



WTS/CAS Financial Solution Risk & Controls Review

Final Report

**July 2008
Project # 112088**

**Internal Audit and Advisory Services
Ministry of Finance
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Table of Contents

- 1 **Executive Summary** 3
- 2 **Background, Scope and Approach** 5
 - 2.1 Background 5
 - 2.2 Objectives and Scope 6
 - 2.3 PwC Approach 8
- 3 **Key Findings and Recommendations**..... 10
- Appendix A WTS/CAS System** 13
- Appendix B Risk Assessment Definitions** 14
- Appendix C Glossary of Terms**..... 15

1 Executive Summary

Background

Workplace Technology Services (WTS) offers information technology infrastructure support services to the provincial government and the broader public sector in British Columbia. These services include network, hosting, application, and workstation services.

As part of the first phase of the WTS Business Transformation Initiative (BTI), WTS focused on the design and implementation of the WTS/CAS Corporate Financial Solution (“WTS/CAS System”) comprising of several modules within the Oracle eBusiness Suite of applications.

In accordance with Core Policy Manual, the ministry management requested a pre-implementation financial risk and controls review for the above solution implemented as part of this WTS/CAS Systems initiative. This included a review of relevant new CAS Oracle Modules and the relevant WTS/CAS business systems and interfaces.

PricewaterhouseCoopers was retained to assist the BC Government’s Internal Audit and Advisory Services (IAAS) in performing the pre-implementation review. An Interim Report was submitted in March 2007. Subsequently, due to changes in the implementation timelines, a post implementation review of the entire solution (including areas covered in the Interim Report) was completed in November 2007. This Final Report summarizes the results of the review from the fieldwork performed in February and November 2007.

Objectives and Scope

The primary objective of the pre-implementation risk and controls review was to determine the adequacy of the design of the controls and processes built for the WTS/CAS System under the following two domains:

- a) **Control Environment** – (application specific covering reliability over the management, operation and application security processes, including overall policies and procedures related to the maintenance of the application); and
- b) **Financial control framework and financial system design** – (covering the integrity, reliability, authorization, availability and integrity of the interfaces for the WTS/CAS System).

The following table highlights the in-scope areas of focus covered as part of this review. This table was developed by PricewaterhouseCoopers jointly with IAAS and the WTS and CAS project stakeholders at the commencement of the review to further explain the scope based on an in-depth consideration of the design of the WTS/CAS System (*refer to the detailed descriptions of the in-scope areas of focus in Section 2.2 of this report*):

#	WTS/CAS System In-Scope Areas of Focus
1	CAS – Order Creation Process
2	CAS – Order Processing process
3	CAS – Order Fulfillment Process
4	CAS – Recovery process
5	CAS – Posting of recoveries, BPS, Reporting using the Datawarehouse
6	WTS Subject Areas within the Corporate Datawarehouse

#	WTS/CAS System In-Scope Areas of Focus
7	WTS Website
8	WTS Interface Broker
9	WTS lines of business processes

PwC Approach

PricewaterhouseCoopers commenced the risk and controls review for the design of the WTS/CAS System in January 2007. The initial fieldwork was completed in February 2007 and an Interim Report was submitted in March 2007 covering the preliminary observations identified on design weaknesses and opportunities for improvement. Subsequently, due to changes in the implementation timelines, a post implementation review of the entire solution (including areas covered in the Interim Report) was completed in November 2007. This Final Report summarizes the results of this review from the fieldwork performed in February and November 2007.

Our approach included identification of relevant risks, control objectives/controls and a system walkthrough of the new order process using the WTS/CAS system. This included interviews with key WTS and CAS stakeholders, review of relevant documentation and reassessing the findings / recommendations identified in the initial Interim Report dated March 2007. A detailed risk and controls matrix was developed identifying the application specific risks, planned/implemented controls and the relevant findings from the review.

Our review was limited to assessing the design of the existing and planned internal controls, and as such no tests of controls were conducted to assess the actual implementation and operation of these controls. A summary of significant findings were discussed with key WTS and CAS stakeholders in the December 2007 project status report.

In January 2008, the draft control matrix with significant findings was re-submitted to the new CAS management group and other project stakeholders (including IAAS). Each finding was assessed based on the risk ranking guidelines issued by the BC Government's Risk Management Branch (*refer to Appendix B for the Risk Ranking Table*).

The key findings and recommendations and WTS/CAS management responses to these findings were discussed in February 2008. Final management responses were received in June 2008 and have been outlined in a separate document – Detailed Action Plan – WTS/CAS System – Risk and Controls Review.

The key findings and recommendations together with WTS/CAS management responses have been included as part of Section 2 of this report.

Overall Summary

The original intent of the review was to conduct a pre-implementation risk & controls review, however; the timelines for the review were extended as a result of:

- Incomplete system design (as of March 2007);
- Tight project timelines and priorities with the implementation between April/June 2007; and
- Changes in the WTS and CAS management group.

Our detailed fieldwork was completed post go-live in November 2007. At the time of this review, the WTS/CAS system was operational for six months. Our review identified a number of weaknesses in the design of controls. Specifically, we identified design weaknesses with high or medium residual risk in the following domains:

Residual Risk Rating	Domain	
	Control Environment (application specific)	Financial Control Framework and System Design
High	5	6
Medium	-	6
Total Finding by Domain	5	12

We acknowledge that the WTS and CAS management group had taken action to address some of these findings and recommendations outlined in our Interim Report dated March 2007. For instance the design of the system was updated to ensure that an Expense Authority cannot carry out the role of a Qualified Receiver on the same order. However, not all findings from the Interim Report were addressed prior to the go-live date.

We wish to thank the WTS and CAS management group, the WTS/CAS System project team members and IAAS for their co-operation and assistance in completing our review.

2 Background, Scope and Approach

2.1 Background

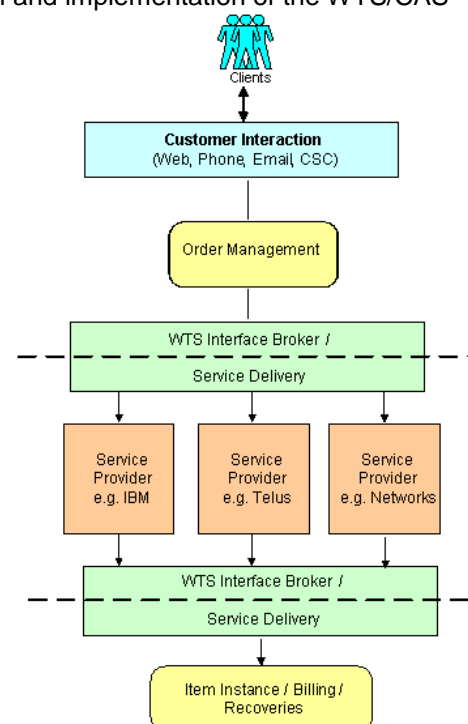
Workplace Technology Services (WTS) offers information technology infrastructure support services to the provincial government and the broader public sector in British Columbia. These services include network, hosting, application, and workstation services.

In the fall of 2005, a review of the WTS organization was conducted and a series of recommendations were made. Based on these recommendations, the WTS Business Transformation Initiative (BTI) Project was launched to advance improved accountability, transparent pricing of services, integrated business processes, supporting information management systems and client-centric services.

As part of the first phase of this project, WTS focused on the design and implementation of the WTS/CAS Corporate Financial Systems (“WTS/CAS System”).

This solution comprised of the following two streams:

1. Front End, which encompasses the following functionality:
 - Order Entry;
 - Pricing; and
 - Order Management and interfaces to/from the WTS Interface Broker.
2. Back End, which encompasses the following functionality:
 - Asset Recording and Management and interfaces to/from the WTS Interface Broker;
 - Recoveries (issued to ministries) and Billings (to the Broader Public Sector);
 - Accounts Receivable processing;



- Interfaces to obtain recoveries/billings from the WTS Interface Broker;
- Interfaces to send recoveries to Oracle General Ledger;
- Interfaces to send billings to Accounts Receivable; and
- WTS subject areas within CAS/Oracle Corporate Datawarehouse.

In accordance with Core Policy Manual, the ministry management requested a pre-implementation financial risk and controls review for the above solution implemented as part of this WTS/CAS Systems initiative. This included a review of relevant new CAS Oracle Modules and the relevant WTS/CAS business systems and interfaces.

PricewaterhouseCoopers was retained to assist the BC Government’s Internal Audit & Advisory Services (IAAS) in performing the pre-implementation review. An Interim Report was submitted in March 2007. Subsequently, due to changes in the implementation timelines, a post implementation review of the entire solution (including areas covered in the Interim Report) was completed in November 2007. This Final Report summarizes the results of this review from the fieldwork performed in February and November 2007.

2.2 Objectives and Scope

Objectives

The primary objective of the pre-implementation risk and controls review was to determine the adequacy of the design of the controls and processes built for the WTS/CAS System under the following two domains:

- Control Environment** - (application specific covering reliability over the management, operation and application security processes, including overall policies and procedures related to the maintenance of the application); and
- Financial control framework and financial system design** – (covering the integrity, reliability, authorization, availability and integrity of the interfaces for the WTS/CAS System).

Scope

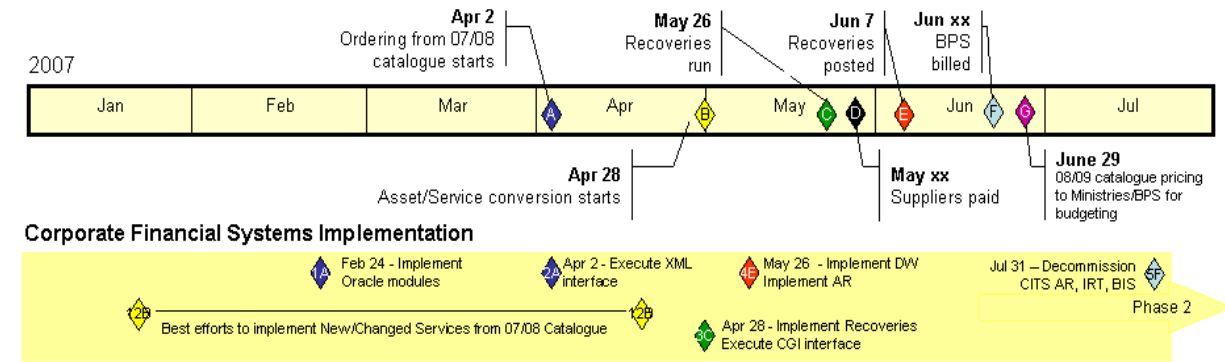
The following table highlights the in-scope areas of focus covered as part of this review. This table was developed by PricewaterhouseCoopers jointly with IAAS and the WTS and CAS project stakeholders at the commencement of the review to further explain the scope based on an in-depth consideration of the design of the WTS/CAS System (*refer Appendix A for a high level illustration of the WTS/CAS System*):

#	WTS/CAS System - Areas of focus	Scope Description
1	CAS – Order Creation Process	The following aspects of the process were covered: <ul style="list-style-type: none"> • Request for new service; • Entry of orders in iStore (covering the links with Inventory, OM, BOM and Configurator); and • Approval of Orders using the customized work flow procedures.
2	CAS – Order Processing Process	The following aspects of this process were covered: <ul style="list-style-type: none"> • Manual order creation (directly in Order Management for BPS customers);

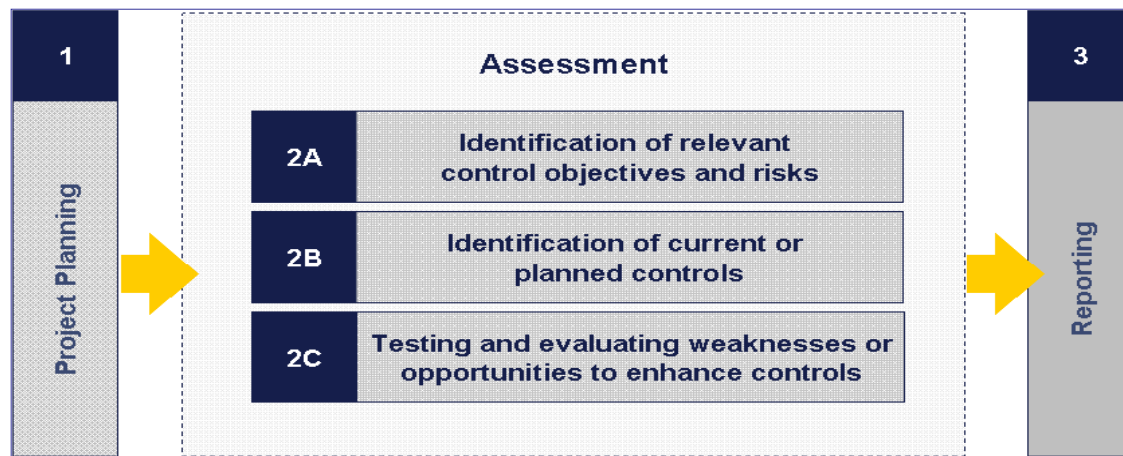
#	WTS/CAS System - Areas of focus	Scope Description
		<ul style="list-style-type: none"> • Changes to orders; • Cancellation of orders; • Rejection of orders; • Returns; and • WTS Interface broker (transfer of approved orders to the service delivery systems).
3	CAS – Order Fulfillment Process	<p>The following aspects of the process were covered:</p> <ul style="list-style-type: none"> • WTS interface broker (transfer of orders with status = 'shipped'); • Confirmation of service fulfillment (Qualified Receipt); • Creation of Item Instance in Install Base; and • Controls over Item Instance definition / maintenance in Install Base.
4	CAS – Recovery Process	<p>The following aspects of the process were covered:</p> <ul style="list-style-type: none"> • Review of the Back End Functional Overview Design document.
5	CAS – Posting of recoveries, BPS, Reporting using the DW	
6	WTS Subject Areas within the Corporate Data Warehouse	<p>This review covered the WTS/CAS reporting processes & controls with respect to the Data warehouse.</p> <p>The scope of the review did not include:</p> <ul style="list-style-type: none"> • The technical aspects of the movement of data into the Data warehouse; and • The design, configuration and operation of the data warehouse.
7	WTS Website	<p>The review only covered the extent that of the website which is part of the new WTS/CAS processes (i.e. for order entry).</p>
8	WTS Interface Broker	<p>Review included controls around data being interfaced to the broker (from CAS) and to CAS (from the Outsourcer system provider systems and internal systems) - for instance; log reports that shows the total record count, error reports for data that does not meet validation requirements and data correction procedures.</p>
9	WTS lines of business Processes	<p>Review covered:</p> <ul style="list-style-type: none"> • the controls around the new processes within WTS to handle WTS/CAS interface and the procedures for handling the movement of data; and • a high level assessment of the state of planned controls with respect to ongoing management and reconciliation of asset inventory. <p>Scope of the review did not include :</p> <ul style="list-style-type: none"> • the interim processes to phase out the old billing/recovery systems; • the interim processes to reconcile new recovery numbers with the numbers from the old billing/recovery systems; and • service delivery process and procedures (covering the actual delivery of services).

2.3 PwC Approach

The WTS/CAS System implementation project adopted a phased approach and the entire solution was planned to be released for general use between April and June 2007. The following picture illustrates the high level plan of the WTS/CAS Systems project:



PricewaterhouseCoopers adopted a three phased approach to perform this review as illustrated below:



PricewaterhouseCoopers commenced the risk and controls review for the design of the WTS/CAS System in January 2007. The initial fieldwork was completed in February 2007 and an Interim Report was submitted in March, 2007 covering the preliminary observations identified on design weaknesses and opportunities for improvement. Subsequently, due to changes in the implementation timelines, a post implementation review of the entire solution (including areas covered in the Interim Report) was completed in November 2007. This Final Report summarizes the results of this review from the fieldwork performed in February and November 2007.

Our approach included identification of relevant risks, control objectives/controls and a system walkthrough of the new order process using the WTS/CAS system. This included interviews with key WTS and CAS stakeholders, review of relevant documentation and reassessing the findings / recommendations identified in the initial Interim Report dated March 2007. A detailed risk and controls matrix was developed identifying the application specific risks, planned/implemented controls and the relevant findings from the review.

Our review was limited to assessing the design of the existing and planned internal controls, and as such no tests of controls were conducted to assess the actual implementation and operation of these controls. A summary of significant findings were discussed with key WTS and CAS stakeholders in the December 2007 project status report.

In January 2008, the draft control matrix with significant findings was re-submitted to the new CAS management group and other project stakeholders (including IAAS). Each finding was assessed based on the risk ranking guidelines issued by the BC Government's Risk Management Branch (*refer to Appendix B for the Risk Ranking Table*).

The key findings and recommendations and WTS/CAS management responses to these findings were discussed in February 2008. Final management responses were received in June 2008 and have been outlined in a separate document – Detailed Action Plan – WTS/CAS System – Risk and Controls Review.

The key findings and recommendations together with WTS/CAS management responses have been included as part of Section 3 of this report.

3 Key Findings and Recommendations

This section summarizes the key findings/recommendations from the review of the WTS/CAS System including those identified in the Interim Report dated March, 2007. The findings have been grouped under the two primary project objectives and within each of the objective; it has been further classified by the functional scope or area of focus. Each finding also includes the management response and reference from the Detailed Action Plan document received in June 2008.

Note 1 – The reference numbers identified under the Recommendation(s) column below pertain to the reference numbers for each of the management comments noted in the Detailed Action Plan document received in June 2008.

A). Findings related to the Control Environment

#	WTS/ CAS System Area of focus	Scope Objective Impacted	Process / Module	Control Objective	Findings	Residual Risk Rating	Recommendation(s) (Note 1)
1	CAS – Recovery Process	Reliability Procedures	Install Base	Install Base holds a complete record of all the completed service orders that has to be recovered from the ministries or to be billed to BPS customers.	*Security Information	*Security Information	*Security Information
2	CAS – Recovery Process WTS lines of Business Processes	Reliability Procedures	Control Environment	Adequate reporting and reconciliation procedures in place to ensure that the recovery entries produced by WTS/CAS system is complete, accurate and acceptable to ministries/BPS.	*Security Information	*Security Information	*Security Information
3	CAS – Order Fulfillment Process WTS Interface Broker	Procedures Security Design Reliability	Interface Broker	The ability to update data and correct errors in the interface files / tables is restricted to authorized personnel only and there is a complete audit trail of all changes made.	*Security Information	*Security Information	*Security Information
4	Alignment of WTS / CAS to existing Oracle Financials (with the Oracle AP Module)	Reliability Procedures	Control Environment	The WTS CAS System to be leveraged to augment existing controls over payment of WTS related vendor invoices (i.e., matching of total WTS vendor payments from Oracle AP to total Recoveries made in the WTS/CAS system).	*Security Information	*Security Information	*Security Information
5	Alignment of WTS / CAS to existing Oracle Financials (with the Oracle Fixed Assets Module)	Reliability Procedures	Control Environment	WTS asset (item instance) information is always synchronized between Install Base, Service Providers Systems and the CAS Fixed Assets (for capitalized item instances).	*Security Information	*Security Information	*Security Information

B). Findings related to the financial control framework and financial system design:

#	WTS/ CAS System Area of focus	Scope Objective Impacted	Process / Module	Control Objective	Findings	Residual Risk Rating	Recommendation(s) (Note 1)
6	CAS – Order Creation Process CAS – Order Processing Process	Integrity Authorization Reliability	iStore OM GL Dataware-house	Orders are evaluated for budget availability prior to approval. All non-standard orders are reviewed and approved for technical compliance and for available budgets. The process for Returns (i.e. returning services received) is adequately reviewed and monitored and only authorized personnel are allowed to initiate/approve Return transactions.	*Security Information	*Security Information	*Security Information
7	CAS – Order Processing Process CAS – Order Fulfillment Process	Integrity Authorization Reliability	iStore OM	Ability to update an existing order is restricted to the requestor.	*Security Information	*Security Information	*Security Information
8	CAS – Order Fulfillment Process WTS Interface Broker WTS Lines of Business Processes	Integrity Reliability Integrity of the Interface	iStore OM Interface Broker	Cancelled orders are not fulfilled by Service Delivery Units.	*Security Information	*Security Information	*Security Information
9	WTS lines of Business Processes	Integrity Authorization Reliability	iStore OM Configurator	WTS approved Price Lists are centrally defined in the system and adequate controls exists around overriding / modifying the approved price lists. All changes made to Inventory master Item set up within Oracle Inventory are authorized, approved and monitored.	*Security Information	*Security Information	*Security Information
10	WTS Interface Broker	Integrity Reliability Authorization Integrity of the Interface	Interface Broker	The ability to update data and correct errors in the interface files / tables is restricted to authorized personnel only and there is a complete audit trail of all changes made.	*Security Information	*Security Information	*Security Information

#	WTS/ CAS System Area of focus	Scope Objective Impacted	Process / Module	Control Objective	Findings	Residual Risk Rating	Recommendation(s) (Note 1)
11	WTS Interface Broker	Integrity Reliability Authorization Integrity of the Interface	Interface Broker	The Interface Broker routines and validation procedures are standardized for all transactions without any exceptions.	*Security Information	*Security Information	*Security Information
12	CAS – Order Fulfillment Process WTS Interface Broker WTS lines of Business Processes	Integrity Reliability Authorization Integrity of the Interface	Interface Broker	All transactions rejected during the QR process are automatically routed back to the Service Delivery Unit.	*Security Information	*Security Information	*Security Information
13	CAS – Order Processing process	Integrity	iStore OM	Orders should be actioned (approved or cancelled) within a reasonable period of time from the time it is created.	*Security Information	*Security Information	*Security Information
14	CAS –Order Creation Process	Integrity Reliability Authorization	iStore GL	All Orders are charged to the correct GL budget codes.	*Security Information	*Security Information	*Security Information
15	CAS – Order Processing	Integrity Reliability Authorization	iStore OM BOM Configurator	The new processes and the application have been designed to ensure that there is adequate in-built segregation of duties in the performance of the various process tasks.	*Security Information	*Security Information	*Security Information
16	CAS – Order Processing	Integrity Reliability Authorization	OM GL	The EA is aware of the financial impact of order cancellations / rejections and the system is updated on a real time with the monetary impact of such transactions.	*Security Information	*Security Information	*Security Information
17	WTS lines of Business Processes	Integrity Reliability Authorization Security Design	Install Base Recovery Procedure	User Access and design of segregation of duties.	*Security Information	*Security Information	*Security Information

Appendix A WTS/CAS System

* Security Information

Appendix B Risk Assessment Definitions

The following tables outline guidelines provided by the BC Government's Risk Management Branch. These guidelines were applied in assessing the inherent and residual risks associated with specific control requirements for the WTS/CAS System Pre-implementation Risk and Controls Review.

LIKELIHOOD (L) = Probability of the risk event occurring.			CONSEQUENCE (C) = Represents the degree of severity of should the risk event actually occur.		
Score	Descriptor	Approximate Probabilities	Score	Descriptor	Description
A	Certain	90 – 100%	1	Insignificant	Negligible effects.
B	Likely	55 – 89%	2	Minor	Normal administrative difficulties.
C	Possible	25 – 54%	3	Significant	Delay in accomplishing objectives; some losses or additional costs.
D	Unlikely	5 – 24%	4	Major	Program re-design, re-approval and re-do required; fundamental rework before objective can be met; large losses.
E	Improbable; Rare	0 – 4%	5	Catastrophic	Business proves irrevocably finished; objective will not be met; significant losses.

LEVEL OF RISK (L x C)

The following table outlines the potential risk assessment relationship arising from the likelihood and consequence of a risk event.

Likelihood	Consequence				
	1 Insignificant	2 Minor	3 Significant	4 Major	5 Catastrophic
<i>A Certain</i>	L	M	H	E	E
<i>B Likely</i>	L	M	H	H	E
<i>C Possible</i>	L	M	M	H	H
<i>D Unlikely</i>	L	L	M	M	M
<i>E Improbable or Rare</i>	L	L	L	L	L

E = Extreme Risk; H = High Risk; M =Medium Risk; L=Low Risk

Appendix C Glossary of Terms

Term	Definition
AP	Accounts Payable
AR	Accounts Receivable
BOM	Bill of Material
BPS	Broader Public Sector
BTI	Business Transformation Initiative
CAS	Corporate Accounting Services group
DW	Datawarehouse
EA	Expense Authority
FA	Fixed Assets
GL	General Ledger
IAAS	Internal Audit and Advisory Services
OM	Order Management
QR	Qualified Receiver