



Data Analysis Market Access

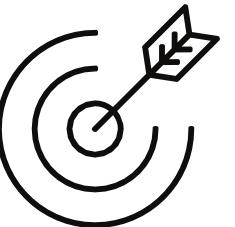


Group K Hackathon Presentation

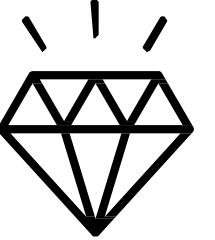
WHO IS BAYER?



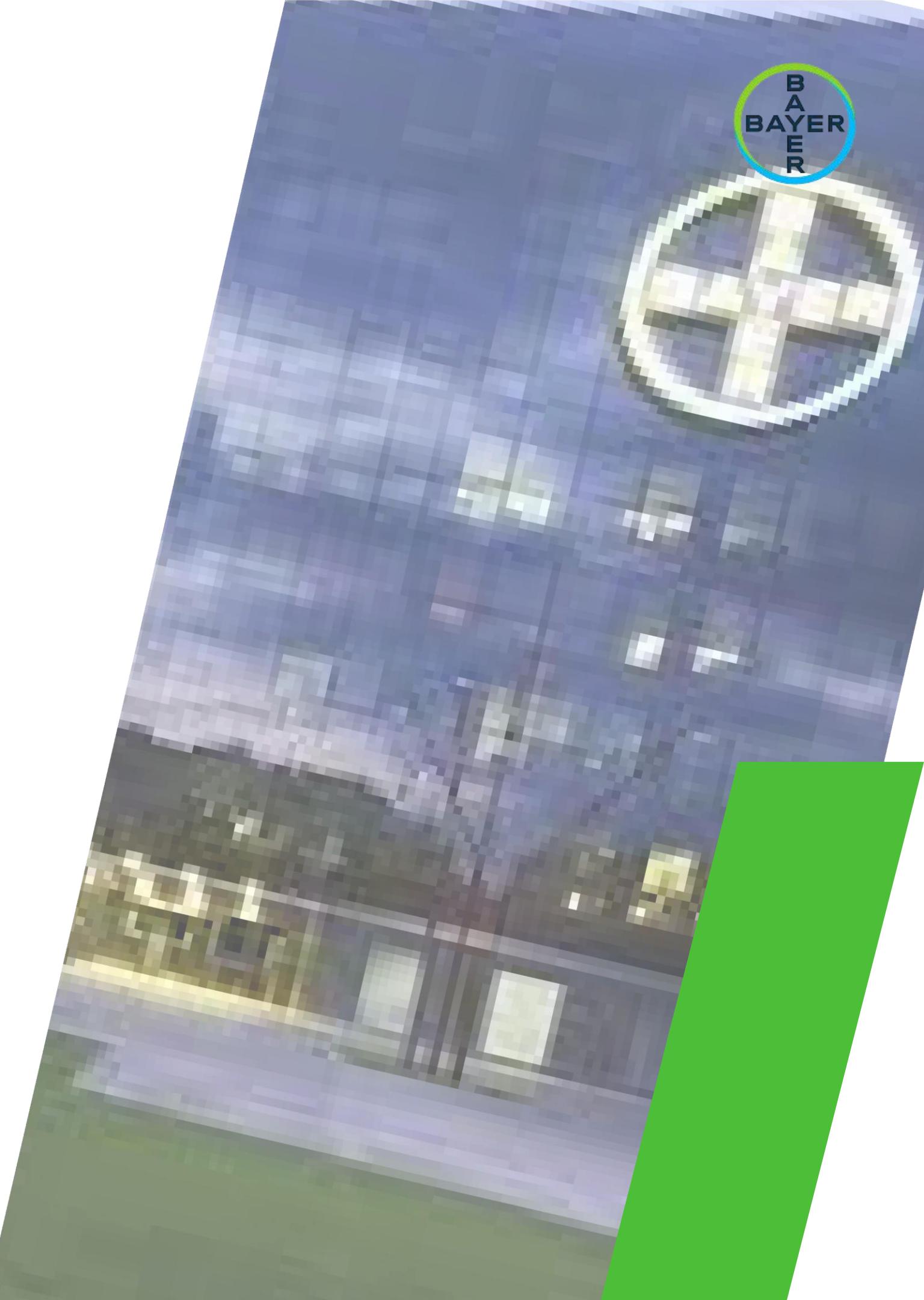
Purpose: Science for a Better Life.



Mission: Health for All, Hunger for None.



Core Values (LIFE):
Leadership, Integrity,
Flexibility, Efficiency.



What is our Problem?

What should Bayer prioritize in market access and pricing strategy to maximize market share and annual sales?



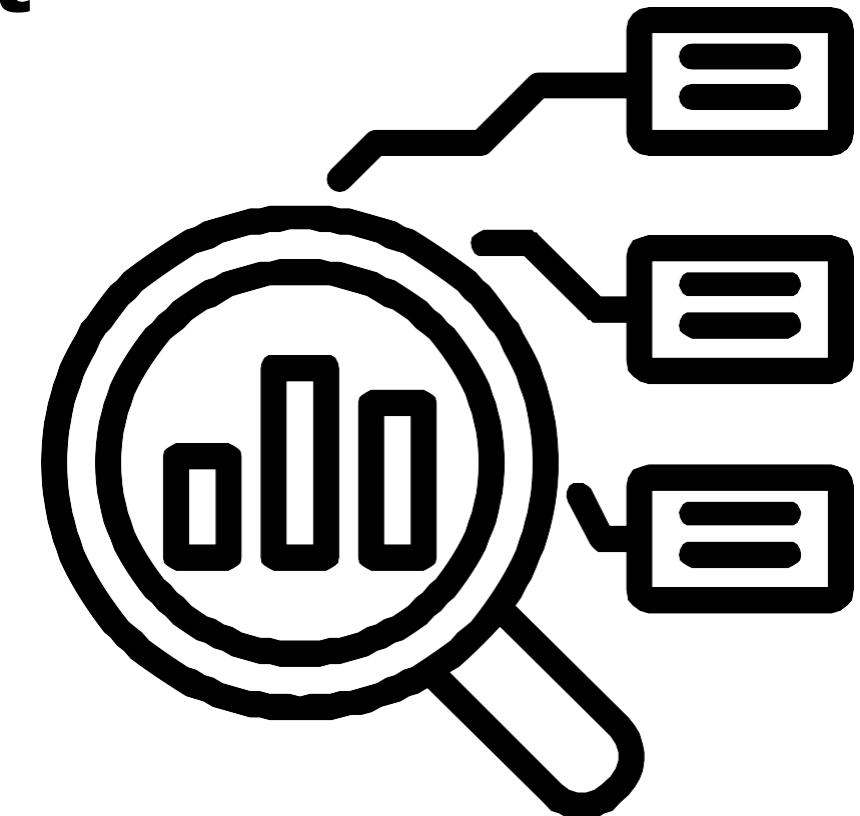
KEY VARIABLES

Context → GDP (gdp_index), policy environment (policy_strictness)

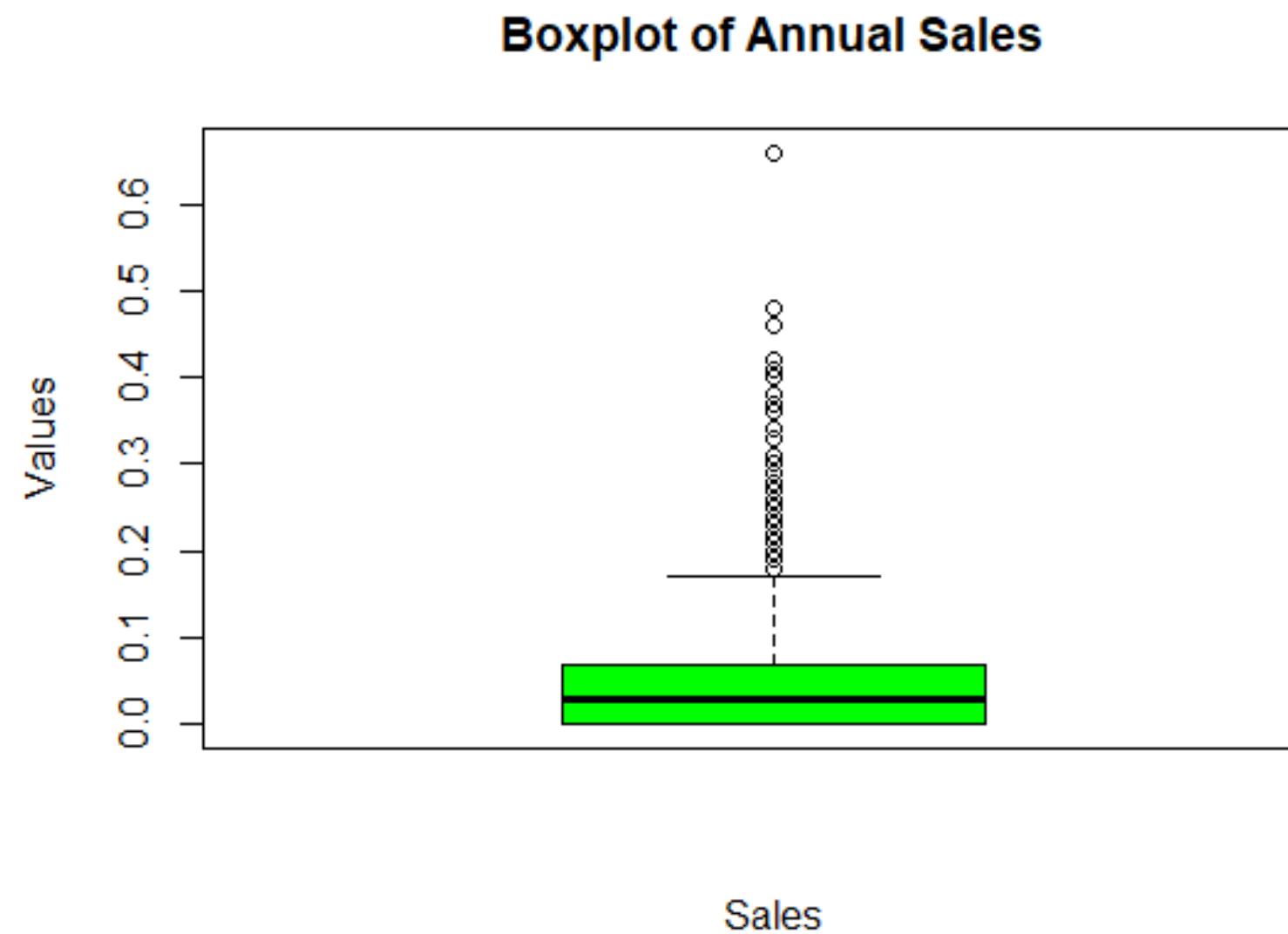
Access → reimbursed (yes/no), reimbursement_delay_months, access_score

Pricing → list_price vs negotiated_price

Performance → market_share, annual_sales_million



Outliers:



Null Values:

negotiated_price	0
reimbursed	790
reimbursement_delay_months	0
access_score	2891
market_share	0
annual_sales_million	511
	374

02 ➤ DECISION TREE CLASSIFICATION

	precision	recall	f1-score	support
0	0.00	0.00	0.00	566
1	0.81	1.00	0.90	2434

- Reimbursement is common (~81%)
- Policy strictness = dominant driver -> more variation than GDP or price.
- Pricing plays a secondary role.
- Non-reimbursement is hard to predict, decisions depend on more specific or unobserved factors.
-

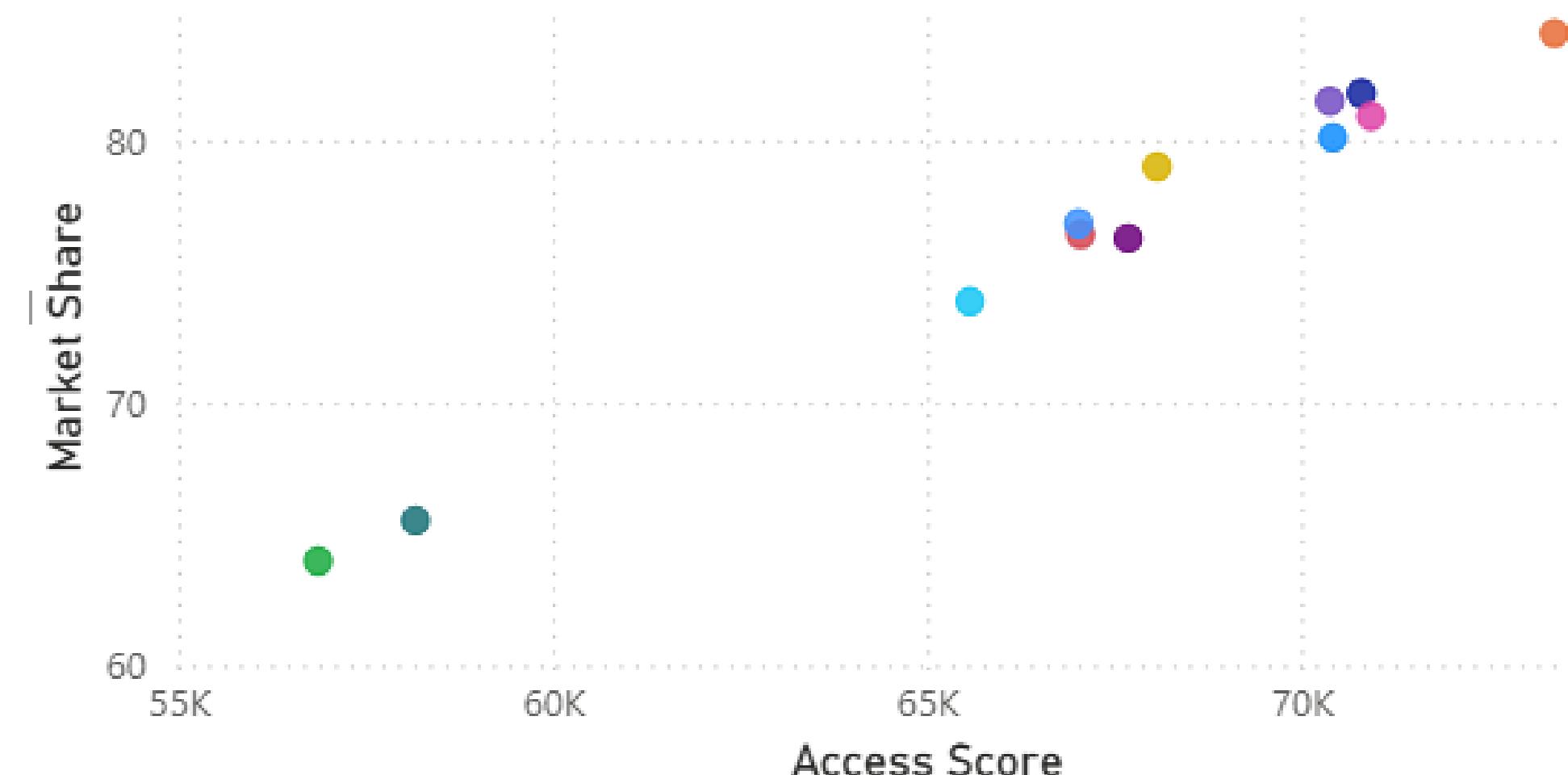
*Predictive performance constraint by class imbalance
results are explanatory rather than predictive

- Model explains ~37% of variation
- Access quality= strongest predictor of adoption
- increase in reimbursement delays -> reduced market share
- Pricing & policy strictness don't affect adoption once access secured

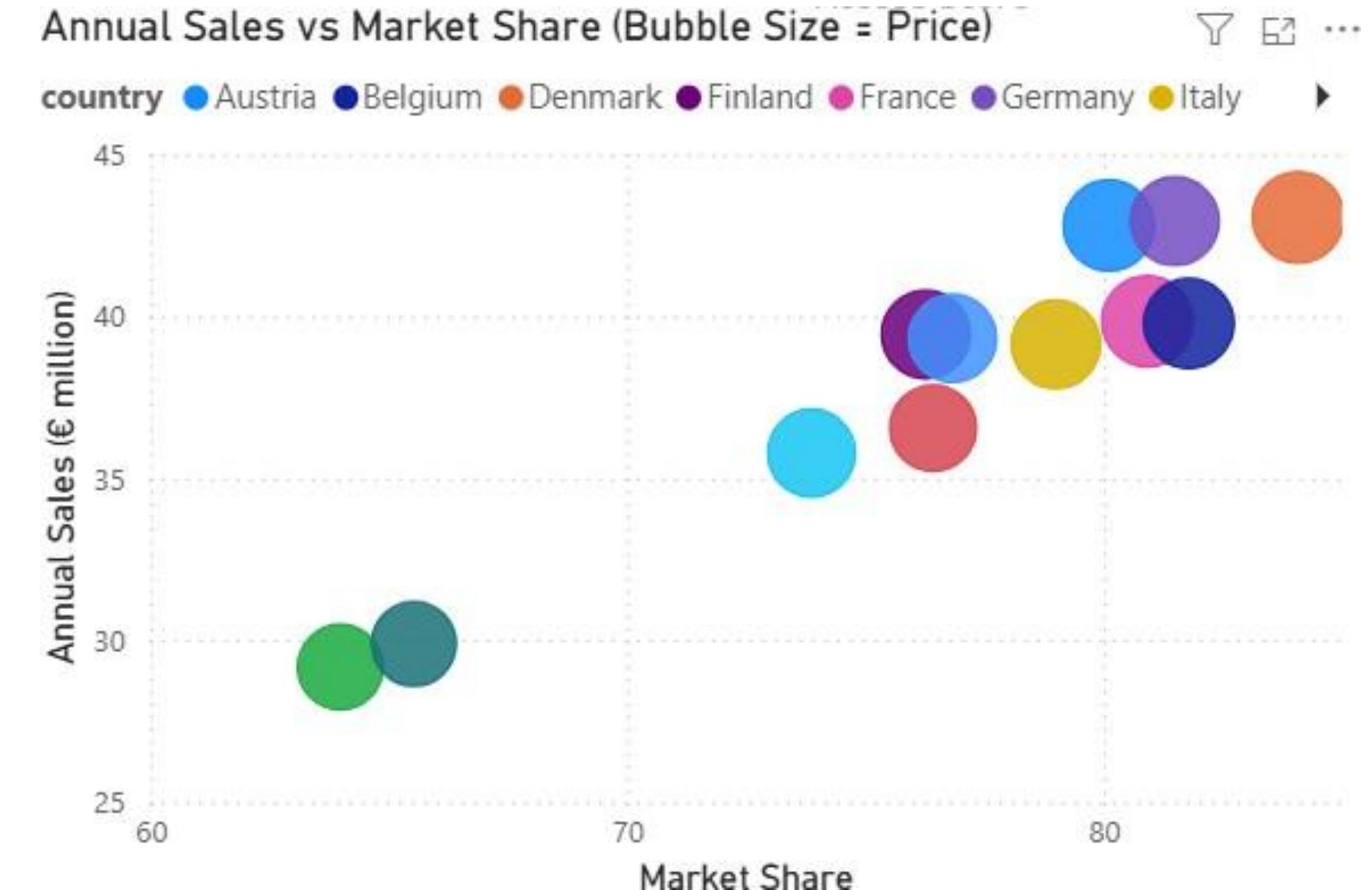
👉 Adoption in Europe is driven by access conditions rather than price.

Market Share vs Access Quality (by Country)

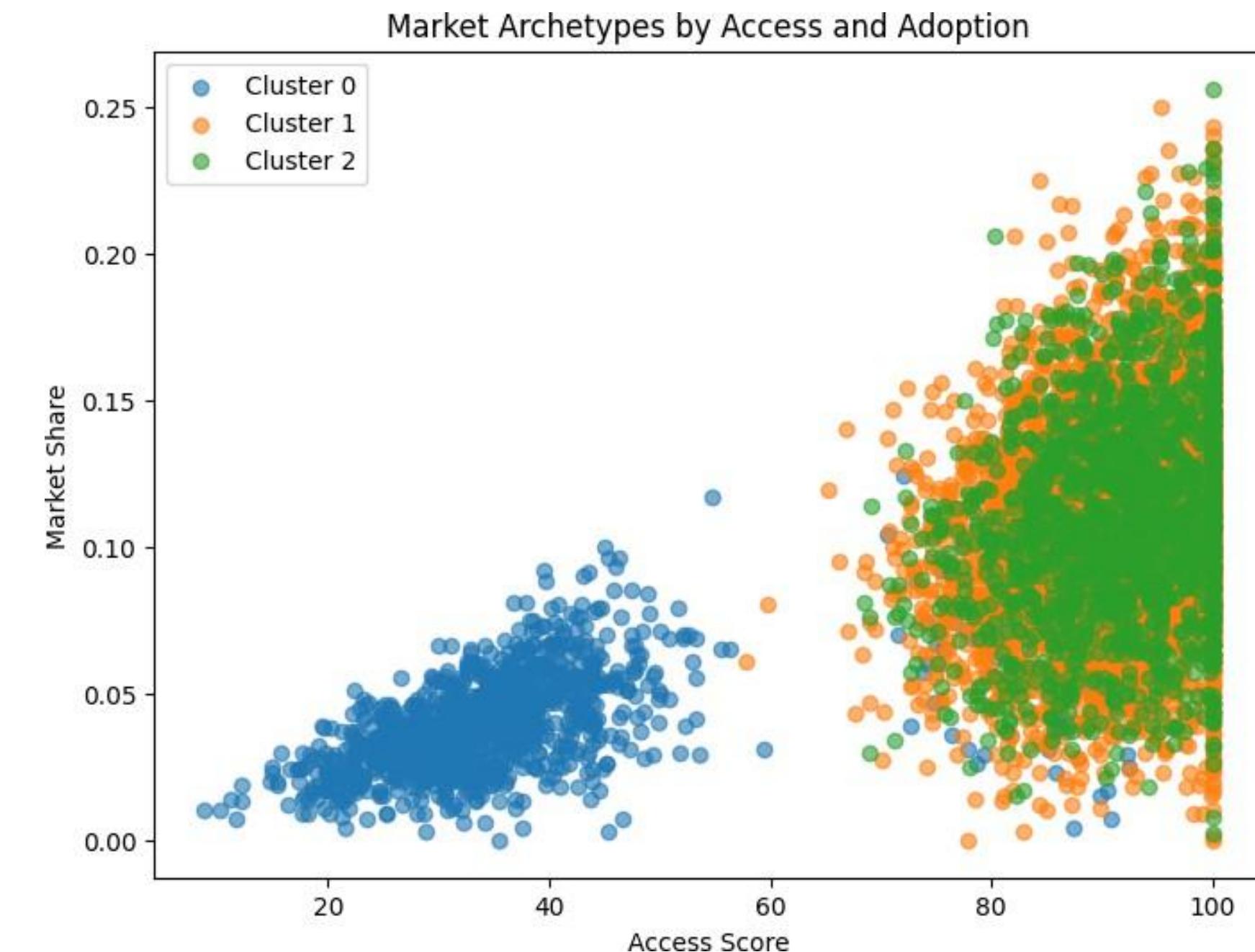
country ● Austria ● Belgium ● Denmark ● Finland ● France ● Germany ● Italy



- Model explains ~77% of variation in annual sales
 - Market share = dominant driver of revenue
 - Price directly scales revenue once adoption exists
 - Access variables lose significance once market share is included
- 👉 Access matters because it enables adoption, which then drives revenue.



- **Unsupervised clustering identifies market archetypes:**
(access, adoption, pricing, and market size)
- **Clear divide between access-constrained & access-enabled markets**
- **Access-constrained markets show negligible adoption regardless of price or size**
- **Once access is achieved, markets behave similarly (differences driven by pricing and market size)**



👉 Clustering reinforces the access adoption → revenue mechanism

INSIGHTS



Access is the binding constraint, not price.



**Access drives market share.
Market share drives sales.**

Pricing DOES drive revenue once access is secured.



European markets naturally fall into two strategic realities.

LIMITATIONS

01

**Insufficient & synthetic
Dataset**

02

**Class imbalance → Phase 1
exploratory analysis**

03

**Limited depth on payer- and
country-level heterogeneity**

RECOMMENDATIONS - NEW DRUG LAUNCHES



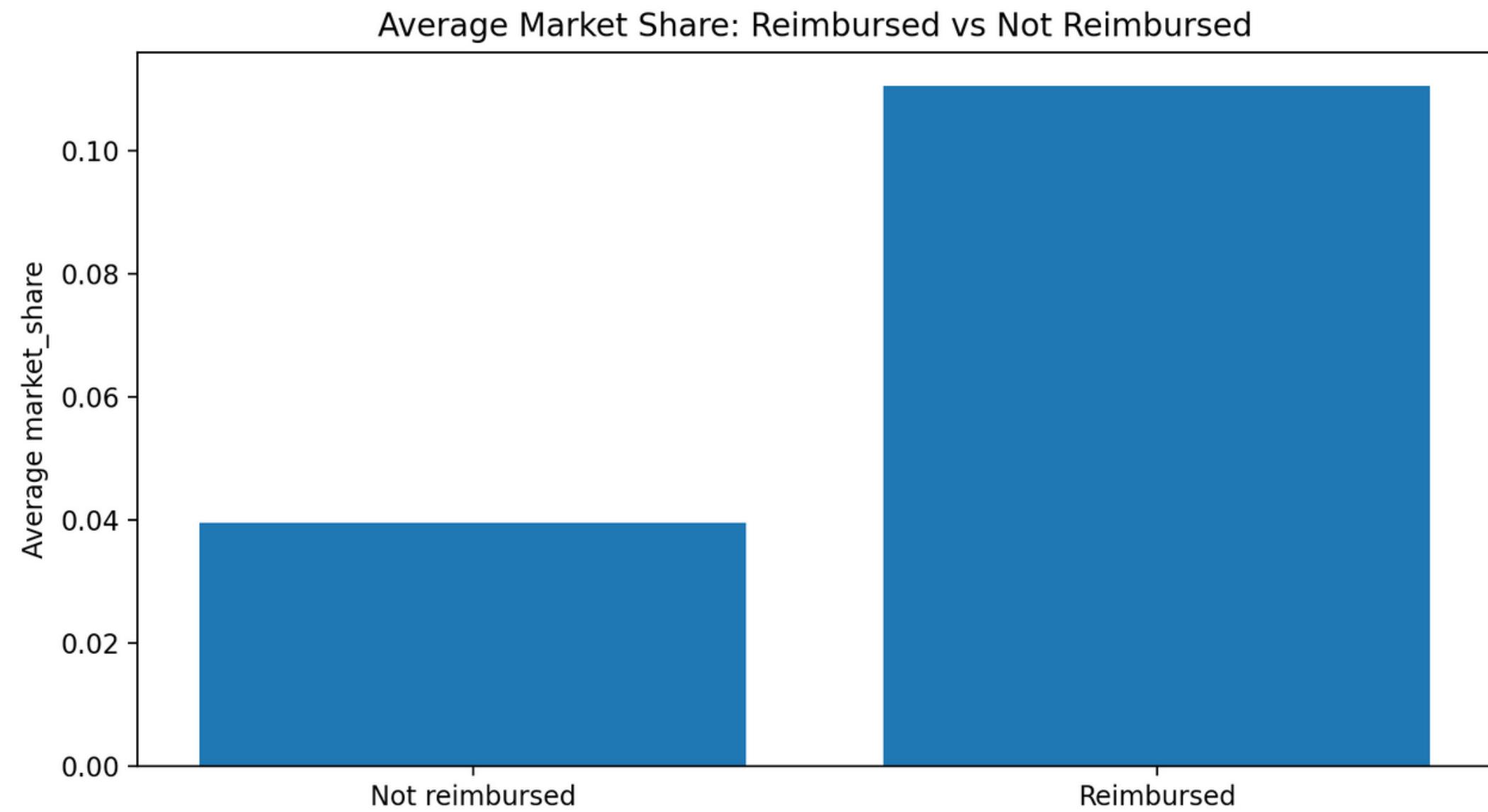
**Access first
(Reimbursement
unlocks adoption)**



**Sequence by Access
× Potential**



**Price after access
(protect value,
unlock volume)**





"Driving change is what matters."