WhereScape®

> IS Challenges and WhereScape Solution

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>Preface

A long time ago in my old country I had to study Marxism's dialectical materialism. One of the pillars of this philosophy was nature's law of transition from quantity to quality. I found it quite resounding. I could see a lot of evidence of this law around us: from the water turning into gas or solid state depending on quantitative change in temperature, to the chemical quality of elements as a quantified function of their atomic weights, to the famous Napoleon's Mamelukes example.

I have been working with Information systems for over 20 years now and always surprised that this law – otherwise considered universal – pathetically fails in my area of expertise. But let start from the beginning.

Information system serves as an integrated set of components for collecting, storing, and processing data and for delivering information, knowledge. Information system have been around for over five decades since the 1960s when General Mills, jointly with Dartmouth College, developed the first dimensions and facts.

The access to the valuable information, confined within the data, and knowledge, laying deeper within that information, became increasingly crucial for making business decisions. Technology soon followed the suit. The 1980s and 1990s brought the rise of relational databases. Major data warehousing concepts were formulated: Dimensional Model (Ralph Kimball, 1996); Third Normal Form, 3NF (Bill Inmon, 1981); Corporate Information Factory, CIF (Inmon, 1998); Data Vaults (Dan Linstedt, 2000). Now we have DW2.0, Big Data, lions and tigers and bears, oh my!

Many early fiascos have led to painful lessons learned, and plenty of relevant literature has been written since. A surplus of toolsets have been developed to address the various stages of the Information systems and have become widely accessible. Highly skilled practitioners are available now to help meet the demand. But why does qualitative quantum not work? **Why is building Information systems that truly deliver information and knowledge still such a struggle?**

The IS project painfully wrestles with various pitfalls, including:

Genetic complexity of Information Systems.
Insufficient design, system governance, and standardization.
Ever-changing requirements and requests from stakeholders.
Lack of business focus and collaboration within the business community.
High Total cost of Ownership, low Return on Investment, intolerable risk.
Data ambiguity, quality, and unfamiliarity.

Every IS, DW, and/or BI practitioner is intimately familiar with these beasts.

WhereScape provides two agile, metadata-driven products – RED and 3D – that allowed customers to attack those beasts… https://www.wherescape.com/products/

WhereScape 3D (Data Driven Design) is data warehouse planning and reality-testing software. It helps you explore and understand your Information System project at the time you need it most – the beginning.

WhereScape RED is an Information Systems productivity and automation tool designed to help build IS faster. The RED-generated IS's are fully documented and easy to support, change, and extend.

OK, got it, but how WhereScape help solve Information Systems' challenges?

Let's start with the top two bullet points.

WhereScape®

>Automation Solution

Automation is the ability to simplify the complex processes required to plan, build, manage, and alter the Information System. Automation is a keystone of the Information System, which business users can explore within days, not months. Automaton ensures continuous business value, reduced data ambiguity, improved productivity and efficiency, and as bottom line, increases ROI and reduces TCO and business risks.

"What's pragmatic about data warehouse automation is that it works with the concrete reality of what's already there, … you're leveraging the strengths of your existing IT systems and using automation tools to bridge gaps and eliminate impediments."
Mark Budzinski, *the President of WhereScape USA, June 10, 2014*

http://tdwi.org/Articles/2014/06/10/Automated-Data-Warehouse-Development.aspx

WhereScape 3D

- Auto-profile, explore, and capture source systems; auto generate project documentation and diagrams
- Utilize massively configurable discovery, profiling, and model conversion methods
- Design, model, profile, and test any schema using real source data
- Use wizards to derive foreign keys, primary keys, and data lineage
- Capture user stories, interviews, and all other requirement artifacts
- Perform a complete source-to-target mapping
- Verify the planned schema, populated with live data, for functionality and coverage
- View, manipulate, and associate conceptual, logical, and physical views of the information system
- Auto-generate tables, attributes, and indexes based on business rules and predefined entities
- Manage, importing database functions, the data type mapping
- Provide full integration with WhereScape RED by metadata exchange
- Use naming convention and abbreviations with an effort calculator

WhereScape RED:

- Auto-generated database objects and procedural code
- Supports Dimensional model, 3NF, Data vaults, all major Information Systems platforms
- Easy addition of new db objects, schema changes, and procedural code to an existing data implementation
- Building and deployment of the subject areas (GUI or command line)
- Drag-n-drop operations through wizard-driven development
- Customizable Code Generator behavior
- Wizards for creating different types of objects; all the data warehouse objects are supported
- Auto management of historical data (SDDs, data stores, normalized history, snapshots, etc.)
- Data integration from heterogeneous data sources (RDBMS, files, Hadoop, HDFS, XML, ETL loads, etc.)
- Automated DB management activities, such as index management and performance tuning/optimization
- Global/local naming conventions and storage management
- Auto-generated documentation and diagrams with a variety of pre-built metadata-driven reports

>Iterative Solution (Agile Methodology)

1. **Agility** is a comprehensive solution to the business challenges of ever-changing and continually-refocusing requests for reliable, flexible, high-performance, and business-driven Information Systems. Both WhereScape products – RED and 3D – are built upon the *WhereScape Pragmatic Data Warehousing Methodology*™ and total compliance with the *Agile Methodology*™. WhereScape offers the following components to accommodate ever-changing requirements and requests from stakeholders and address possible lack of business focus and collaboration within the business community:
2. **Flexibility:** Quickly responding to business changes, even in latest stages of the EDW.
3. **Stability and Performance:** Supporting multi-user environments and self-organizing teams through shared responsibility.
4. **Quick Delivery of Business Value:** Shared understanding between IT and end users; customer collaboration.
5. **Ability to Break Project by Subject Area/Unit of Work:** Building working software with each iteration, delivered often.

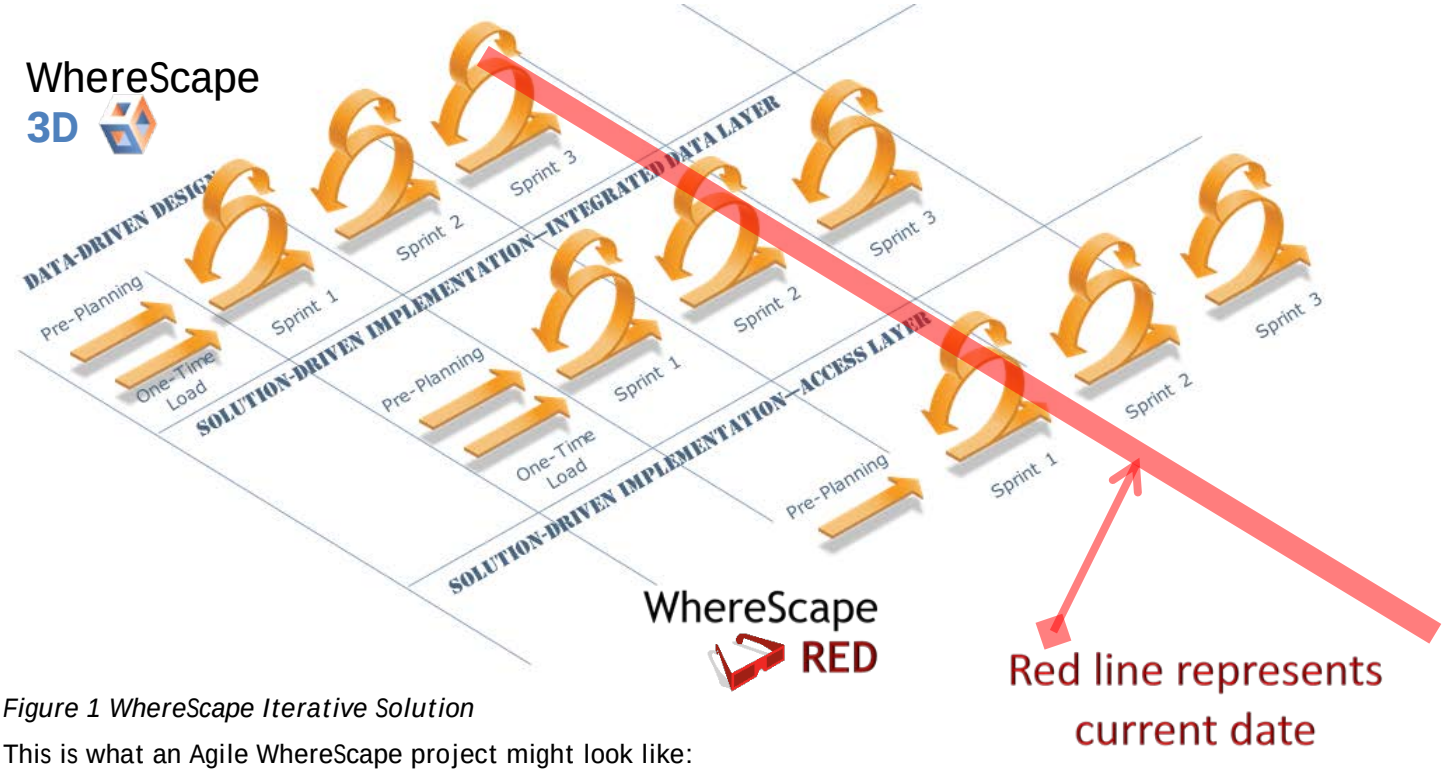

Figure 1 WhereScape Iterative Solution

This is what an Agile WhereScape project might look like:

1. 3D Pre-planning (EDW SA #1): Connect to data sources for SA #1. Discover, profile, model, convert, validate, document, approve.
2. 3D Sprint 1 (EDW SA #1): Create RED application with, optionally, additional objects and transformations.
3. RED Pre-planning (EDW SA #1): Install RED app in APL. Adjust, validate, and add procedural code, additional objects.
4. RED Sprint1 (EDW SA #1): Create workflows, populate EDW SA #1, validate, document.
5. 3D Pre-planning (Access SA #1) Connect to data sources for SA #2. Discover, profile, model, convert, validate, document, approve.
6. 3D Sprint1 (Access SA #1) Create RED application with, optionally, additional objects, transformations for Assess layer.
7. RED Sprint 2 (Access SA #1) Install RED app in APL. Adjust, validate, and add procedural code and 2nd tier objects.
8. RED Sprint 3 (EDW SA #1): Create workflows, populate EDW SA #1, validate, integrated testing, document.
9. And so on…

>Integrated Solution

An **Integrated** solution provides a set of products, methods, and technologies that address and resolve synergistically various Information Systems challenges more efficiently as a whole versus the sum of the individual elements, leading to lower TCO, ROI, and risk factors. WhereScape offers:

- Integrating a 3D Model into RED;
- Creating a RED application for a 3D Model with optimally included loads, stages, transformations, etc.;
- Installing this app in WhereScape RED, optionally creating connections in conjunction with DW DB objects;
- Scheduling a RED Host Script from 3D (e.g. 3D documentation generation);
- Publishing 3D diagrams and other documentation in WhereScape RED;
- Importing 3D discoveries into RED, e.g. data type mappings, notes, DDL, etc.;
- Documenting and retrofitting RED Information Systems in 3D;
- Taking advantage of licensing on both WhereScape products

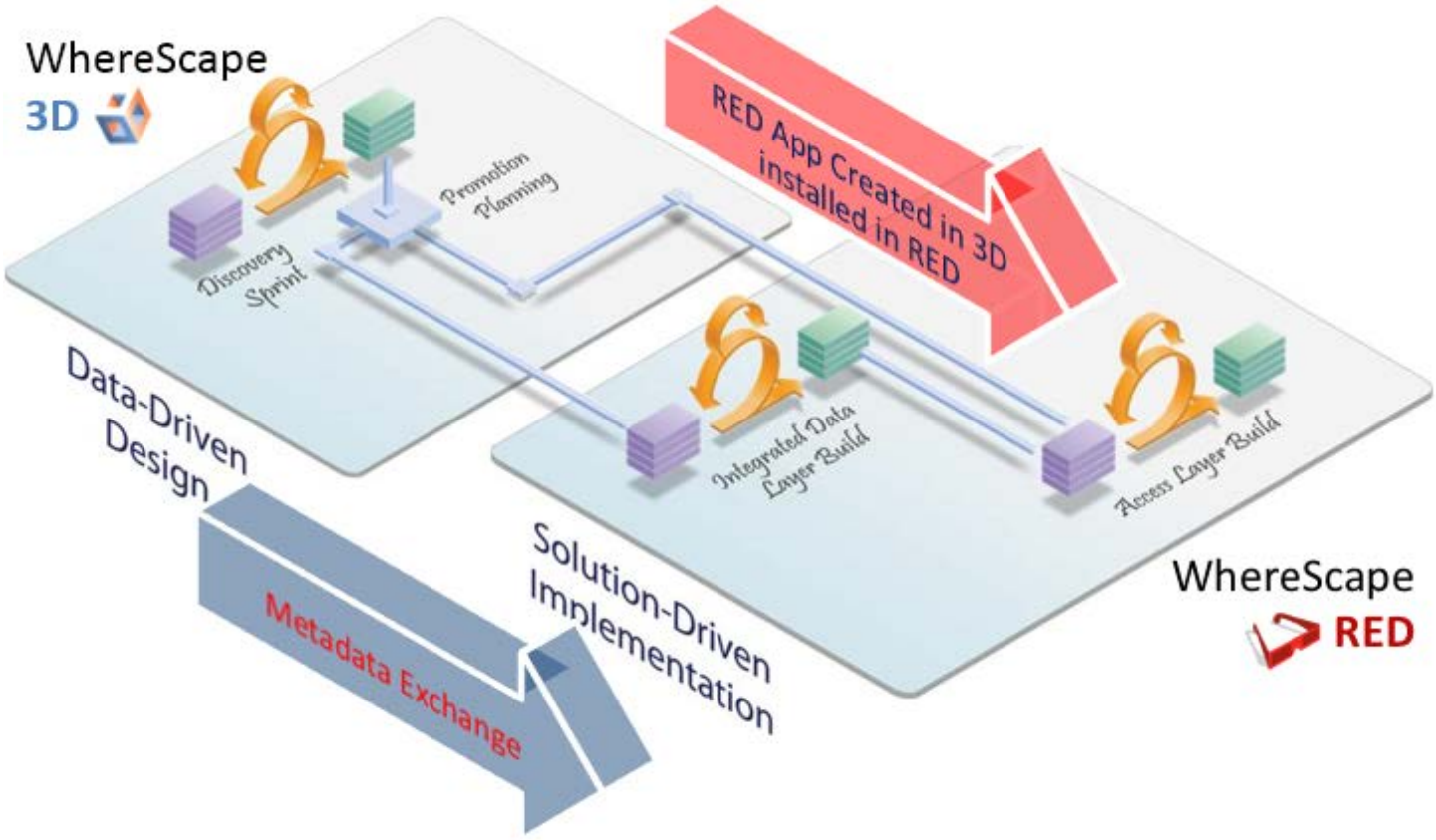

Figure 2 WhereScape Integration Solution

>Conclusion

Maybe the dialectical law of the transformation of quantity into quality is working after all! The quantifiable solution provided by WhereScape makes stubborn, expensive, ugly, and obnoxious Information System project turning into a well-oiled machine – delivering priceless information and knowledge to decision-makers quickly and seamlessly like the old Nature's dialectic law.