

## 2019 Boulder Digital Transformation for Microfinance Institutions Course Syllabus

### Course Information

<b>Course:</b>	Business Intelligence and Data Management
<b>Faculty:</b>	Dean Caire
<b>Dates:</b>	Week 2 (July 29 – August 2019)
<b>Time:</b>	Morning (10:30-13:00)
<b>Language:</b>	English

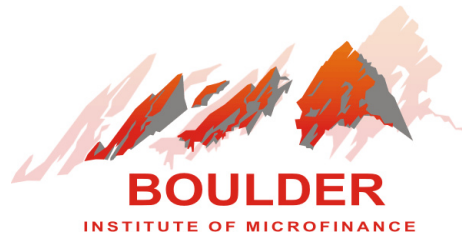
### Course Description

This course provides an overview of the opportunity for MFIs to use data to drive financial inclusion and improve business results. Three broad applications for the use of data in MFIs:

- Better understanding and segmentation of clients
- improving operational management
- credit scoring.

The course presentation uses a "case-study" methodology incorporating some examples from practice to illustrate concepts and methods presented (*note: some of these may come from the International Finance Corporation's recent DATA ANALYTICS AND DIGITAL FINANCIAL SERVICES handbook, while others may be developed specifically for this course*). Each case illustrates a real-world application of a Business Intelligence approach and should spur deeper interactive discussion on the possibilities and challenges of doing similar work in their own financial institutions.

The goal is that participants will leave the course with an appreciation of the ever-growing importance of data in delivering customer-centered products and services and a basic set of analytical tools they can begin to apply.



## Objectives

- Understanding the sources and potential uses of data in MFIs and the opportunities and challenges around digitization
- Becoming familiar with the tools, skills and resources are needed to build an in-house business intelligence function
- Having participants think about how certain techniques (segmentation and predictive modelling) can be applied in their own financial institution.

## Prerequisites

No experience required

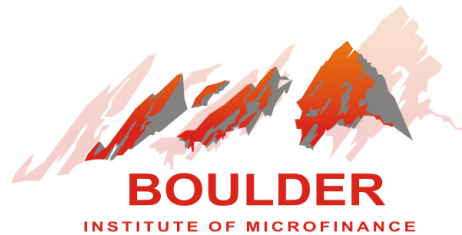
## Audience / Participants

The course is primarily for anyone who works in an MFI with an interest in better understanding customer behavior and using data to improve operational management. It requires no technical skills in data analytics, as all examples and discussions, although about a technical topic, will specifically be prepared in non-technical language.

## Methodology

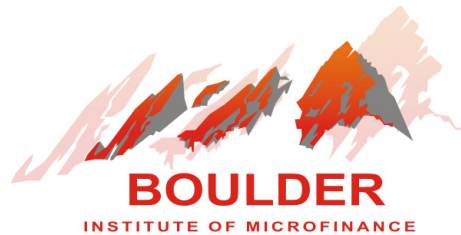
This is a highly interactive course where participants will be doing significant group.

## Suggested Reading List



## Outline

<p><b>Day 1 :</b></p>	<p><b>Introduction</b>  <b>Data Methods and Applications</b></p> <ul style="list-style-type: none"> <li>• overview of data types and sources (traditional and digital) in MFIs</li> <li>• methodologies and analytical tools and techniques used to derive insights from data</li> </ul> <p>Exercise: Case scenarios where participants work in groups to suggest what data and analytical tools/methods that may best answer the business challenges presented.</p> <p><i>NOTE: covering highlights of the material in section 1.1 of the IFC handbook</i></p> <p><b>Digitization – Opportunities and Challenges</b></p> <p>Discussion: on the state of digitization in the participants financial institutions and how participants may already be transforming to digital processes (i.e. using tablets to capture data in the underwriting process, using mobile/digital banking channels)</p>
<p><b>Day 2 :</b></p>	<p><b>Building a business intelligence function</b></p> <ul style="list-style-type: none"> <li>• What data to collect</li> <li>• Necessary tools (hardware/software)</li> <li>• Considerations in selecting software vendors</li> <li>• Necessary human resources/skills</li> </ul> <p>Group Exercise: Business Intelligence Gap Analysis – what resources do you currently have and which will you need to build up a business intelligence function?</p>
<p><b>Day 3 :</b></p>	<p><b>Application 1: Customer segmentation</b></p> <ul style="list-style-type: none"> <li>• Steps in a data-driven segmentation project: <ul style="list-style-type: none"> <li>Build the Data Set</li> <li>Check Data for Accuracy</li> <li>Step 1: Select potential segmentation variables</li> <li>Step 2: Select the segmentation method (rule-based or data-driven such as clustering)</li> </ul> </li> </ul> <p><b>Example of Data-driven method Clustering</b></p> <ul style="list-style-type: none"> <li>Step 3: Explore Clusters</li> <li>Step 4: Profile the Clusters</li> <li>Step 5: Create Personas</li> <li>Step 6 (implementation): Customer-Centered Product Offers</li> </ul> <p>Case study based on an MFI in India</p> <p><i>NOTE: covering the material in the CGAP Playbook titled Data-driven segmentation in financial inclusion and the project I worked on with their BI team</i></p> <p>GROUP EXERCISE: discuss customer segmentation methods used by participant MFIs – what is the criteria used for segmentation, what data analysis tools (if any) were used, what additional data could be used, and challenges they faced, lessons learned, success stories, etc.</p>



<b>Day 4 :</b>	<p><b>Application 2: Credit Scoring (as a common application of predictive modelling)</b></p> <ul style="list-style-type: none"> <li>• introduction to types and uses of predictive models</li> <li>• introduction to credit scoring for MFIs</li> <li>• Discussion of exploratory analysis using descriptive statistics and data visualization tools, or statistical methods such as regression, decision trees, Bayes networks.</li> <li>• creating initial models in any data situation - no data, dirty data, or 'big' data</li> </ul> <p>Group Exercise: Build an expert scorecard by choosing 10 of 20 possible factors that include 'traditional' MFI data, demographics, credit bureau data, Mobile-network operator data, and psychometric test data (this exercise is done on paper – no software needed). The instructor will use a small data set set to show the results of each group's model using a data set (made from the synthesis of various real-world MIF/Bank data sets) to highlight the degree to which various data types may be complementary or redundant for modelling. Group with 'best' risk ranking model wins a prize (box of 'Dean's Traditional Shortbread Cookies')</p>
<b>Day 5 :</b>	<p><b>Putting together a Data Project Framework</b></p> <p>NOTE: Drawing very roughly on PART 2 of the IFC handbook – because I don't like it as it is, but I think discussion of how to actually do something in practice would be valuable.</p> <p>Group Exercise: Use the 'Data Ring' framework to present a plan for implementing a data project in your organization. These will be presented and discussed in the group.</p>