

The Commercial Tax Data Warehouse

The IT/Technology Perspective

*Guidelines and Tools for Companies Considering
a Tax Data Warehouse*

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Introducing the Vertex® Tax Data Warehouse

The Vision and Design Principles

To realize our vision of providing a true commercial tax data warehouse, Vertex hired leading experts in corporate performance management and financial data warehousing and brought them in-house for a multi-year effort. We combined this expertise with Vertex's industry-leading tax technology knowledge and strong relationships with leading ERP providers. To keep customer needs front and center, we conducted the largest survey about tax data management ever and prioritized our design around what respondents indicated are the biggest and most pressing needs in this area (see page 6).

So we feel that we're uniquely qualified to bring this solution to market – and have a unique concept for how it should be done using a vision and principle-driven approach.

Our vision is simple yet bold: to transform tax operations by removing data complexity and allowing Tax to focus on providing business value. We defined the design principles for the tax data warehouse as follows:

- **Auditability:** Everyone must have absolute confidence in the trustworthiness of the data in the TDW.
- **Adaptability:** Businesses are constantly changing, so a TDW must be designed from the ground up to accommodate change quickly, easily, and cheaply while remaining supported by Vertex.
- **Openness:** A TDW should be able to import data from and export data to any system from any vendor (financial, tax, or otherwise).

In this guide we'll discuss these from both business and technical domains, since core principles apply equally to both.

The Vertex TDW At-a-Glance

The Vertex® Tax Data Warehouse has been built from the ground up to be functionally comprehensive and tailored specifically for Tax. It bundles everything you need for a powerful, long-term tax data management solution – and it's delivered as a pre-built package that's ready to load. Specifically, the Vertex Tax Data Warehouse:

- Provides a ready-to-load data repository for all relevant information needed to support outstanding tax obligations.
- Includes pre-built and supported connectors to load data from common ERP and financial systems, as well as a framework to provide structure to simplify custom integration with less common systems.
- Provides pre-built export files for common tax provision and returns applications (from a variety of vendors), as well as a framework for custom efforts.
- Includes standard reports and world-class reporting and business intelligence tools so you can define and share your own reports.

- Provides user-friendly, web-based screens optimized for Tax, not IT users
- Allows you to work in Excel® – so you can leverage existing spreadsheets to send and receive warehouse data at the click of a button from anywhere in the world over a secure internet connection.
- Enables Tax professionals to modify the TDW as business needs change, without breakage and with total support from Vertex, so it can grow with your business over the long haul.

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A Comprehensive, Up-to-Date Data Source

For a large, multinational corporation, the data contained in this tax data warehouse might include year-end legal entity trial balances for every entity included in the consolidated financial statements for all tax years open to audit. For each of these tax obligations, it will also contain each jurisdiction's book-to-tax adjustments, both permanent and temporary as well as NOLS, credits and tax rates. In addition, the Vertex Tax Data Warehouse will:

- Contain each tax obligation's deferred tax cumulative temporary differences, both gross and net/tax effected, and data to support FIN 48 reserves and valuation allowances
- Have the data to support any FAS 123R and OCI deferred taxes, as well as the data needed to support outside basis difference deferred taxes on APB 23 assertions
- Include (for foreign subsidiaries of US firms) all E&P pool information, layered by year
- Include each current provision's "return to provision" adjustment data (which should ideally go away with increased provision accuracy)
- Includes all transactions needed to reconcile to ERP systems and produce sales, use and VAT returns.

Open Platform for Ultimate Flexibility

Unlike other vendor solutions, the Vertex Tax Data Warehouse has been developed on an open platform. As such, it's independent of any tax application or financial system; this allows it to be deployed within any IT landscape without having to rip out existing software. Using pre-built connectors, you can enable two-way data movement to and from the TDW. For example, you can have connectors to all major ERP and financial systems, plus connectors to all tax applications so data can be validated and moved by Tax users with the click of a button.

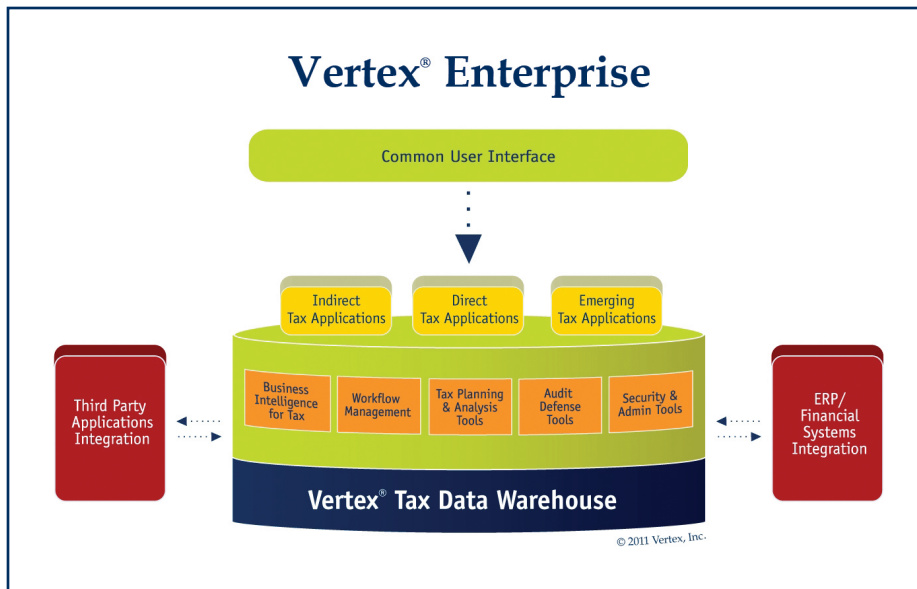
Tools to Transform Tax Data into Information

The Vertex TDW includes integrated world-class business intelligence tools. Unsophisticated users have access to a library of pre-defined reports, while sophisticated users have the power tools to create and share their own reports in real time globally. The ability to get all global users accessing the same data via reporting and analytics custom tailored to their needs alone is enough to dramatically alter tax operational efficiency and risk profiles.

When you combine this with the fact that the Vertex Tax Data Warehouse is also designed to serve as a shared data foundation for Vertex Enterprise-based tax applications, including Vertex® Indirect Tax *O Series*®, it allows you to share and leverage data across tax planning, provision, compliance and audit defense processes. This eliminates the need for redundant data touches so prevalent in today's tax processing – data touches that introduce weaknesses in the internal control framework surrounding tax processes.

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In a nutshell, the Vertex Tax Data Warehouse transforms data into information, and leveraging the surrounding tax applications, it transforms this information into the insight you need to optimize global tax and financial reporting risk management.



Vertex Enterprise integrates the applications and analytics for multiple tax types with host ERP, financial systems, and Business Intelligence systems on a single technology platform, all accessible through a common user interface.

Vertex® Tax Data Warehouse

The IT/Technology Perspective

If you're reading this document, your Tax department has likely already approached you about deploying an enterprise tax data warehouse. Your Tax VP has most likely already "sold" the concept internally at the business level, explaining how a TDW can streamline their operations and deliver more value to the company as whole. So the next step is to discuss the technology aspects with you and "sell" you on the idea.

We know you're a not an easy sale. In fact, your reaction may be to think in terms of a classic "make vs. buy" analysis. You probably know that even in financial warehousing there are very few off-the-shelf warehousing options. So for Vertex to say we have a *buy* solution that solves 80% of tax data management issues and that we provide facilities to configure the solution for the other 20% of your needs, it might elicit some skepticism on your part. When we say this is a new approach that will shorten time, reduce cost, and allow you to serve your business customers better than with a *make* approach, we fully expect you to say "prove it". Given the chance, we fully intend to do so. This document is the first step.

The question is, why can't you make do with your existing infrastructure and applications? Indeed, you probably have an existing IT infrastructure to support Finance that enables you to extract financial data, place it into a financial data warehouse, and feed it to financial reporting applications to produce external and management reporting. Why can't this technology be modified or extended for Tax? After all, the last thing you probably want is one more new enterprise warehouse to deploy and manage.

The following discussion will help you answer these questions and make an informed decision about the best path forward for your business.

The "Make" Option

For some companies, extending existing Finance systems for Tax is the best solution to their tax data management challenges. For example, if the Tax department only needs you to address data structures so they can leverage finance data, you probably could modify a custom financial warehouse to address these needs. Having worked through the data structure issues here at Vertex, it's clear that some structural modification could be made to the typical financial data warehouse to address Tax requirements. But there are two problems with this approach:

- There is a risk of miscommunication due to the inability of the Tax side to communicate their needs in a manner IT can utilize effectively.
- The risk of mission-critical financial system destabilization.

The first issue regarding miscommunication is easy to understand. Tax people think and talk in tax codes and terminology, such as Section 482, Reg. 1-861.8, SubPart F and "apportionment factors." If you don't have employees with the in-depth tax knowledge that also have the technical knowledge needed to design appropriate tax data structures, you can't effectively modify Finance's data structures to serve the purposes of Tax.

The second issue – the risk that making changes needed to support Tax will destabilize your Finance data warehouse – is a bit more complex. As you know, once you start managing multiple change requests on an operating mission-critical system, it's a slippery slope. However, if you can fully identify and model the changes up front and then implement and test these changes without disruption, you can potentially retrofit your existing IT landscape for Tax. But even so, there are still a host of open questions to consider. For example:

- *What if* the problem is not just a lack of appropriate data structures?
- *What if*, in analyzing the requirements, it turns out that to generate the value Tax believes they can deliver to the business, they need a comprehensive, integrated global Sarbanes Oxley compliant system – one that spans ETL, custom data collection, ontology and taxonomy mapping, data warehousing, workflow, document management, business intelligence, API/Excel access methods, MDM, and custom export routines?
- *What if* they also want faster speed to decision making so they need to be able to manage it all themselves, self-service using a web-based interface, with limited IT involvement?

With so many technologies and integration points, developing a solution internally that's comprehensive enough to function as a fully enabled data management and information processing engine is no small endeavor – even if it is just for the single domain of Tax.

At this point, it may be dawning on you that what Tax requires is more than just a classic data warehouse – more than a "subject-oriented, integrated, consistent, and time-variant data store for critical corporate needs." What Tax needs is a solution capable of delivering a consolidated view of disparate data in an optimal fashion. And it must be able to orchestrate the consolidation and sharing of information assets across the entire tax value chain and throughout the entire tax data lifecycle, which:

- Starts with future-oriented tax planning and operational structuring.
- Moves to current period accounting/provisioning as part of the financial reporting process.
- Continues with the compliance requirement to file tax returns worldwide for the prior year.
- Ends with audit defense and settlement planning for potentially hundreds or thousands of open audits spread across a dozen years.

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The “Buy” Option

Given the challenges and risks of building a comprehensive information management and access engine for Tax – and the pressures to do so in a timely, supportable manner – it's worth evaluating the *buy* option. Fortunately now there is a viable option, a commercial tax data warehouse from Vertex, one of the most trusted names in tax technology. Vertex is the first to offer a commercial enterprise tax data warehouse which differs significantly from the point tax applications you may already have, such as a provision or country-specific tax return compliance systems. These point applications have historically been deployed on a departmental basis solely within the Tax department. In contrast, the Vertex Tax Data Warehouse is a global enterprise solution.

The Vertex TDW offering is based upon an enterprise application platform that can be provisioned and deployed centrally to serve a global user base. At the same time, it's designed to meet the technical infrastructure requirements needed to support service level agreements typical of a globally deployed SOX-compliant system. This means that it was built using industry standard architectures, approaches, and management/monitoring facilities you have come to expect from the major ERP and other enterprise application vendors.

Key Characteristics of a Commercial TDW “Buy”

To dig deeper into what is important from a user perspective, Vertex conducted a blind survey of 330 Tax, IT, and Finance professionals (see page 6). The important user considerations revealed in this survey include the following:

- **Auditability:** Everyone must have absolute confidence in the trustworthiness of the data in the TDW.
- **Adaptability:** Businesses are constantly changing, so a TDW must be designed from the ground up to accommodate change quickly, easily and cheaply while remaining supported by Vertex.
- **Openness:** A TDW should be able to import and export data; to any system, from any vendor (financial, tax or otherwise).

But what do these user requirements mean from a technical perspective? Let's take a closer look.

Auditability

The standard vendor response to the question of data auditability is always the same: “We store every change in a log file.” But is this enough auditing functionality to meet the needs of Tax departments? True enterprise systems put in place a control and a governance framework first, including LDAP authentication/single sign on, role based security, data-level access controls, and data stewardship features. They also apply advanced technical features to buttress this foundation, complete with controls around process dependencies and rollback. Only when these capabilities are in place are audit logs truly relevant, along with event logs of system events and user actions, both easily searchable. For example, regardless of whether a user changes information or a process changes information, you can accurately identify the responsible “party” and roll back to the prior state, if necessary.

These types of tools and approaches to tax data warehousing not only meet the need for an adaptable solution for Tax, but do so while vastly reducing IT dependence. This empowers Tax professionals while freeing IT professionals to focus on meeting application service level agreements rather than building out Tax-specific features and customizations.

Adaptability

The pace of business change continues to accelerate – for example, due to mergers and acquisitions, restructurings, and shifts in strategy. In the tax realm, this change is exacerbated by evolving regulatory reporting requirements. Multiply business complexity by regulatory complexity in an era dominated by hyper-vigilant government fiscal authorities, and you have a completely new set of demands for the Tax department.

To respond to these demands, you need a centralized tax information repository that is adaptable enough to meet these new demands. For example, your tax data warehouse should have built-in extensibility that allows technology-savvy tax professionals (or tax-savvy technology professionals), given appropriate roles, to work within a controlled Adaptive Framework to directly and safely:

- Modify data attributes and extend data fields as needed.
- Version data over time.
- Create snapshots for safekeeping while performing what-if's on new scenarios.
- Create new fact tables and dimensions on the fly.

When tools like these are integrated into a TDW, they empower the tax professional to meet new needs as they arise. The changes they make are automatically reflected in the data validation, loading, exporting and reporting services layers, so new data and data structures work the same as if they were shipped by Vertex and are fully upgradeable. In summary, these types of tools and approaches to tax data warehousing not only meet the need for an adaptable solution for Tax, but do so while vastly reducing IT dependence. This empowers Tax professionals while freeing IT professionals to focus on meeting application service level agreements rather than building Tax-specific features and customizations.

Openness

A functional view of the principle of openness focuses on a TDW being open to the import and export of data from any system in a consistent, controlled manner, as well as the modification or creation of reports by end users through self-service business intelligence. A technology view elaborates upon this definition of openness to clarify the means by which import/export openness and reporting is achieved.

For example, in the Vertex Tax Data Warehouse, we achieve openness using SDKs and published, secure web services for custom data integration. The principle of openness is further expressed in the Vertex solution through the use of open industry technology standards up and down our technology stack—specifically:

- A dimensional warehouse schema modeled in a standard RDBMS.
- A Java application server tier that supports clustering.
- A framework for a variety of data- and process-level integration points through both web services and ETL.
- LDAP user authentication with single sign-on capabilities.
- Integrated, world-class business intelligence (BI) tools that allow self-service report authoring.
- Integrated document management and workflow technologies.

Finally, we support alternatives to the pre-integrated and default BI and document management tools, as we recognized corporate standards vary and may change over time. These types of open principles and standards are nothing new in the overall technology realm, but they are for tax technology. In fact, warehousing platforms such as Vertex Tax Data Warehouse are the first to bring this level of openness to the tax technology arena.

Layering a TDW On Top Of An Existing Financial Data Warehouse

“The Tax department project champion of a Fortune 100 firm recently arranged for us to sit down with the CIO of his firm. The CIO had some concerns over the TDW concept. He was well into a project standardizing and loading detailed financial information into an ERP vendor warehouse. He was confident in his department’s ability to bring the project to completion on time and budget. What he could not get his head around was how he was going to serve the business needs of the seven disparate departments who needed to consume the data in different ways, Tax just being one of them. By layering Vertex® Tax Data Warehouse on top of the finance warehouse, and then empowering Tax to bring in specific supplemental data that only Tax needs, the CIO saw how he could remove one of his concerns. In addition, he did not have to worry about developing functionality for the Tax department since the Vertex TDW has open integrations to tax applications from Vertex and others...now only six more departments to go.”

– David Deputy, Director – Tax Data Management
Vertex

The Path Forward

Given the prior discussion, how would you answer the question asked at the beginning of this section: “Why can’t we make do with our existing infrastructure and applications?” There’s no one right answer – but as you engage with your Tax department, we hope that this information has prepared you to have a substantive, collaborative discussion about tax data warehouses that enables everyone to take the next step in the right direction.

Additional Resources

Tools for the TDW Project Champion

If you're the project champion for a tax data warehouse initiative at your company, Vertex offers resources and tools to enable the process including those listed below. Visit vertexinc.com/solutions/direct/tax-data-warehouse

- FAQ for Finance
- FAQ for IT
- Building a Business Case
- Building a Roadmap and Timeline
- Building a Budget
- Assembling the Right Team
- Sample Request For Information (RFI)
- ROI Toolkit

2010 Industry Survey on Data Management

To read the report from the 2010 Industry Survey on Tax Data Management, go to vertexinc.com/solutions/direct/tax-data-warehouse

About Vertex Inc.

With more than 30 years of experience, Vertex Inc. is the leading provider of corporate enterprise tax solutions and process management services worldwide.

Vertex solutions help companies streamline and integrate tax provision and compliance processes, and leverage information to discover new strategic tax savings across every major line of business tax, including income, sales, consumer use, value added, communications, and payroll. To serve its customers, Vertex works in partnership with the world's leading providers of ERP software and related services.

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