

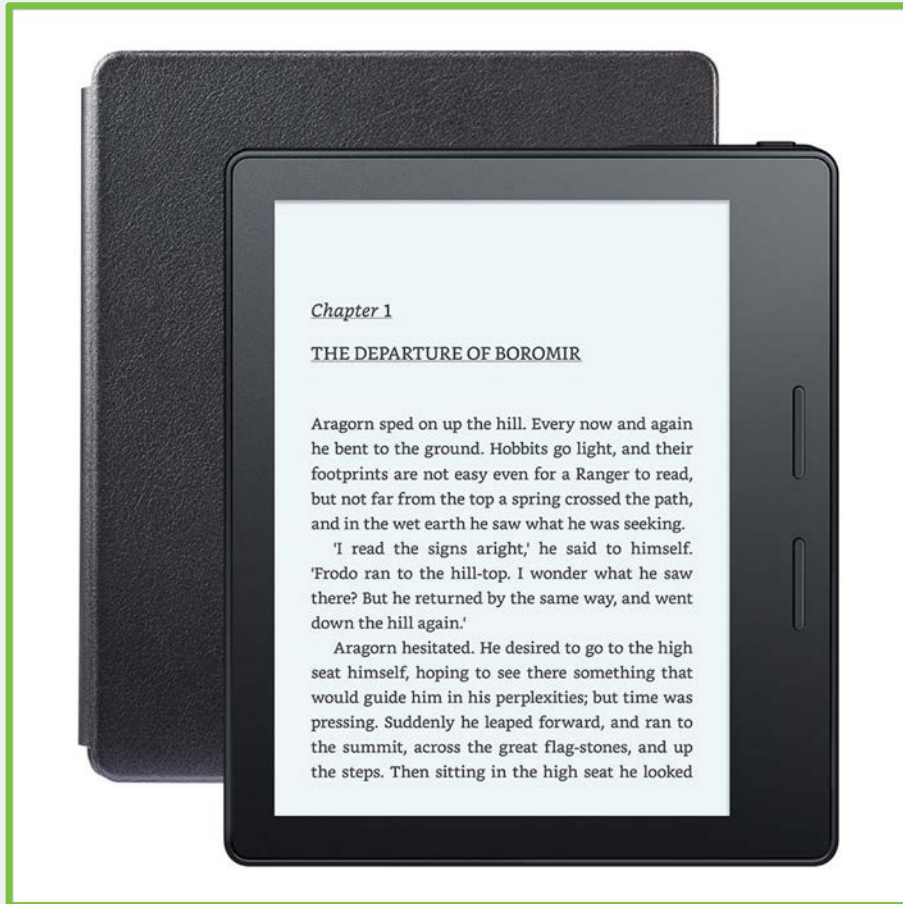


Multi-Product Optimization Opportunities and Challenges

Drew Lawyer, Country Financial

Jonathan Moran, Earnix

Win a Kindle – Enter Your Name During the Session!



amazonkindle



Live Polling

- ✓ Live polling will occur during the session via the CAS mobile app
- ✓ There will be four live polls
- ✓ Please answer within time limit
- ✓ Answers and compiled results are anonymous
- ✓ Thank you!



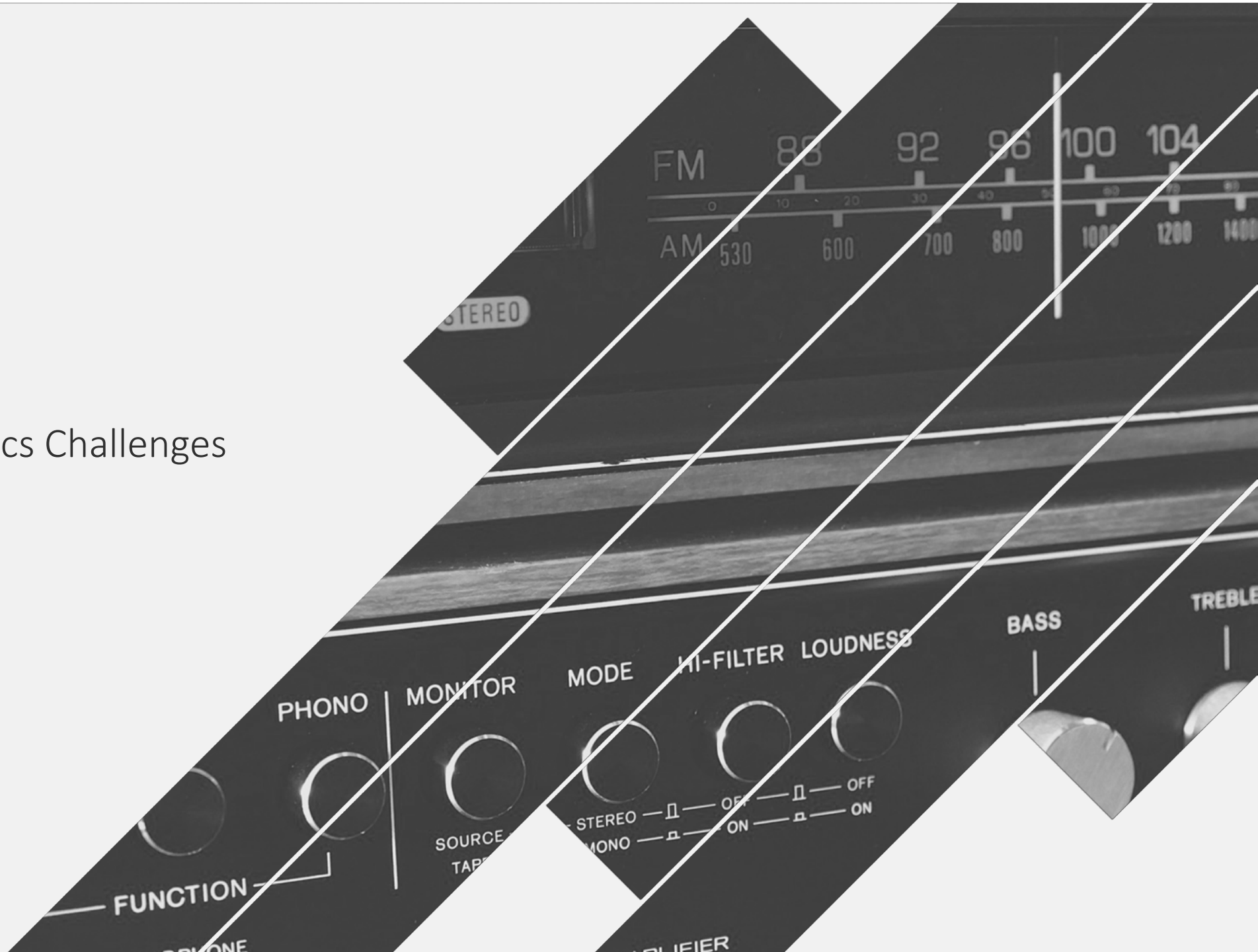
Multi-Product Optimization Opportunities and Challenges

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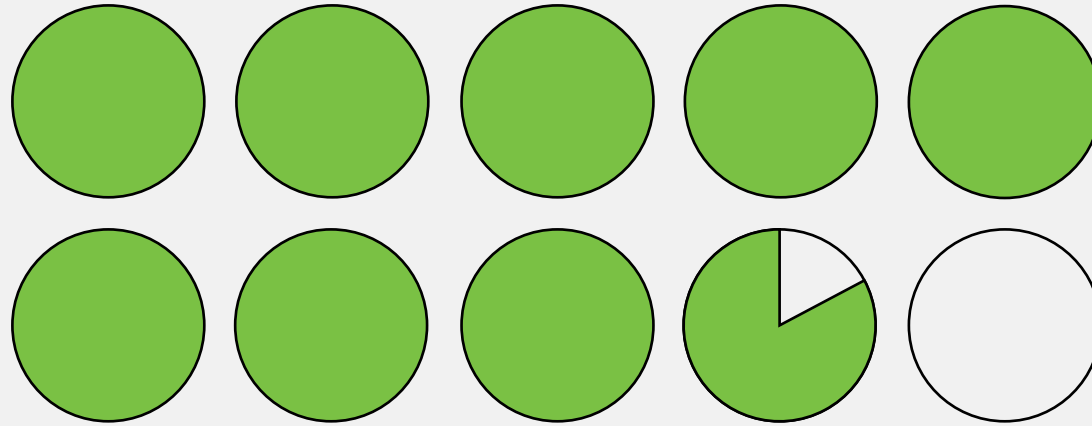
Jonathan Moran, Earnix

Agenda

- 1 Overview
- 2 Data and Analytics Challenges
- 3 Implementation
- 4 Key Takeaways



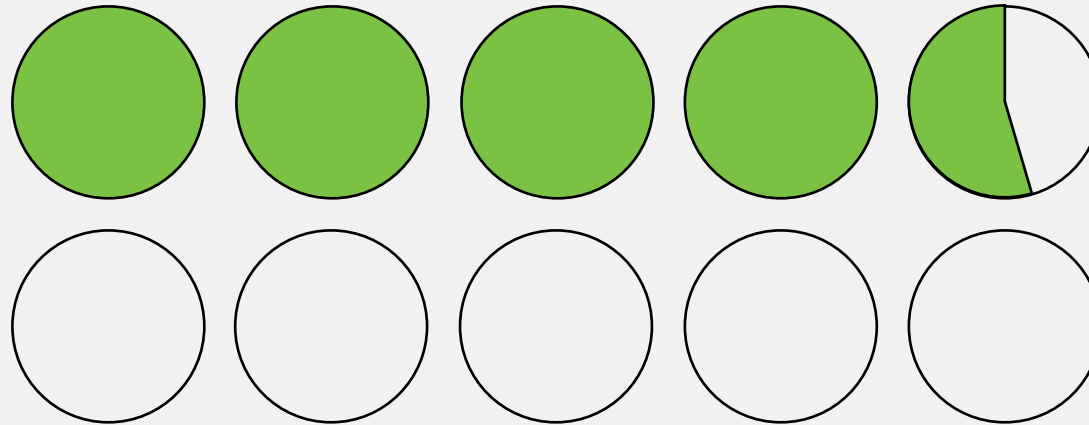
88%



% of insurance consumers are looking for personalized offers, messages, pricing and recommendations from their auto, home or life insurance providers

Accenture Advanced Customer Strategy Index

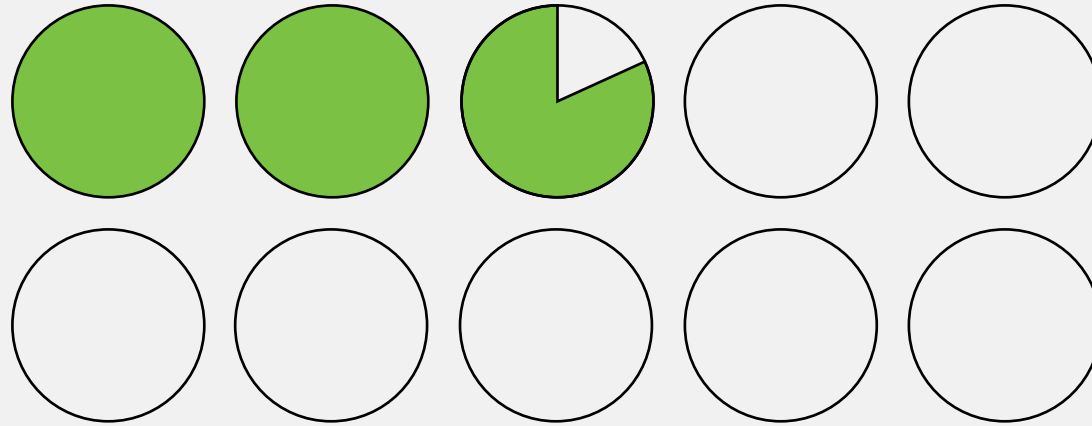
46%



% of insurance bundle consumers that say they “definitely will” renew their bundled home and auto coverage from their providers

J.D. Power and Associates Study

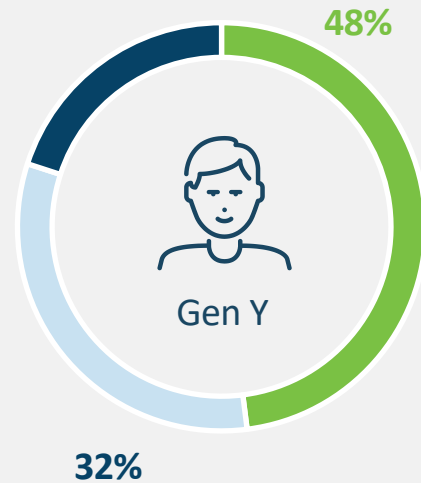
28%



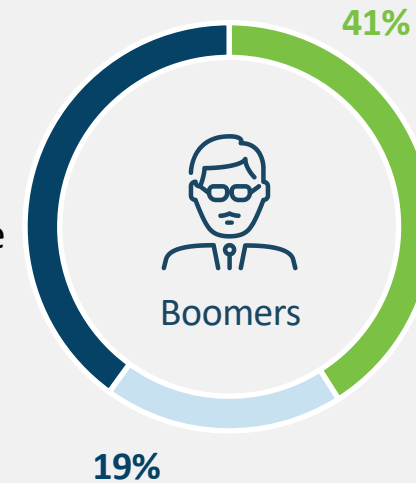
% of insurance **non bundle** consumers that say they “definitely will” renew their home or auto coverage from their providers

J.D. Power and Associates Study

Behaviors Vary Significantly Across Cohorts



- unbundle for price
- unbundle for better coverage



- Differences between new and renewal
- Differences between auto and home



- Research product view vs customer view
- Analytics framework

J.D. Power and Associates Study

Live Polling Question 1 - Knowledge

Which statement most accurately describes your company?

- We leverage advanced multi-product analytics when making pricing decisions
- We have a few measurements of multi-product price impact
- We use rules of thumb to consider multi-product price impacts
- We just got good at pricing one product at a time...

Live Polling Question 2 - Data

- ✓ How would you classify your data readiness for delivering multi-product analytics?
 - Data is organized at the customer level and we can easily analysis multiple products in parallel
 - Data is organized at the product level, but we have strong keys to join all products across a household
 - Data is organized at the product level, and we have keys to join some products across a household
 - It is painfully difficult to understand what products a customer has

Live Polling Question 3 - Technology

How well does your technology (data management, predictive modeling / analytics, price deployment) support your multi-product pricing objectives?

- 😊
- 😊 😊
- 😊 😊 😊
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- 😊 😊 😊 😊 😊

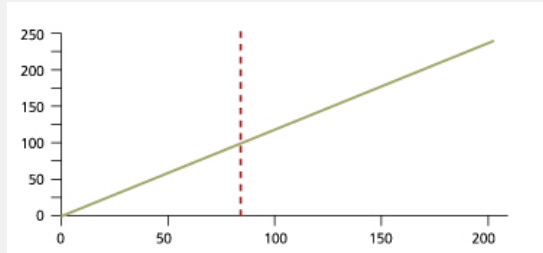
Live Polling Question 4 - Challenges

What do you believe is your organization's biggest obstacle to performing multi-product optimization?

- Data Challenges
- Analytics Challenges
- Implementation Challenges
- Regulatory Challenges
- Other Organizational Challenges (Skillsets, Knowledge, etc.)

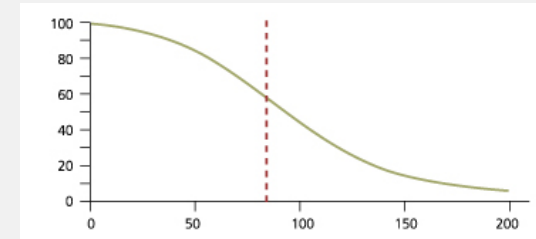
What is Precision Pricing?

Margin vs. Price



As price increases so does margin...

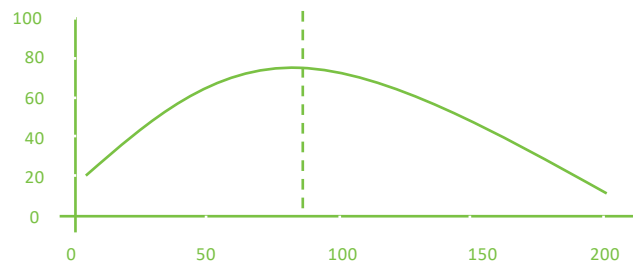
Retention probability vs. Price



...however the probability of retaining the client decreases

Precision Pricing

Optimal price



The purpose is to find the price to optimize profit and volume based on a number of business constraints

How Does PP Fit Into the Rate Setting Process?

The rate setting process does not change with the use of PP; instead analytics supplement judgment in determining competitive adjustments to indicated rates.



implementation depends on regulatory environment

Key Benefits of Precision Pricing



- Improves loss ratio by up to 2 points and/or
- Improves new business conversion by 10-30%
- Typical ROI greater than X10 achieved within first year

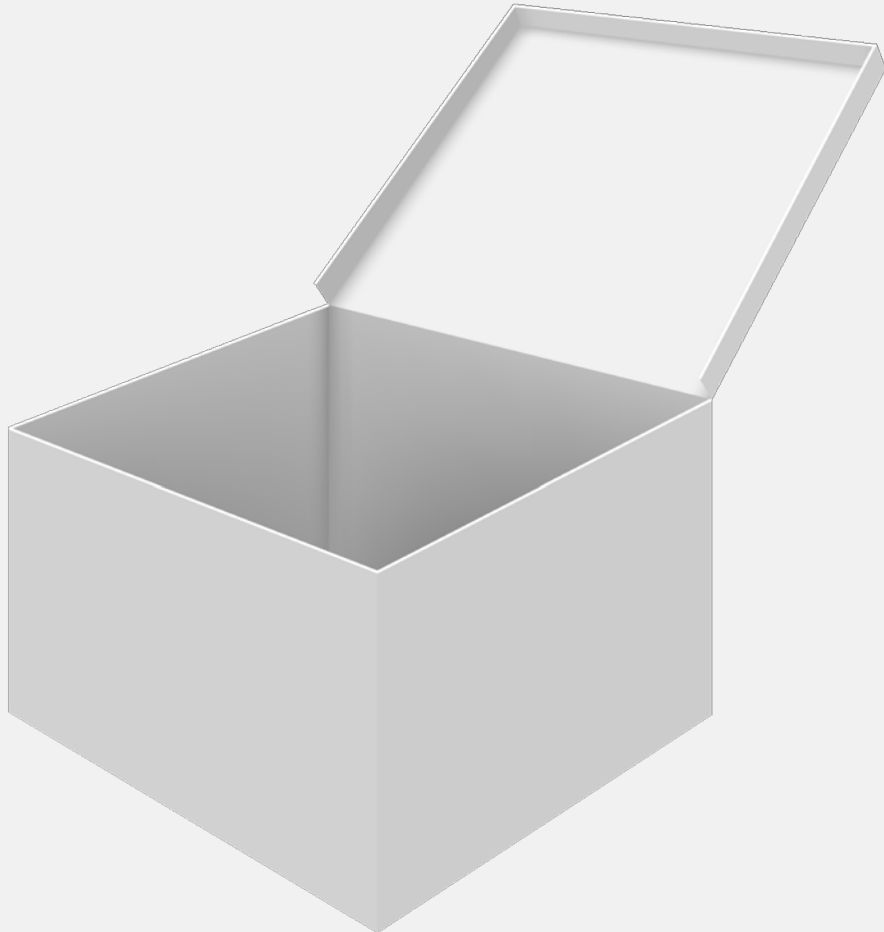


**Improved
understanding of
customer behavior**



- Faster time to market
- Improved pricing processes and more efficient work of pricing analysts
- Increased collaboration across departments (R&D, Pricing and Product Management)

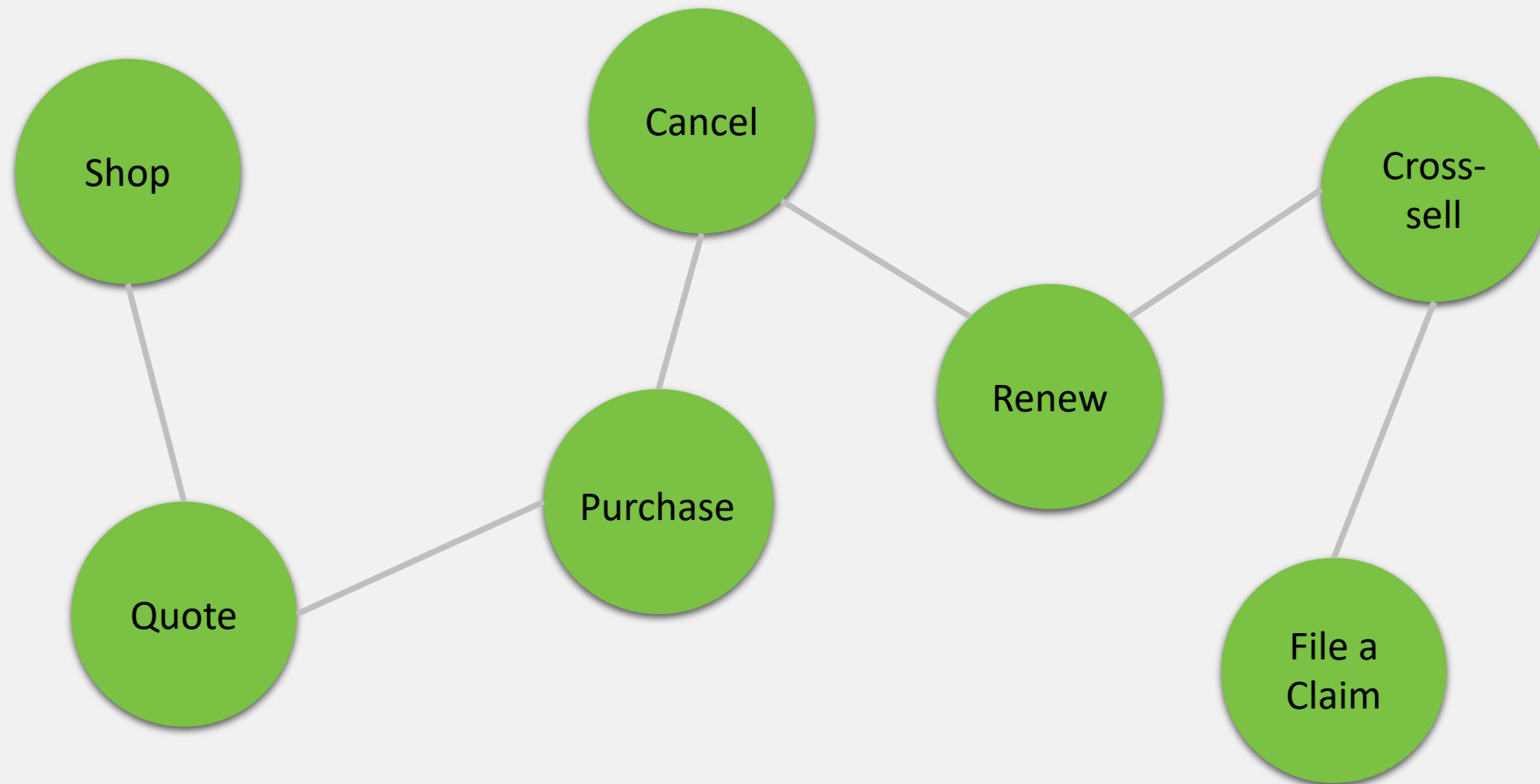
The ABCD's of a Modern Pricing Platform



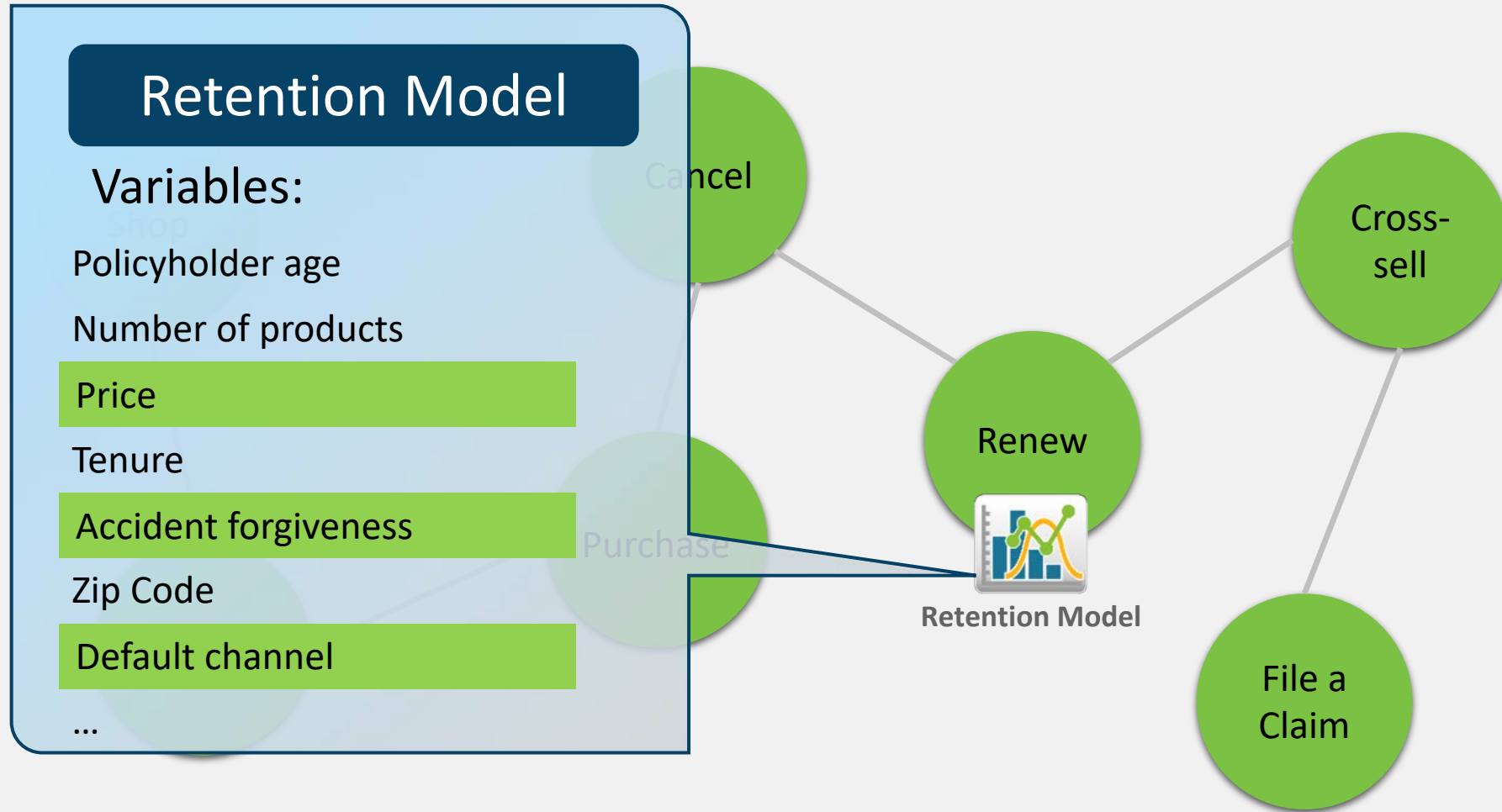
Everyone talks about it, but...

...if it were easy, everyone would do it

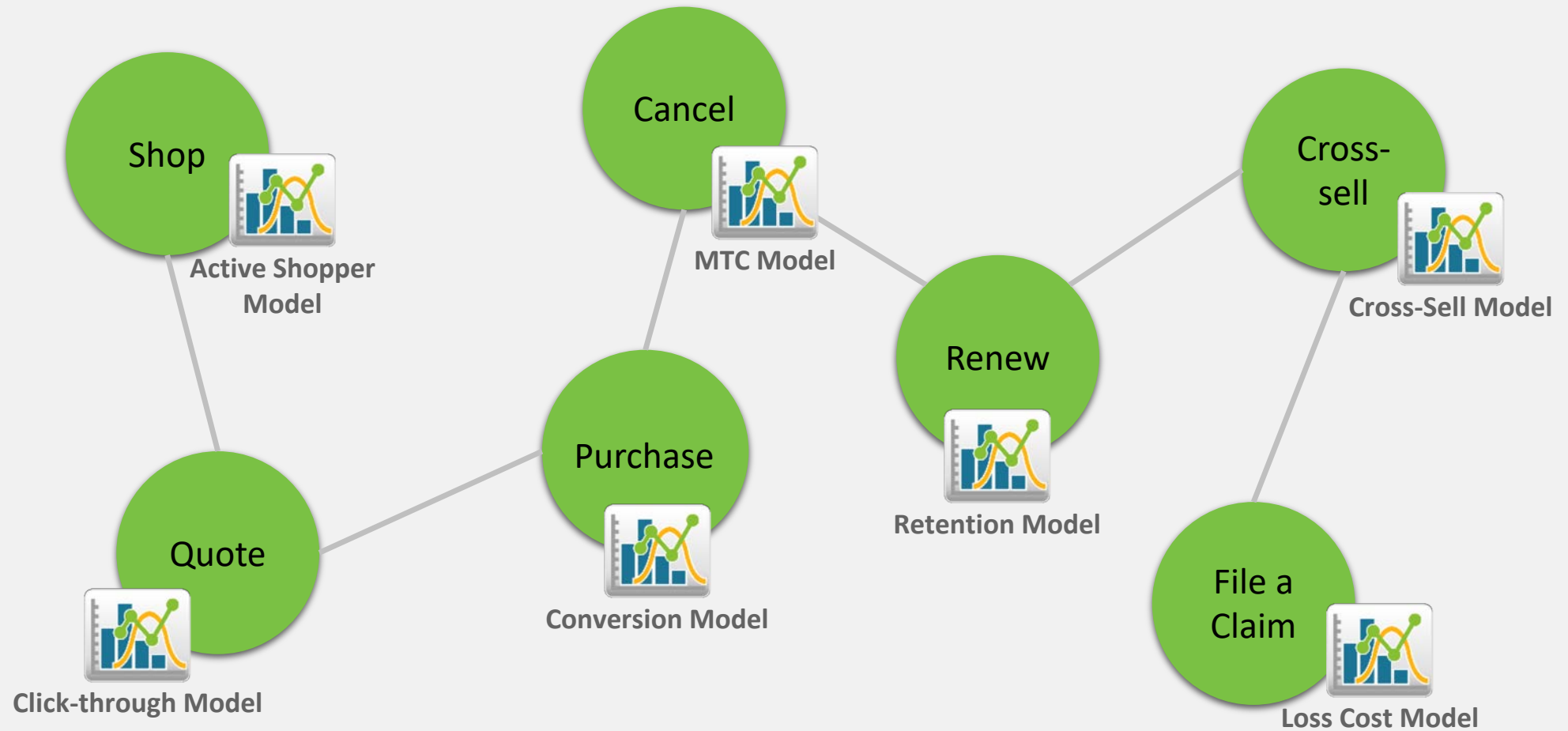
Customer journey



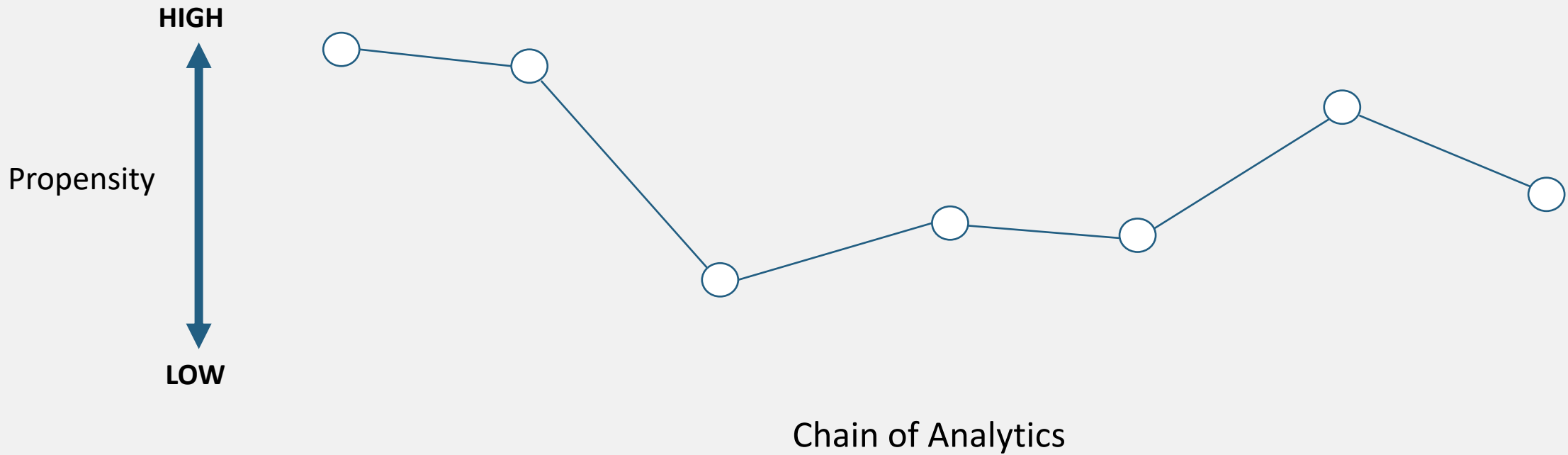
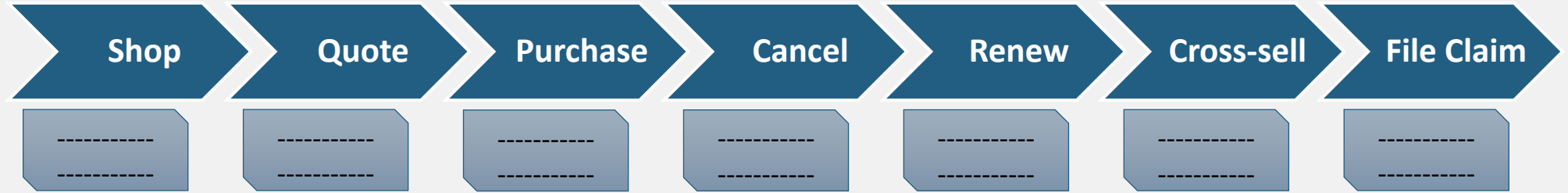
Customer journey



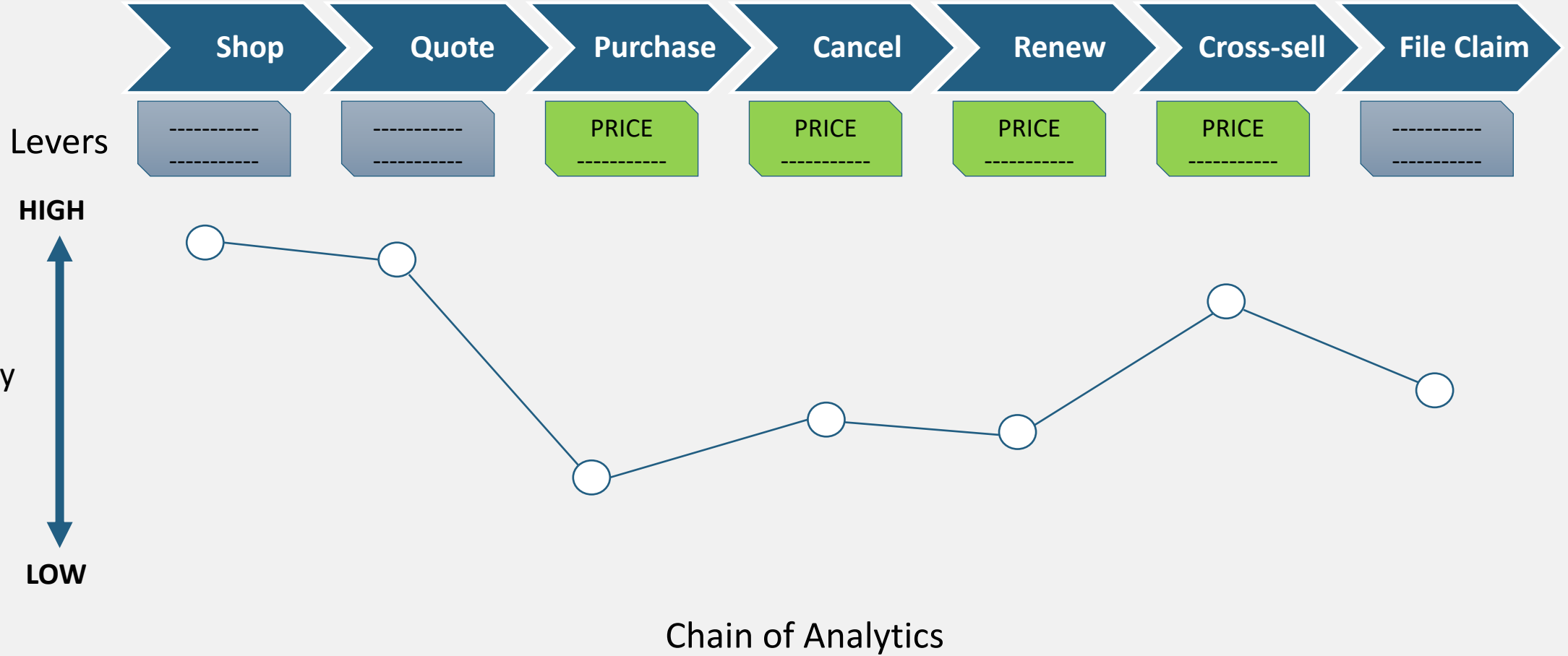
Customer journey



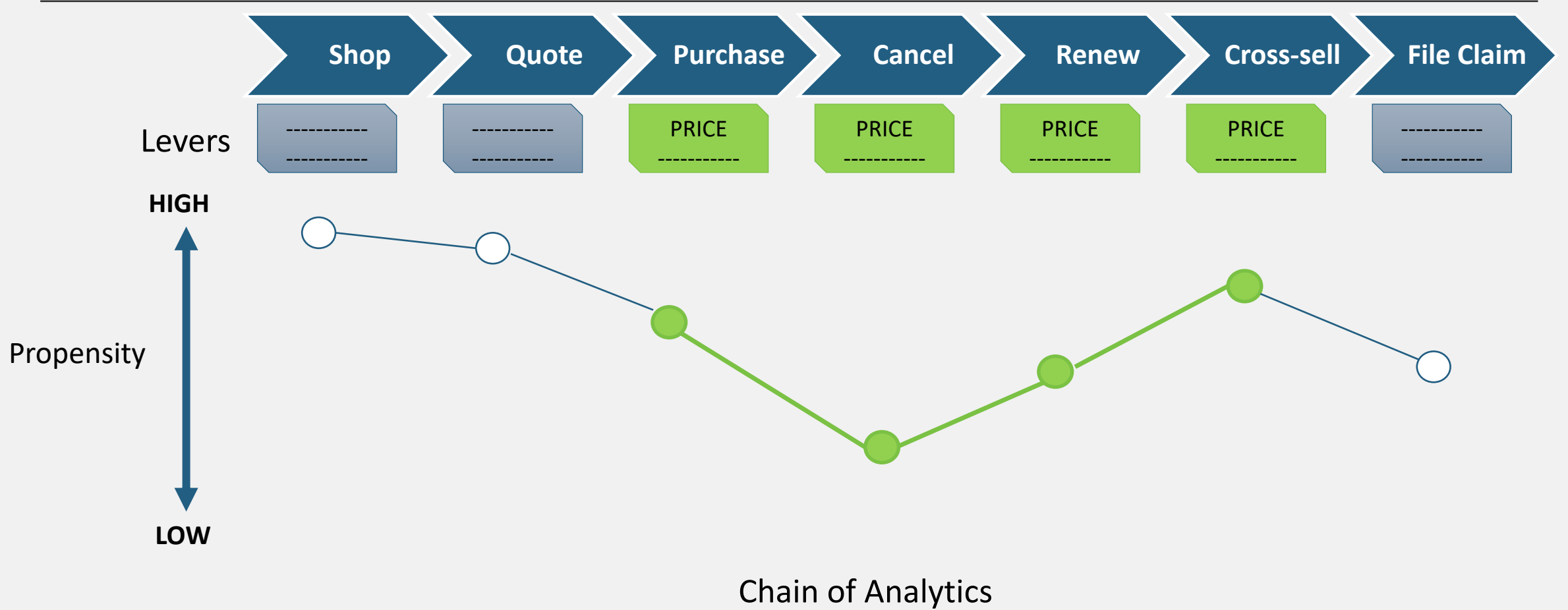
Customer journey



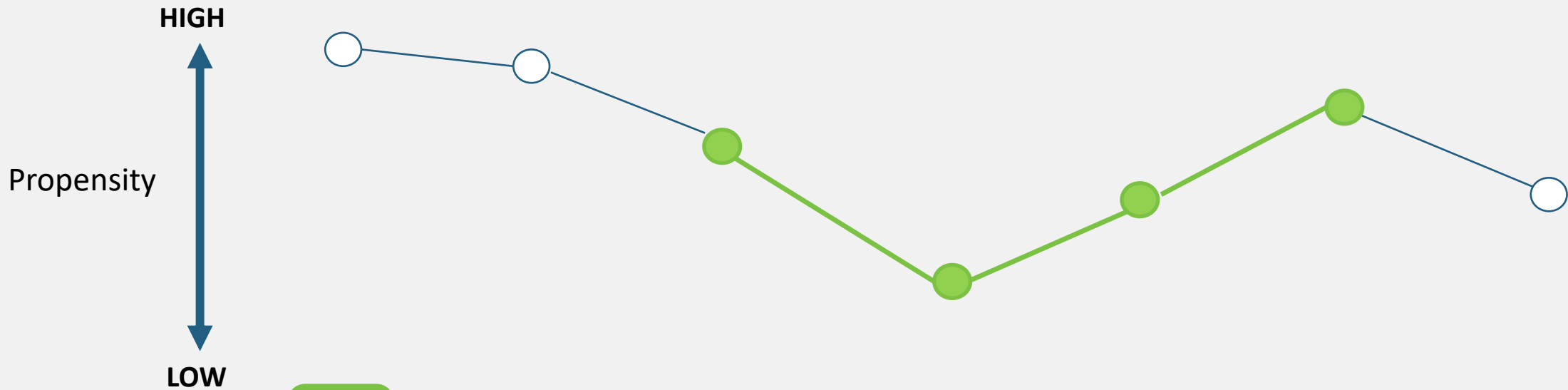
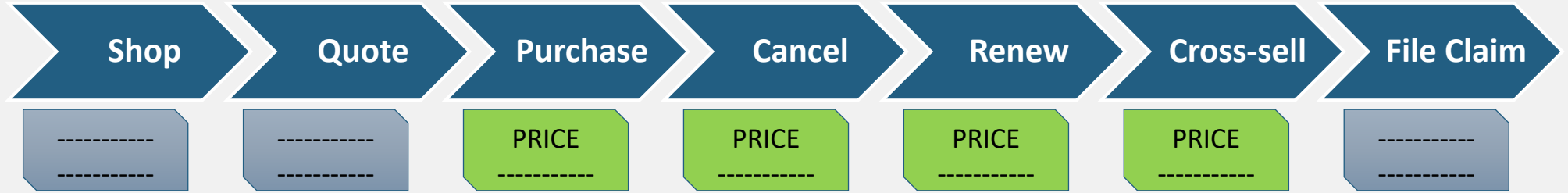
Customer journey



Customer journey



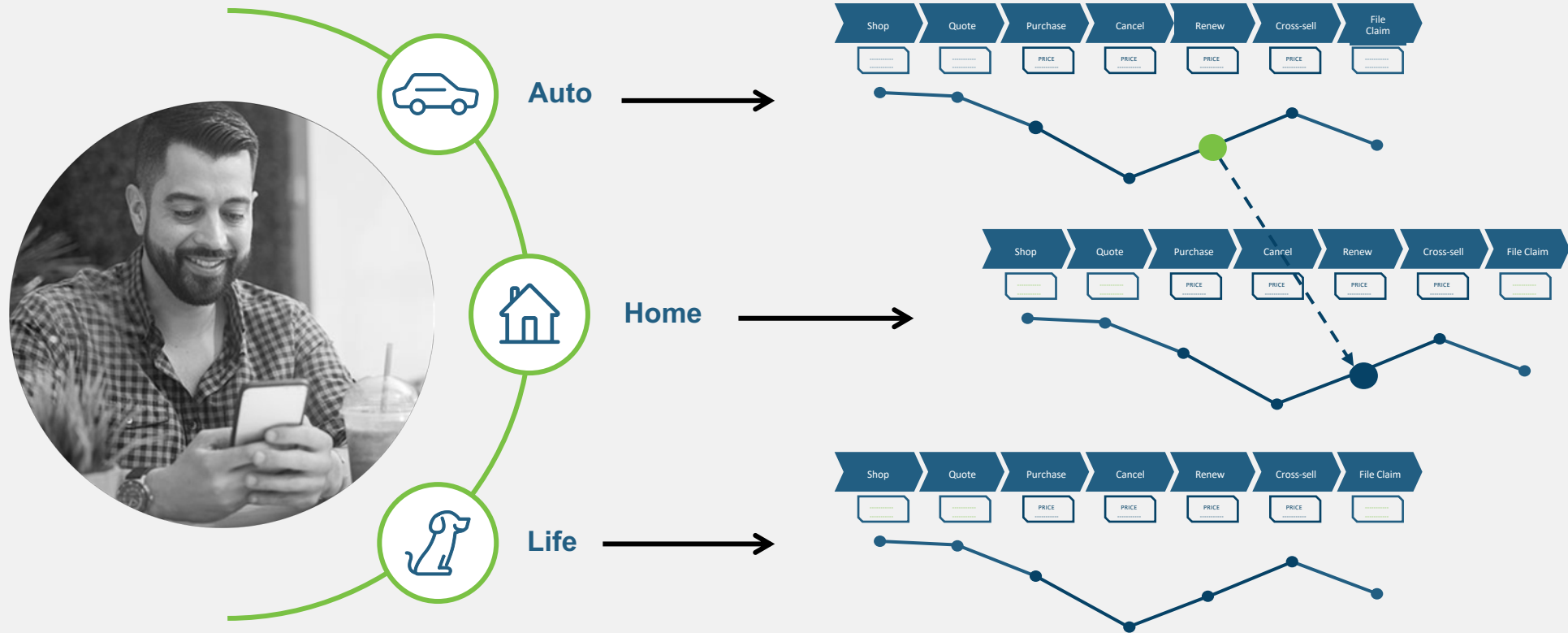
Customer journey



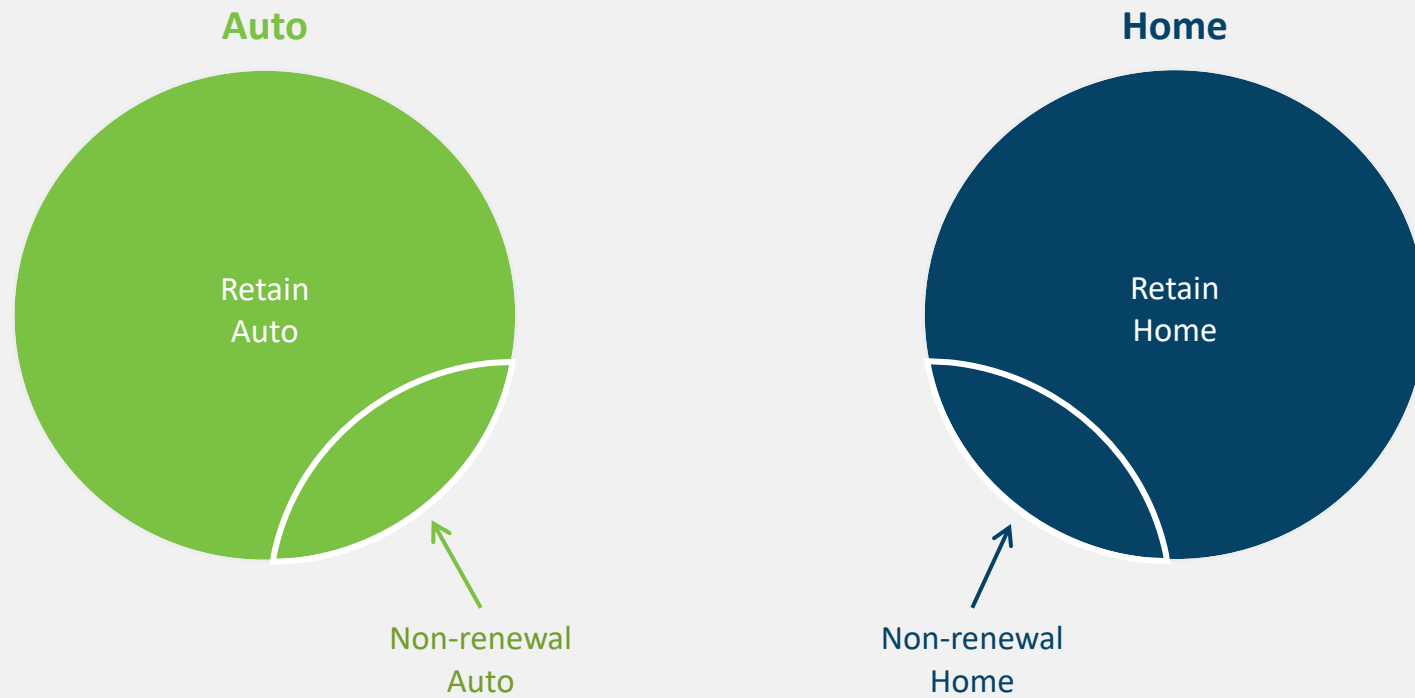
Stringing these models together gives us a single product LTV

Product Based Customer View

View your products how your customer views your products

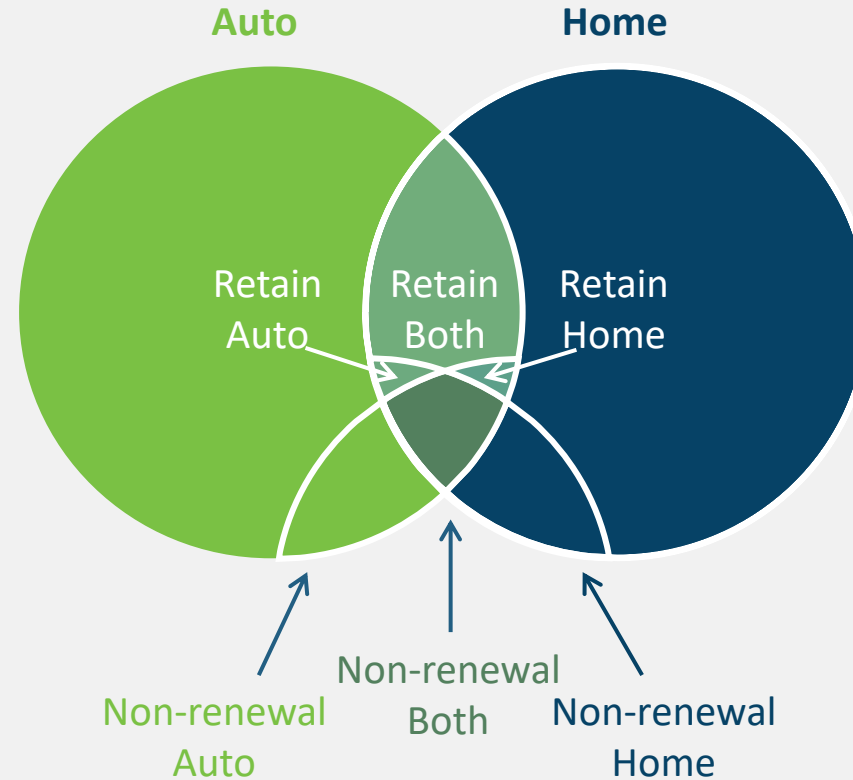


Renewal Behavior Intersection



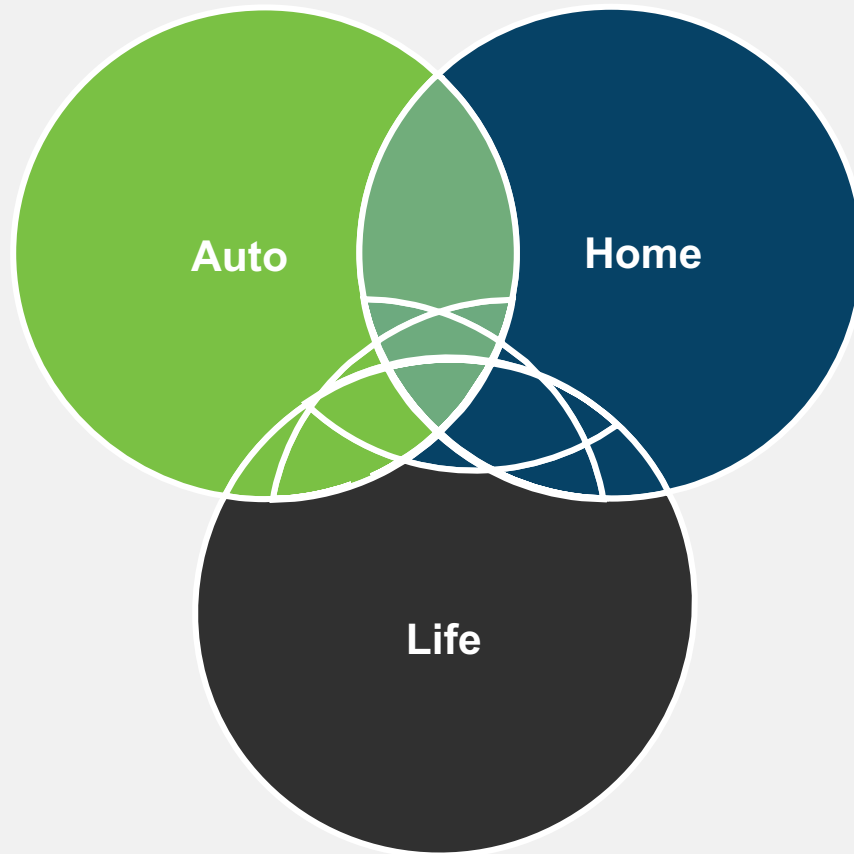
*Similar for New Business, binary decision

Renewal Behavior Intersection



*Blend between new and renewal behavior, multinomial decision

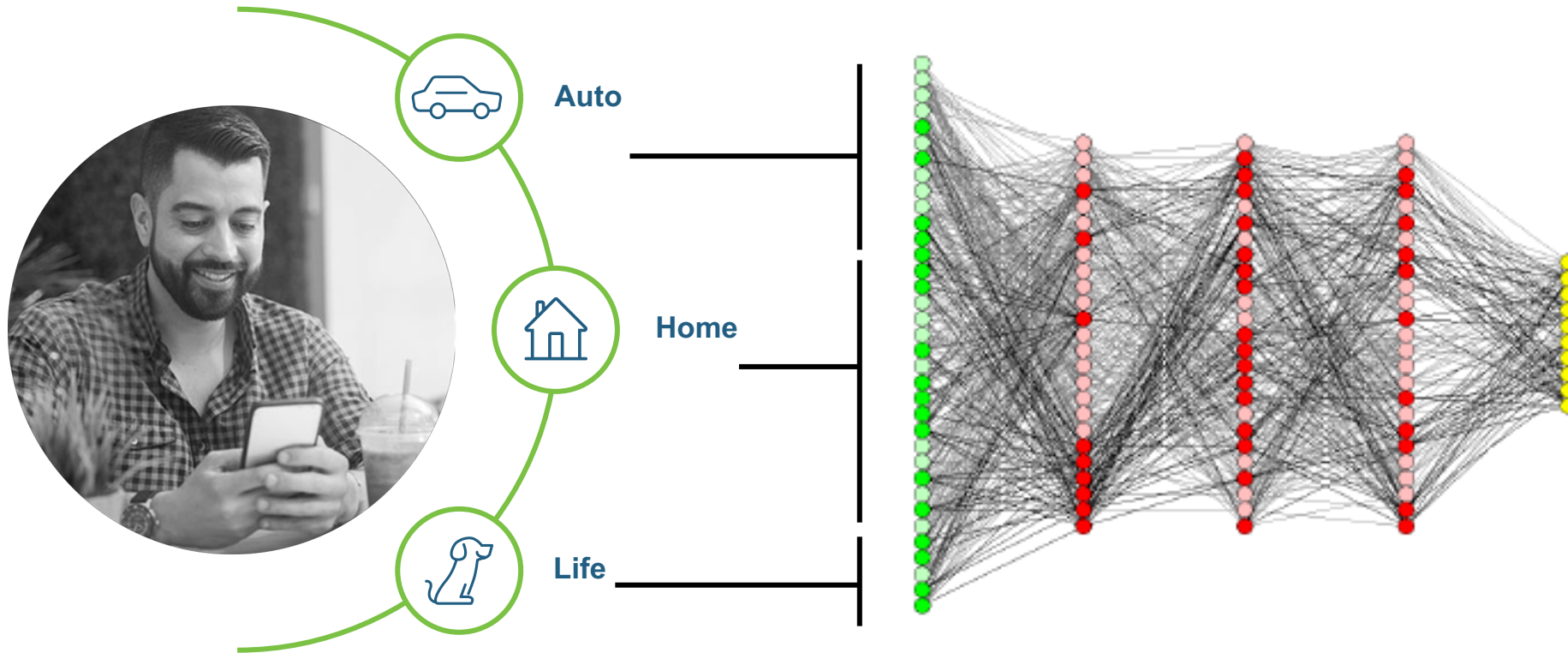
Renewal Behavior Intersection



As more products are added
the analytics framework gets
very complex very quickly

Behavior Based Customer View

View your customer behavior how they view their decisions



Data and Analytics Challenges



Customer
Householding



Structuring
the Data



Building the
Right Models

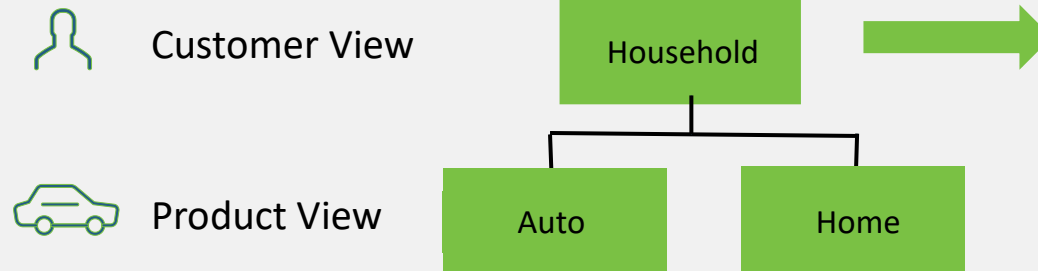


Timing
(renewal date)



Customer Householding

Just looking at multi-product data provides value



A-Limit	A-MPD	HH-Age	HH-Zip	HO-CovA	HO-Ded
100/300	Yes	34	58960	245k	1%
250/500	No	49	38405	---	---
50/100	Yes	25	48539	385k	\$1000
---	---	60	38405	130k	\$500
---	---	19	28384	125k	1%
100/300	No	29	48590	---	----

- Clearly define merge key
- Standard data cleaning rules apply
- Structure of the data depends on desired analysis
- Most behaviors can be modeled with 20k observations
- Not an “ad hoc” effort, this should be a core competency
- Define a strategy to address new business and in-force
- Data table structure – separate, aggregated up, structured

Identify the Important Behaviors



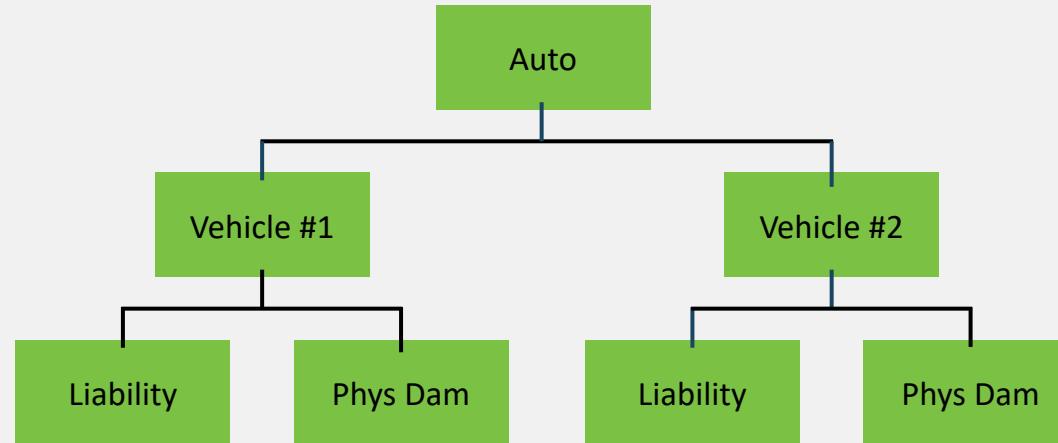
Product View



Unit View



Exposure View



- Will a customer renew their Auto policy?
- Will a customer renew each of their vehicles?
- Will a customer add a new vehicle?
- Will a customer retain all of their coverage?
- Will a customer add coverage?

Identify the Important Behaviors



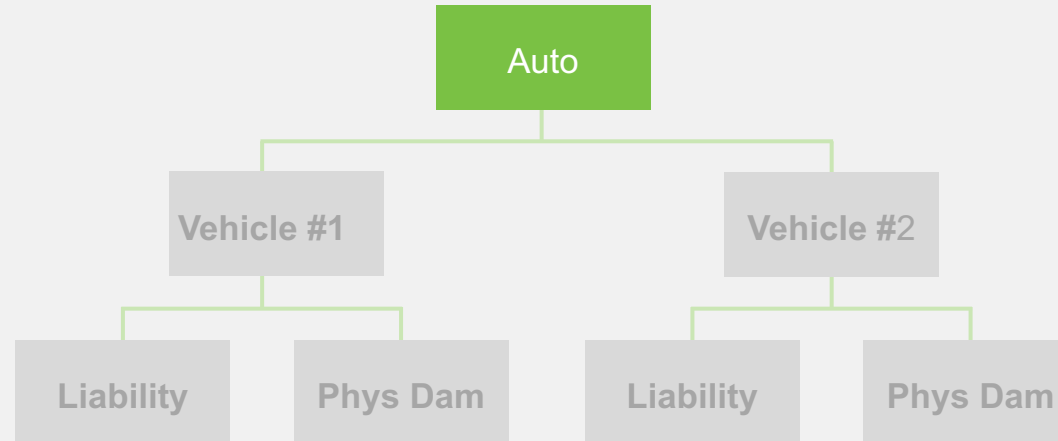
Product View



Unit View





Exposure View





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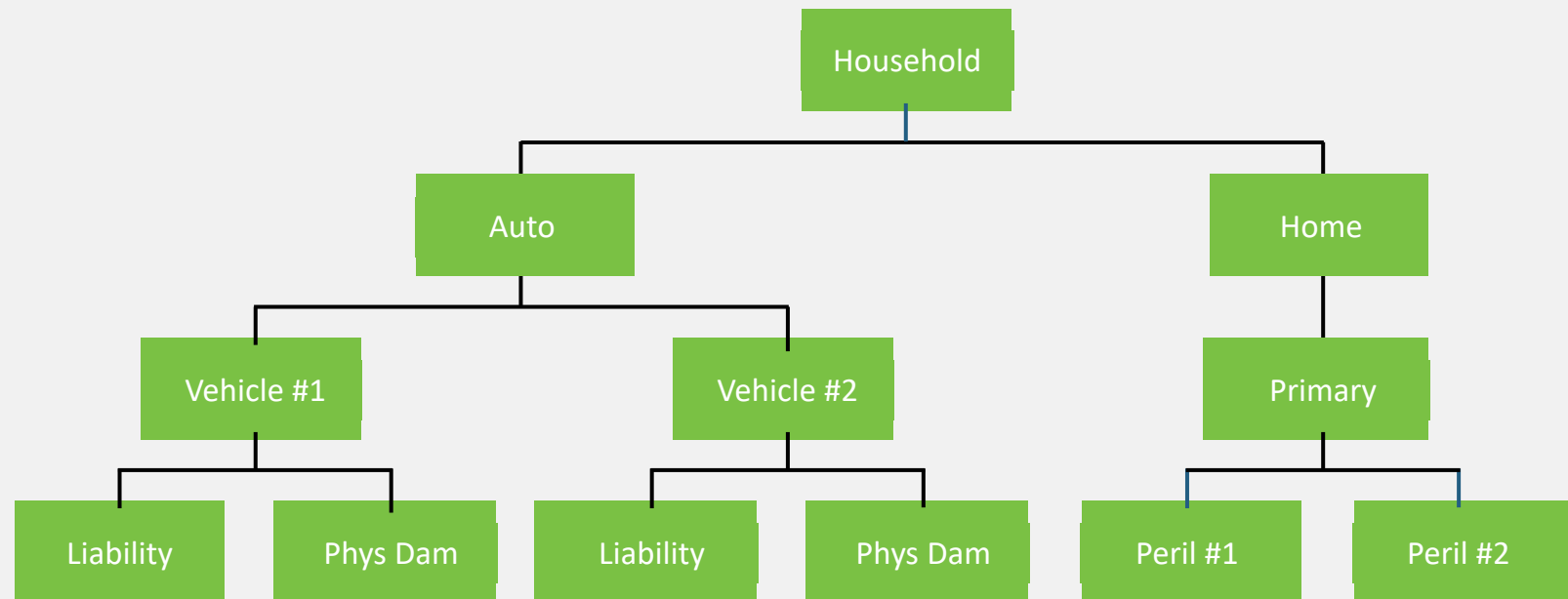
Data Structure

 Customer View

 Product View

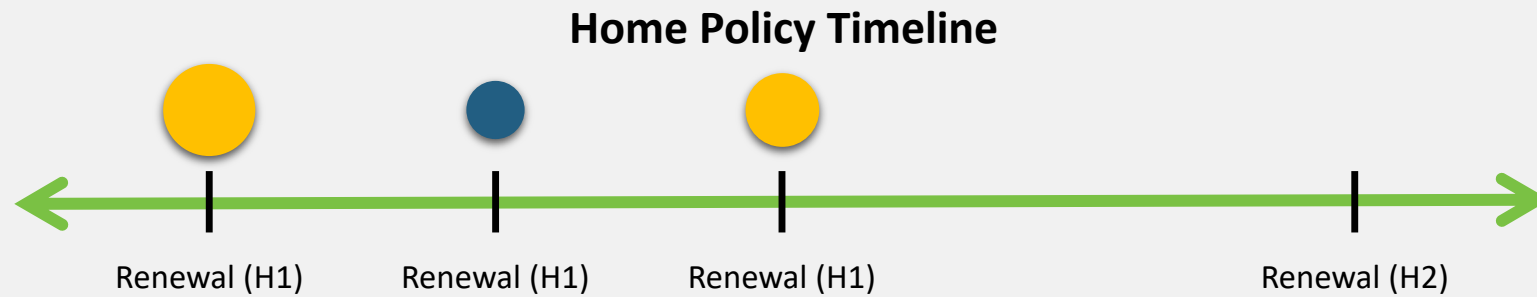
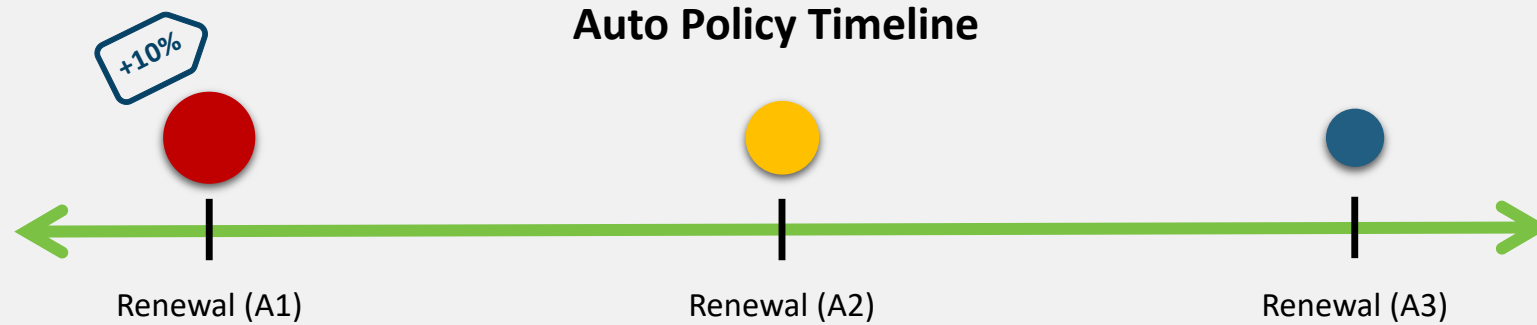
 Unit View

 Exposure View



Put yourself in the customer's shoes

Renewal Timing



Cross-product premium change effects are time dependent

Implementation



Analytics
roadmap



Checklist



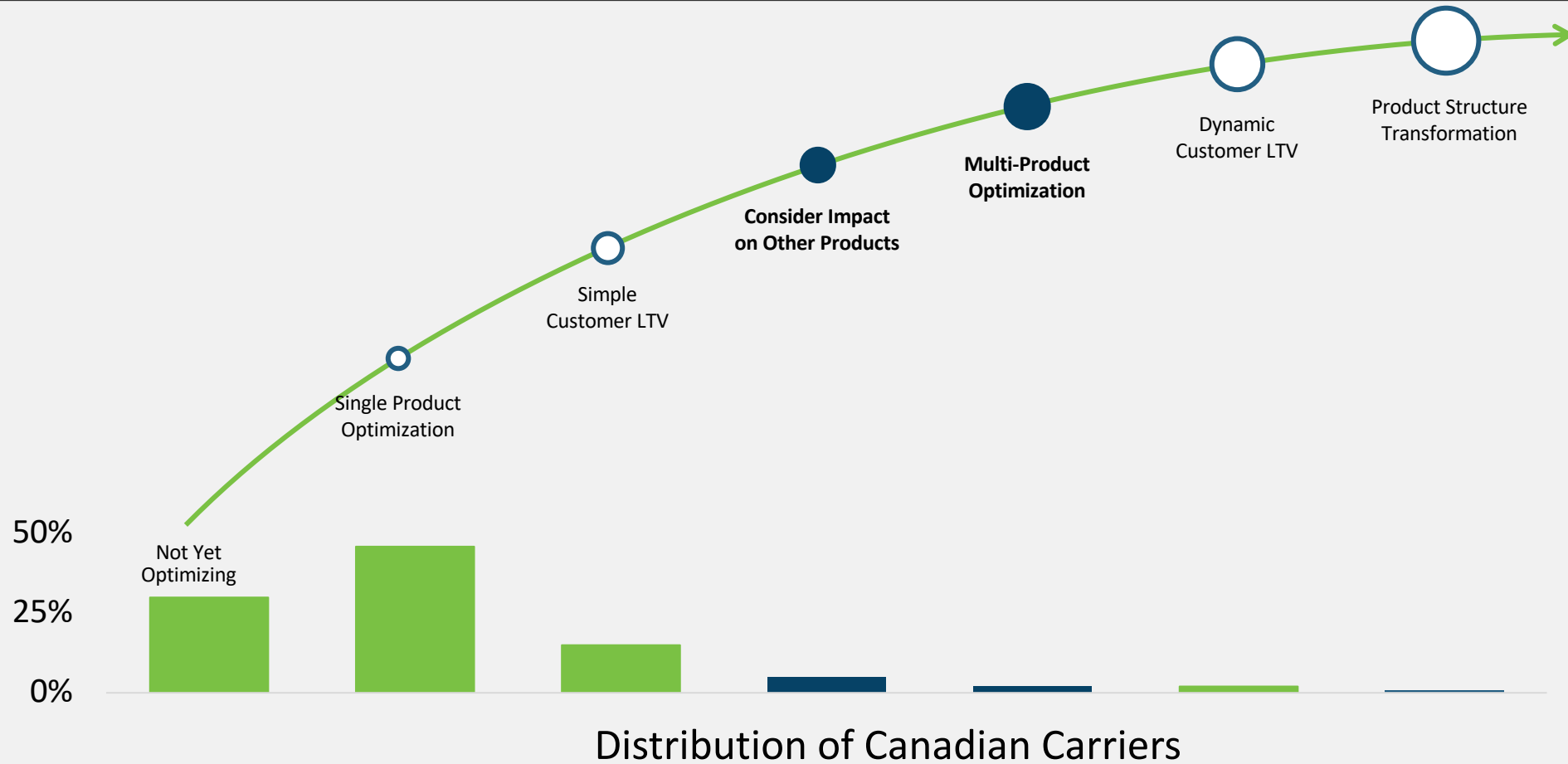
Model
development



Strategy
selection



Roadmap: pricing strategy



Roadmap: Multi-Product Optimization Checklist



Data:

- ✓ New business & renewal
- ✓ Modeling and pricing sample (sometimes the same)
- ✓ Aggregated at the highest level of behavior modeled
- ✓ Target variables, premiums, policy attributes



Behavior models



Profitability models

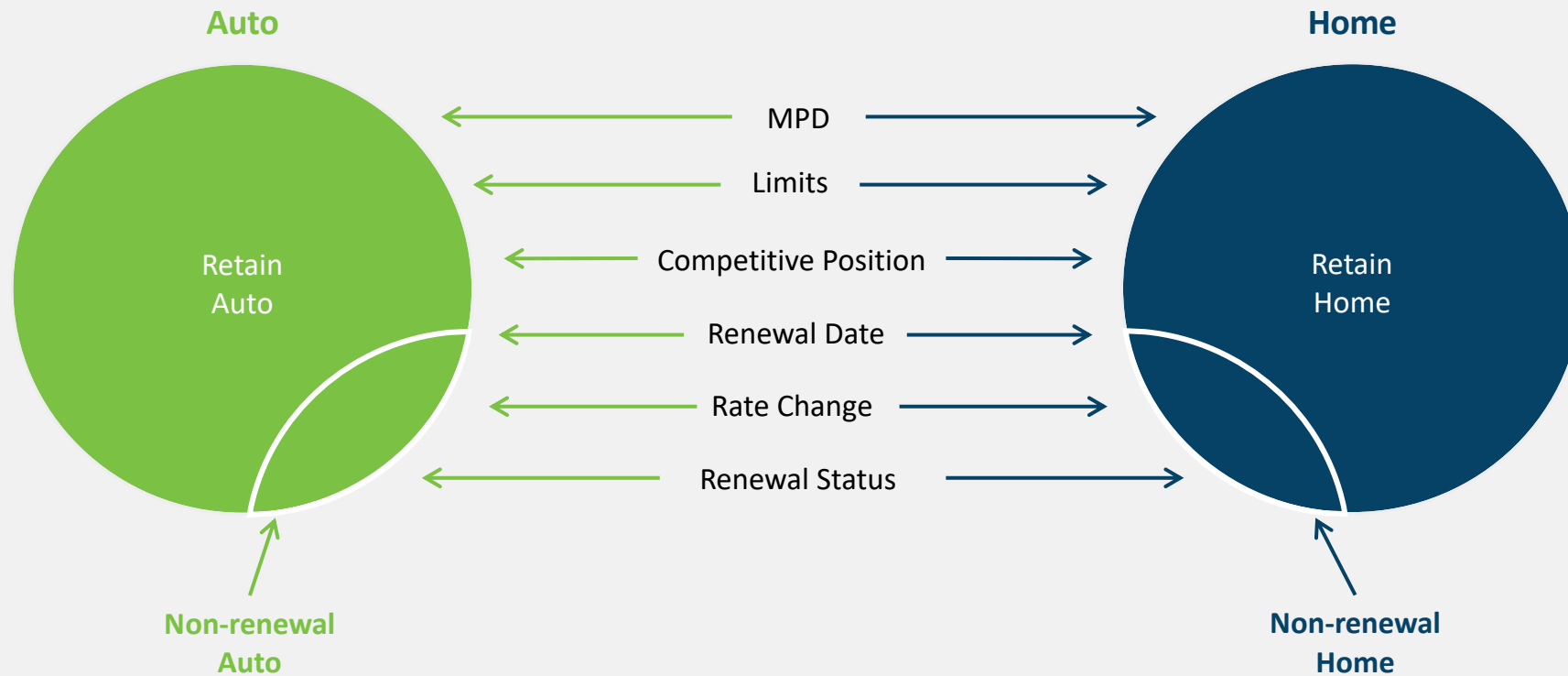


Objective function

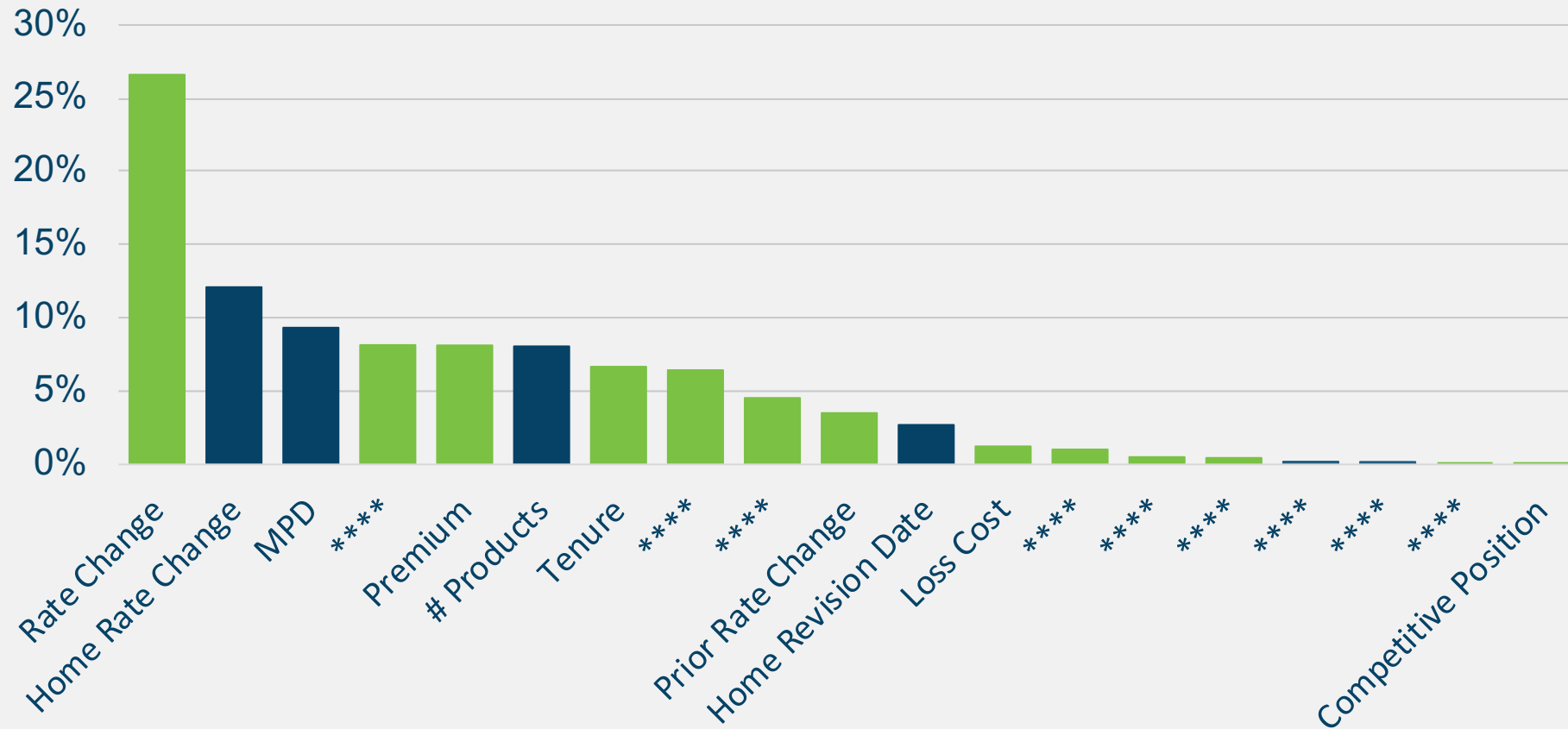


Business constraints

Incorporating Cross Product Effects

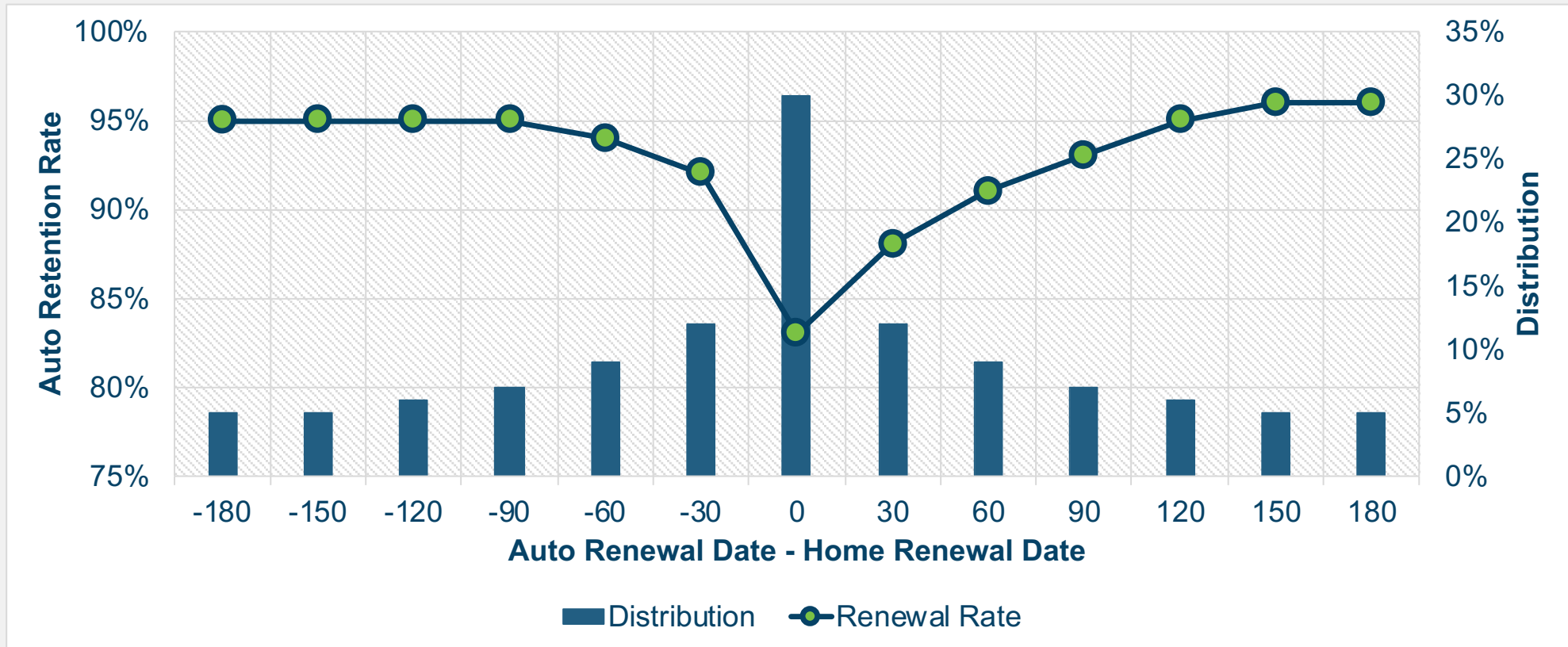


Predictive Power – Auto Renewal



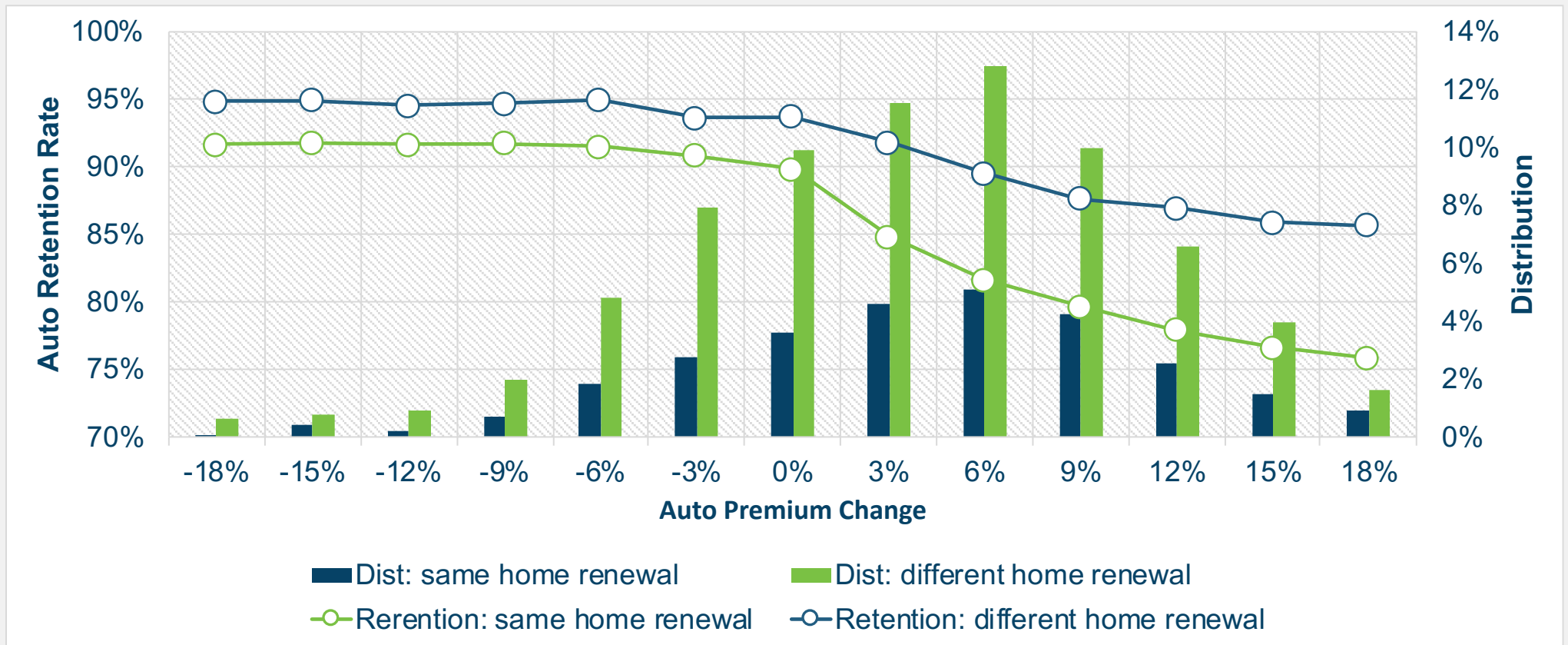
Cross-product influences

Modeling Cross Product Effect



Customers have a short term memory

Modeling Cross Product Effect



Timing of product renewal impacts customer elasticity

Quick Wins!

Understand new / renewal elasticities between products

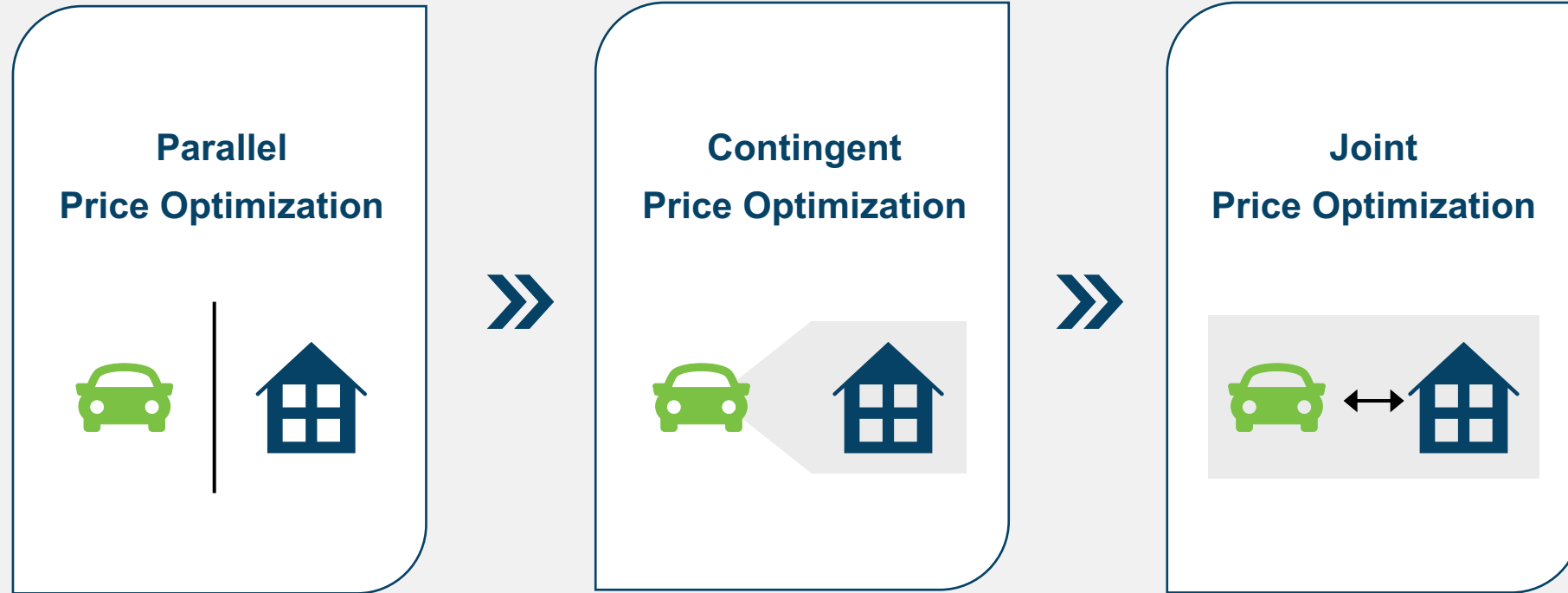
Elasticity Magnitude



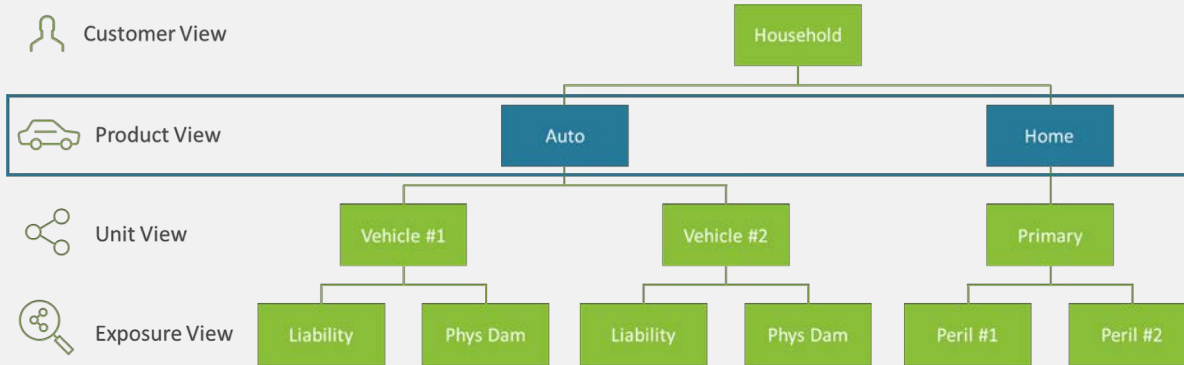
Gain customer behavior insights

- Understand the timing of multi-product purchase and cancelation
- Identify the lead product by segment
- Find segments where subsidies are misaligned (or over aligned)
- Understand household competitive position

Optimization Options

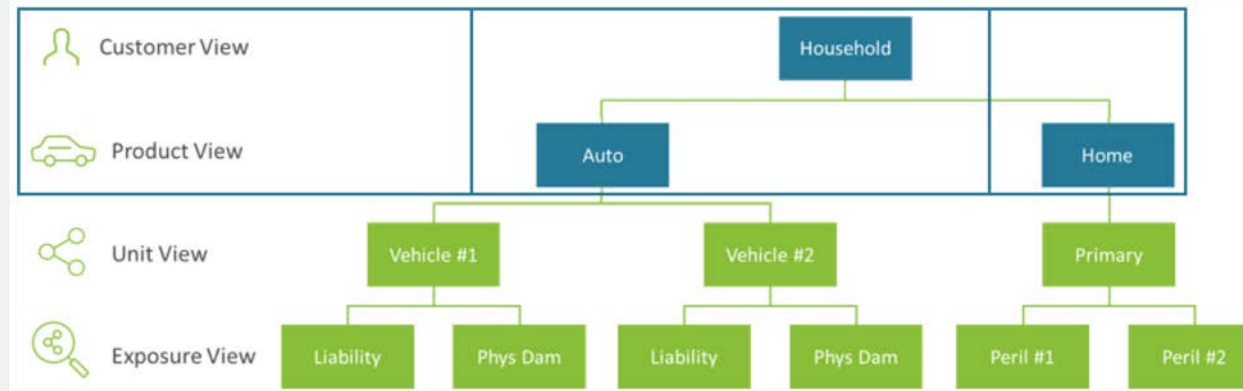


Parallel Price Optimizaiton



Data	Independent datasets
Demand Models	May include cross product effects – typically not in a dynamic way
Profitability	Cost and earnings calculated for each product separately
Objective Function	Maximize policy count
Constraints	Individual product target combined ratio
Result	Independently optimized products where the forecasted results can be shown together

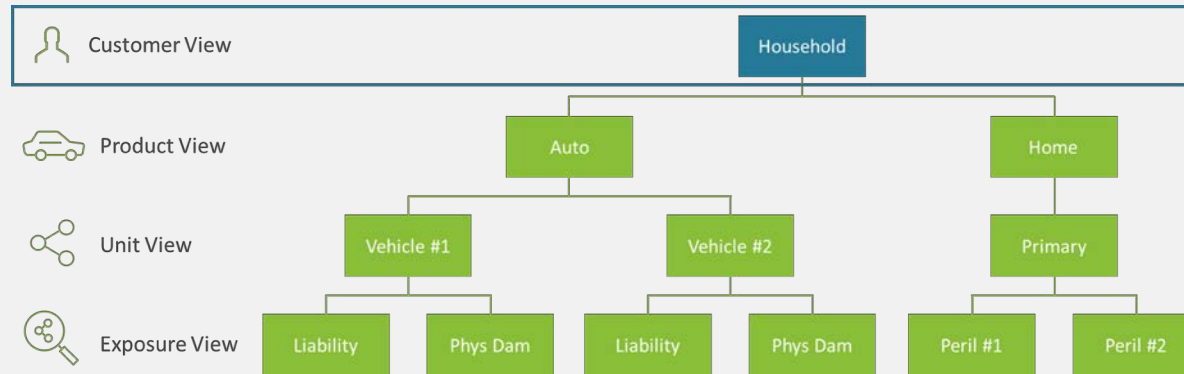
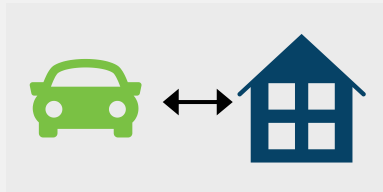
Contingent Price Optimization



Data	Separate datasets – home is the same as parallel, auto product is modeled at the household level (every HH has an auto)
Demand Models	Home models are basic. Auto models have a significant amount of home data including the timing of the home renewal
Profitability	Home reflects its own profitability. Auto includes loss cost estimate for auto & home.
Objective Function	Home – max volume, Auto – customer lifetime value
Constraints	Individual product target combined ratio
Result	Optimized auto rates that take into account home pricing

Leading product identified by regulatory constrains or elasticity

Joint Price Optimization



Data	Joint dataset at the household level that includes all auto and home data as well as the projection of future products (cross-sold products)
Demand Models	Models built to capture each potential customer behavior (dependent on the starting point) – multinomial modeling
Profitability	Combined product loss cost
Objective Function	Maximize the customer lifetime value
Constraints	Multiple constraints may be necessary – CR, product mix
Result	Jointly optimized prices with full dependency between products

Key Takeaways



Key Takeaways



Lots of talk, but not much action (you are not behind...yet)



Creating a household analytics view provides insights and quick wins without PO



The heart of the optimization are the demand functions



Let the data tell you which customer behaviors are most important



Use accurate predictions of profitability



Upper-management loves “cross product behavior analysis”



Create your own roadmap and gradually roll out

Thank You

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