Harford County Economic Forecasting

Final Recommendations Authored by Students in
BUMO 798Q: Business Consulting

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Supervised by Dr. Nicole Coomber

HARFORD
COUNTY
ECONOMIC DEVELOPMENT

Harford County Economic Forecasting
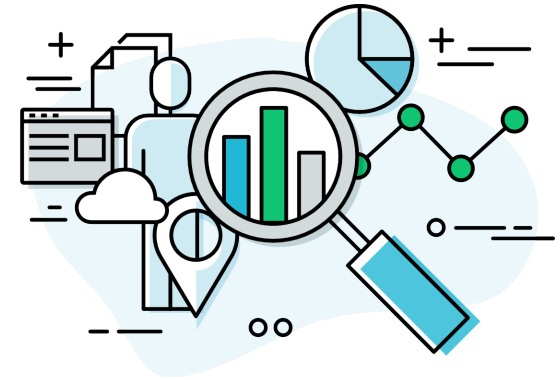**Carried Out as Part of PALS - Partnership for Action Learning in Sustainability**
An initiative of the National Center for Smart Growth

Gerrit Knaap, NCSG Executive Director
Kimberly Fisher, PALS Director

Agenda

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Introduction

Eric Litmer

Favorite quote: "May all your favorite bands stay together."

Akira Miwa

Favorite phrase: "If you can dream it, you can do it."

Alethia Maciel

"To love and serve in all things." - St. Ignatius of Loyola

Zimberlyn Bolton

"I won't be impressed with technology until I can download food." - Anonymous

Emmanuel Akomdo

"We need to keep hope alive and strive to do better." - Kofi Annan

Problem Definition

Disturbing Events:
- Population influx
- Business influx
- Market opportunity
- Economic ROI not measured

Results Gap:
- Not maximizing economic and physical returns on land area

Key Question:
- What types of businesses should Harford County attract to maximize ROI?

Stakeholders
- County Administration/Council
- Economic Development Department
- Local community
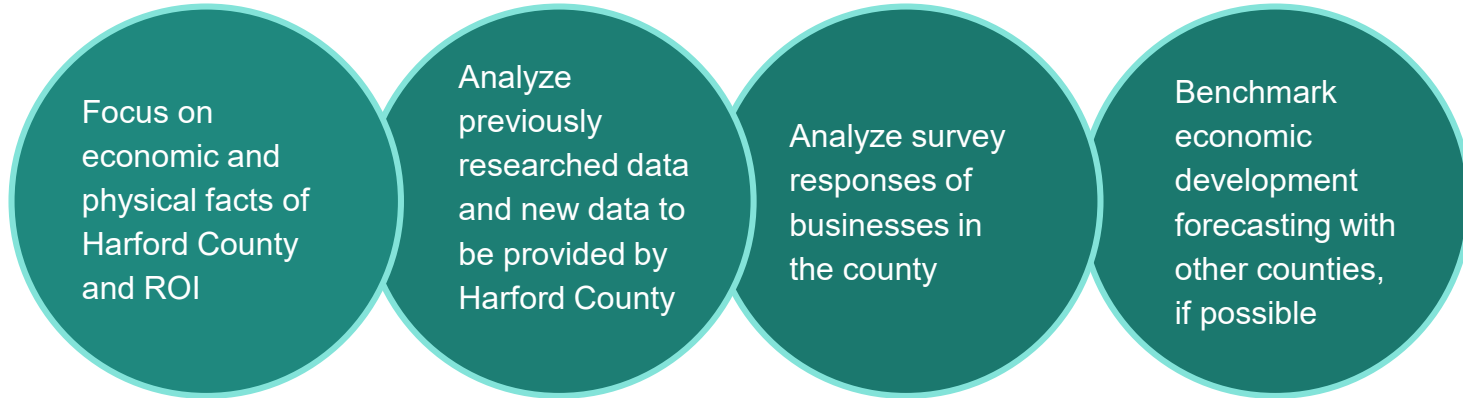- Businesses
- Public

Main Decision Criteria
- Tax revenue per business
- Residents employed by business
- Land area occupied

Project Scope

Scope

| Focus on economic and physical facts of Harford County and ROI | Analyze previously researched data and new data to be provided by Harford County | Analyze survey responses of businesses in the county | Benchmark economic development forecasting with other counties, if possible |

Out of Scope

- Implementation of the economic forecasting model
- How to allocate county resources to attract businesses and talking with potential employers

Methodology Choice

Problem Identification Methodology	Solution Methodology

Current:
- Identified basic needs
- Identified desired outcome
- Contextualized problem
- Identified internal and external constraints; problem solvers; success metrics
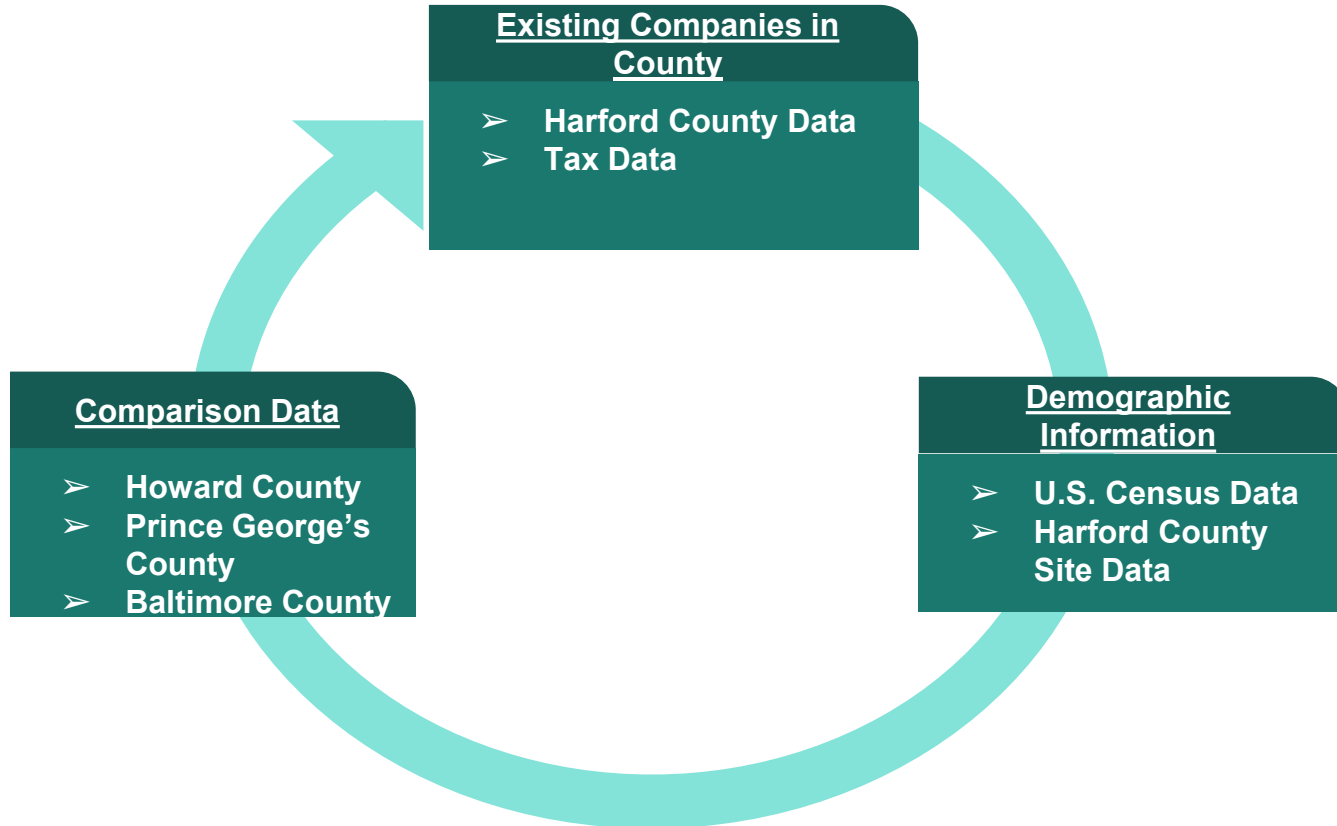
Hypothesis Driven Testing

Current:
- Key question defined
- Identified multiple drivers that impact ROI for county

Need to:
- Generate hypothesis
- Test drivers/hypothesis and present findings

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Primary and Secondary Research

Existing Companies in County

➤ **Harford County Data**
➤ **Tax Data**

Comparison Data

➤ **Howard County**
➤ **Prince George's County**
➤ **Baltimore County**

Demographic Information

➤ **U.S. Census Data**
➤ **Harford County Site Data**

Initial Recommendations

Develop economic forecasting model leveraging key variables:

- Population distribution
- Labor availability
- Major employers
- Taxes
- Employment industries
- Hourly wage rates of occupations
- Educational attainment

- Income distribution
- Housing
- Business and industry property availability
- Transportation
- Recreation
- Utilities

Initial Recommendations

Average Salary by Industry

Industry	Average Salary	Industry	Average Salary
Agriculture	$27,760	Enterprise Zone	--
Alternative Energy	$85,000	Film & Tourism	$33,572
Cyber	$55,000	Government	$42,000
Distribution	$31,100	Manufacturing	$78,400
Education	$63,440	R&D/Technology	$70,375
Ecommerce	$60,000	Service	--

Source: Indeed, Glassdoor and Payscale

Initial Recommendations

Industry	# of Firms	Estimated Personal Income Tax Revenue		Real Property Tax Revenue		Business PP Tax Revenue		Total Revenue	
		Amount	Average by # of Firms	Amount	Average by # of Firms	Amount	Average by # of Firms	Amount	Average by # of Firms
Agriculture	23	$55,834.24	$2,427.58	$1,299,251.78	$56,489.21	$55,834.24	$2,427.58	$1,469,837.05	$63,905.96
Alternative Energy	4	$64,688.40	$16,172.10	$236,314.50	$59,078.63	$64,688.40	$16,172.10	$440,942.03	$110,235.51
Cyber	28	$955,739.40	$34,133.55	$1,229,043.62	$43,894.41	$955,739.40	$34,133.55	$3,218,550.38	$114,948.23
Distribution	95	$3,971,773.54	$41,808.14	$5,017,221.53	$52,812.86	$3,971,773.54	$41,808.14	$13,055,389.60	$137,425.15
Ecommerce	5	$715,377.60	$143,075.52	$162,518.05	$32,503.61	$715,377.60	$143,075.52	$1,768,852.38	$353,770.48
Education	60	$7,366,206.18	$122,770.10	$3,007,414.19	$50,123.57	$7,366,206.18	$122,770.10	$17,912,720.23	$298,545.34
Enterprise Zone	84	$627,858.00	$7,474.50	$4,109,716.77	$48,925.20	$627,858.00	$7,474.50	$5,421,832.47	$64,545.62
Film & Tourism	23	$246,979.80	$10,738.25	$1,104,428.24	$48,018.62	$246,979.80	$10,738.25	$1,657,144.71	$72,049.77
Government	113	$2,840,201.28	$25,134.52	$5,687,787.36	$50,334.40	$2,840,201.28	$25,134.52	$11,443,658.84	$101,271.32
Manufacturing	116	$7,659,918.34	$66,033.78	$5,497,811.86	$47,394.93	$7,659,918.34	$66,033.78	$20,931,077.24	$180,440.32
R&D/Technology	212	$37,578,721.46	$177,258.12	$10,089,915.09	$47,593.94	$37,578,721.46	$177,258.12	$85,472,210.06	$403,170.80
Service	2416	$26,075,586.00	$10,792.88	$118,743,498.35	$49,148.80	$26,075,586.00	$10,792.88	$170,954,612.02	$70,759.36

ROI equation =

$$\text{Investment}$$
$$-$$
(Personal Income Tax) x (# Employees x Salary Values)
$$+$$
(Real Property Tax) x (Industry Property Value)
$$+$$
(Business Personal Property Tax) x (Industry Business Property Values)

Tax Type	% Taxed
Personal Income Tax	3.06%
Real Property Tax	1.04%
Business Personal Property Tax	2.60%

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Economic Development Decision Scorecard

43%
Real Estate Tax

32%
Income Tax

5%
Business Tax

10%
Square Feet

2%
Years Established In County

3%
Population Distribution

5%
Estimated # of Jobs

=

Final Recommendations

Use economic development scorecard for each industry and compare industries to determine which companies to attract to Harford County

Scoring Chart - Economic Development Department

	Variables	Variable Weights (W)	Basis of Weight Allocation	Options	Option Values (V)	Weighted Values (W*V)	Minimum Requirement *	Industry **	Best ***
1	Real Estate Tax	43%	Total weight of 80% was assigned to all tax revenues based on strategic importance of this variable to county. Weight assigned on real estate tax is based on proportion of real estate taxes to total weight using 5-year average of total taxes collected from 2013 to 2017.	Above $500,000	100	43			1
				$200,001 - $500,000	70	30			
				$50,000 - $200,000	40	17			
				Under $50,000	10	4			
2	Income Tax	32%	Weight assigned on income tax is based on proportion of income taxes to total weight using 5-year average of total taxes collected from 2013 to 2017.	Over $200,000	100	32			1
				$150,000 - $199,999	85	27			
				$100,000 - $149,999	70	22			
				$75,000 - $99,999	55	18			
				$50,000 - $74,999	40	13			
				$25,000 - $49,999	25	8			
				Under $25,000	10	3			
		100%				Score	0	0	100
						out of	100	100	
						% achieved	0%	0%	

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Final Recommendations

Lifetime Value = m/(1+i-r*(1+g))

- **Annual Margin per customer (m):** The profit made on a sale after accounting for variable expenses (as opposed to just revenue)
- **Customer Retention rate (r):** The percentage of customers who continue to purchase in a subsequent year
- **Rate of Discount (i):** The interest rate used to discount the value of future cash flows
- **Growth Rate (g):** The sales growth rate

m: tax income for each company

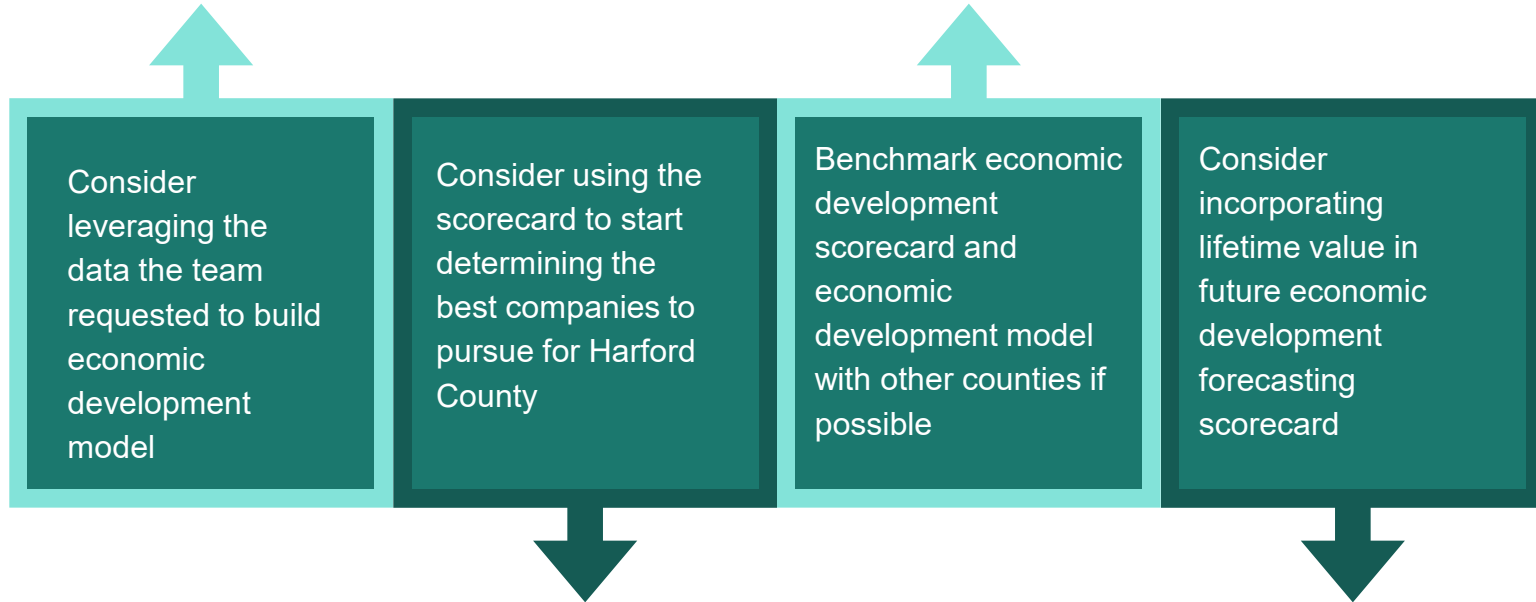**i**: interest rate used to discount the value of future cash flows

r: survival rate in Harford County

g: (sales) growth rate for each company

		m	i	r	g
	Lifetime Value	Total Tax Income	Interest Rate	Survival Rate	Sales Growth Rate
Company A	$615,385	$200,000	6%	0.7	5%
Company B	$681,818	$150,000	6%	0.7	20%
Company C	$3,576,159	$540,000	6%	0.9	1%
Company	$782,609	$90,000	6%	0.7	35%

Next Steps

Consider leveraging the data the team requested to build economic development model

Consider using the scorecard to start determining the best companies to pursue for Harford County

Benchmark economic development scorecard and economic development model with other counties if possible

Consider incorporating lifetime value in future economic development forecasting scorecard

Economic Development - Models

Questions

Thank You!

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