Integrating SAS Business Intelligence and ESRI for Customer Relationship Management
Texas Parks and Wildlife’s Mission Statement

To manage and conserve the natural and cultural resources of Texas and to provide hunting, fishing and outdoor recreation opportunities for the use and enjoyment of present and future generations.
Funding Conservation

Game, Fish and Water Safety Account 9
2013 Estimated Revenue – $171.1 million

- Licenses and Stamps (56.1%)
- Federal Funds (24.4%)
- Boat Registration/Titling (13.0%)
- Interest (0.6%)
- Other (5.9%)

License Sales Volume by Category

Volume

License Year

Combo
Fishing
Hunting
License Sales Volume by Category

<table>
<thead>
<tr>
<th>Year</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>88</td>
<td>Combo</td>
</tr>
<tr>
<td>90</td>
<td>Fishing</td>
</tr>
<tr>
<td>92</td>
<td>Hunting</td>
</tr>
</tbody>
</table>

17 million Texans
License Sales Volume by Category

- Combo
- Fishing
- Hunting

17 million Texans
24 million Texans
Who are these customers?

- Learning who our customers are helps us serve them better (as does who is *not* a current customer)
- Examining demographic profiles can provide insight
- Specific knowledge about individuals is lacking
Value of Residential Info

- Although demographic data is lacking for individual customers, we do know their residential address.
- Customer addresses can be "geocoded" to a geographic descriptor (e.g., neighborhood).
- Knowing where our customers live can yield insight on who our customers are.
ESRI’s Business Analyst

- Has enhanced demographic information down to the census block group level *(we assume you are like your neighbors)*

- Non-invasive method to gain insight on sensitive demographic information *(income, race, etc.)*
SAS Business Intelligence

- Technologies that provide timely, accurate, & actionable information to decision-makers
- Integrates data across systems and database vendors used by disparate operational units of an organization
- Empowers analysts and decision-makers to more easily access information
Former TPWD Environment

- Oracle
- SQL Server
- Sybase
- MS Access
Business Intelligence

SAS Metadata Server

Oracle

SQL Server

Sybase

MS Access
Customer profiles

- Built across time dimension, as well as across product offerings
Customer Relationship Management

- Customer profiling
- Customer segmentation
- Customer lifetime value
- Attitude and opinions research
- Communications and Marketing
License Revenue vs. Fees

101 = Resident Hunting
105 = Non-resident Hunting
111 = Super Combo
231 = Resident Freshwater Fishing
232 = Resident Saltwater Fishing
233 = Resident All-Water Fishing
237 = Resident Year from Purchase Fishing
503 = Resident Combo Hunting/Freshwater Fishing
Demographics (Business Analyst)

- Super Combo Customers
  - Rural
  - Suburban I
  - Suburban II
  - Urban Centers
  - Metro Cities
  - Urban Outskirts

Index

Population

- 0
- 50
- 100
- 150
- 200
- 250
- 0
- 1,000,000
- 2,000,000
- 3,000,000
Tapestry (Business Analyst)

- People with similar demography, lifestyle, etc. are clustered into groups ("birds of a feather")

- Business Analyst contains information describing demography/behavior of tapestry segment members

- Uses address to associate individuals with probable Tapestry Segments
Niche
Developmental Southwestern Families
Similarity Among Licenses

- Transform: Square root
- Resemblance: S17 Bray Curtis similarity

2D Stress: 0

- Saltwater_06
- SuperCombo_06
- Hunting_06
- Freshwater_06
- Allwater_06
Where should we direct our efforts to reach Hispanics?
Urban Fishing program

- Geographic patterns where customers live can suggest:
  - Best and/or additional site locations
  - More-effective marketing strategies
License Plate Revenue
<table>
<thead>
<tr>
<th>Description</th>
<th>Core Index</th>
<th>Developmental Index</th>
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<tbody>
<tr>
<td>Radio format listen to: Hispanic</td>
<td>185</td>
<td>208</td>
</tr>
<tr>
<td>Listen to Radio: midnight – 6:00 am weekend</td>
<td>133</td>
<td>110</td>
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<tr>
<td>Listen to Radio: midnight – 6:00 am weekday</td>
<td>123</td>
<td>119</td>
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<tr>
<td>Radio format listen to: sports</td>
<td>120</td>
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<tr>
<td>Radio listening: ice hockey</td>
<td>117</td>
<td>84</td>
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<td>Heavy radio listener</td>
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<td>100</td>
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<tr>
<td>Listen to Radio: 7:00 pm - midnight weekend</td>
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<td>117</td>
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<tr>
<td>Radio format listen to: public</td>
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<tr>
<td>Listen to Radio: 7:00 pm - midnight weekday</td>
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<td>94</td>
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<tr>
<td>Radio listening: baseball playoffs/World Series</td>
<td>105</td>
<td>88</td>
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<tr>
<td>Radio format listen to: country</td>
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<td>101</td>
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<tr>
<td>Radio format listen to: oldies</td>
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<td>87</td>
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<tr>
<td>Listen to Radio: 10:00 am – 3:00 pm weekday</td>
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<td>94</td>
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<tr>
<td>Medium radio listener</td>
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<td>90</td>
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<tr>
<td>Radio listening: football-weekend (pro)</td>
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<td>94</td>
</tr>
<tr>
<td>Light-medium radio listener</td>
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<td>91</td>
</tr>
<tr>
<td>Listen to Radio: 6:00 am – 10:00 am weekend</td>
<td>102</td>
<td>103</td>
</tr>
<tr>
<td>Listen to Radio: 3:00 pm – 7:00 pm weekday</td>
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<td>99</td>
</tr>
<tr>
<td>Listen to Radio: 10:00 am – 3:00 pm weekend</td>
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<td>100</td>
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<tr>
<td>Customer Segment</td>
<td>Proportion</td>
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<tr>
<td>--------------------------</td>
<td>------------</td>
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</tr>
<tr>
<td>Casual</td>
<td>26%</td>
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<tr>
<td>Numbers</td>
<td>23%</td>
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<tr>
<td>Trophy</td>
<td>23%</td>
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</tr>
<tr>
<td>Harvest</td>
<td>10%</td>
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</tr>
<tr>
<td>Numbers and Size</td>
<td>18%</td>
<td></td>
</tr>
</tbody>
</table>
Casual

Size

Numbers & size

Numbers

Harvest

Catfish Angler Tapestry
Multidimensional Scaling Analysis
The Marketing Mix (5 P’s)

- Product
- Price
- Place
- Promotion
- People
Benefits we are seeing

• Made data more accessible to end users across the agency

• Streamlined process of generating reports

• Empowered owners of data, who best understand their data and the processes that generate it

• Making decisions based on data rather than assumptions
Other BI Vendors

Source: Gartner (February 2012)