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Project for the Regional  
Advancement of Statistics  
in the Caribbean

Projet régional pour  
l'avancement de la statistique  
dans les Caraïbes

Funded by the  
Government  
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# Project for the Regional Advancement of Statistics in the Caribbean - PRASC

**Component: Business Survey Infrastructure**

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# **BR Data Model and System**

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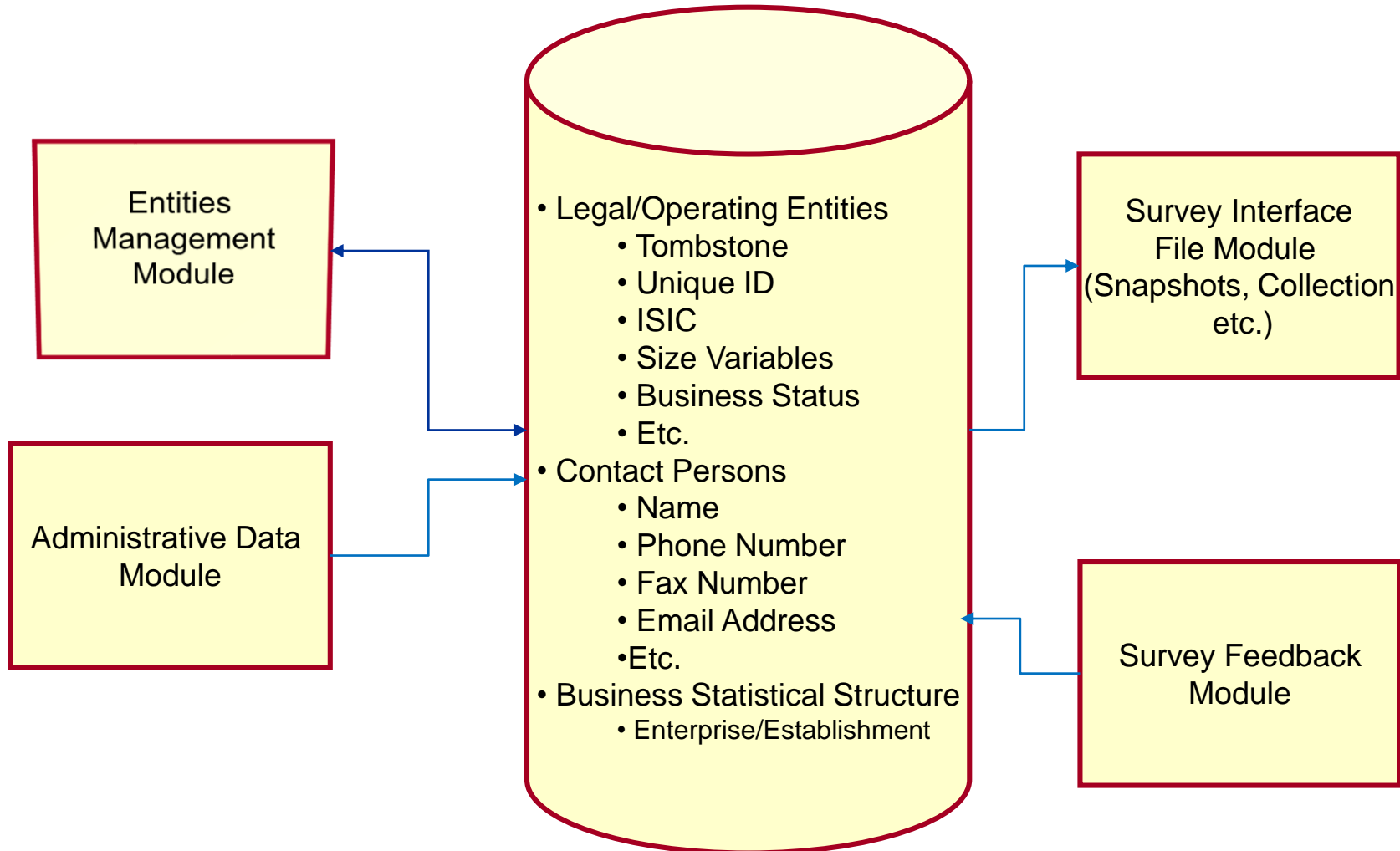
# Outline

- BR System
- BR Environment
- Guiding Principles
- IT Considerations
- Data Model

# The Objectives of a BR System

- User friendly modules
- Provide interfaces common to all users
- Use business rules to ensure data integrity
- Navigate through all business information with ease
- Facilitate direct updates by users
- Allow Batch processes (administrative data)
- Access to historical information (snapshots)
- Ensure a level of security control

# BR Environment



# Guiding Principles

- The use of proven standards and technology will:
  - Reduce project risks
  - Reduce development time
  - Reduce cost
- The use of existing IT infrastructure will:
  - Create efficiencies and reduce costs
- Keep software diversity at a minimum in order to reduce:
  - Dilution of our core knowledge
  - Fracturing the expertise

# IT Development Methodology

- Business requirements
- System design
- Prototyping \* / Development
- Testing
- Documentation & Training
- Roll-out / Transition
- Decommissioning of the old system
- Maintenance

\* iterative process



# Systems Infrastructure

- Define the requirements for your system
- Consider non-functional requirements:
  - Size of your data repository
  - Number of users
  - Number of transactions/day, second, etc.
  - Acceptable response time
  - Existing technology
  - Expertise
  - Cost/Budget
  - Number of environments (development, Testing, Production etc.)

# Systems Infrastructure – Cont'd

- Consider functional business requirements:
  - System Features
    - Online Browser
    - Search Function
    - Update Capability
    - Extract Function
    - Etc.
- This will drive the choices you make for your technology and architecture.

# Security Management

## ■ Authorisation?

- Access on “need to know” basis
- Define a repeatable process for authorisation
- Document it
- Director approval required?
- Manage role based on access level
  - Browsing
  - Updating
- Mechanism to remove access after people leave division/department or no “need to know”

# Establishing a BR: IT Considerations

If you have a small business population (<5,000 units) and small user community (< 5 users)

- Excel or other spreadsheets could be considered
- Pros
  - Easy to implement
  - No need to have IT specialist
- Cons
  - Can not use the multi-user functionalities
  - Can not separate the Database Back-end from the application
  - Limited security management
  - Difficult to automate the use of administrative data to maintain the BR
  - No transaction log

## Establishing a BR: IT Considerations (cont'd)

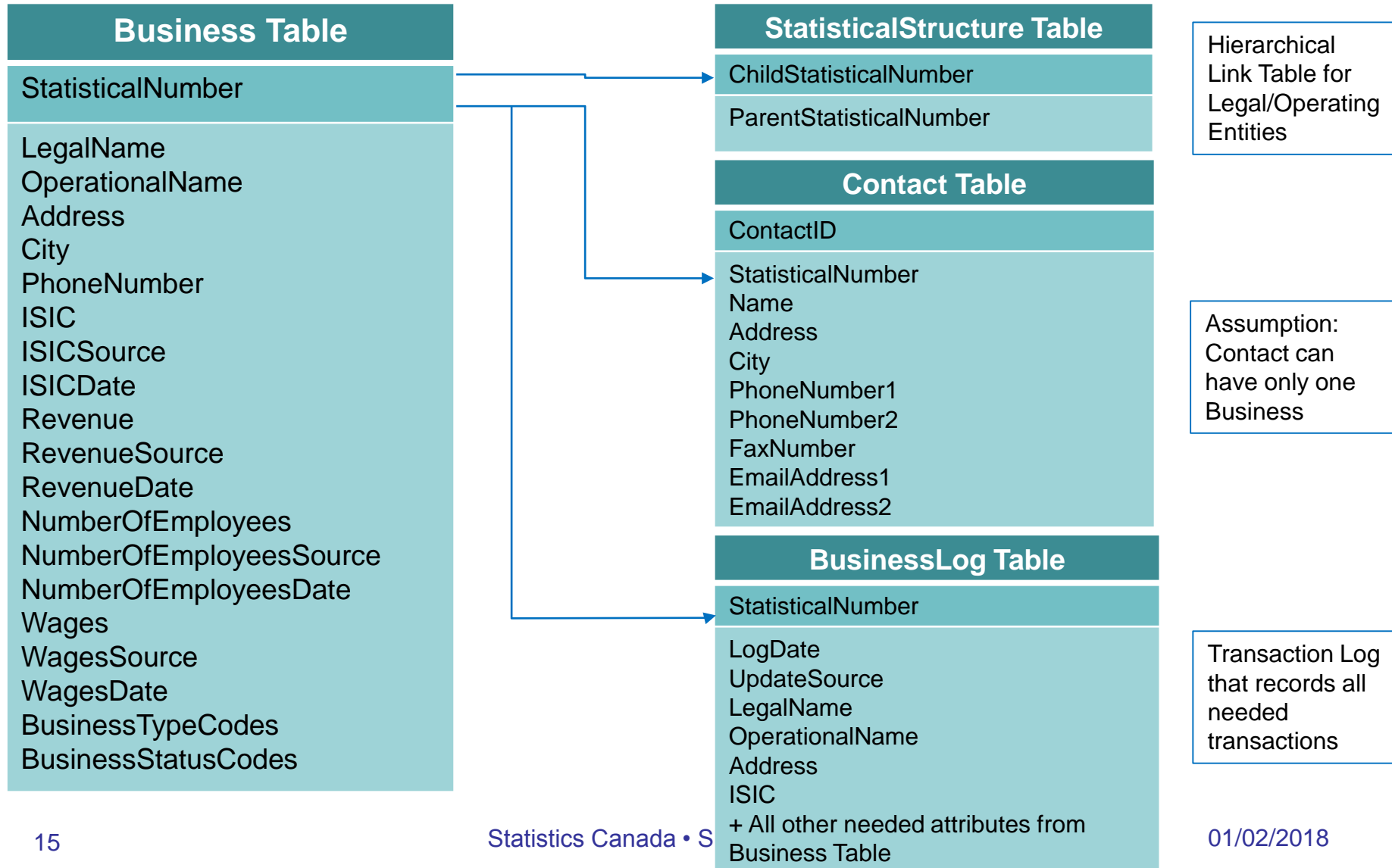
- Database Management System (DBMS) is highly beneficial
  - Manages relational units
  - Provides basis to manage updates
  - Facilitates querying
  - Contains a good security management functionality
  - Can separate the Database Back-end from the application
  - Can use the multi-user functionalities
- DBMS options:
  - SQL Server (various editions and cost options)
  - Oracle Database
  - Open-source (MySQL community version, MariaDB)

## Establishing a BR: IT Considerations (cont'd)

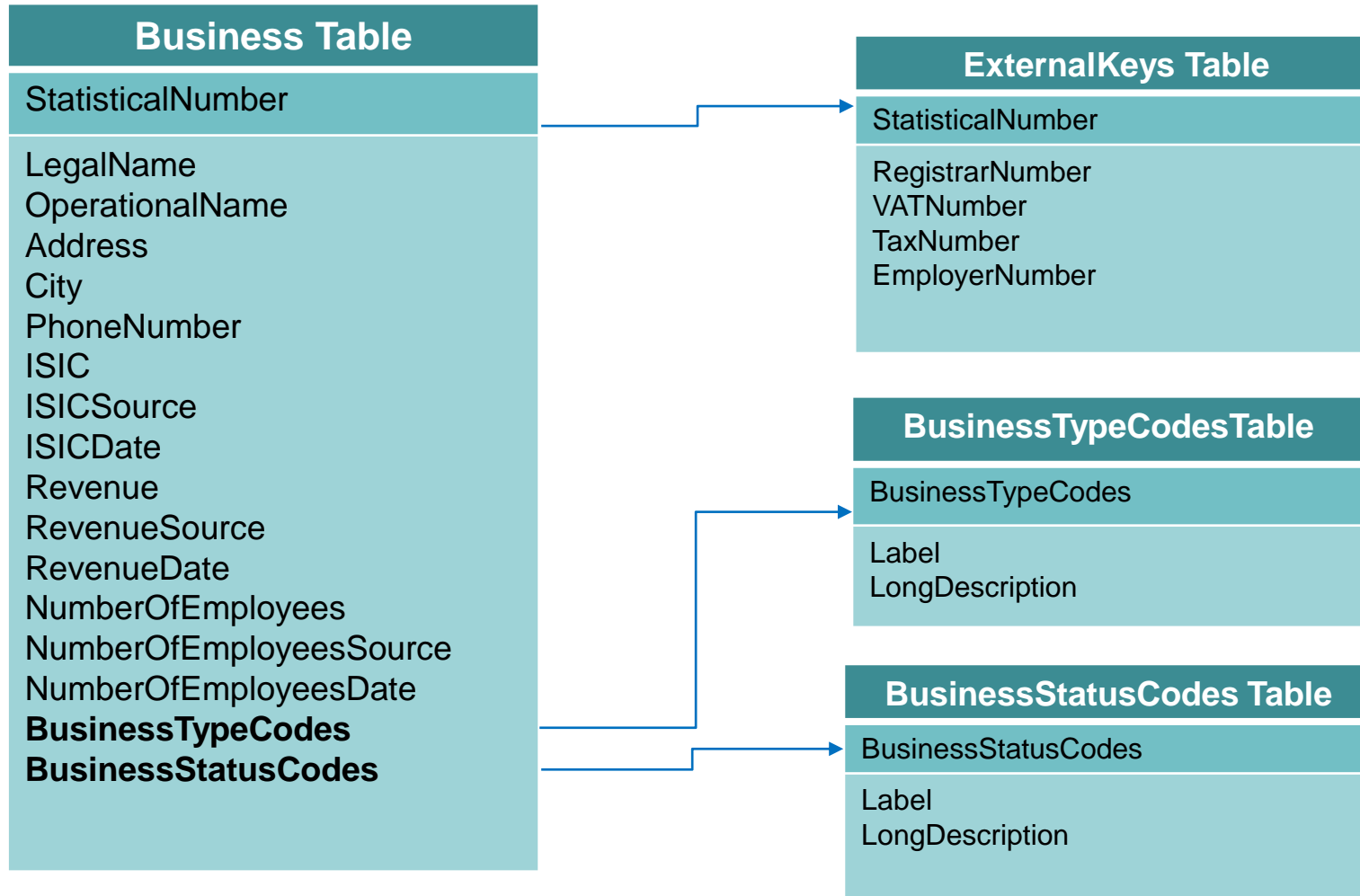
- User interface options
  - .NET
  - JAVA
  - Open-source (Ruby on Rails, Python, PHP, Perl)
- Open-source vs off-the-shelf
  - Open-source is “free”, although fee based support and premium editions are available



# Core Generic BR Data Model



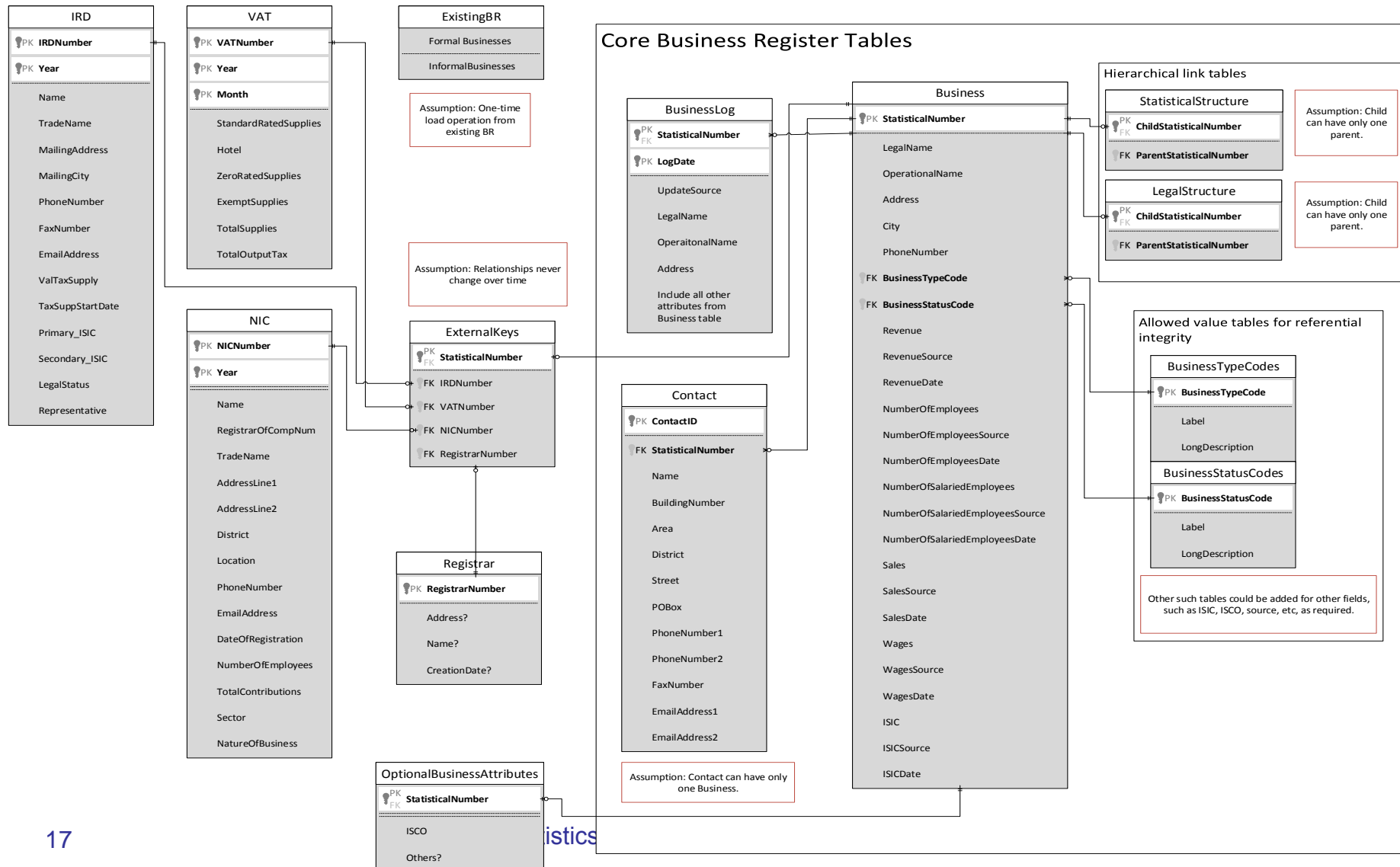
# Auxiliary BR Data Tables







# Example – Ste Lucia Data Model



## Conclusion

- Use proven technology
- Keep software diversity at a minimum
- Identify the resource expertise
- Clearly identify the platform based on business need (Size of population, # of users)
- Clearly define the data model
- Identify the variables and the transactions to log



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