

# Who Needs a Data Warehouse and Why

A guide to better decisions in today's multi-application business environment

A White Paper from eMazzanti Technologies by Kent Sorensen

Audience: C-Level executives in mid-size businesses

Published: November 2014

For more information, please visit <http://emazzanti.net>

Executive Summary .....3

Islands of Information .....4

Data Integration .....5

Who Needs a Data Warehouse .....6

Why a Data Warehouse.....7

Building a Data Warehouse .....8

Benefits .....9

Who Should Build the Data Warehouse ..... 10

What Can Go Wrong ..... 11

Where to Start..... 11

About eMazzanti Technologies..... 11

# Executive Summary

Increasing numbers of unconnected applications are creating islands of information that impede effective decision making. Answers may not agree between departments obscuring the big picture.

Data warehouses integrate data from multiple applications to answer tough business questions like:

- Why don't we understand the customers we have?
- Why are we not converting more quotes to sales?

## **Who needs a data warehouse?**

Organizations with complexity or data access problems are good candidates for a data warehouse. A data warehouse makes data accessible and easy to understand and adds data stability.

## **Why a data warehouse?**

Point-to-point application integration is unwieldy. Off-the-shelf software won't connect all of the applications. A data warehouse integrates all of the data in the organization making it accessible to everyone.

## **Building a data warehouse**

Data warehouses can be built with standard tools and standard elements. Building the data model is the most difficult task. Professional consultants have the real-world experience to create a successful data model.

## **Benefits**

- More answers faster
- More accurate and precise
- Easier to understand and use data
- Business intelligence tools enhanced
- One version of the truth
- Exact and near real-time KPI's
- Better decisions

A data warehouse quickly pays for itself. You build it once and extend it as needed.

## **Who should build the data warehouse?**

Off-the-shelf products can't integrate everything needed. And building a data warehouse in-house depends on the strength of the team. Experience is needed to build the data model. Choose a consultant you can trust with an excellent track record.

Pitfalls include a never-ending project, failure to determine needs, changing requirements or the solution vendor leaves.

Understanding your customers is a good place to start with the most potential benefit.

# Islands of Information

We've lost control of our data. Increasing process automation, eCommerce, cloud computing, website, and mobile technologies have produced a flood of unconnected applications. The resulting islands of information impede effective decision making.

## Multi-application Environments

The typical SME has 10 or more software applications spread across multiple platforms. Having more than 50 is not uncommon. Integrating the data from all of those sources to get an accurate picture of the business is a daunting task that few organizations master.

Even a startup has data coming in from all directions. It may live in the owner's head for now, but it soon will be dispersed into departments and unconnected systems. And he will no longer know everything he needs to know to make the best decisions.

## A Fuzzy Big Picture

When organizations operate with islands of information, departmental domains generate their own answers, which may not agree with the data and conclusions obtained in other departments. Consequently, the big picture is a little fuzzy.

Timing is also an issue. Managers may bring reports to a staff meeting which have been printed at different times and consequently, have different numbers. It may be because a large order was cancelled or a shipment just arrived.

# Data Integration

How do businesses cope with dispersed data? Some try to solve the problem with spreadsheets, cobbling together reports using data from multiple sources. It may work for them, but the process is slow and inaccurate. Nearly 8 out of 10 SMEs use manual data integration with tools like Excel, or custom code to integrate data.

In the 1980's, the disruptive technology of personal computers displaced mainframes. Suddenly, applications and data were dispersed throughout the enterprise. This created the need for PC networks to tie things together and servers to centralize data storage. Data warehouses are filling that same need today, integrating data from multiple applications and a variety of platforms.

## Understanding Customers

Twenty-five years ago the majority of applications were back-office. This time it's primarily customer-facing applications that need to be integrated and queried for answers to today's tough business questions like:

- Why don't we understand the customers we have?
- Why are we not converting more quotes to sales?
- Why have sales dropped in this region?
- How do our online customers differ from in-store?

## Answering the Why Questions

A data warehouse creates a central storehouse of data that can be easily accessed by business leaders in the organization. Queries and reports generated from the data warehouse are used to inform management decisions by answering the "Why" questions, like those above.

# Who needs a data warehouse?

Complexity, arising from the proliferation of applications, obscures the big picture and yields fuzzy answers. If accessing the data that we have is difficult, answers are in short supply. Companies with complexity or access problems can benefit from a data warehouse.

## Complexity

Nearly all companies have multiple systems. Three to four transaction systems are not uncommon. Usually the systems environment includes accounting software and perhaps a CRM like Microsoft Dynamics. There might be a custom database application to manage inventory, website and eCommerce applications, social media apps and an industry vertical or two. The complexity results in a lot of manual processes to combine data from multiple sources.

Every company's applications are integrated. Unfortunately, the data integration is often performed manually on a spreadsheet, in someone's head or on a sticky note. So there is a pressing need to automate the manual integration. And, there is the struggle to get a clear, consolidated view of the enterprise.

A data processing environment can become so complex that it can't be managed effectively. In this case, leaders lack the information they need to manage all of the processes and people, and to really understand the business. A data warehouse solves the complexity problem by making all of the data easily accessible in a form that's easy to understand.

## Lack of Access

In many cases, just getting the data out of a system is a problem. A company may have domain experts who can't get reports. They operate in the dark or by gut feel. They may have a custom in-house application that has changed over time and they're not sure what data they have.

There may be a need to integrate two systems, to get data from CRM to accounting or from inventory to CRM. Or they may be collecting buckets of data from social media but don't know what to do with it.

Systems with large transaction counts make reporting slow and cumbersome. Their large data sets are organized for transaction processing and not reporting. Users may get frustrated and give up on pulling reports.

When systems change, access to the important data must be re-established. But business leaders want reporting to be seamless through evolving systems, to have continuity as the technologies change.

A data warehouse brings fast universal access and data stability to organizations, providing the information required for effective decision making. The right information, available now, gives birth to more opportunities and informs effective strategy.

# Why a Data Warehouse?

When managers generate 10 report requests per day from five different systems, they spend a lot of time correlating data. The process functions like a point-to-point distribution system similar the airlines before they developed more efficient hubs.

Some organizations may attempt automated point-to-point data integration, adding connections between systems to eliminate duplicate data entry and to combine reports. However, the number of point-to-point connections needed quickly gets out of hand as applications are added. And off-the-shelf software won't connect it all.

## Centralized Data and Business Logic

A data warehouse puts all of the data and business logic in one place. Report generation is removed from the applications and centralized in the data warehouse. New applications need only to be integrated once with the data warehouse.

A data warehouse works like hub-and-spoke airline routing, or FedEx with its centralized package sort. It's a much more efficient way to gather and distribute data to those who need it.

## A Fridge for Your Data

Here's another way to look at it. A data warehouse is like a fridge for your data. To eat, you go to the supermarket, the big box store, stop by the convenience store, pick food from the garden, bring home a box from the restaurant, and get food from family or friends.

All of the food from each of the various sources goes into one place where you can see what you have, plan a menu and make a meal. A data warehouse works the same way, except that the fridge is enormous and the food supply never diminishes, no matter how many times you eat it.

A data warehouse is the best way to integrate all of the data from the eCommerce, POS, accounting ERP and other systems, and much of the data living in people's heads and spreadsheets, and make it accessible to everyone.

# Building a Data Warehouse

Data warehouses have been around long enough that they can be built with standard tools like SQL Server, MS Reporting Services and Microsoft Analysis Services. A data warehouse contains standard elements like dimension tables, fact tables and data cubes. The steps to construct a data warehouse are straightforward:

1. Understand the landscape, what data is available, and where to find the master copy
2. Build a data model with terminology used by the business
3. Select the tools to import data from all of the systems
4. Walk through the presentation options
5. Consolidate reports in the data warehouse

## The Data Model Challenge

The hardest part of building a data warehouse is creating the data model. Companies typically don't know how to do it themselves. Reporting is the last thing people consider, but it greatly influences the data model. It takes detailed analysis and in-depth discussions to determine what reports users really need.

The data model includes these elements:

- Dimension data – Such as customer, region and time
- Fact tables – Transactional data and snapshots
- Terminology – The words the business uses to refer to their data

## Avoiding Mistakes

Real-world data warehouse experience helps to create a successful data model. Professional consultants have the training, knowledge and insight to avoid the common mistakes and to overcome challenges such as data validation, missing data and creeping scope. Unexpected security, project, data, and customer management issues must be handled effectively as they arise.



# Benefits

With a data warehouse, a company can expect to get answers to more questions, get more accurate and precise answers, and get them faster. Business intelligence tools like digital dashboards, reporting and querying software, and online analytical processing (OLAP) have more and better data to work with. The expected result is improved decisions.

## Faster Answers

A data warehouse creates more real-time access to data and faster access overall. Difficult to calculate metrics become drag and drop. Writing queries is a lot easier. And the time to get answers drops exponentially.

## Quality Answers

The use of standard tools, along with the process of cleaning up the data as it is imported into a data warehouse, improve data integrity yielding consistent answers. The use of business-centric terminology makes the answers easier to understand and use.

Flexible reporting tools allow reports to be customized for individual users. Lengthy, overstuffed reports of the past can be whittled down to just the information needed daily.

What can I expect?

- The why questions become more precise. As users get familiar with the data and the power of the business intelligence tools, they zero in on cause and effect.
- One version of the truth. By consolidating data only at preset times of the day, all the users are looking at the same numbers.
- KPI's are more exact and near real-time.

Quality answers lead to faster and better decisions, resulting in better strategy, improved margins and a larger bottom line.

## Stability

A data warehouse is a framework that can be put in place to handle the reporting needs of the business as it expands and evolves. You build it once and extend it as needed. As applications are inserted or updated, metrics can be added without a lot of effort.

## Other Benefits

- Easier to export data to other systems
- Reduced costs from maintaining a stable architecture
- Faster application implementation
- Maintain data history for long periods

A data warehouse quickly pays for itself. It's your company's data model not the application vendor's. And it's something that lasts, not a black box. It's built on standard technology with proven methods.

# Who should build the data warehouse?

There are no off-the-shelf products that can build a top-notch data warehouse. Even with an automated solution, the data warehouse still needs configuration and setup. More importantly, you have to ask the right questions to build a good data model.

## Build it In-house?

A company may choose to build a data warehouse in-house. Although this is possible, success depends on the strength of the team. Are they experts in data warehouse technology? Perhaps they may be qualified technically, but do they understand the business and the kinds of answers it needs to effectively execute its strategy?

## A Data Warehouse Consultant

Someone with data warehouse experience needs to guide the process of building the data model. A qualified data warehouse consultant is someone who understands the business and can ask decision makers and data users the right questions. At the same time, they know the power, capabilities and constraints of the technology.

## Trust

Since building a data warehouse can involve a lot of money, it necessarily involves trust. Most companies can't afford to engage IBM, Accenture or SAP to build their data warehouse. But they should seek a consultant with an excellent track record who works effectively with both software engineers and executives.

## Hands-on Experience

Look for a vendor with the right hands-on and management experience to see the project through to success. Like hiring an attorney, you are going to get a much better result with the right expertise. The quality of your work and the success of your business are at stake.

# What can go wrong?

- Without the right skills in-house to build the data warehouse, you can end up with a situation where deadlines slip and the project never ends.
- You might engage a technologist who can't help you know what you want in order to build a successful data model and a working solution.
- The company may be in flux and the requirements change repeatedly, causing delays.
- The custom solution vendor you hired to build the data warehouse from scratch leaves.

# Where to start?

Understanding your customers is the area with the most potential benefit. Other useful objectives are optimizing the supply chain and creating manufacturing process efficiencies.

You may want to start with back-office systems and integrate them. Then go upstream to integrate data from eCommerce, marketing, and your web server that is tracking visitor behavior. Then you can begin to understand the customer lifecycle.

If you establish clear objectives with buy-in from key players the project is more likely to succeed. No matter where you start, a data warehouse will yield significant benefits to the organization both now and far into the future.

## About eMazzanti Technologies

eMazzanti's team of trained, certified IT experts rapidly deliver cloud and mobile solutions, multi-site implementations, 24x7 outsourced network management, remote monitoring and support to increase productivity, data security and revenue growth for clients ranging from professional services firms to high-end global retailers.

Serving more than 400 Hoboken, NJ, NYC area and international customers, eMazzanti is Microsoft's 2012 Partner of the Year and 2013 Northeast Region Partner of the Year, a 5X WatchGuard Partner of the Year and has made the Inc. 5000 list five years running. Contact: Carl Mazzanti 201-360-4400 or emazzanti.net Twitter: @emazzanti Facebook: Facebook.com/emazzantitechnologies.

