

# Innovations in Consumer Analytics

December 3, 2013

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# The Approach of Consumer Analytics

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We employ a hybrid approach using facets of consumer research, analytics and technology.

1. We start by identifying pressing business problems then assess outcome variables that can be impacted.
2. Next, we develop interventions that use research in behavioral economics and social psychology to influence behaviors.
3. The interventions are delivered by our proprietary technology platforms which allow experimental test and control in large-scale applied operations settings.
4. Finally, the results of these interventions are packaged into solutions that can be customized to fit specific needs.

## Organization Overview

### Research Science

Predictive  
Analytics

Consumer  
Psychology

### Consulting Services

Client Strategy

Research  
Architecture

Implementation

Customer  
Experience

### Product Development

Product  
Management

Development

Support

# Predictive Analytics Specializations

## Optimization & Simulation

- Apply linear and non-linear optimization theory to solve problems both analytically and computationally.
- Includes research and implementation of complex pattern search/genetic algorithms and dynamic programming using tools like MATLAB and R with minimal complexity.
- Models time-varying and random phenomena in the operating environment to run simulations and predict outcomes.

## Econometrics

- Apply statistics and time-series analysis to build and monitor operational models.
- Major areas include parametric models, experimental design and hypothesis testing on business strategies as well as conducting sensitivity and scenario analysis on models.
- Strong foundation in mathematical statistics including conceptual understanding of limited dependent variable techniques, working with heteroskedastic data and sampling methods. Recent challenges include jointly estimating default probability and loss given default and sampling in rare event environments. User of packages from SPSS, SAS and R.

## Computational Science

- The application of scientific computing to build and deploy models.
- Combines expertise in programming languages (object-oriented as well as procedure-driven) and applied mathematics to prototype applications and build interfaces.
- Explores and applies clustering and other data-mining methods to modeling problems.

# Consumer Psychology Specializations

## Persuasion & Influence

- Study of the techniques involved in moving someone to comply with requests.
- Use concept of behavioral norms to shift behaviors.
- Classic examples include Cialdini's social influence principles, elaboration likelihood model (ELM) and balance theory.

## Behavioral Economics

- Application of psychology to economic choice models.
- Major area of interest is in how consumers weigh decision outcomes based on choice architecture.
- The classic research framework is Kahneman & Tversky's Prospect Theory.
- Newer research includes application of intertemporal decision dimensions and the role of numerous decision-making heuristics.

## Consumer Behavior

- Examination of choices and motives in consumer contexts.
- A multidimensional area of scholarship united by goal rather than explicit training.
- Includes research in micro-level areas like automaticity and cognitive fluency as well as macro-level areas like segmentation and target marketing.

# Consulting Services Specializations

## Client Strategy

- Interface between clients, research teams, business intelligence and product development.
- Builds solutions for specific business problems by determining the right mix of research- and technology-based services.
- Coordinates disparate viewpoints to arrive at the solution architecture then facilitates initiatives that make up the framework.

## Research Architecture

- The application of scientific methodology and inferential statistics to human behavior.
- Quantifies results of inquiry.
- Generally broken into quantitative (factorial designs, champion-challenger, etc.) and qualitative (text analysis, focus groups, etc.) methods.

## Implementation

- Delivers specific solutions designed by Client Strategy team.
- Responsible for coding and maintaining scripting based on requirements from the business units and Consumer Psychology team.

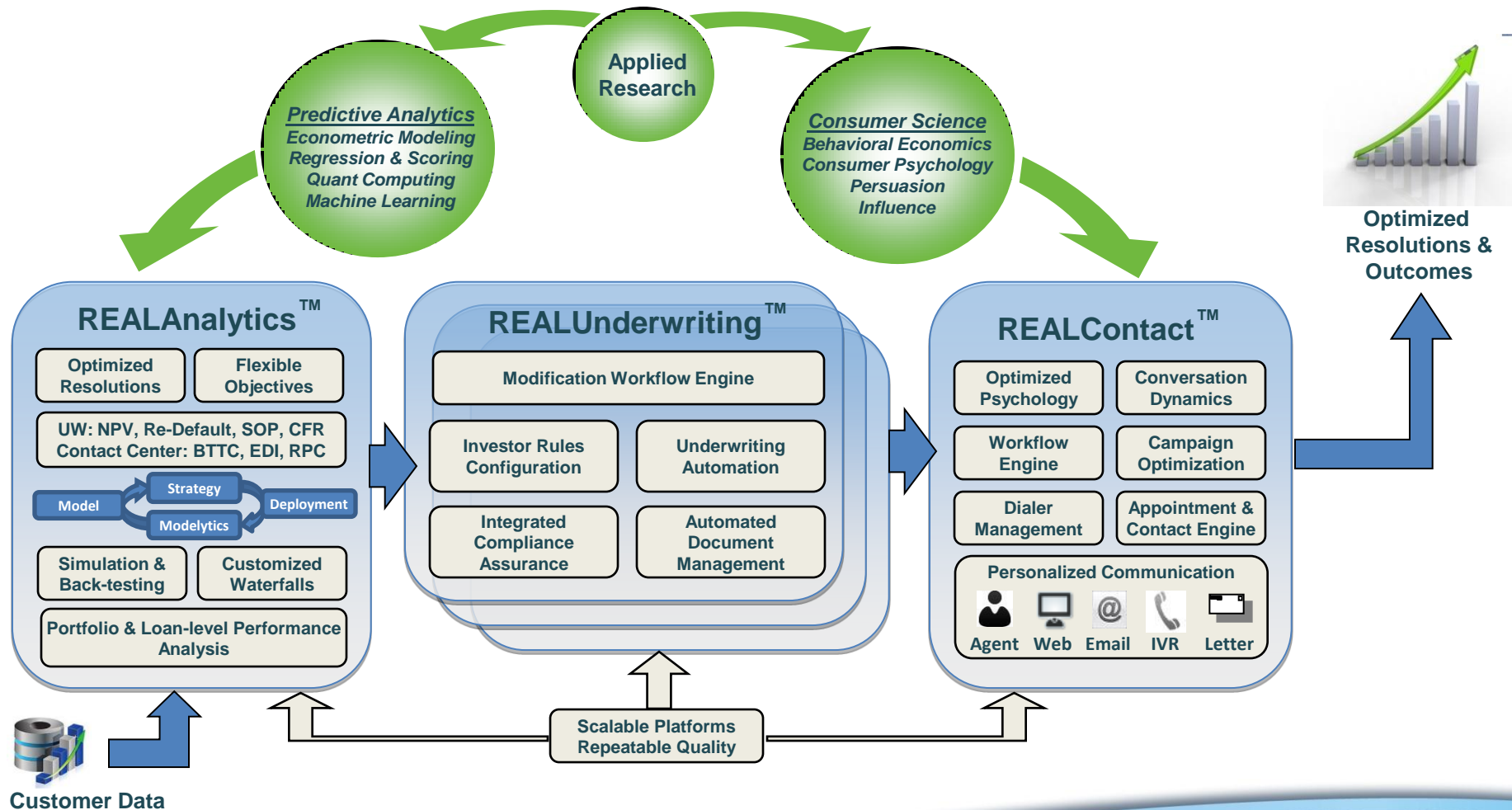
## Customer Experience

- Assesses impressions of contact strategy and experience from a consumer behavior standpoint.
- Develops analytics regarding macro- and micro-level consumer transactions.
- Determines “look and feel” of contact methods and materials.



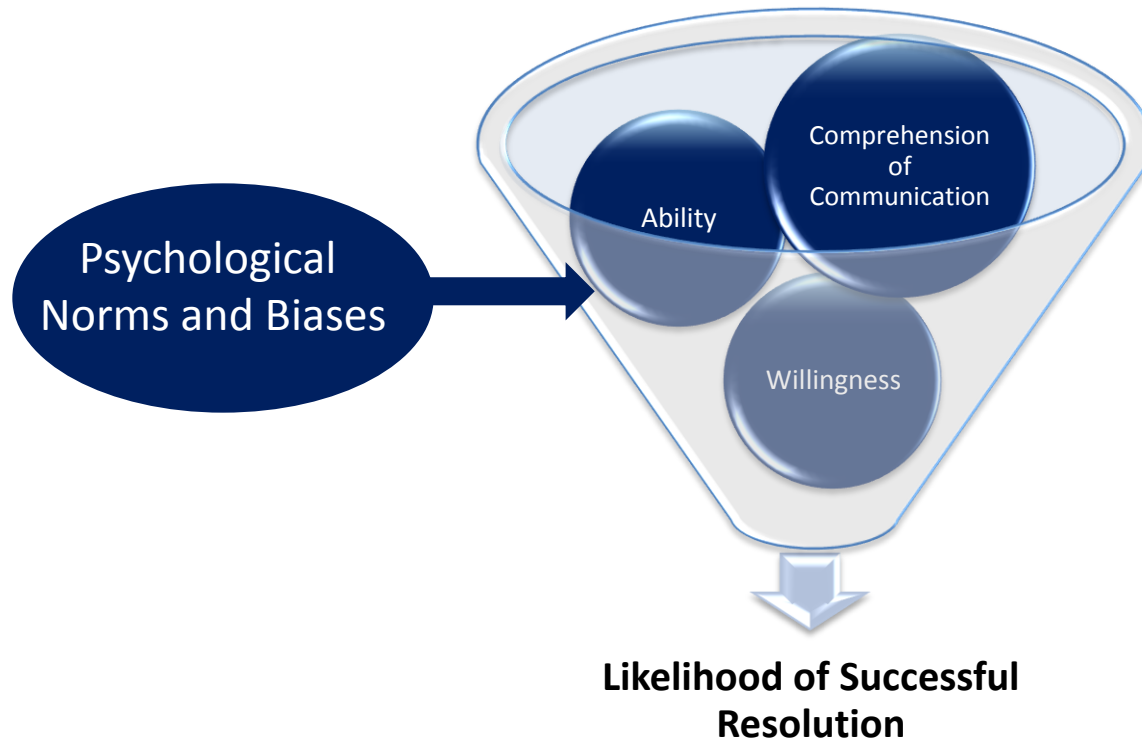
# REALInteractions™ Product Suite

*REALAnalytics™ incorporates econometric models and scientific algorithms to predict optimal NPV outcomes, and then utilizes consumer science to guide consumers to choose the best, customized resolutions.*





## Influencing How Borrowers Choose Options



A large number of psychological factors influence communication in systematic, predictable ways. These global factors shape the borrower's comprehension, ability and willingness to resolve default.

Using this knowledge, we structure how we communicate the results of our loan resolution models into dialogue modules to achieve optimal clarity with the borrower.

## Response Patterns in Compliance

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Optimal communication is designed to capitalize on how people learn to respond in compliance situations:

- Reliance on behavioral norms
- Over time, behaviors become automatic
- Research has identified over 300 norms that guide compliance behavior
- Successful compliance requests rely on changing aspects of these norms

## Example 1: Social Proof

### Concept

When we are unfamiliar with a situation or worried about what to do, we use the actions of others to determine how we should act.

### Attempts to Establish Empathy

Mr./Ms. Borrower, I understand your concerns. I talk to hundreds of people every week who are in similar situations to yours...

Mr./Ms. Borrower, I understand your concerns. This year alone our programs have helped over 77,000 people in similar situations to yours to resolve their delinquencies...

## Example 2: Availability

### Concept

Decisions are often influenced by how easily vivid examples come to mind.

### Back to the Last Example

Mr./Ms. Borrower, I understand your concerns. This year alone our programs have helped over 77,000 people in similar situations to yours to resolve their delinquencies...

Mr./Ms. Borrower, I understand your concerns. This year alone our programs have helped over 77,000 people in similar situations to yours to resolve their delinquencies. That's equal to over a quarter of the entire population of Pittsburgh, PA...

## Example 3: Temporal Factors

### Concept

When making a decision about a future event, different types of information are emphasized at different points in time relative to the event.

### Effective Letters

Letter 1. Initial Demand

Letter 2. Specific Offer

Letter 3. Final Demand

Letter 1. Initial Demand

Letter 2. “Representative”  
Examples

Letter 3. Scarcity Letter

Letter 4. Specific Offer

Letter 5. Final Demand

## Example 4: Appointment Model

### Concept

Appointment-based calls for loss mitigation discussions in order to increase effectiveness and customer experience.

### Rationale

#### Typical Process

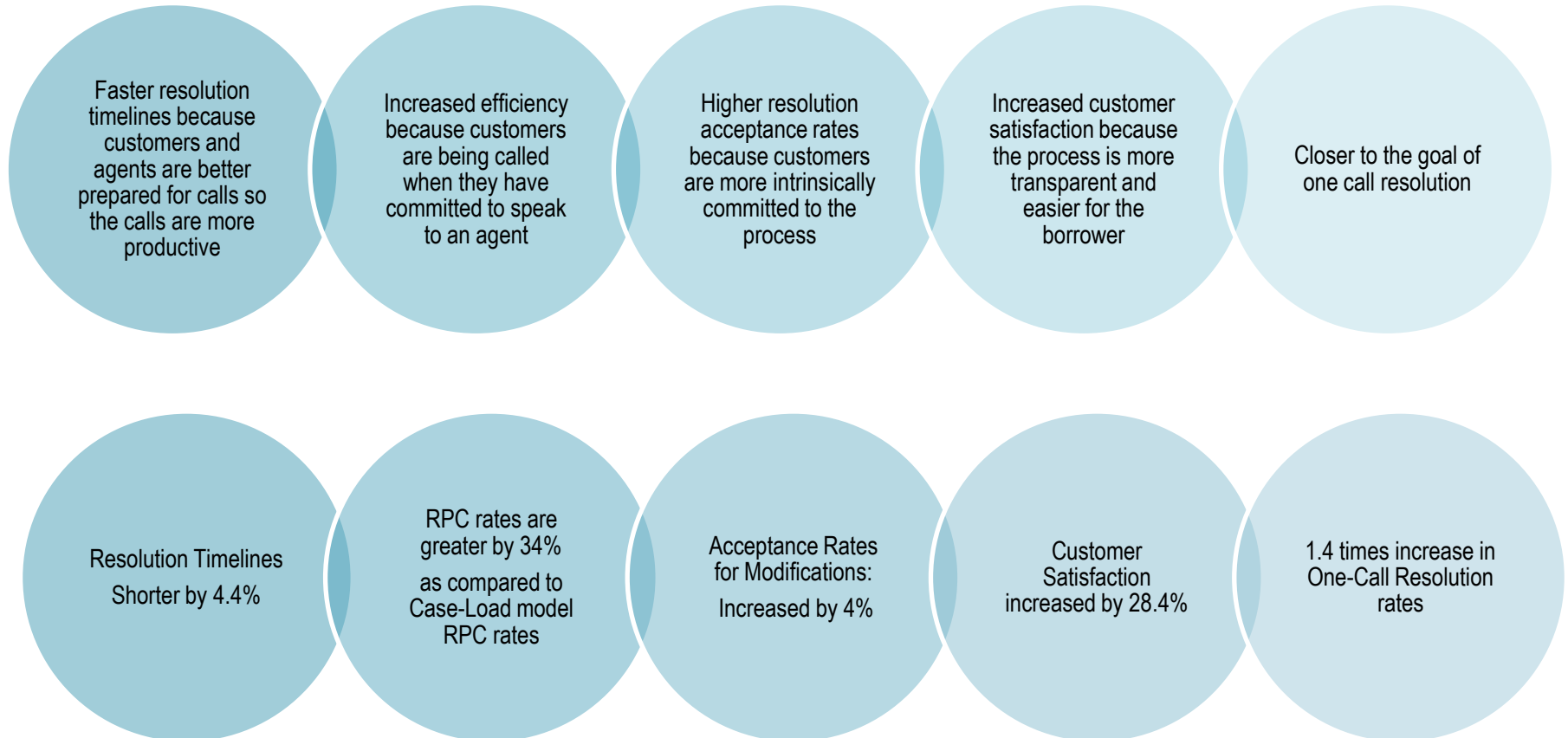
1. Borrower unsure of timelines and next steps
2. Borrower feels low amount of control
3. Borrower and Staff can be less prepared

#### Appointment Process

1. Resolution or issues communicated faster in fewer calls
2. Borrower gains *perceived control* by setting discussion based on own schedule
3. Everyone is optimally prepared



# Appointment Model Results



- Data ranged from 01-2010 to 01-2011 for Pre-ACB, and from 02-2012 to 10-2012 for Post-ACB.
- SAM data is not available for the pre-ACB period.

## Example: Emotional Optimization

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Based on your loan information, you will qualify for a one-time, no stipulations, relocation bonus. This will be paid to you when you move out as long as you leave the property in broom-swept condition.

This relocation bonus can be used any way that you would like. A lot of the customers who opt-in to the bonus program use it for moving expenses or to rent a new home. However, it is up to you as to how you would like to use it.

Would you be interested in the relocation bonus?

## Example: Emotional Optimization

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I can understand your reaction and I am not calling to make a difficult situation worse.

When the house goes through foreclosure, you are going to have to move and you will not be able to get this money then. If you let us sell the property faster, we save some money by not having to hold the property as long. We are willing to pass that savings to you through this relocation bonus.

Every day that you wait, we get closer to foreclosure, so we lose more each day. That means that I can offer you the highest amount possible today, and it will become less each day after. This is because of how our model calculates the daily savings. If you are going to have to move anyway, why not think about taking the bonus?

## Example: Emotional Optimization

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I know that this can be upsetting, and I do not want to make it worse. I want to help you get a fresh start. By accepting this program, you get to have a chance to relieve the burden that your current situation is putting on you.

With this relocation bonus, you can find a new home and not have to be trapped in the foreclosure process. The relocation bonus does get a little smaller each day because it is based on you and Ocwen sharing the daily savings from being able to go to market sooner, and the longer we wait the less savings there are.

You can maximize the bonus you receive by opting-in sooner, but in the meantime, if I can answer any more questions about this process, please feel free to ask. I really do want to be your advocate here.

## Example: Emotional Optimization

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I can understand your concerns, but please know that we will make this process as simple as possible, and it will help you avoid having to go through the full foreclosure process.

In addition to no longer being delinquent on your mortgage, by taking the deed-in-lieu, you will not have to deal with having a public eviction notice or other court-related aspects of the foreclosure process.

Also, you could use the relocation bonus however you wish, to pay for any expenses that you have during the move or otherwise. I should mention that the relocation bonus does get smaller each day because it is based on the daily savings generated by marketing the home earlier through our real estate brokerage partner. As foreclosure gets closer, there are less savings, so it tends to be better to act sooner.

# Consumer Psychology Framework

- We have developed a new way of thinking about innovation in Consumer Psychology relative to the industry.
- We have moved from idiosyncratic, professional services-based or operations-driven models to a robust, repeatable, modular system for applying psychological principles.
- The intellectual property foundation for the system:



## RESEARCH KNOWLEDGEBASE

- Built on empirical research: academic and industry articles, patents & whitepapers
- Organized to facilitate most impactful use of principles
- Linked via a nodal system

## TECHNIQUES

- Atomic level of structure
- Developed and arranged according to Knowledgebase
- Programmed to guide user to best practices of implementation
- “Building blocks” of our method

## CLUSTERS

- Grouping of techniques by common properties
- Functional link between science and business-oriented modules
- Used to guide choice of most impactful techniques

## MODULES

- Designed to address specific aspects of a business problem
- Consist of multiple functionally-related clusters
- Provide problem-solving flexibility by ability to be infinitely arranged with other modules

## BUSINESS PROBLEM INNOVATIONS

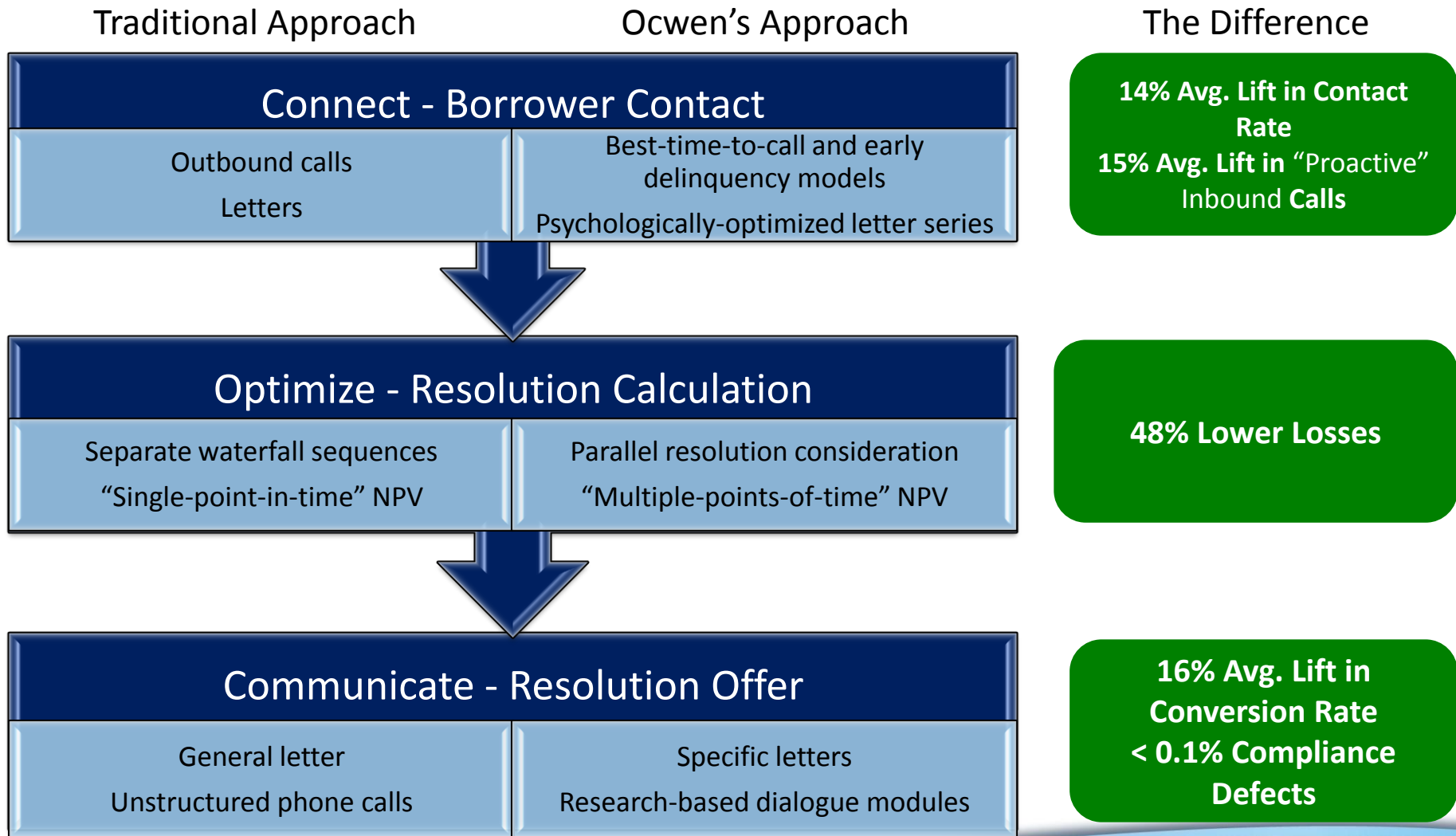
- Sets of modules integrated and adapted to solve specific business problems
- Testable (linked to concrete outcomes)
- Components of comprehensive, high-value solutions

## OPTIMIZED SOLUTIONS

- The collection of Innovations deployed within a client
- Each Innovation can be measured separately on specific measures
- Solutions can be aggregated to determine value provided to a client



# How Ocwen's Approach Compares to the Traditional Loss Mitigation Process



## Investor Relations Information

<b>About Altisource</b>	We are a premier marketplace and transaction solutions provider for the real estate, mortgage and consumer debt industries offering both distribution and content. We leverage proprietary business process, vendor and electronic payment management software and behavioral science based analytics to improve outcomes for marketplace participants.	<b>Exchange</b>	NASDAQ Global Select
<b>Contact Information</b>	All Investor Relations inquiries should be sent to: <b>shareholders@altisource.lu</b>	<b>Ticker</b>	ASPS
		<b>Headquarters</b>	Luxembourg
		<b>Employees</b>	More than 7,600