875 million people**	Implemented **>950 DFS projects**
Developed **>300 FI products** and channels now used by **>1.7 billion people**	Trained **>11,000** leading FI specialists globally

MSC

Sectors we work in

Impact-oriented business consulting services

MSC has a strong reputation for high-quality work with a wide range of institutions. Over the past 25 years, we managed over 3,500 projects in more than 68 developing countries. Our experts come from a variety of fields and can help you gain the critical edge in a competitive market.

Banking, financial services, and insurance (BFSI)

Water, sanitation, and hygiene (WASH)

Government and regulators

Micro, small, and medium enterprise (MSME)

Social payments and refugees

Gender equality and social inclusion (GESI)

Education and skills

Digital and FinTech

Agriculture and food systems

Youth

Climate change and sustainability

Health and nutrition

MSC

Multi-faceted expertise

Advisory that helps you succeed in a rapidly evolving market

MSC helps you gain a deep understanding of your clients, their needs, aspirations, perceptions, and behavior. We use the opportunities of the digital age to help you create a better, more efficient, and profitable business that focuses on your customers and markets.
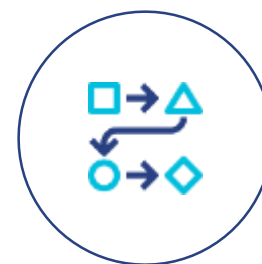
Policy and strategy
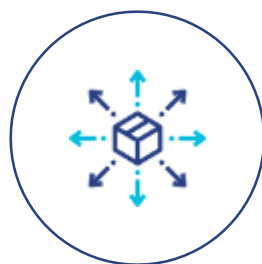
Products and channels

Research, evaluation, and analytics

Organizational transformation

Digital technology and channels

Catalytic finance

Design thinking and innovation

Marketing and communication

Training

Government and regulations and policy

Customer protection and engagement for responsible finance

Data insights

MSC

Our clients and partners

We work with a range of organizations to build enduring change

Our clients and partners include influencers and decision-makers among financial service providers. We also work with governments and other groups to contribute to financial, economic and social inclusion.

Banks	Mobile network operators	FinTechs & AgTechs
Foundations	Multilateral organizations	Bilateral organizations
Microfinance organizations	Government agencies	Regulators
Industry networks	Research centers & think tanks	Cooperatives

Partner logos: Bill & Melinda Gates Foundation, MetLife Foundation, mastercard foundation, UNCDF, USAID, CGAP, Safaricom, Centenary Bank, m-pesa, MTN Mobile Money, Omidyar Network, ADB Asian Development Bank, NPCI, NITI Aayog, Center for Global Development, dfcu, Equity Bank, Family Bank, FirstBank, UKaid, World Bank Group, IFC, airtel, vodafone, Michael & Susan Dell Foundation, OJK, Ecobank, CESAG, Moov, BURO Bangladesh, SCBF, avpn, CIFAR Alliance

MSC

Data Insights — Data Science

MSC's expertise in Data Science

Geospatial analysis
We analyze location-based data to identify spatial patterns.

Data modelling
We craft models to simulate and predict outcomes.

Machine learning
We apply advanced algorithms for predictions.

Natural language processing (NLP)
We interpret and extract insights from text data.

Network analysis
We investigate relationships within data to find influential entities and connections.

Big data analytics
We harness vast and intricate datasets to extract meaningful insights.

Predictive analytics
We anticipate future trends and behaviors based on historical data.

Our advanced capabilities

Interactive dashboards

We convert complex data sets into intuitive visuals for enhanced decision-making.

Infographics

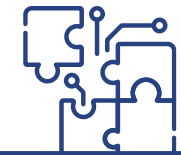We design engaging data representations to communicate insights effectively.

Custom analytics solutions

We develop tailored analytical tools and platforms to meet specific organizational needs.

Real-time data processing

We implement real-time data analysis systems for immediate insights and actions.

Data integration

We merge data from diverse sources to create comprehensive datasets for deeper analysis.

MSC

MSC's vision and commitment

We seek to be the leading data-driven partner for impactful development in low- and moderate-income countries (LMICs) through innovative data science techniques.

Transparency

We ensure our methods and findings are clear, open, and accessible to all stakeholders.

Accuracy

We uphold high standards for data accuracy and reliability.
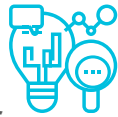
Ethical integrity

We maintain rigorous ethical standards in all data management and analysis practices.

Regulatory compliance

We strictly adhere to relevant laws and guidelines.

Innovative edge

We continuously explore and integrate new technologies and methodologies to enhance our analytical capabilities.

Examples of our past work (1/3)

Supervised learning: Regression models, such as logistic regression, and classification and regression trees; Unsupervised learning: Clustering and principal component analysis (PCA)

Regression models

Credit scoring model (JPMC):

Xtracap Fintech is a supply chain finance platform. MSC validated their credit scoring algorithm to identify key variables that impact loan repayment probability and enabled Xtracap Fintech to refine its credit scoring process.

Hierarchical clustering and decision tree

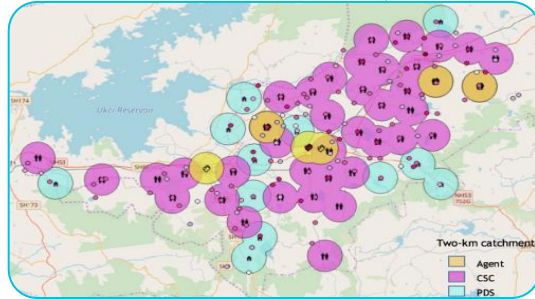**Identification of high-performing frontline workers (JPMC):**

Frontier Markets is a rural social commerce platform. MSC developed a profiling system for their frontline workers (*Sahelis)* to improve recruitment and identified traits that dictate *Saheli's* performance. MSC leveraged multiple machine learning algorithms to achieve this outcome, thus enabling Frontier Markets to optimize its Saheli performance.

Clustering and decision tree

Customer segmentation on customer data (JPMC):

MSC assisted Frontier Markets in customer segmentation through the identification of high- and low-value customers with the use of clustering and predictive classification models. The model allowed Frontier Markets to predict if an individual customer has the potential to be a high value customer at the time of his first order.

PCA, decision trees, and logistic regression

Prediction of the probability of customer default with customer phone records (JPMC):

Awaaz.De develops mobile solutions for social impact. MSC developed a credit scoring model to predict loan default probability based on call-receiving patterns. We used PCA for feature engineering and predictive modeling to predict probability of customer default.

Geospatial analysis

Agent optimization study (BMGF)

We conducted this study to optimize agent networks in Navapura and Kursakatta blocks (administrative subdivisions) of the two aspirational districts of Nandurbar and Araria, respectively.. We used geospatial modeling exercises to identify alternative service delivery points that, if acted as agents, could bring all the villages within a 2 km radius of a financial service point. The study also discussed agent segmentation to ensure agent viability and reduce agent churn. The introduction of segmentation in the geospatial model optimized the agent network and required fewer agents to serve the target population.
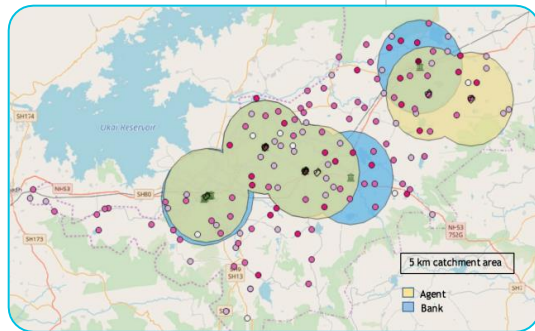
Identify viable agent locations for Airtel Payments Bank (APB) in Uttar Pradesh and Bihar

APB sought to extend its outreach further and provide financial services through agents in previously unserved or underserved areas of the country. MSC helped APB identify such locations to optimize the recruitment of new agents for maximum customer outreach. MSC used geospatial analysis to map APB's existing agent locations and identified potential locations where agents could be placed to serve the maximum number of unserved or underserved populations.

MSC

Examples of our past work (3/3)

We use sophisticated data science techniques to convert raw data into practical insights. Our approach includes sentiment analysis through NLP, market basket analysis using the apriori algorithm, and data mining to extract financial trends from unstructured text data.

NLP—sentiment analysis

Analysis of the public perception of the *Aatmanirbhar Bharat Abhiyaan* through Twitter (now X) data (BMGF): The *Atmanirbhar Bharat Abhiyaan* was launched on 12th May 2020. It offered an INR 20 trillion (USD 238.2 billion) package to support citizens during COVID-19. MSC scraped Twitter (now X) data on related keywords and performed sentiment analysis on the scraped data to evaluate the public response on this relief package. The analysis revealed an overall positive public perception of Atmanirbhar Bharat Abhiayaan.
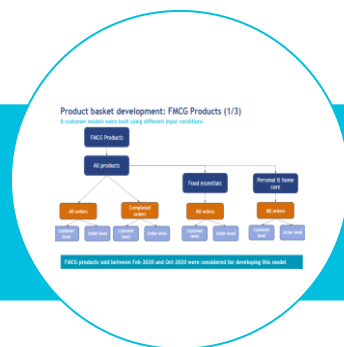
Apriori algorithm

Development of product baskets to improve the product portfolio (JPMC): Frontier Markets is a rural social commerce platform that connects rural households in India. MSC provided technical assistance through an analysis of a year's worth of transaction data to develop optimized product baskets for Frontier Markets. We used apriori algorithm to create 12 models and identified association between products that customers are more likely to buy together, thus potentially increasing Frontier Market's revenue per customer.

Data mining

Identification of customer financial profiles from unstructured text data (JPMC): Entitled provides financial services to more than 34 million blue-collar workers in India through employer partnerships. MSC analyzed Entitled's mobile message data and performed a text mining exercise to extract transaction-related data. The data was then used to create a financial profile for Entitled's customers. MSC also developed an interactive tool with these functionalities for future use by Entitled.

MSC

Data quality standards

Our data and evidence-based research encompasses a wide array of cross-cutting, multidisciplinary, and interdisciplinary activities built on specific data quality standards.

1 Data accuracy and reliability

We ensure data accuracy and reliability through robust quality control measures. These include systematic back-checks and spot-checks during the data collection and analysis processes.

2 Responsible data management

We establish clear data management protocols, which include protocols on how data will be collected, stored, and maintained. We update and back up data in a centralized repository regularly to prevent loss and ensure data integrity.

3 Ethical standards

We rigorously apply and respect ethical standards, such as the confidentiality of informants, sensitivity and respect to stakeholders, do no harm, and code of conduct.

4 Compliance with regulations

We adhere to legal and ethical guidelines, which include the institutional review board's (IRB) requirements and relevant data protection laws per the project's requirements and the country's guidelines.

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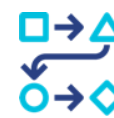**Advisory that helps you succeed in a rapidly evolving market**

Policy and strategy

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Organizational transformation

Digital technology and channels

Catalytic finance

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Government regulations and policy

Data Insight

Customer protection and engagement for responsible finance

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Our impact so far

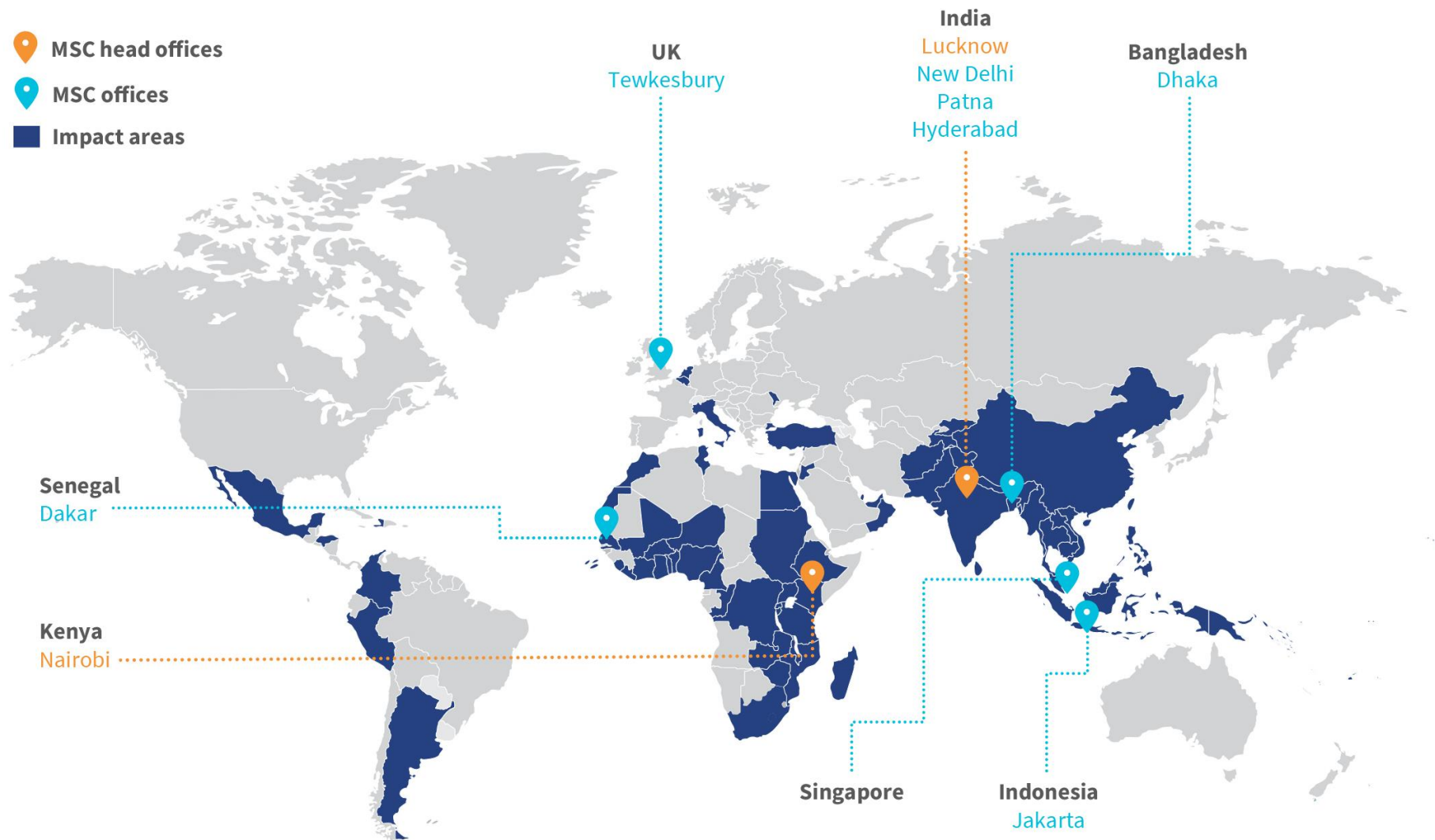|	
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Some of our partners and clients

BILL & MELINDA GATES foundation · MetLife Foundation · mastercard foundation · IFC International Finance Corporation WORLD BANK GROUP

UNCDF · USAID FROM THE AMERICAN PEOPLE · WORLD BANK GROUP · CGAP

OMIDYAR NETWORK · ADB ASIAN DEVELOPMENT BANK · NPCI National Payments Corporation of India · NITI Aayog

dfcuBANK ...with pleasure · EQUITY · FamilyBank With you, for life · FirstBank Since 1894

Safaricom · Centenary Bank · m-pesa · MTN Mobile Money

Center for Global Development · airtel · vodafone · moov no limit

UKaid from the British people · Michael & Susan Dell FOUNDATION · OJK OTORITAS JASA KEUANGAN · Ecobank The Pan African Bank

CESAG · BURO Bangladesh · SCBF · avpn

CIFAR ALLIANCE · Bank Asia FOR A BETTER TOMORROW · BRAC BANK

MSC

MSC head offices

MSC offices

Impact areas

UK
Tewkesbury

India
Lucknow
New Delhi
Patna
Hyderabad

Bangladesh
Dhaka

MSC MicroSave Consulting

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Dakar

Kenya
Nairobi

Singapore

Indonesia
Jakarta

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