

# Using XBRL Global Ledger to Enhance the Audit Trail and Internal Control

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Previous articles on Extensible Business Reporting Language (XBRL) have primarily focused on the use of XBRL for financial reporting purposes. But XBRL also has potential uses for auditing purposes, such as enhancing internal controls and creating an electronic audit trail (Eric E. Cohen, "The Need for and Issues Surrounding the Seamless Audit Trail," [www.oasis-open.org/committees/download.php/16709/Tax%20XML%20AuditTrail\\_60215.doc](http://www.oasis-open.org/committees/download.php/16709/Tax%20XML%20AuditTrail_60215.doc)).

In the May 2010 *CPA Journal*, the authors' article "XBRL—Beyond the Basics" presented the different components of XBRL for Financial Reporting (FR) and Global Ledger processing (GL). The authors also explored the benefits and challenges awaiting companies and CPAs that adopt this method of entering, processing, storing, and exchanging accounting information. This article follows up on the authors' previous article by focusing on using XBRL GL to process and store transactional data from business documents, update the general ledger, and produce financial reports. In addition, it explores the potential for using XBRL GL to enhance the audit trail and internal control. The authors use the international XBRL organization's most recent XBRL GL framework recommendation (Specification 2.1 Taxonomy), which defines how to store transactional data and establish a link between XBRL GL and XBRL FR ([www.xbrl.org](http://www.xbrl.org)).

## The Near Future: XBRL FR

The SEC mandated that all U.S. GAAP filers adopt XBRL FR by 2011, after a three-year phase-in period. The first year, ending in June 2009, included the largest U.S.-listed accelerated filers. The second year, ending in June 2010, includ-



ed all other domestic and foreign large accelerated filers. The third year, ending in June 2011, will include all remaining filers using U.S. GAAP. The implementation of XBRL FR is motivating the next stage of XBRL adoption and innovation.

Most current articles regarding XBRL are about XBRL FR, which is an XML-

based tagging language that defines the structure of financial data and provides standards for the tagging of summarized financial statement information (Bizarro and Garcia 2010; Troy J. Strader, "XBRL Capabilities and Limitations," *The CPA Journal*, December 2007, pp. 68–71; Robert Tie, "XBRL: It's Unstoppable," *Journal of Accountancy*, vol.

200, no. 2, August 2005, pp. 32–35). These standards relate to format, content, and, most importantly, structure. XBRL-tagged financial statement information is machine-*understandable*; that is, the tags specify the content of financial reporting data, which are then interpreted by specialized software without the need for human intervention. Information does not have to be reentered through manual processes, such as a spreadsheet reconciliation and summary. This allows financial statement information to be exchanged directly between computer systems.

The idea of exchanging information directly between machines is relatively straightforward, although challenging to implement, and it has huge implications for the business world. Simply stated, XBRL FR enhances information sharing. Although this may not sound like such a significant benefit, research carried out in 2002 revealed that approximately \$404 billion (11% of all U.S. wages) went to paying workers to find and rekey information (Stephanie Farewell and Robert E. Pinsker, “XBRL and Financial Information Assurance Services,” *The CPA Journal*, May 2005, pp. 68–69). Other benefits and implications include, but are not limited to, the following:

**Improved data analysis.** Error-free data, quickly available for analytical procedures, can improve data analysis. This can be further enhanced by adding XBRL-tagged information from other (outside) sources, such as rating agencies and complex statistical models. Anyone who regularly uses business data should benefit from using interactive data stored and supplied using XBRL. The beneficiaries include regulatory agencies such as the SEC and IRS, which can use XBRL to facilitate the filing process; investors and financial analysts, who can automate ratio and trend analyses; and internal/external auditors, who can improve the efficiency of compliance and substantive testing.

**Improved risk assessment.** With XBRL FR, data can be analyzed faster (closer to real time), and a greater amount of data can be included in risk assessment models, making them more comprehensive.

### **The Not-So-Distant Future: XBRL GL**

There is an increasing interest in using XBRL further down the financial reporting chain, at the transactional level

(Gianluca Garbellotto, “The Other Side of the Bridge: XBRL GL and Transactions,” *Strategic Finance*, September 2008, pp. 57–58). This means that each transaction in the ledger, including detailed information from source documents, can be tagged in a standardized way to make detailed transactional information machine-understandable. XBRL GL will allow various users to aggregate or summarize business data according to their own internal and external reporting needs. XBRL GL enhances information sharing and will facilitate the flow of transactional data among a subsidiary’s accounting information systems, reporting systems, and other internal decision support systems. Other implications include, but are not limited to, the following:

### **Complete data portability between hardware platforms and software applications.**

Because the source data are independent of any proprietary platform or application, upgrading or switching systems is much easier than ever before. As a result, organizations will have greater autonomy and flexibility in selecting software and hardware providers.

**Automated aggregation of financial statements in multiple formats.** With implementation of International Financial Reporting Standards (IFRS) likely in the United States, the ability to automatically aggregate financial statements has great appeal, especially for entities in multiple reporting jurisdictions (using, for example, U.S. GAAP and IFRS). Having the detail (transactional) data in a standardized format will facilitate analysis from the financial statements down to the detail data, as well as analysis from the detail data up to multiple reporting taxonomies.

**Easier reporting to regulatory agencies.** With the appropriate extensions, XBRL GL can be adapted to facilitate various kinds of regulatory reporting; for example, to taxing authorities, banking regulators, government bodies, and other regulatory agencies.

**Accelerated implementation of continuous auditing.** Based on current trends in auditing, it appears that continuous auditing—a process that examines accounting practices continuously throughout the year and automates checking errors and verifying data in real time—is being more widely adopted. Of the 392 companies questioned in a PricewaterhouseCoopers study, 81%

reported that they either had a continuous auditing or monitoring process in place, or were planning to develop one ([www.pwc.com/en\\_US/us/internal-audit/assets/state\\_internal\\_audit\\_profession\\_study\\_06.pdf](http://www.pwc.com/en_US/us/internal-audit/assets/state_internal_audit_profession_study_06.pdf)). XBRL GL will likely speed up this implementation of continuous auditing because, as previously mentioned, it renders transactional data machine-understandable (U.S. Murthy and S.M. Groomer, “A Continuous Auditing Web Services (CAWS) Model for XML Based Accounting Systems,” University of Waterloo Symposium on Information Systems Assurance, Oct. 31–Nov. 1, 2003; Rezaee Zabihollah, Ahmad Shargatoghlie, and Peter McMickle, “Continuous Auditing: Building Automated Auditing Capability,” *Auditing: A Journal of Practice & Theory*, vol. 21, no. 1, 2002, pp. 147–163).

**Reducing spreadsheet proliferation.** A study carried out by the Institute of Internal Auditors Research Foundation revealed that substantially all of the organizations surveyed routinely move information between disparate information systems manually (Glen L. Gray, “XBRL: Potential Opportunities and Issues for Internal Auditors,” Institute of Internal Auditors Research Foundation, 2005). This is typically done through spreadsheet summaries that are created without proper controls, have little or no documentation, contain numerous inaccuracies, and fall under the Sarbanes-Oxley Act (SOX) section 302 and 404 internal control domain. A separate study revealed that 49 of 54 spreadsheets (91%) at Fannie Mae contained errors (Mitch Betts and Alan S. Horowitz, “Oops! Many Spreadsheets Have Errors: Audits Find Errors in 49 out of 54 Spreadsheets,” *ComputerWorld.com*, May 2004). These informal processes raise concerns about segregation of duties, access to information, and the accuracy of the information available to management and outside parties.

XBRL GL can reduce such exchanges between information systems by providing a standardized data-interchange protocol that can be directly interfaced with another system for further processing. The direct exchange eliminates rekeying errors and ensures the use of “clean data” that have not been altered or intentionally changed from the original set, assuming the data were accurate before the exchange.

Consequentially, if spreadsheets are used, the first transfer of data to the spreadsheet should be error-free.

### Creating an Electronic Audit Trail and Enhancing Internal Control

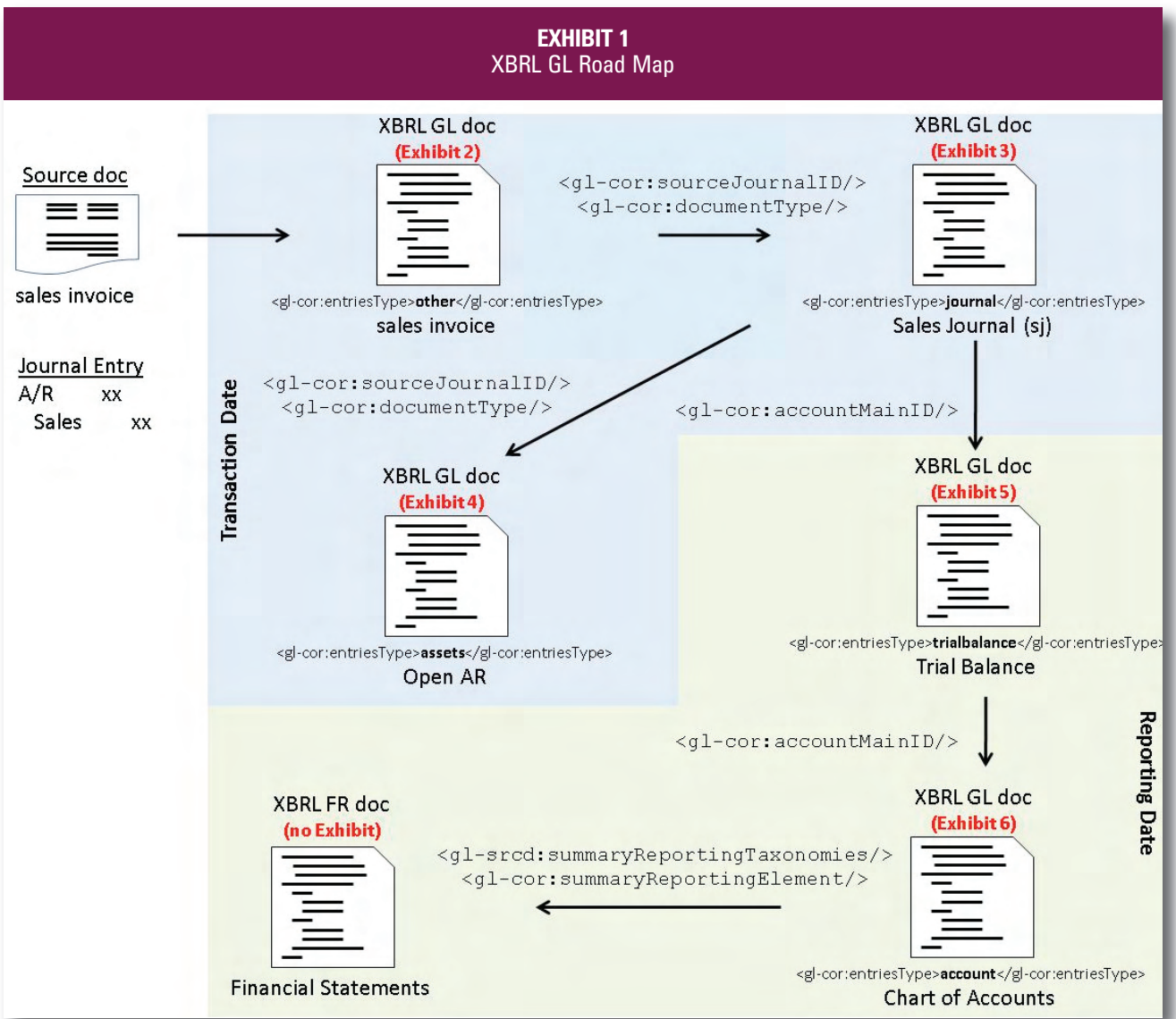
With so many potential benefits available from the technology, widespread adoption of XBRL FR and GL appears likely in the near future. XBRL is supported by the SEC, as well as by producers of major business software, such as by Microsoft; SAS Financial Management; and ERP vendors, including SAP, Oracle, and PeopleSoft. The adoption of XBRL has a number of other important implications for accountants and auditors.

For example, several concerns have been raised regarding a deteriorating audit trail and diminishing internal control. The previously cited discussion paper by Eric Cohen argues that the paper trail is disappearing, a trend being driven by personal and mobile computing, the Internet, and e-commerce. He also argues that the electronic records that form an audit trail are easier to destroy or alter than the paper records of the past, raising concerns regarding the security and validity of the audit trail.

Regarding internal control, Cohen argues that electronic approvals are easier to alter and are more difficult to audit. He also claims that informal accounting systems often arise without proper documentation,

segregation of duties, controls over access and exchanges, or other internal controls to ensure data accuracy and security. These issues lead to a weaker internal control environment. XBRL GL can be used to enhance the audit trail, improve internal control, and address other concerns.

**Audit trail.** For auditors, the audit trail is the primary source of internally generated evidence to support assertions in the financial statements. For information technology (IT) professionals, the audit trail is understood as a chronological log of all the changes made in a system. According to Statement on Auditing Standard (SAS) 94, *The Effect of Information Technology on the Auditor's Consideration of Internal*





Control in a Financial Statement Audit, auditors need to document and understand the electronic audit trail so that it can be used to gather evidence regarding the validity and accuracy of the financial statements, as well as detect errors, correct errors, and identify weaknesses in the system of internal control.

IT professionals need the audit trail in order to determine who has accessed a

computer system, when it was accessed, and what operations were performed. Other IT-related purposes for an audit trail include tracking employee behavior, identifying computer failures, reviewing the capability and capacity of a system to function, and monitoring unauthorized access.

XBRL GL is beneficial for these purposes because it has standardized tags

that can be used to create an electronic audit trail that is understood by both auditors and IT professionals.

**Internal control.** An internal control system is designed to provide some assurance of the efficient use of organizational resources, to safeguard assets, avoid fraud, and to ensure that accurate information is maintained regarding the organization's financial performance. XBRL GL can

## EXHIBIT 2 XBRL GL Instance Document: Source Document (Sales Invoice)

```

<xbml xsi:schemaLocation="http://www.xbrl.org/taxonomy/int/gl/cor/2003-08-29/ gl-cor-2003-08-29.xsd">
  <context id="now"><entity><identifier>CRC</identifier></entity></context>
  <period><instant>2010-10-03</instant></period>
  </context>
  <unit id="usd"><measure>iso4217:USD</measure></unit>
  <accountingEntries>
    <documentInfo>
      <entriesType contextRef="now">other</entriesType>
      <uniqueID contextRef="now">001</uniqueID>
      <creationDate contextRef="now">2010-04-04</creationDate>
      <entriesComment contextRef="now">Sales Invoices</entriesComment>
      <periodCoveredStart contextRef="now">2010-10-03</periodCoveredStart>
      <periodCoveredEnd contextRef="now">2010-10-03</periodCoveredEnd>
      <sourceApplication contextRef="now">SALES</sourceApplication>
    </documentInfo>
    <entityInformation>
      <organizationIdentifier contextRef="now">CRC</organizationIdentifier>
      <organizationDescription contextRef="now">The Coffee Roasting Company</organizationDescription>
    </entityInformation>
    <entryHeader>
      <postedDate contextRef="now">2010-04-04</postedDate>
      <enteredBy contextRef="now">Carla Smith</enteredBy>
      <enteredDate contextRef="now">2010-04-04</enteredDate>
      <sourceJournalID contextRef="now">sj</sourceJournalID>
      <sourceJournalDescription contextRef="now">Sales Journal</sourceJournalDescription>
      <entryOrigin contextRef="now">imported entry</entryOrigin>
      <entryNumber contextRef="now">34</entryNumber>
      <entryComment contextRef="now">Invoice: #95404 - New Wave Café</entryComment>
      <entryDetail>
        <lineNumber contextRef="now">1</lineNumber>
        <amount contextRef="now" decimals="2" unitRef="usd">4540</amount>
        <postingDate contextRef="now">2010-04-04</postingDate>
        <identifierReference>
          <identifierCode contextRef="now">C1130</identifierCode>
          <identifierDescription contextRef="now">New Wave Café</identifierDescription>
          <identifierType contextRef="now">C</identifierType>
          <identifierAddress>
            <identifierStreet contextRef="now">33 Sartre Ave</identifierStreet>
            <identifierCity contextRef="now">Eugene</identifierCity>
            <identifierStateOrProvince contextRef="now">OR</identifierStateOrProvince>
            <identifierCountry contextRef="now">USA</identifierCountry>
            <identifierZipOrPostalCode contextRef="now">97440</identifierZipOrPostalCode>
          </identifierAddress>
        </identifierReference>
        <documentType contextRef="now">invoice</documentType>
        <documentNumber contextRef="now">95404</documentNumber>
        <documentReference contextRef="now">Invoice#: 95404</documentReference>
        <documentDate contextRef="now">2010-04-04</documentDate>
        <documentLocation contextRef="now">Antonio's desk File Cabinet</documentLocation>
        <maturityDate contextRef="now">2010-05-04</maturityDate>
        <terms contextRef="now">2/10, Net 30</terms>
        <measurable>
          <measurableDescription contextRef="now">Mexican Calm</measurableDescription>
          <measurableQuantity contextRef="now" decimals="2" unitRef="NotUsed">250</measurableQuantity>
          <measurableUnitOfMeasure contextRef="now">EACH</measurableUnitOfMeasure>
          <measurableCostPerUnit contextRef="now" decimals="2" unitRef="usd">7.50</measurableCostPerUnit>
        </measurable>
        ...
      </entryDetail>
    </entryHeader>
  </accountingEntries>
</xbml>

```

The Coffee Roasting Company				
Sales Invoice	987 Campus Lane	No:	95404	
Bill To: C1130	New Wave Café	Invoice Date:	04-Apr-2010	
	33 Sartre Ave	Due Date:	04-May-2010	
	Eugene, OR 97440	Terms:	2/10, Net 30	
Coffee Mix	Mix	Quantity	Price per	Extended
Name	Code	Sold	Pound	Price
Mexican Calm	MC-3	250	\$7.50	\$1,900.00
Vienna Roast	VR-3	400	\$6.60	\$2,640.00
Total:				\$4,540.00

[Vienna Roast Details here]

enhance an organization's internal control in all of these areas.

XBRL GL can be used to safeguard assets by maintaining electronic approvals of transactions, which can then be audited electronically through an automated method (i.e., continuous auditing). It can help users avoid fraud by allowing internal auditors to check standardized rules and run automated audit tests, such as tests

for gaps and duplicates. XBRL GL can also be used to maintain accurate information and aid in manual audits by storing information regarding the location of source documents, whether in electronic or paper form.

### An Illustrated Example

An organization typically uses different software packages to record and store sales

and accounts receivable data, sharing them with a general ledger software module. This process can be facilitated if the data are stored in XBRL GL format. The exhibits described below illustrate how transactional data captured in business documents, such as sales invoices, can be recorded and stored in XBRL GL format to enhance the audit trail and internal control. They contain examples of XBRL

## EXHIBIT 3 XBRL GL Instance Document: Journal Entry (Sales Journal)

```

<xbrl xsi:schemaLocation="http://www.xbrl.org/taxonomy/int/gl/cor/2003-08-29/ gl-cor-2003-08-29.xsd" > <context id="now"><entity><identifier>CRC</identifier></entity></context>
13</instant></period>
</context>
<unit id="usd"><measure>iso4217:USD</measure></unit>
<accountingEntries>
  <documentInfo>
    <entriesType contextRef="now">journal</entriesType>
    <uniqueID contextRef="now">002</uniqueID>
    <periodCoveredStart contextRef="now">2010-04-14</periodCoveredStart>
    <periodCoveredEnd contextRef="now">2010-04-30</periodCoveredEnd>
  </documentInfo>
  <entityInformation>
    <organizationIdentifier contextRef="now">CRC</organizationIdentifier>
    <organizationDescription contextRef="now">The Coffee Roasting Company</organizationDescription>
  </entityInformation>
  <entryHeader>
    <enteredBy contextRef="now">Carla Smith</enteredBy>
    <enteredDate contextRef="now">2010-04-14</enteredDate>
    <sourceJournalID contextRef="now">sj</sourceJournalID>
    <sourceJournalDescription contextRef="now">Sales Journal</sourceJournalDescription>
    <entryType contextRef="now">standard</entryType>
    <entryNumber contextRef="now">50</entryNumber>
    <entryDetail>
      <lineNumber contextRef="now">1</lineNumber>
      <account>
        <accountMainID contextRef="now">1200</accountMainID>
        <accountMainDescription contextRef="now">Accounts Receivable</accountMainDescription>
        <accountPurposeCode contextRef="now">usgaap</accountPurposeCode>
        <accountType contextRef="now">account</accountType>
      </account>
      <amount contextRef="now" decimals="2" unitRef="usd">4540</amount>
      <debitCreditCode contextRef="now">D</debitCreditCode>
      <signOfAmount contextRef="now"/>
      <postingDate contextRef="now">2010-04-04</postingDate>
      <identifierReference>
        <identifierCode contextRef="now">C1130</identifierCode>
        <identifierDescription contextRef="now">New Wave Caf e</identifierDescription>
        <identifierType contextRef="now">C</identifierType>
      </identifierReference>
      <documentType contextRef="now">invoice</documentType>
      <postingStatus contextRef="now">posted</postingStatus>
      <detailComment contextRef="now"/>
    </entryDetail>
  </entryDetail>
  <entryDetail>
    <lineNumber contextRef="now">2</lineNumber>
    <account>
      <accountMainID contextRef="now">4100</accountMainID>
      <accountMainDescription contextRef="now">Sales</accountMainDescription>
      <accountPurposeCode contextRef="now">usgaap</accountPurposeCode>
      <accountType contextRef="now">account</accountType>
    </account>
    <amount contextRef="now" decimals="2" unitRef="usd">4540</amount>
    <debitCreditCode contextRef="now">C</debitCreditCode>
    <postingDate contextRef="now">2010-04-04</postingDate>
    <identifierReference>
      <identifierCode contextRef="now">C1130</identifierCode>
      <identifierDescription contextRef="now">New Wave Caf e</identifierDescription>
      <identifierType contextRef="now">C</identifierType>
    </identifierReference>
    <documentType contextRef="now">invoice</documentType>
    <postingStatus contextRef="now">posted</postingStatus>
  </entryDetail></entryHeader></accountingEntries></xbrl>

```

The Coffee Roasting Company				
Sales Journal				
Date	Accounts and Explanation	Posted	Debit	Credit
2010				
April 14	1200 Accounts Receivable	Yes	4,540	
	4100 Sales			4,540
	Invoice to New Wave Caf�e			

GL instance documents (transactional data and financial reports in XBRL format, in which the accounting data is stored between the opening and closing XBRL tags), as well as the corresponding traditional accounting information systems (AIS) reporting format in boxes in the upper right-hand corner.

**Road map.** This example revolves around a sales transaction at a coffee shop called "The Coffee Roasting Company." *Exhibit 1* shows the XBRL GL road map tracing from the source document (in this case, a sales invoice), to the creation of various XBRL instance documents, to the capture and recording of the transactional data in the sales journal and accounts receivable subsidiary ledger, to the generation of a trial balance, and, ultimately, to the production of financial statements. The links between the different XBRL instance documents are the common tags shown immediately below each instance document in the road map, and they are highlighted in the individual XBRL GL instance documents that follow.

In a manual system typically found in a smaller entity, the financial statements are usually prepared from an adjusted trial balance; the accountants provide a "mental map" of where account balances go from the trial balance to the financial statements. This mental map is formed based on the accountants' knowledge and experience. In an XBRL GL-based system, however, the chart of accounts provides the map from the trial balance to the financial statements. This map can then be used as an audit trail to go from the detailed account balances to the financial statements, and from the financial statements back to the detail accounts that make up those balances.

**Source document, journal, and subledger.** As noted in the road map (*Exhibit 1*), the type of instance document is specified by the `<gl-cor:entriesType>` tag. For example, a source document, such as a sales invoice, is *other* for the `<gl-cor:entriesType>` tag, as shown in *Exhibit 2*. The three instance documents (sales invoice [*Exhibit 2*], sales journal [*Exhibit 3*], and open accounts receivable [*Exhibit 4*]) created at the date of the transaction are linked through the use of `<gl-cor:sourceJournalID>` and `<gl-cor:documentType>`, also highlighted in the exhibits. In this example, the source journal is the sales journal represented by the

abbreviation *sj*, and the document type is *sales invoice*.

**Trial balance and chart of accounts.** The linkage between the journals, the trial balance (*Exhibit 5*), and the chart of accounts (*Exhibit 6*) can be found in the `<gl-cor:accountMainID>` tag highlighted in the XBRL GL instance documents. Finally, XBRL GL is connected with XBRL FR for financial reporting purposes with the following two tags in the chart of accounts: `<gl-srcd:summaryReportingTaxonomies>`, which specifies the financial reporting taxonomy (i.e., U.S. GAAP or IFRS) and the

`<gl-cor:summaryReportingElement>` tag for each specific financial statement item (i.e., cash and cash equivalent). These previously noted common tags in XBRL instance documents provide an electronic audit trail.

**Enhanced audit trail and internal control.** XBRL GL provides a means to capture, store, and share a wide range of metadata used for tagging transactional data. For example, in the XBRL GL instance document used to capture and store a sales invoice, the following tags specify accountability information that can be used to enhance the audit trail and internal control:

#### EXHIBIT 4 XBRL GL Instance Document: Open AR

**The Coffee Roasting Company**  
Open Accounts Receivable

Identifier Type	Identifier Code	Identifier Description	document Type	document Number	document Apply To Number	document Date	source Journal ID	amount
Customer	C1130	New Wave Café	invoice	95404	95404	2010-4-4	sj	4540
Customer	C1130	New Wave Café	credit memo	5689	95404	2010-4-5	cr	-100
Customer	C1130	New Wave Café	check	698456	95404	2010-4-14	cr	-4440

```

<?xml version="1.0" ?>
<xbrli:group xmlns:xbrli="http://www.xbrl.org/2003/instanceDocument"
xmlns:link="http://www.xbrl.org/2001/XLink"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xhtml="http://www.w3.org/1999/xhtml"
xmlns:08-29/" xmlns:cor="http://www.xbrl.org/2003/iso4217"
xmlns:ISO4217="http://www.xbrl.org/2003/iso4217"
xsi:schemaLocation="http://www.xbrl.org/2003/instanceDocument
http://www.xbrl.org/2003/instanceDocument"
<accountingEntries>
<documentInfo>
<entriesType nonNumericContext="s">assets</entriesType>
</documentInfo>
<entryHeader>
<sourceJournalID nonNumericContext="s">sj</sourceJournalID>
<entryDetail>
<amount numericContext="c">4540</amount>
<identifierReference>
<identifierCode nonNumericContext="s">C1130</identifierCode>
<identifierDescription nonNumericContext="s">New Wave Café</identifierDescription>
<identifierType nonNumericContext="s">Customer</identifierType>
</identifierReference>
<documentType nonNumericContext="s">invoice</documentType>
<documentNumber nonNumericContext="s">95404</documentNumber>
<documentApplyToNumber nonNumericContext="s">95404</documentApplyToNumber>
<documentDate nonNumericContext="s">2010-4-4</documentDate>
</entryDetail>
<entryHeader>
<amount numericContext="c">-100</amount>
<identifierReference>
<identifierCode nonNumericContext="s">C1130</identifierCode>
<identifierDescription nonNumericContext="s">New Wave Café</identifierDescription>
<identifierType nonNumericContext="s">Customer</identifierType>
</identifierReference>
<documentType nonNumericContext="s">credit memo</documentType>
<documentNumber nonNumericContext="s">5689</documentNumber>
<documentApplyToNumber nonNumericContext="s">95404</documentApplyToNumber>
<documentDate nonNumericContext="s">2010-4-5</documentDate>
</entryDetail>
<entryHeader>
<sourceJournalID nonNumericContext="s">cr</sourceJournalID>
<entryDetail>
<amount numericContext="c">-4440</amount>
<identifierReference>
<identifierCode nonNumericContext="s">C1130</identifierCode>
<identifierDescription nonNumericContext="s">New Wave Café</identifierDescription>
<identifierType nonNumericContext="s">Customer</identifierType>
</identifierReference>
<documentType nonNumericContext="s">check</documentType>
<documentNumber nonNumericContext="s">698456</documentNumber>
<documentApplyToNumber nonNumericContext="s">95404</documentApplyToNumber>
<documentDate nonNumericContext="s">2010-4-14</documentDate>
</entryDetail>
</accountingEntries>
<xbrli:numericContext id="c" precision="12" cwa="false">
<xbrli:entity><xbrli:identifier>CRC</xbrli:identifier></xbrli:entity>
<xbrli:period />
<xbrli:unit><xbrli:measure>ISO4217:USD</xbrli:measure></xbrli:unit>
</xbrli:numericContext>
<xbrli:nonNumericContext id="s">
<xbrli:entity><xbrli:identifier>CRC</xbrli:identifier></xbrli:entity>
<xbrli:period /></xbrli:nonNumericContext></xbrli:group>

```

- `<sourceApplication>`, the application that initiated the transaction
- `<enteredBy>`, the identity of the person who recorded the transaction
- `<postedDate>`, a timestamp for the business event
- `<entryOrigin>`, the source of the data
- `<documentLocation>`, the location of the document, either physically or digitally.

These tags are also highlighted (where present) in Exhibits 2 through 6.

### Implications of XBRL GL

In the authors' opinion, it is likely that many (standardized) audit tests that currently run manually, or with manual intervention, will be automated and used as the basis for some form of continuous auditing in the future. Audit software packages,

such as ACL or IDEA, will likely have modules able to read XBRL GL information and generate reports in a form that is more easily understood by auditors. As more and more audit tests become automated, auditors will have more time and effort to put toward more complex testing and analyses. Although this sounds like a welcome relief from performing monotonous tasks, it also means that

## EXHIBIT 5 XBRL GL Instance Document: Trial Balance

```

<accountingEntries>
  <documentInfo>
    <entriesType nonNumericContext="s">trialbalance</entriesType></documentInfo>
  <entryHeader>
    <entryNumber nonNumericContext="s">1</entryNumber>
    <entryDetail>
      <account>
        <accountMainID nonNumericContext="s">1000</accountMainID>
        <accountMainDescription nonNumericContext="s">Cash</accountMainDescription>
      </account>
      <debitCreditCode nonNumericContext="s">D</debitCreditCode>
      <amount numericContext="c">125480</amount>
    </entryDetail>
    <entryDetail>
      <account>
        <accountMainID nonNumericContext="s">1000</accountMainID>
        <accountMainDescription nonNumericContext="s">Cash</accountMainDescription>
      </account>
      <debitCreditCode nonNumericContext="s">C</debitCreditCode>
      <amount numericContext="c">0</amount>
    </entryDetail>
  </entryHeader>
  <entryHeader>
    <entryNumber nonNumericContext="s">2</entryNumber>
    <entryDetail>
      <account>
        <accountMainID nonNumericContext="s">1200</accountMainID>
        <accountMainDescription nonNumericContext="s">Accounts Receivable</accountMainDescription>
      </account>
      <debitCreditCode nonNumericContext="s">D</debitCreditCode>
      <amount numericContext="c">48899</amount>
    </entryDetail>
    <entryDetail>
      <account>
        <accountMainID nonNumericContext="s">1200</accountMainID>
        <accountMainDescription nonNumericContext="s">Accounts Receivable</accountMainDescription>
      </account>
      <debitCreditCode nonNumericContext="s">C</debitCreditCode>
      <amount numericContext="c">0</amount>
    </entryDetail>
  </entryHeader>
  ...
  <entryHeader>
    <entryNumber nonNumericContext="s">12</entryNumber>
    <entryDetail>
      <account>
        <accountMainID nonNumericContext="s">4100</accountMainID>
        <accountMainDescription nonNumericContext="s">Sales</accountMainDescription>
      </account>
      <debitCreditCode nonNumericContext="s">D</debitCreditCode>
      <amount numericContext="c">0</amount>
    </entryDetail>
    <entryDetail>
      <account>
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        <accountMainDescription nonNumericContext="s">Sales</accountMainDescription>
      </account>
      <debitCreditCode nonNumericContext="s">C</debitCreditCode>
      <amount numericContext="c">556000</amount>
    </entryDetail>
  </entryHeader>
  ...

```

The Coffee Roasting Company			
Trial Balance			
Account ID	Account Description	Debit Amt	Credit Amt
1000	Cash	\$125,480.00	0.00
1200	Accounts Receivable	48,899.00	0.00
1400	Inventory	158,000.00	0.00
...			
4100	Sales	0.00	\$56,000.00
...			
7900	Interest Expense	45,000.00	0.00
	Total:	\$889,000.00	\$889,000.00

more will be expected of auditors in terms of delivering value-added analyses.

As with any new technology, XBRL will create its own opportunities and challenges. XBRL creates numerous opportunities for accountants and auditors to add value to an organization. It will enable the generation of interactive accounting data that can internally improve the audit trail. At the same time, XBRL will make the data more portable and ease the reporting of such data to regulatory agencies. Ultimately, it will accelerate the adoption

of continuous auditing techniques. As the move toward IFRS adoption for financial reporting in the United States continues, XBRL will ease the conversion process.

XBRL technology is nevertheless challenging to learn and apply. As its adoption spreads, training will become more widely available and software companies will be more likely to offer products that make XBRL easier to implement. If XBRL GL is implemented in a network environment, enhanced network security will be necessary to protect the data from tampering or

deletion. As regulatory bodies make XBRL compulsory and as more organizations adopt it, accountants and auditors will start learning about XBRL FR and GL and their potential to deliver value to an organization. □

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## EXHIBIT 6 XBRL GL Instance Document: Chart of Accounts

```
<xbml xsi:schemaLocation="http://www.xbrl.org/taxonomy/int/gl/cor/2003-08-29/ gl-cor-2003-08-29.xsd">
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    <documentInfo>
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      <entriesComment> Sample chart of accounts with mapping to sample taxonomies </entriesComment>
      <periodCovered> PIY </periodCovered>
      <summaryReportingTaxonomies>
        <summaryReportingTaxonomyID>us-gaap</summaryReportingTaxonomyID>
        <summaryReportingTaxonomyNamespace> http://xbrl.us/us-gaap-std/2008-03-31 </summaryReportingTaxonomyNamespace>
        <summaryReportingTaxonomyDescription> 2008-03-31 FINAL release of the ... </summaryReportingTaxonomyDescription>
      </documentInfo>
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        <entryDetail>
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            <accountMainDescription>Cash</accountMainDescription>
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          </account>
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          </xbrlInfo>
        </entryDetail>
        <entryDetail>
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            <accountMainDescription> Accounts Receivable </accountMainDescription>
            <accountType> account </accountType>
          </account>
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        </entryDetail>
        <entryDetail>
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          </xbrlInfo>
        </entryDetail>
        ...
      </entryHeader>
    </accountingEntries>
  </xbml>
```

The Coffee Roasting Company	
Chart of Accounts	
Account Title	Account Number
<b>Current Assets:</b>	
Cash	1000
Accounts Receivable	1200
Inventory	1400



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