MAJOR PRINCIPLES OF TM1 MODEL BUILDING

NOVEMBER 16TH, 2011

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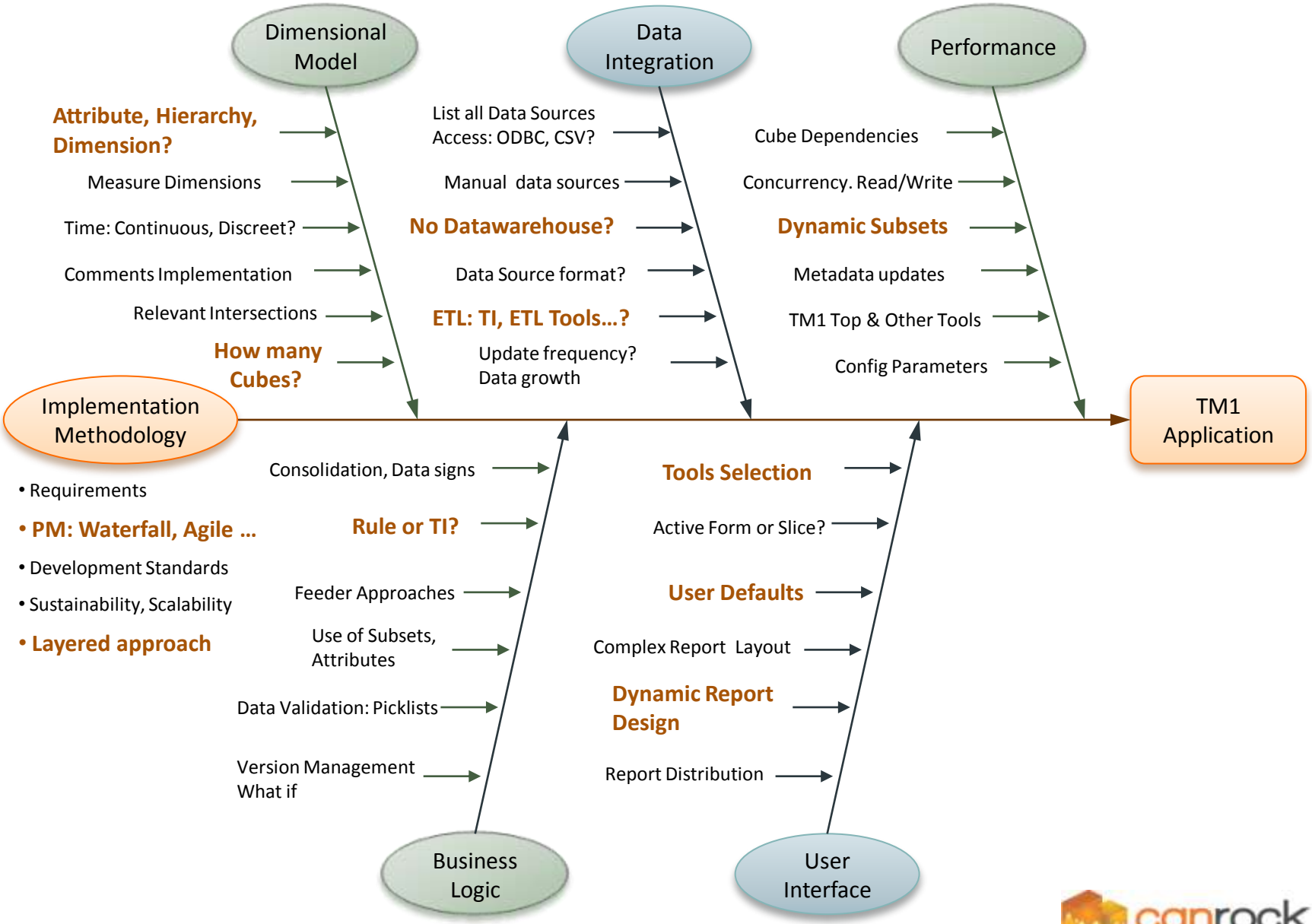
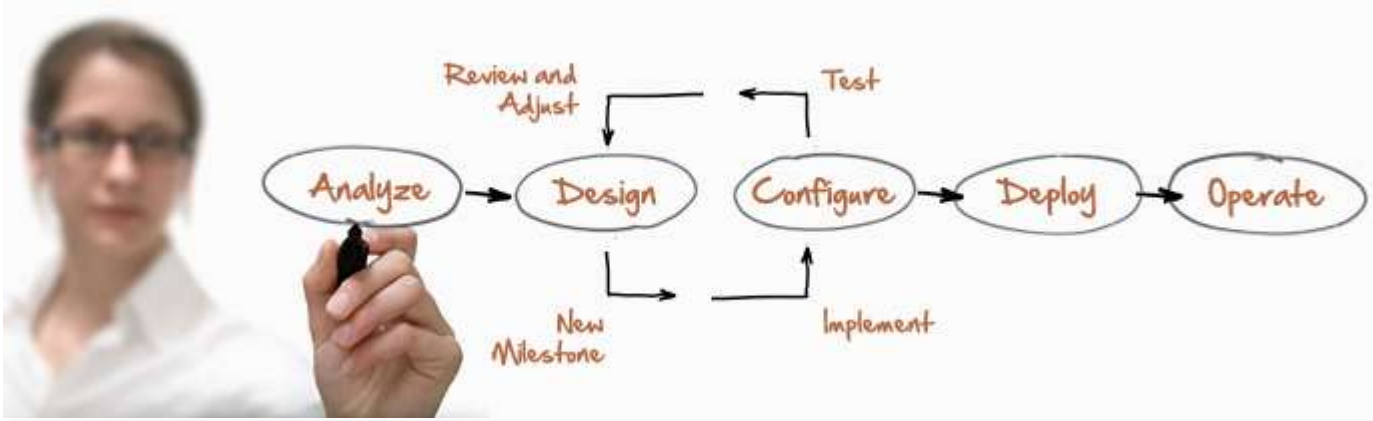
TM1 APPLICATION DESIGN CONSIDERATIONS



TM1 APPLICATION DESIGN CONSIDERATIONS

- Requirements
- **PM: Waterfall, Agile …**
- Development Standards
- Sustainability, Scalability
- **Layered approach**

USE METHODOLOGY … THAT MAKES SENSE



Stage	Activity	Deliverable
Analyze	• Set clear objectives and success criteria • Analyze requirements • Plan resources, effort, and timelines	• Requirements Document • Project Plan
Design	• Prototype key design challenges. Design alternatives.	• Solution Architecture ▪ Application Data Flow and Dependencies ▪ Dimensional Model and Cube-Dimensional matrix ▪ Data Integration ▪ Key business rules and processes ▪ Reporting strategy ▪ Security ▪ Technical infrastructure
Configure	• Set milestone for each 2-3 weeks period • Implement, unit test and review • Feedback loop to design	• Complete functional application module at the end of each milestone.
Deploy	• User acceptance testing (UAT) • End user training • Promotion to production	• Operational Guide • Training plan • Test (UAT) plan
Operate	• On-going support • Collect feedback	• Lessons learned and go forward plan

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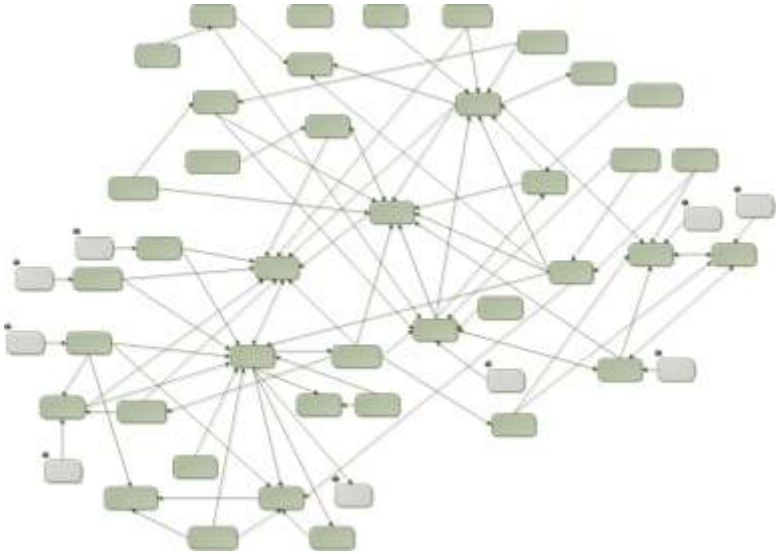
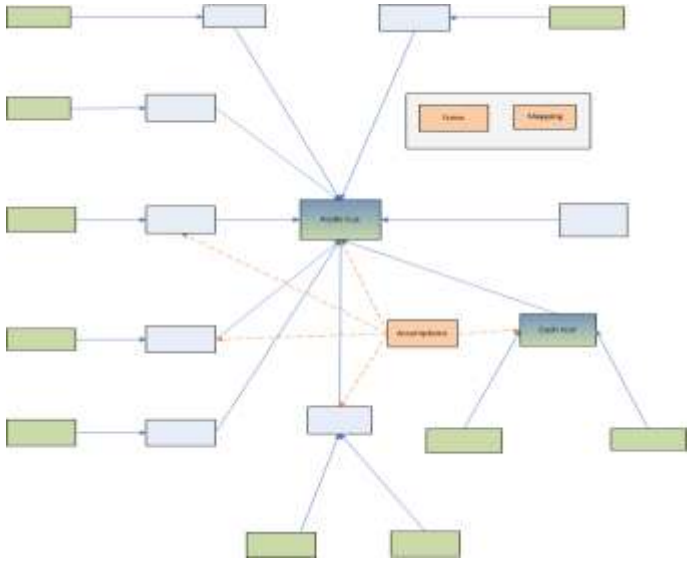
Simpler Solutions for Complex Requirements





Common Standards

- Naming conventions
- Development standards
- Use element names, not aliases
- Externalize parameters and assumptions

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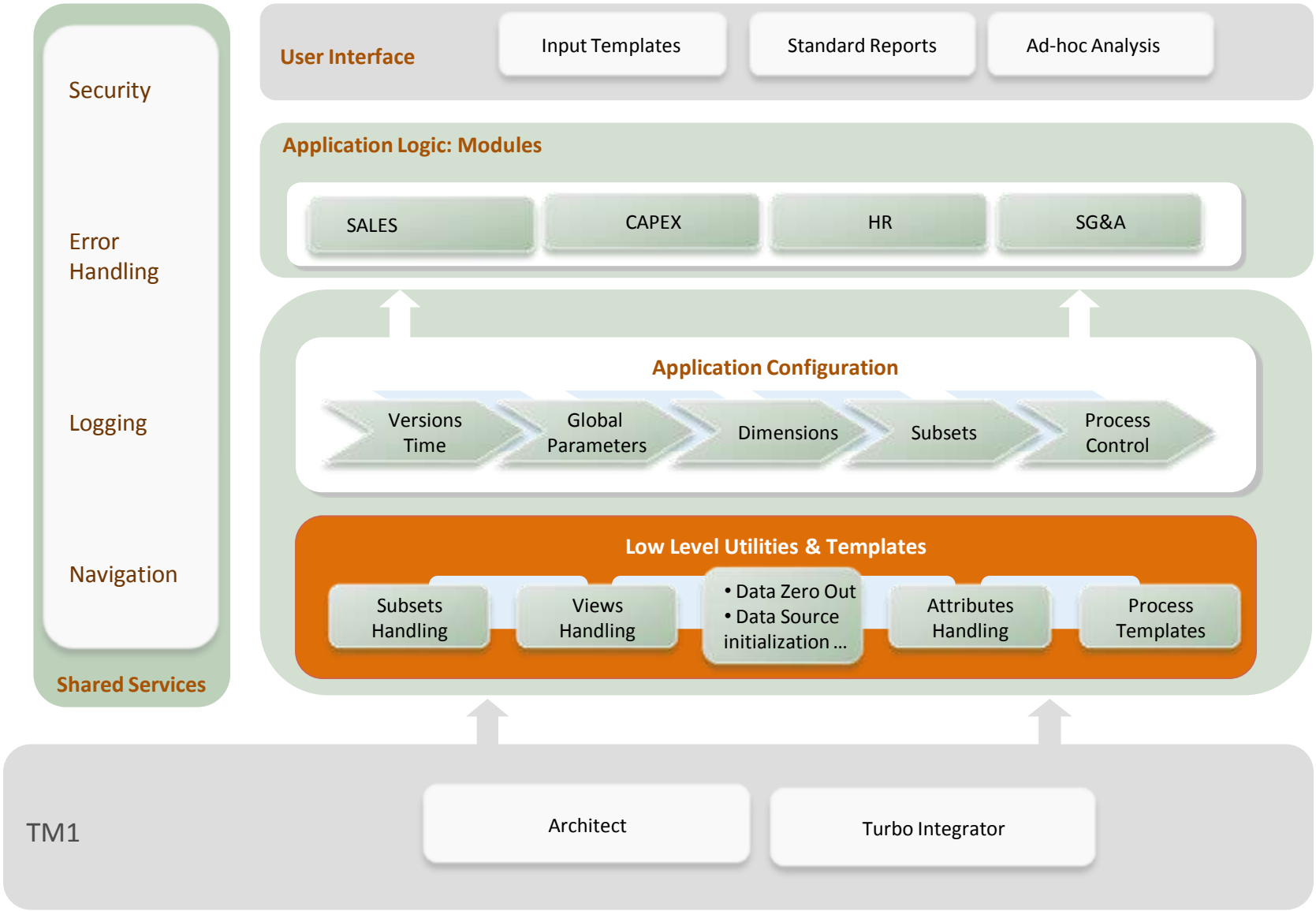
LAYERED DESIGN, DRY PRINCIPLE



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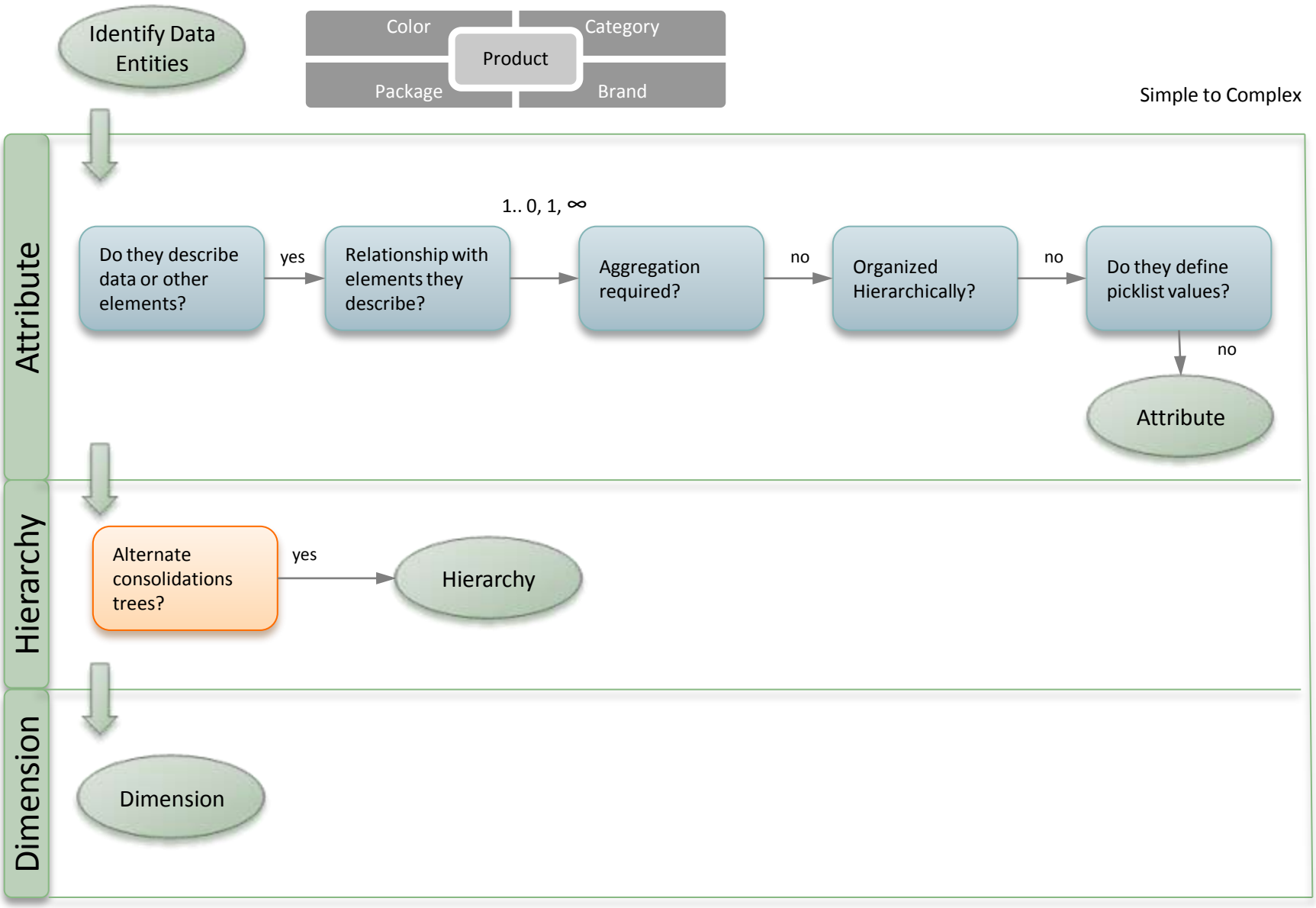
"ATTRIBUTE VS. HIERARCHY VS. DIMENSION" DECISION TREE



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HOW MANY CUBES?

Key Considerations

Activity	Distinct Business Process	Distinct User Group	Different Dimensionality	Different Data Granularity
Example	Capex vs. Sales Strategic Plan vs. Rolling Forecast	Buyer vs. Store Manager	Dimension Measure Matrix	Product Category vs. Product

Other Considerations

Usability	Data Redundancy	Performance	Security	Reporting
Lookup vs. Input vs. Assumption vs. Reporting	Load same actuals to multiple cubes	Read vs. Write Inter-Cube rules & data movement Comments cube	Cube vs. Element Security (Payroll)	More than 1 cube in a single report Ad-hoc analysis

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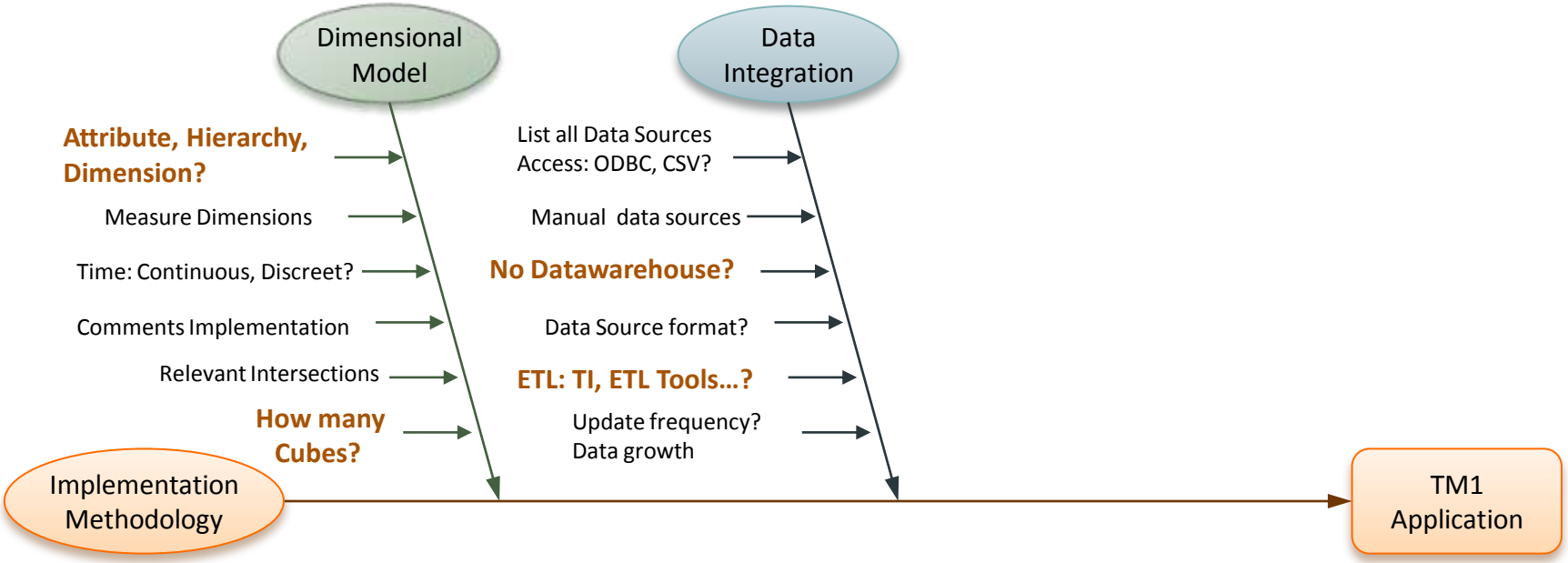

- Requirements
- **PM: Waterfall, Agile …**
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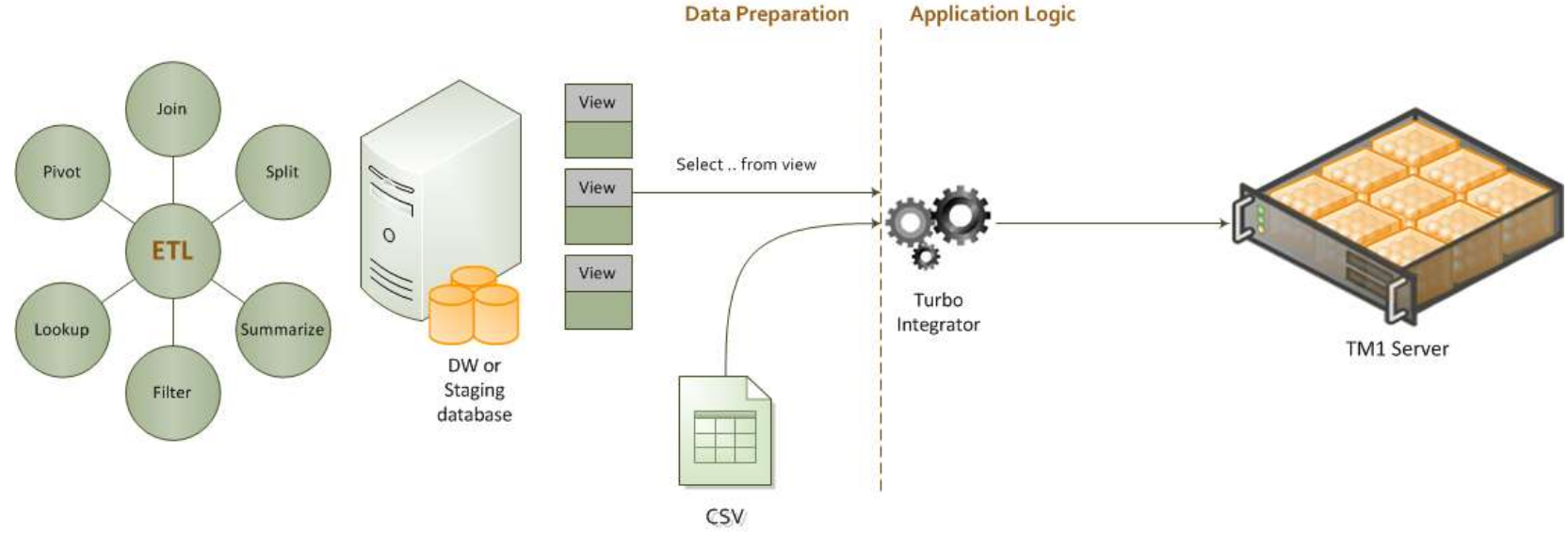
Separate ETL from Application Logic.



Standard Source Format.

Metadata
Elem code
Parent code
Elem name
Elem type
Elem weight
Elem format
Attributes …

Data
Dim 1 code
Dim 2 code
…
Dim N code
Measure code
Value

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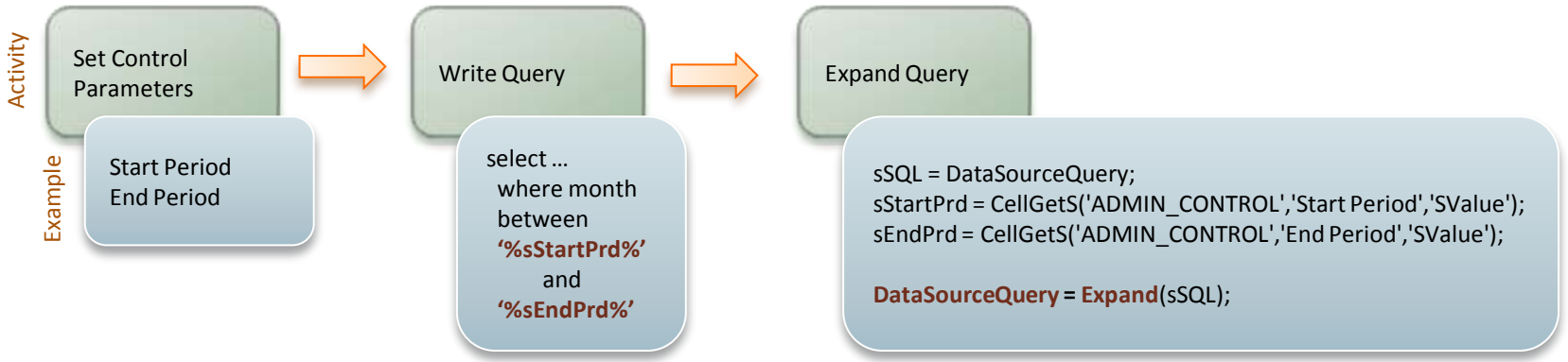
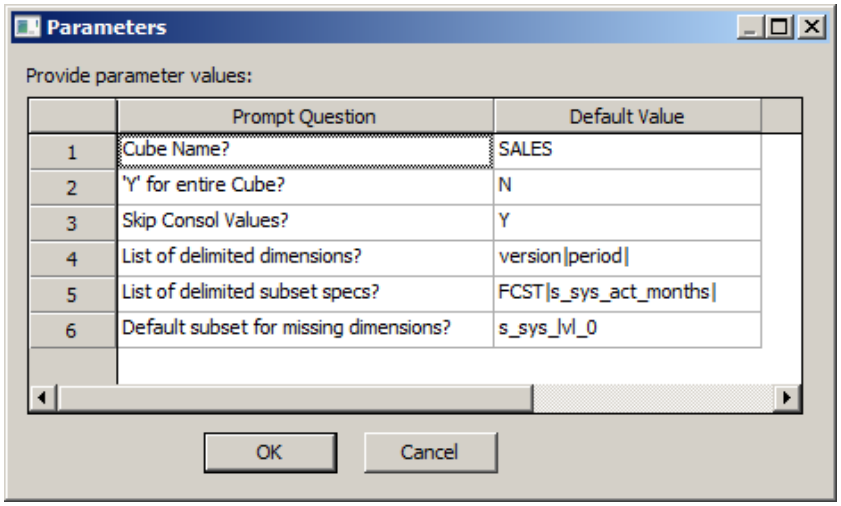
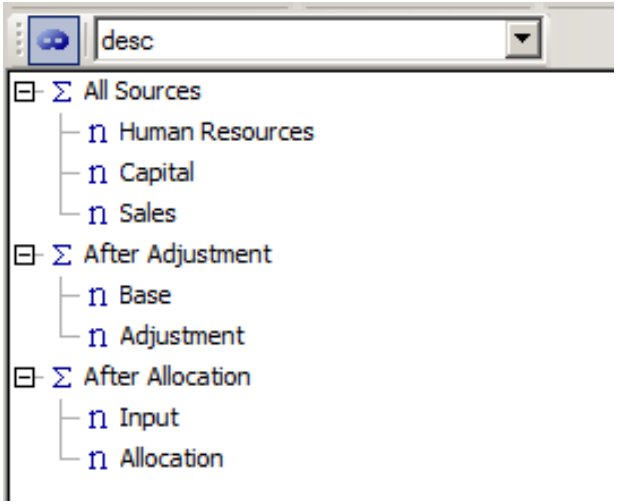
Parameterized Query



Zero-Out Utility



Source (Audit) Dimension



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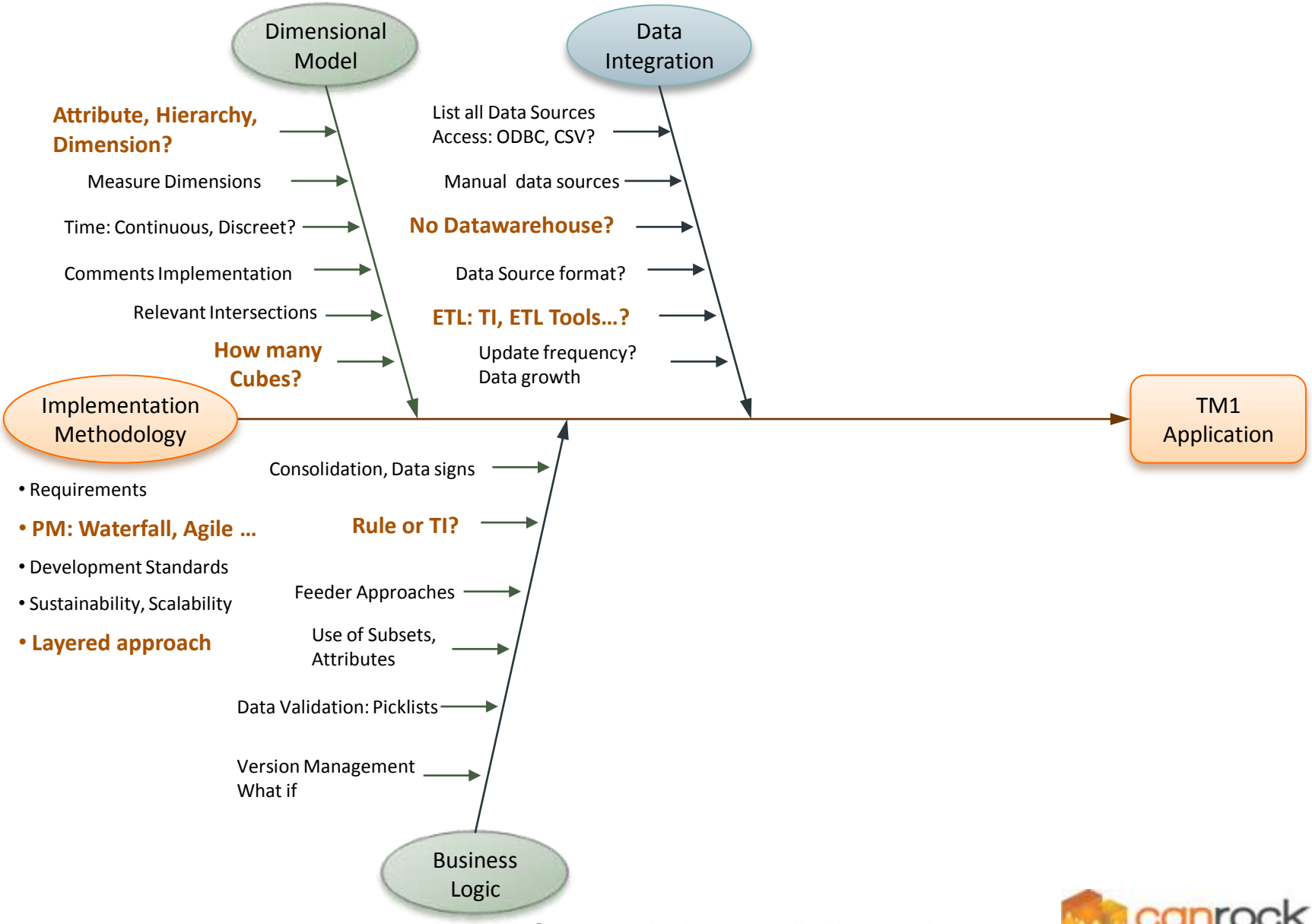
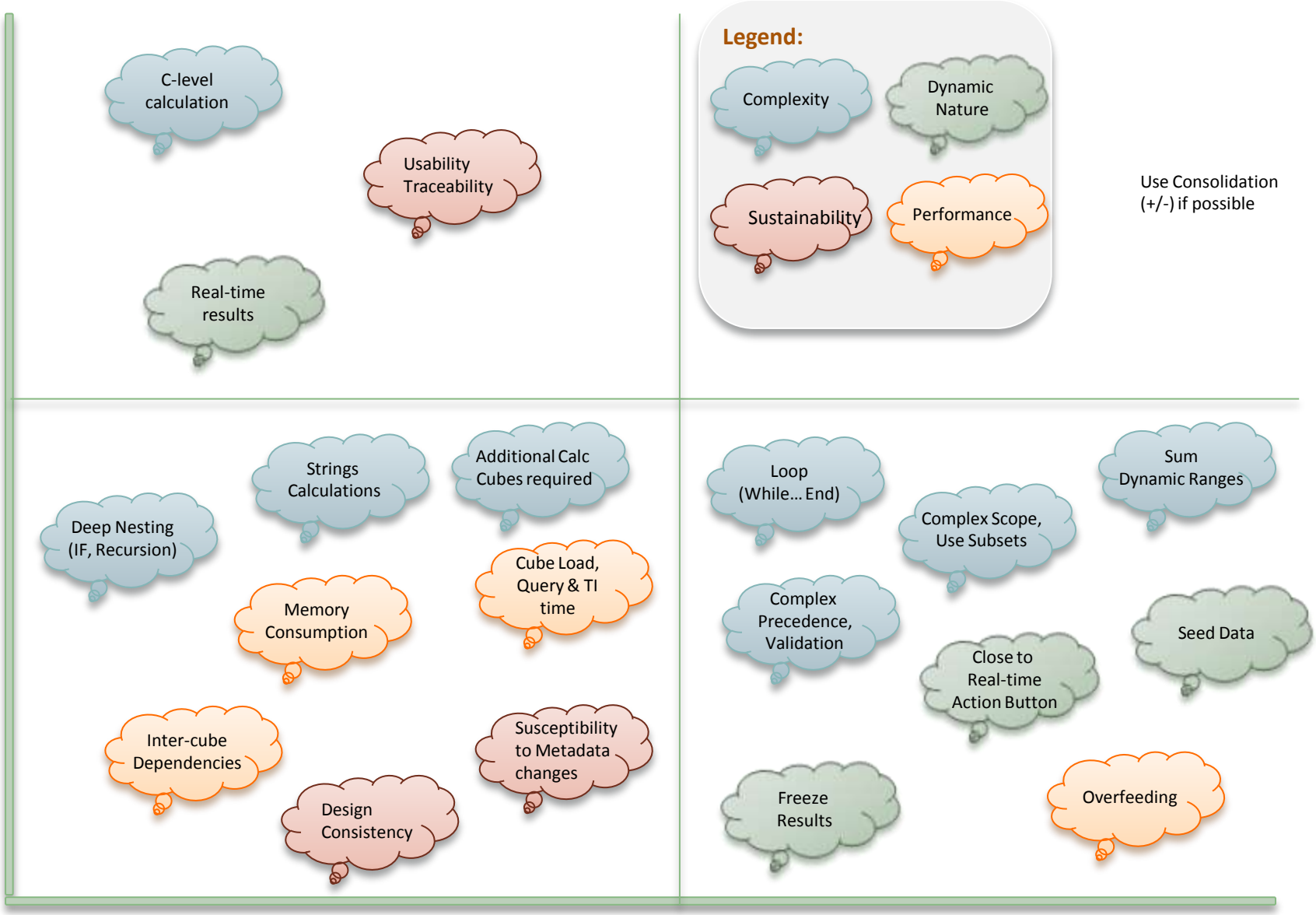


RULE OR TI?



Rule Best Practices (incremental development and testing)

Development Standards

Comments
Indentation

Use {} for common rules
{'Electronics', 'Furniture'}

Do not hardcode, use
element name, not Alias

Use short reference
[] vs. DB()

Uniqueness
['country':'us']

Rules Order

Organize rules from
narrow to general scope
['beverages', 'price'] = N: ...
['price'] = N: ...

Consider STET function on
a separate line
['Actual'] = N: STET;
instead of IF and repeating
[...] = N: IF (!version @=
'Actual', STET, ...);
[...] = N: IF (!version @=
'Actual', STET, ...);

Relationship Functions

Consider future
hierarchy changes
ElPar (), ElIsAnc ()

Refrain from using
DIMIX () to derive relative
elements. Use attributes
Instead: 'next', 'prior'

Functions

Use Reference Guide

Consider new 9.5.2
Consolidation Functions:
ConsolidatedMin ()
ConsolidatedMax ()
ConsolidatedAvg ()
ConsolidatedCount ()
ConsolidatedCountUnique ()

Feeders

Use them. Check them.

Select feeders carefully
Avoid under-feeding,
over-feeding

Refrain from
conditional feeders
if possible

TI Best Practices (incremental development and testing)

Development Standards

Comments
Indentation

Variables Convention

Centralize
Data Source initialization

Declare user variables
in the Prolog,
Cleanup in Epilog

Logging , Debugging
TextOutput()

Error Handling

Subset
SubsetExists
(DimName, SubsetName)

Element
DimIx (DimName,
ElemName) = 0

Child Process
sPrName = 'sub_create';
nPrReturn =
ExecuteProcess(sPrName);
<<Error Handling>>

Skip to Epilog
ProcessBreak;

Tabs

Use Metadata tab
for metadata updates

Use Data tab for
attribute values
and data updates

Validate record at the
top and use ItemSkip;
to move to next record

Remove temporary objects:
views and subsets
In the Epilog

Sustainability

Layered approach
- Create Subset
- Create View
- Zero Out Data

Avoid repeating statements
Use While...END and Expand

```
s1 ='Core'; s2 = 'Non-Core';
nPos = 2;
WHILE (nCnt <= nPos);
  sElem =
    Expand ('%s'
    | NumberToString(nCnt)
    |%');
END;
```

Performance

Move Data preparation
to ETL layer

Only include required
values in source view

Separate data and
metadata updates

Use TM1Top() to
fine-tune your processes

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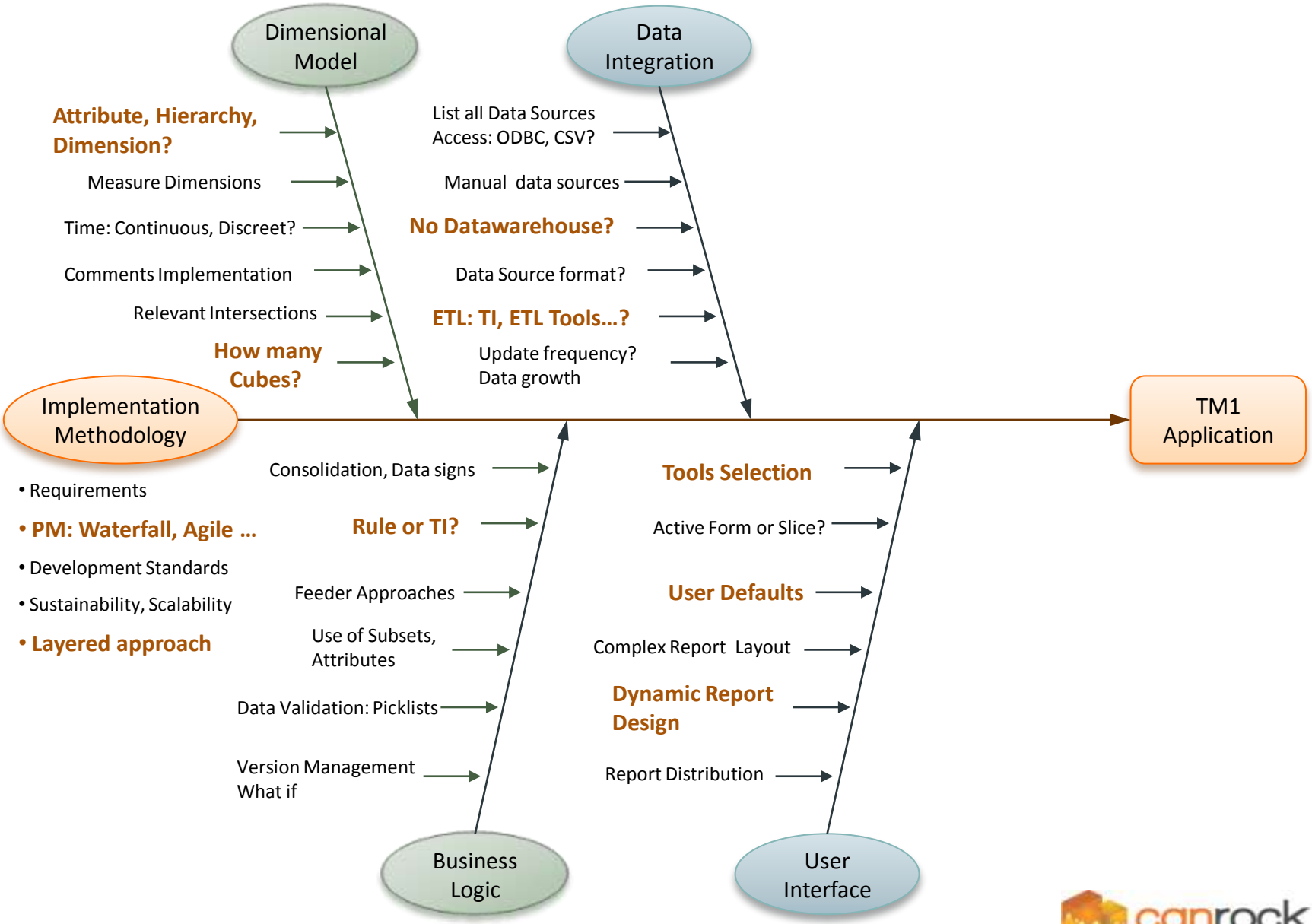
TM1 APPLICATION DESIGN CONSIDERATIONS



TM1 UI TOOLS – FUNCTIONALITY COMPARISON (9.5.2)

	Perspectives	TM1 Web	Contributor
Purpose	• Manage TM1 applications • Data Entry and Reporting • Create and publish TM1 websheets	• Data Entry and Reporting • Limited Admin Tasks	Managed contribution • Data Entry and Reporting • Contributor Administrator
Technology	Excel add-in	ASP.Net Web application	Java Web application
Data Entry			
Slice and Dice, Pivot			
Charting			
Report / Template Layout Flexibility			
Customization			
Action Buttons Support			
Picklist, Sandbox			
Modeling			
Built-in Workflow			
Security			

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Technology	Excel add-in	ASP.Net Web application	Java Web application Requires Java-based Web application server
Data Entry	Yes	Yes	Yes
Slice and Dice, Pivot	Through Cube Viewer	Through Cube Viewer	Yes
Charting	Full Excl based charting capability	Limited support	Yes
Report / Template Layout Flexibility	Complete flexibility: 2 modes: active form and cell-based slice	Excel functionality not 100% equal.	Limited to cube views. Asymmetric format not supported
Customization	Complete VBA access	Limited through configuration	Limited through configuration
Action Buttons Support	Yes	Yes	No
Picklist, Sandbox	Yes	Yes	Yes
Modeling	Yes through Server Explorer	No	No
Built-in Workflow	No	No	Yes
Security	Any mode	Any mode	IntegratedSecurityMode=1 or 5 (external or CAM)

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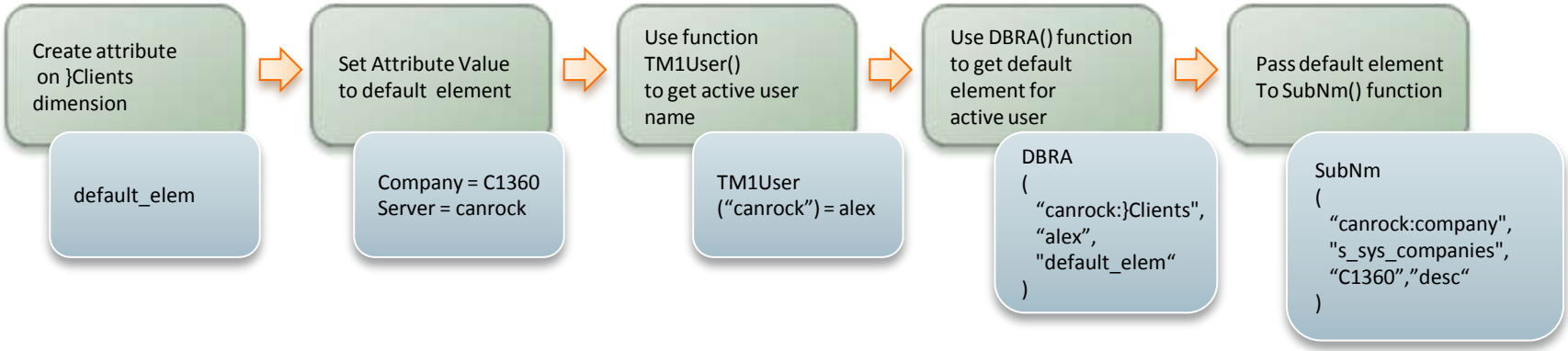
User Default



Dynamic Reports (DEMO)

- ✓ **Link Title elements to TM1RptRow definition using**
  - Subsets
  - MDX
- ✓ **Select Current Element**
  - SUBNM() with DBRA()
- ✓ **Dynamic Zero Rows suppression**
- ✓ **Top (N) count based on Measure X**
- ✓ **Reference Names not Aliases in DBRW()**
- ✓ **Attribute based Conditional Formatting**
- ✓ **Excel based Running Total**

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SUMMARY – DO IT THE RIGHT WAY!

Strong standards.
Iterate: focus on working modules.

Prototype Business rules.
Select best option (Rule/TI).

Layered approach to model design.

Match User Interface with user needs.
Design dynamic reports.

Dimensional Model is Key.
Analyze alternatives.

Data Integration Framework in Phase 1.
Separate Application logic from ETL.

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QUESTIONS AND ANSWERS

[] = ‘Q’ | ‘A’ ;

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