

Texas Lottery ROI Reports

Background

As the Agency of Record for the Texas Lottery in 1995, it was our responsibility to provide ROI reports as part of our contractual agreement. Our agency created the advertising and purchased the ad placements. A different agency was responsible for collecting the sales data.

We received a sales report by county every month from the sales data collection agency via email. Since the sales reports were not consistently formatted a media assistant would type the sales information into a worksheet in an Excel document. The media assistant would then run the buy data report and manually type the buy information into a different worksheet in the same Excel document. The media assistant would then partake in an arduous process of matching and merging sales and buy data in order to provide the ROI calculations in Excel.

The manual process for tabulating one Texas Lottery game took 4 weeks (160 hours) for the media assistant to complete. The Texas Lottery Commission was in the process of launching 4 more games and wanted the same monthly reports for all. Using the same manual process would have required an additional 640 hours or 4 more full-time employees for an additional estimated cost of \$13,000 per month.

Request

The SVP/Director of Media asked me to find a solution that would automate the ROI process as much as possible to avoid having to hire additional employees to handle the reporting.

Planning/Analysis

Tool Selection

The following considerations had to be taken into account for the selection of the tool:

- Must have the ability to store data
- Must have the ability to import data using different data formats
- Must have the ability to associate/map market data to county data from the different reports
- Must have the ability to perform complex data transformations
- Must have the ability to provide a user-interface for managing data and executing processes
- Must have the ability to provide reports.

There were two tools in 1995 that I reviewed that had a built-in database, forms creator, report creator, and macro editor: FileMaker Pro and Borland Paradox.

I selected the Borland Paradox solution because it had better macro creation capabilities than FileMaker Pro.

Data Files

I had to figure out a way to get the sales data and buy data files in an electronic format that could be imported into the chosen tool.

Sales Data

I contacted the technical group from the sales agency to find out which file formats they could accommodate. I found that they were capable of providing a csv file which both Borland Paradox and FileMaker Pro could ingest. I wrote a detailed csv file specification document and sent it to the sales agency for acceptance.

Once the file specification was agreed upon, I received files with production data so that I could review from the prior three months so that I could review. I found several issues with the data that had to be resolved or I had to find a way to accommodate with my solution:

- Some data getting sent contained double-quotes for text fields but the field was not encapsulated with double-quotes. The technical group fixed this issue by encapsulating all text fields with double-quotes.
- Sales numbers contained dollar signs and commas. The technical group fixed this issue by removing dollar signs and commas from their sales numbers.
- County names were not consistent. The technical group could not get their data entry workers to be consistent and so I had to manage this issue in my solution.

Buy Data

The only way the buy data could be extracted digitally was in the format of an actual report grouped by Market. Each page of the report contained the following:

- Header - report title, date pulled, name of the user, etc.
- Section - name of the Market for which the data applies
- Data Columns - the name of each column (fixed-length format)
- Data Body - detailed data (fixed-length format)
- Section Totals - numeric column totals for each Market
- Report Totals - numeric column totals for report
- Footer - current page number

Given the format of the buy data, the only tool evaluated that could handle parsing the report was Borland Paradox which was the ultimate deciding factor.

Deliverables

Games Data

- User can see the configured games
- User can insert new games
- User can delete existing games

Importing Sales Data

- User selects which csv file to import
- User selects which game the sales data represents
- User executes the import
- User is notified of any new county names
- User can mark a new county name as a valid county
- User can map a new county name to a validated county
- User can run a report to validate imported data to csv file

Importing Buy Data

- User selects which buy data report to import
- User selects which game the buy data represents
- User executes the import
- User is notified of any unmapped markets
- User can map a market to one county at 100%
- User can map a market to multiple counties
 - User must assign a percentage of the cost to assign to each county
 - User must ensure percentages assigned total to 100%
- User can run a report to validate imported data to buy report

Processing Data

- User can execute ROI process only if all counties have been validated and all markets have been mapped
- User is notified when process is complete
- User can run a printable formatted ROI report
- User can export an ROI csv file
- User can mark process as finalized
 - All tables copied to archive folder
 - Transient tables data are cleared for next time
- User can accept or overwrite the default archive folder name

Archived Data

- User can select which archive data to work with
- User can select report to run from archived imported data
- User can run a printable formatted ROI report from archived data
- User can export an ROI csv file from archived data
- User cannot change archived data

Design/Implementation

Tables

Permanent

The permanent tables contain data that is never cleared but is archived to have a snapshot in time.

- Game_Master - Contains the list of Texas Lottery Games
- County_Master - Contains validated counties
- County_Synonym - Contains counties with different name that is mapped to a validated county
- Market_Master - Contains list of markets captured from buy data
- Market_County - Maps market to county with percentage of sales that gets applied to the county.

Transient

These are the tables whose data is cleared when the current process is finalized.

- Sales_Import - Contains all sales data imported for the current process
- County_Temp - Contains new counties that need to be addressed by user
- Buy_Data_Import - Contains all buy data imported for the current process
- Market_Temp - Contains new markets that need to be addressed by user
- Results_Temp - Contains ROI stage data
- Results_Final - Contains final ROI data

Process

- Import Sales Data
 - Import data into Sales_Import table
 - Insert county names into County_Temp table that don't exist in County_Master or County_Synonym tables
 - If County_Temp has records, alert user that new counties must be validated

- Alert user that import process has completed
- Import Buy Data
 - Import data into Buy_Data_Import table
 - Insert market names into Market_Temp table that don't exist in Market_Master table
 - If Market_Temp has records, alert user that new markets must be mapped to county(s)
 - Alert user that process has completed
- Execute ROI Process
 - Import data from Sales_Import and Buy_Data_Import using Market_County map into Results_Temp table
 - Calculate prorated cost by county based on Market_County percentage.
 - Adjust prorated cost to total Buy_Data_Import cost to account for rounding errors
 - Push data from Results_Temp into Results_Final
 - Alert user that process has completed
- Export ROI Data
 - Show file export form to allow user to select export file name and location
 - If cancelled, show user cancellation message
 - If exported, use built-in export to CSV macro to export data from Results_Final table
 - Alert user that the file has been exported

Reports

- Sales_Data_Report - Tabular report grouped by game to allows user to validate imported sales data
- Buy_Data_Report - Tabular report grouped by game that allows user to validate imported buy data
- Results_Report - Tabular report grouped by game/county that shows ROI sub-totals for each group as well as grand-totals for the entire data set

Forms (UI)

Forms in Borland Paradox are the only way to interact with a solution once published.

- Main_Form - This is the configured starting form that opens when the solution is opened
 - The main form contains buttons that launch appropriate forms, execute macros, or opens reports when clicked
 - Logic in the form would only enable certain buttons based on the current state of the process
- Sales_Data_Import_Form - Used to import sales data
 - Contains Game Selection Dropdown
 - Contains Browse button to allow user to select file
 - Contains Import button to execute import of selected file

- Contains Close button to close form and return to Main_Form
- Buy_Data_Import_Form - Used to import buy data
 - Contains Game Selection Dropdown
 - Contains Browse button to allow user to select file
 - Contains Import button to execute import of selected file
 - Contains Close button to close form and return to Main_Form
- County_Temp_Form - Used to validate or map county
 - Contains radio button to select Valid or Map
 - If Valid selected, hides list of Counties and shows Validate button
 - If Map selected, shows list of Counties and shows Map button
 - Contains Validate button to push record from County_Temp to County_Master and remove from County_Temp
 - Contains Map button to push record from County_Temp to County_Synonym and remove from County_Temp
 - Contains Close button to close form and return to Main_Form
- Market_Temp_Form - Used to map market to county(s)
 - Contains Temp Market Selection Dropdown
 - Contains County Selection Dropdown
 - Contains radio buttons for Map Single or Map Multiple
 - If Map Single selected
 - Hides Multi-Select table
 - Shows Map Single button
 - If Map Multiple selected
 - Shows Multi-Select table
 - Shows Map Multiple button
 - Contains Map Single button to push record from Market_Temp to Market_County with selected County record at 100%
 - Contains Map Multiple to push multiple records from Market_Temp to Market_County from selected Counties at specified percentages
 - Contains Close button to close form and return to Main_Form
- Results_Final_Export_Form - Used to export data from Results_Final to CSV file
 - Contains Browse button to select location
 - Contains Text Box to name file
 - Contains Export button to execute the export
 - Contains Close button to close form and return to Main_Form

Results

This section highlights the results of implementing this solution.

- Total Effort (Hours)
 - Old Process: 160 Hours/Game X 5 Games = 800 Hours/Month

- New Process: 2 Hours/Month
 - Savings: 800 Hours - 2 Hours = 798 Hours
- Total Cost (Hours X \$35K Average FTE Cost)
 - Old Process: 800 Hours X \$16.83/Hour = \$13,461.54 / Month
 - New Process: 2 Hours X \$16.83/Hour = \$33.65 / Month
 - Savings: \$13,461.54 - \$33.65 = \$13,427.89 / Month
- Total Savings %: 99.75%