Predictive Models and Collection Treatment Strategies

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Objective

- Predictive modeling for collections
- Are you ready?
- Managing data analytics
- Barriers
- Collection Treatment Strategies

Predictive modeling for collections

The use of historical collections results and other sources of data to:

- understand and predict how taxpayer and liability characteristics influence the payment of outstanding tax liabilities

- drive workflow and account assignment based upon the probability of payment

Are you ready?

Successful deployment of predictive modeling requires preparation as well as organizational commitment and readiness

- Involvement of business users

- Defined objectives
- Expertise
- Ability to develop and maintain models
- Strategy for deployment

- Model target(s) supported by available data
- Appropriate segmentation
- Practical objectives

- Quantity
- Quality
- Historical data
- Issue specific data

Managing Data Analytics

Organizational Responsibility

- Central vs local
- Existing vs specialized unit
- IT vs business unit

Model Deployment

- Testing
- Approval process
- Model refinement and iterations
- Method and authority for deployment

Maintenance of Datasets and Models

- Refresh datasets
- Refresh models
- Champion/challenger

Resources

- IT staff
- Modeling staff
- Expert business users

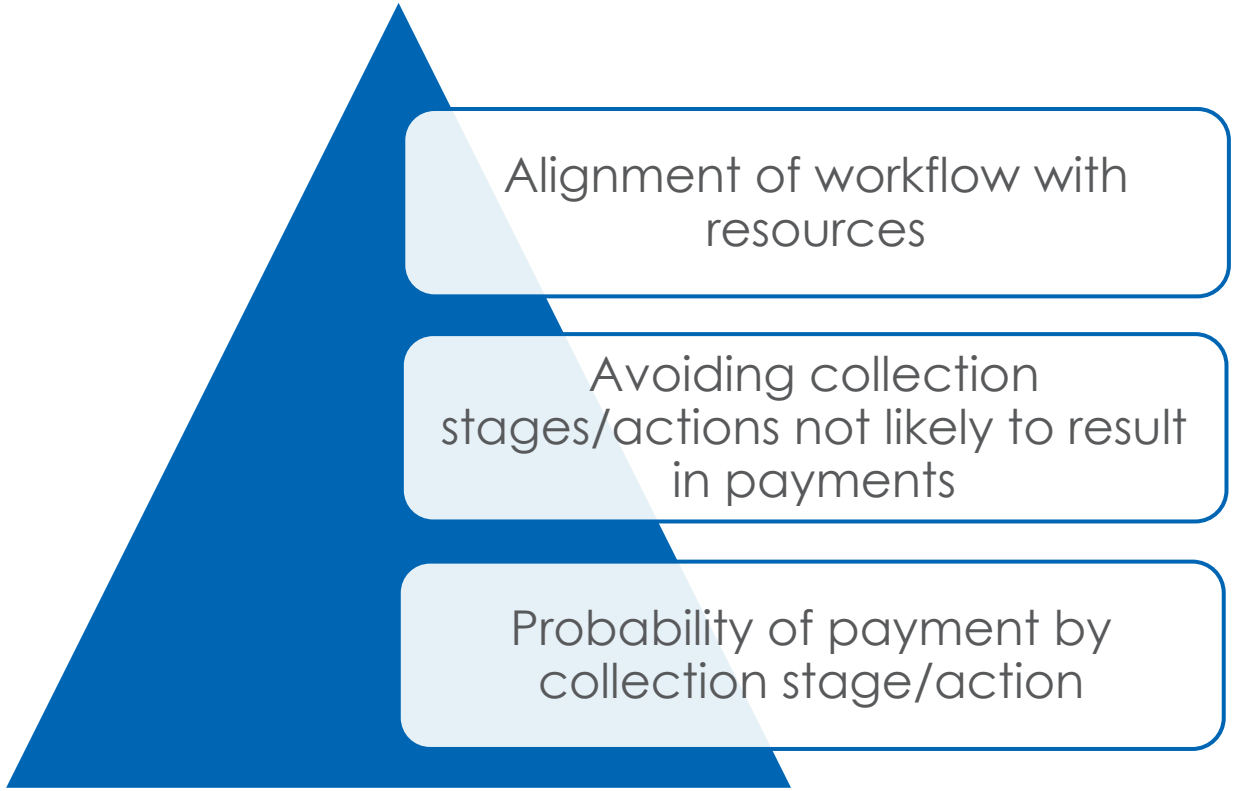
Barriers

- Insufficient and/or poor data
  - The number one factor leading to unreliable outcomes
- Lack of data and industry metrics related to model targets
  - The data will not support reliable models
- Inappropriate matching and modeling targets
  - Lack of common factors amongst taxpayers (i.e. Fortune 1000, pass-through entities, etc.)
  - Limited experience with and/or business knowledge of issues or entities
- Limited involvement of users
- Blind belief in the results

Collection Treatment Strategies

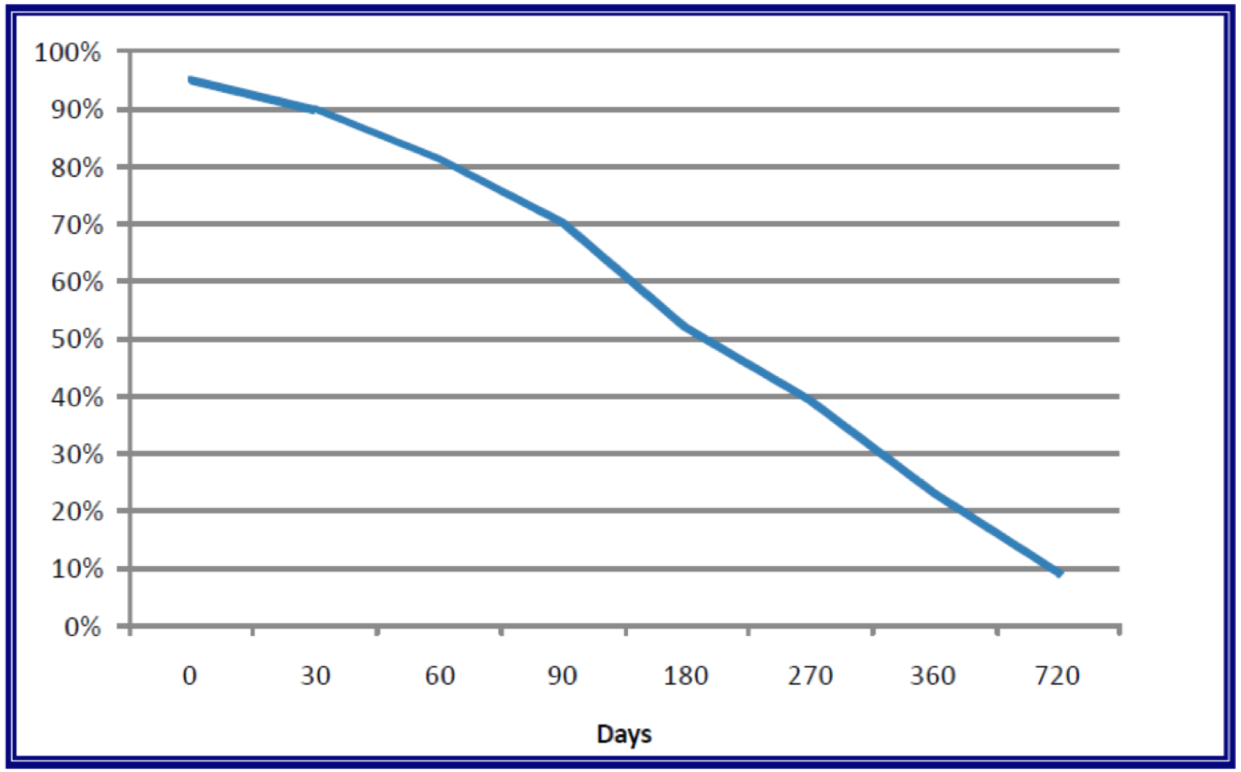
Account Treatment Strategy

Assigning each account to the collection stage/action most likely to result in payment in the least amount of time and at the least cost



Time Impacts Collectability

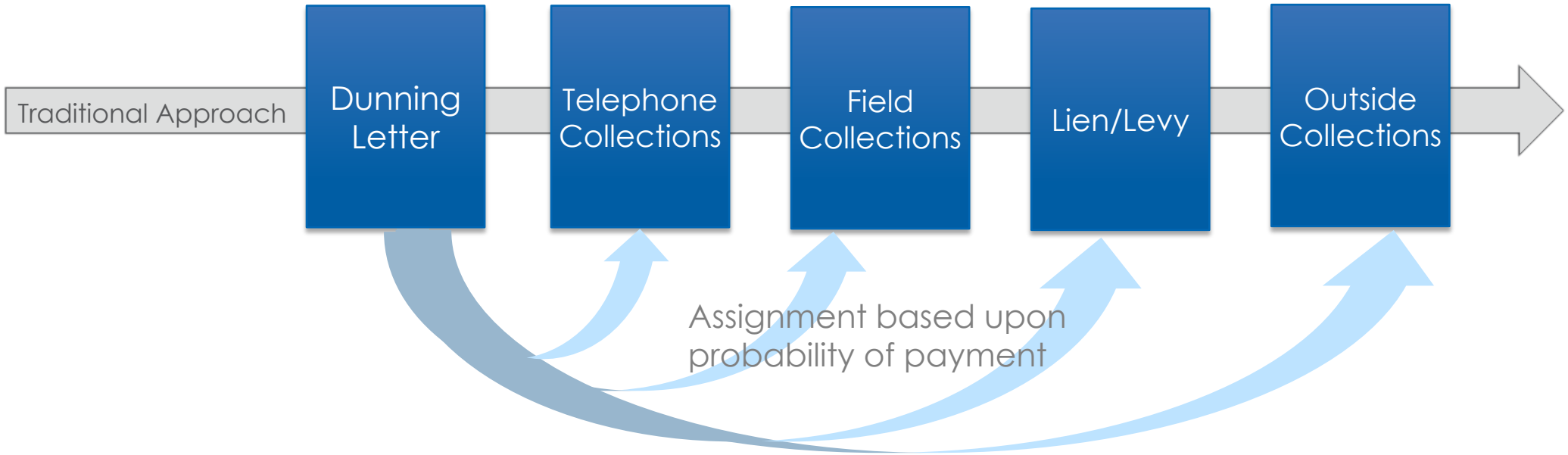
Figure 8: Generally Accepted Industry Collectability Curve



Source: Commercial Collection Agency Association.

Source: Reducing the Processing Time Between Balance Due Notices Could Increase Collections 2011-30-112 issued by TIGTA on September 26, 2011

Strategic Account Treatment



Preparation and Planning

To fully leverage treatment strategies, multiple models are required

- Likely to self cure
- Likely to opt for self-service
- Likely to pay as a result to a telephone call
- Likely to pay when assigned to outside collection
- Unlikely to pay regardless collection action(s)

Developing the treatment strategy requires alignment with resources and capabilities

- Size and age of receivables inventory
- Alignment of workforce and capacity with optimum treatments
- Automated actions, i.e. liens, levies, etc.
- Potential organizational and/or staffing changes

Incremental Improvements Add Up

- Each Telephone Collector makes 20 outgoing calls per day
- 12 result in successful collection
- Accounts not likely to be collected are removed from telephone collection inventory and replaced with accounts likely to be collected.
- After the change in the account mix, 14 of 20 accounts are
- successfully collected – potentially a 16.6% increase in productivity

Conclusions

- How and when accounts are routed to different collection stages/actions impacts collection outcomes
- Developing account assignment rules that are driven by likelihood of payment at each stage/action will increase collection outcomes
- Implementing a treatment strategy is a transition; not an immediate, one time event

Using Predictive Analytics and Optimization to Enhance Accounts Receivable Management

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Two delinquent taxpayers

Individual One: Frank Wilson

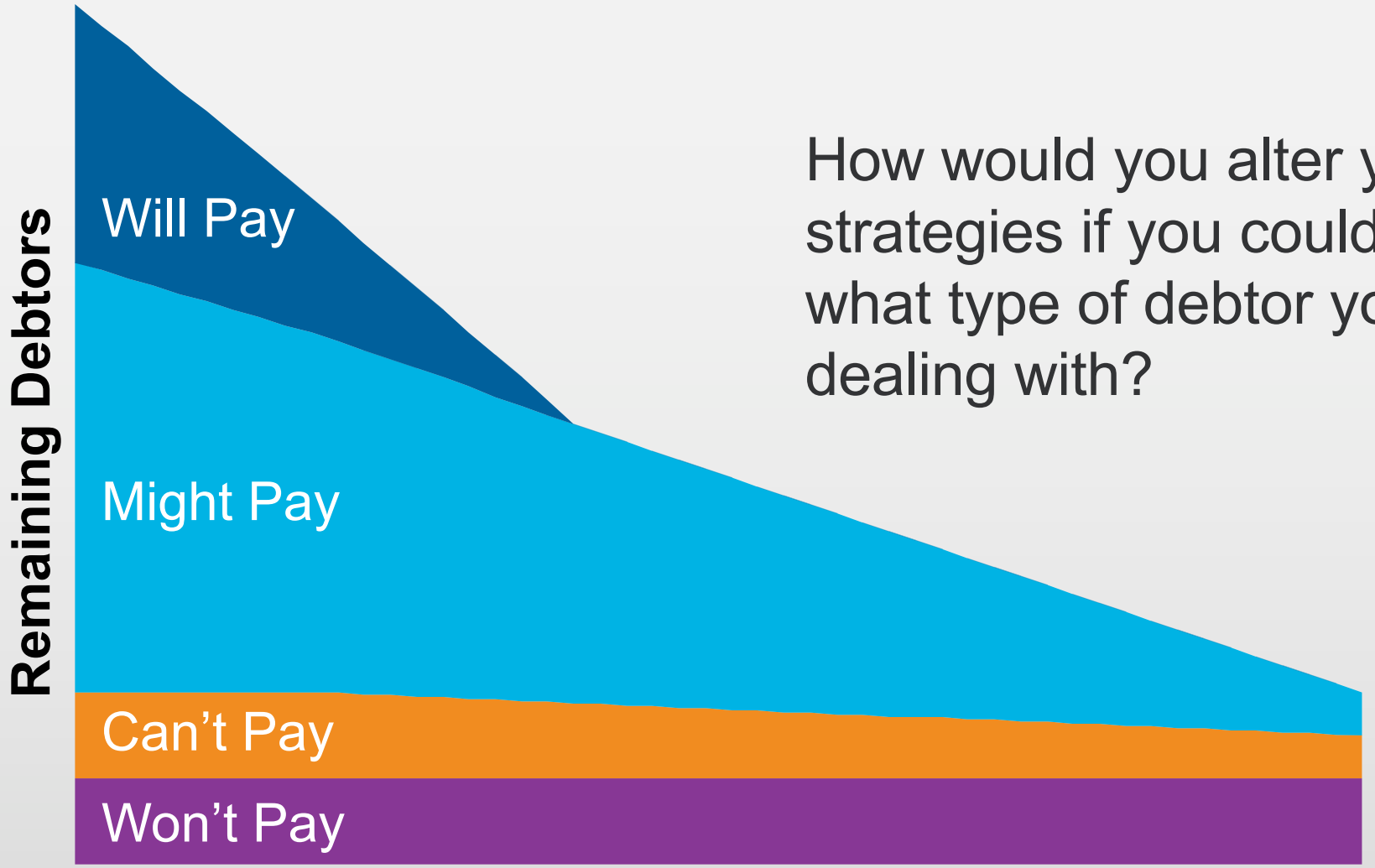
- Repeat debtor
- Income of $120,000
- Withholding of $4,000
- Owes $1,000 (plus P&I)
- Previous years was in collections, paid in full, but only after the second notice
- Good credit score
- Consistent wage information

Individual Two: Frank Wilson (No relation)

- First Time Debtor
- Income of $60,000
- Withholding of $1,000
- Owes $1,000 (plus P&I)
- No Payment with Return
- Wage information shows no income the prior quarter
- Credit Score shows financial distress with many new bills

Both are subject to the same collection treatment and timings. Should they be?

Not all Debtors are Created Equal



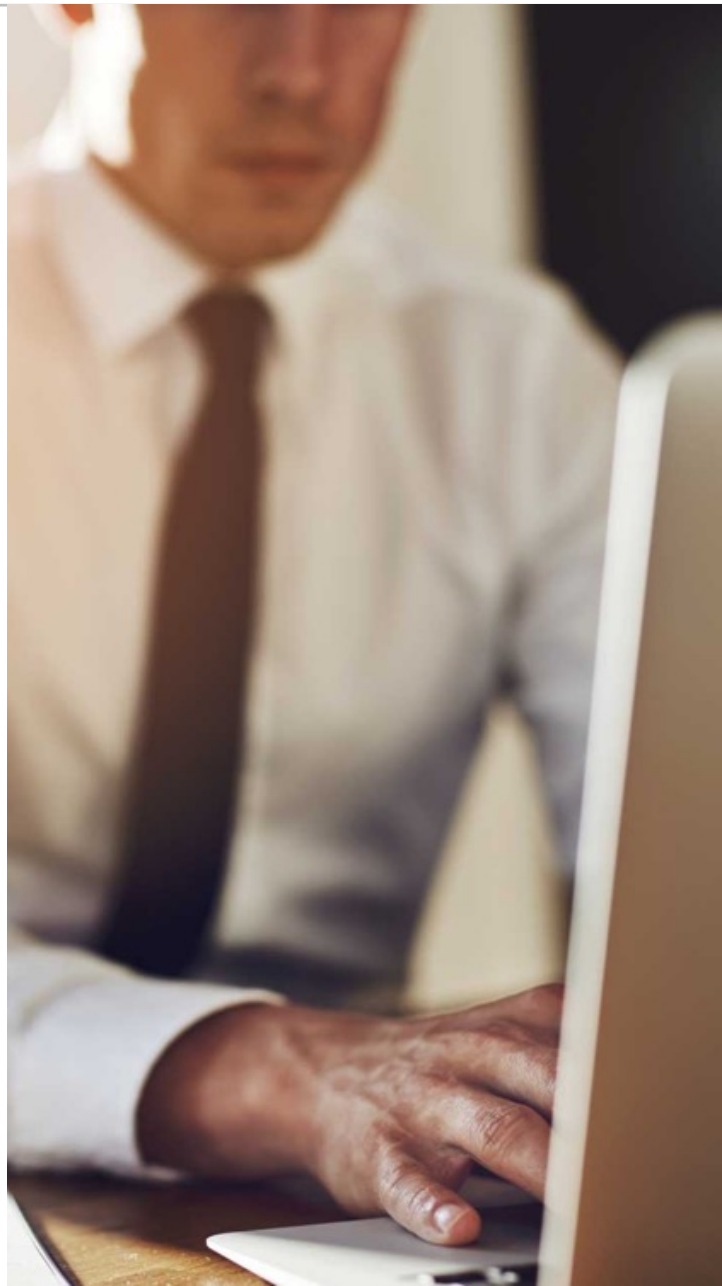
How would you alter your collection strategies if you could predict what type of debtor you were dealing with?

Building Models

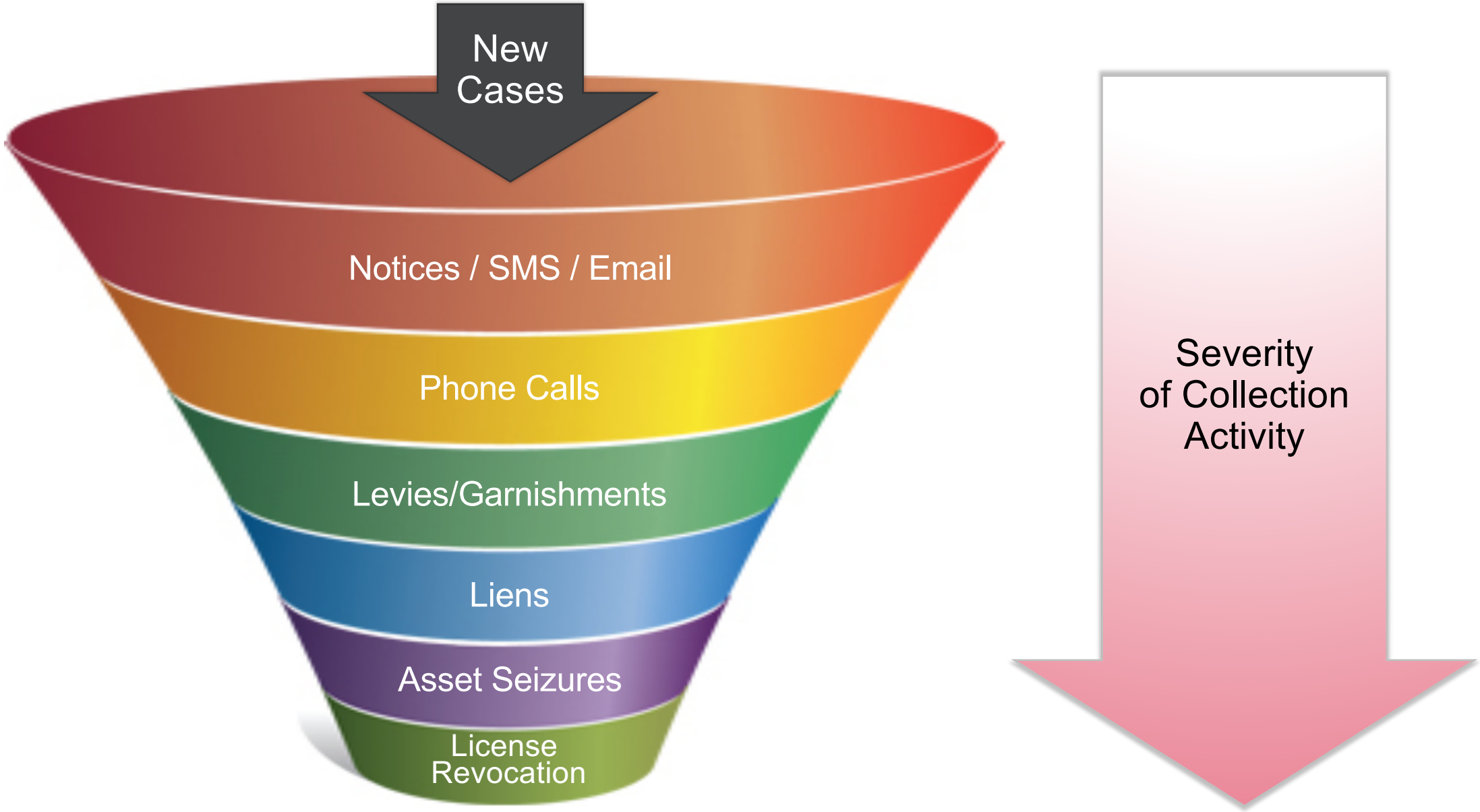
- Gather multiple years of historical data: optimally, 4-5 years
  - Use existing data warehouse
  - Create temporary data storage
- Build models by analyzing your data
  - Don’t prejudge what will be predictive
  - Use knowledge from other jurisdictions
  - Review initial results
  - Use test results to compare predictions with actual results
- Expertise in your business will help the modeler build a better model

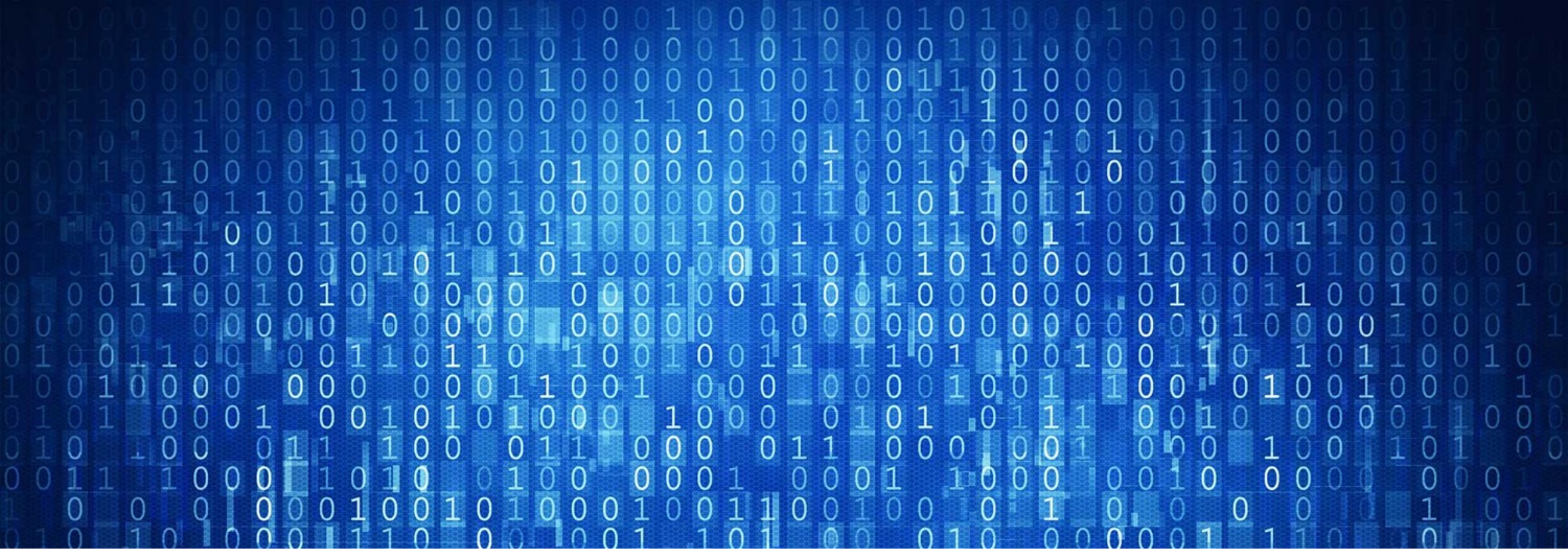
Modeling Considerations

- Define business goals
  - Maximize collections
  - Minimize cost of collections
  - Minimize debtor intrusion
- Understand what data you need to avoid
  - Political sensitivities or data with inherent flaws
- Test the results before putting the models into operation



Identifying the Lowest Cost, Least Intrusive way to Collect

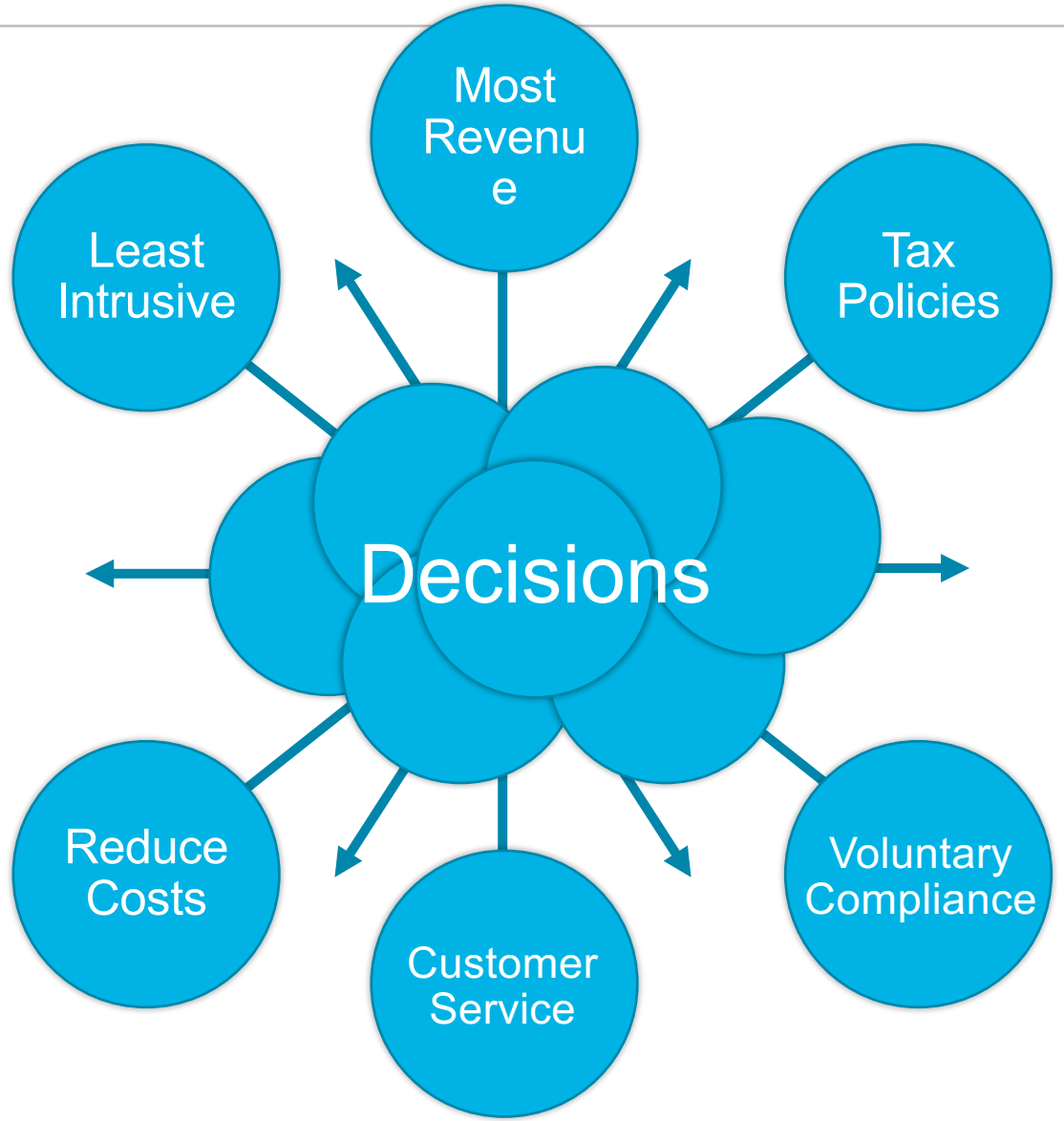




Moving from Modeling to Optimization

What is Optimization?

- Optimization is a mathematical process of finding the *best* set of decisions for a given business problem
- By *best* we usually mean a combination of goals:
  - Most Revenue (this year)
  - Voluntary Compliance (next year)
  - Least Intrusive
  - Lowest cost
- Optimization has a defined set of ***conflicting*** constraints and objectives, and satisfying *all* stakeholders' viewpoints



Optimization of Collection Treatments

Initial Notices → Initial Phone Calls → Involuntary Actions → Collector Assigned

Analytics

- Collectability Score
- Treatment Performance
- Self-Cure Model

Considerations

- Collector capacity
- Collector availability
- Indirect cost budget
- Political considerations
- Statutory requirements

Action

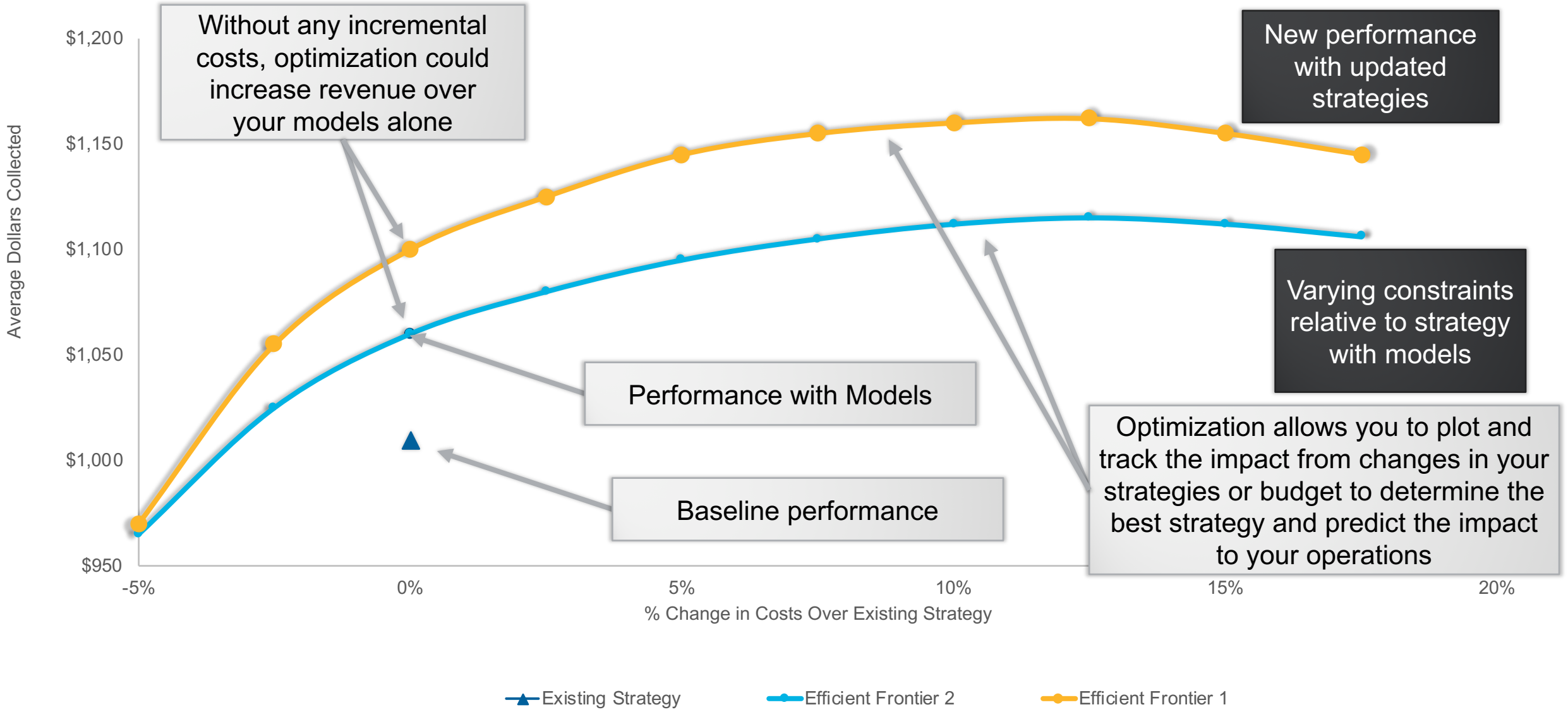
Decide which accounts

- Allow to self-cure
- Keep at the notice stage longer
- Contact via email or text
- Accelerate to a collector
- Accelerate to levy or garnishment

Bottom Line

Learning Loop

Optimization Allows you to Evaluate Against all Options



How does Optimization differ from Modeling

- Modeling priorities individual work queues
  - Models evaluate and prioritize one outcome at a time
  - “Next Best Case”
- The challenge is balancing competing workloads with a predefined staffing levels and budget
- Optimization allows you to evaluate, prioritize and assign actions based on simultaneous evaluation of multiple outcomes
  - Works even with competing goals
  - Looks across your entire business process (or department)
  - Balances resources, factoring in constraints (staff, budget, policy)
- Optimization can work with your existing systems and models (if you have them) to predict outcomes and maximize results

Case Study – Toyota Financial Services

Decision Optimization for Debt Collection

TOYOTA FINANCIAL SERVICES

Challenge

- Reduce collection delinquencies and repossessions by providing payment options that are profitable to the business and address customer preferences
- Minimize losses and maximize payments in early stage collections (< 60 days past due)
- Keeping internal and external staffing requirements and operational costs constant

Solution

- Risk Models
- Optimization Analytics
- Enhanced Decision Analytics

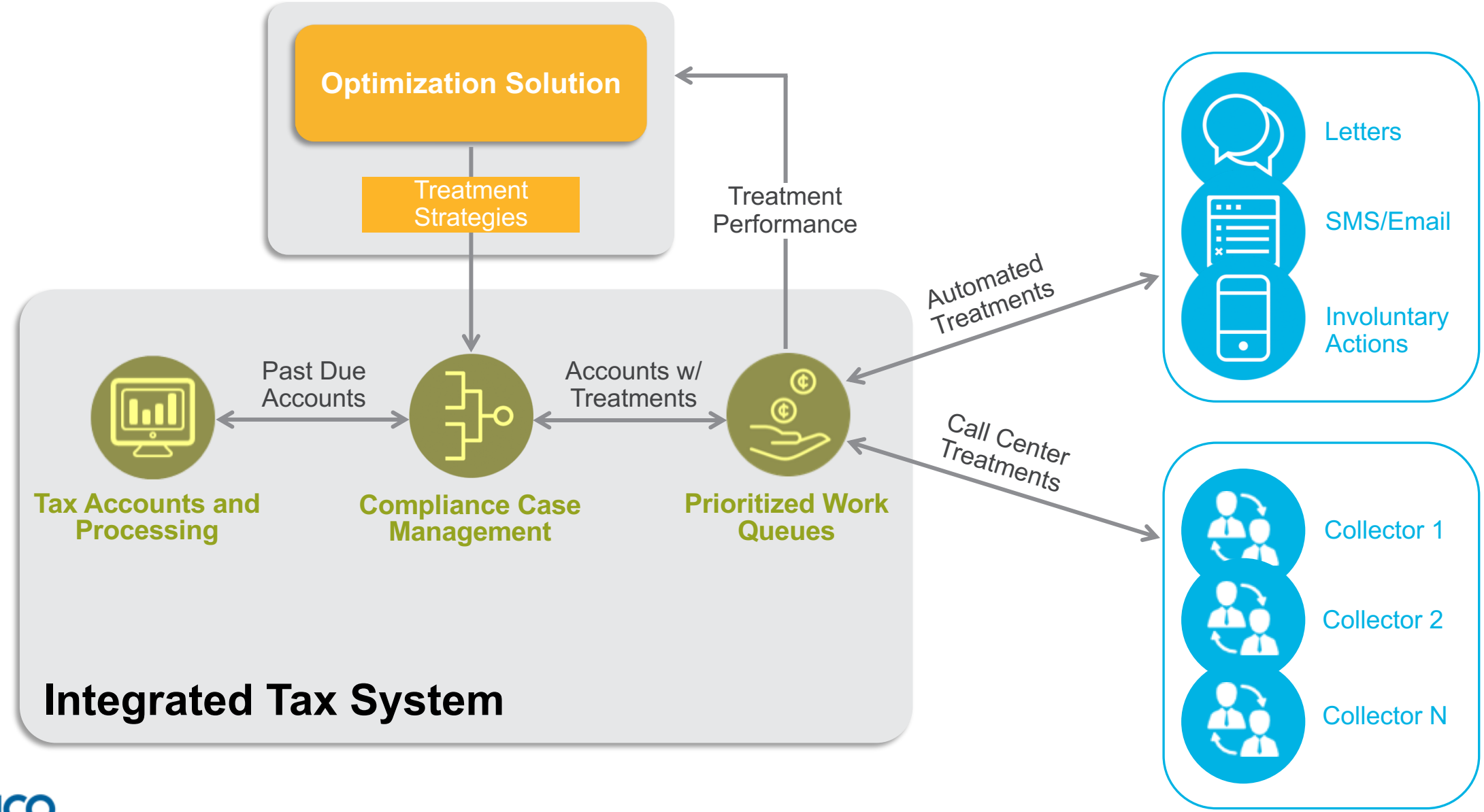
"Working with delinquent customers to keep them in their cars while working out payment options has helped Toyota avoid millions of dollars in losses."

Jim Bander
National Manager for Decision Science
Toyota Financial Services

Results

- Improved collections strategies helped over 1,600 customers stay in their cars—cars that would otherwise have been repossessed.
- Helped over 10,000 customers avoid reaching a stage of delinquency that would have required a derogatory marker on their credit report
- **Achieved Millions in reduced losses** over champion strategy with **no increased operational costs**

An optimization and modeling solution can easily integrate with existing systems



About the Presenter

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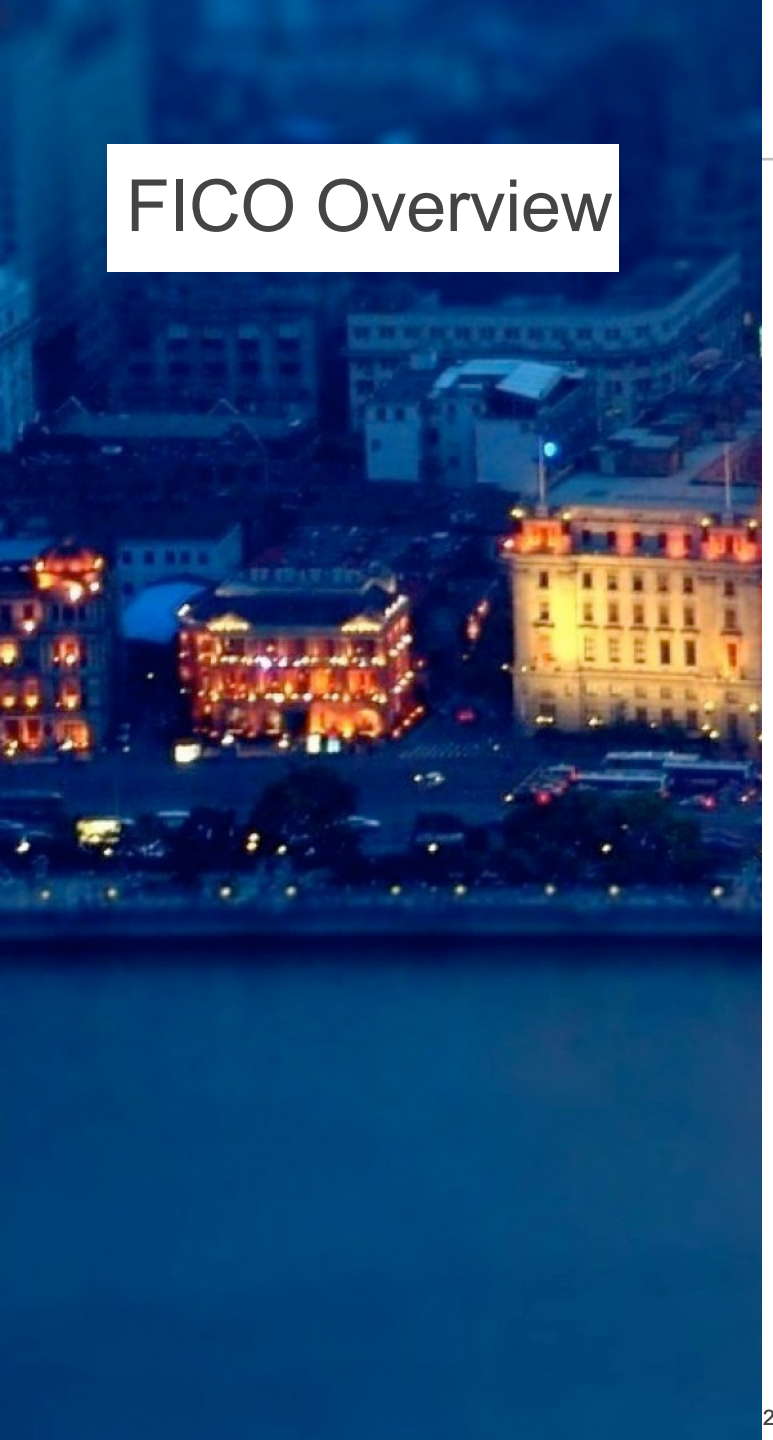
- 24 Years working exclusively with Federal, State and Local government agencies
- Experience with more than 20 different tax agencies worldwide
- Skilled in enhancing collections, audit and fraud systems, and business processes
- Experience with Predictive Modeling and Behavioral Science techniques to enhance collections



FICO Overview

FICO Decisions

Profile	The leader in analytic solutions for risk management, fraud, and customer engagement Founded: 1956 NYSE: FICO Revenues: $839 million (fiscal 2015)
Products and Services	Pioneers at transforming Data into insights to help organizations achieve their mission FICO® Score and other models for making decisions 130+ patents in analytic and decision management technology, with an additional 90+ patents pending Analytic applications for collections, fraud, customer service and cybersecurity
Clients and Markets	10,000+ clients in 90+ countries Industry focus: Banking, government, insurance, retail, health care
Recent Rankings	#1 in services operations analytics (IDC)* #4 in worldwide analytics software (IDC)* #8 in Business Intelligence, CPM and Analytic Applications (Gartner)** #26 in the FinTech 100 (*American Banker*)
Offices	20+ offices worldwide, HQ in San Jose, California 2,900 employees Regional Hubs: New York, San Diego, Fairfax, London, Birmingham (UK), Johannesburg, Milan, Moscow, Munich, Madrid, Istanbul, Sao Paulo, Bangalore, Beijing, Singapore

*IDC, *Worldwide Business Analytics Software 2013-2017 Forecast and Vendor Shares*, June 2013.
**Gartner, *Market Share Analysis: Business intelligence, Analytics and Performance Management, 2012,Dan* Sommer & Bhavish Sood, May 7, 2013.

Thank you

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