Accounting Information Systems: Tradition and Future Directions

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Introduction

Tendencies and challenges

Technology answers

Conclusions and Future Work

Agenda
Introduction
What is an AIS?

- An Accounting Information System (AIS) is generally a computer-based method for tracking accounting activity in conjunction with information technology resources (Fontinelle, 2011).
- AIS is responsible for the collection, storage and processing of financial and accounting data that is used for internal management decision making, including nonfinancial transactions that directly affect the processing of financial transactions.

Introduction
Composition of an AIS

- An AIS is typically composed of three major subsystems:
  1. Transaction Processing System (TPS) that supports daily business operations.

(Hall, 2010a)
**Introduction**

**Composition of an AIS: TPS**

- TPS (Transaction Processing System) is responsible for supporting daily business operations or transactions.
- These transactions can be grouped together in three transaction cycles:
  - the revenue cycle
  - the expenditure cycle
  - the conversion cycle

**Introduction**

**Composition of an AIS: GLS/FRS**

- Usually seen as a single integrated service, the GLS/FRS (General Ledger System and Financial Reporting System) are two closely related systems.
- GLS is dedicated to summarization of transaction cycle activity.
- FRS is dedicated to the measurement and reporting of the status of financial resources, generally outputted in the form of financial statements or tax returns to external entities.
  
  (Hall, 2010a)
Introduction
Composition of an AIS: MRS

MRS (Management Reporting System), usually in the scope of Management Information Systems (MIS), offers internal management with special purpose financial reports and information needed for decision-making such as:

- budgets
- variance reports
- accountability reports

Introduction
ERP as the traditional AIS

For almost all professionals from the accounting domain the main idea of the information system of an organization and particularly the AIS is embraced by the Enterprise Resource Planning (ERP) system.
But, where is AIS moving from now?

- The established view about AIS domain is moving now from a more modular approach to an AIS where new technologies like Business Intelligence (BI) or Balanced Scorecard (BSC) systems play an increasingly important role (Grabski, Leech & Schmidt, 2011)

- There is a huge set of new technologies that can complement or integrate current AIS and its present available facilities

Large online survey

- A large online survey
  - June 2010
  - Conducted by the Chartered Institute of Management Accountants (CIMA) and by the UK’s University of Bath
  - 5,426 senior finance and senior non-finance professionals
  - All regions of the world

(Van der Stede & Malone, 2010)
Traditional duties of accounting

- **Reporting** is probably the activity most frequently performed by accountants.
- Accountants' need to be able to produce reports in real time and interactively (allowing them to choose what to put in the reports, perform analysis and scenario creation).
- One activity that is usually performed by accountants is **Auditing**, usually divided in two major groups:
  - Internal Auditing
  - External (or Independent) Auditing

Some tendencies of accounting

- Most important trend in accounting professionals is the shift of accountants’ responsibilities from traditional accounting operations to strategic management guidance and support.
- Nowadays, major corporations worldwide need professionals who understand risk management, cash flow, financial instruments and other complex functions that can offer strategic guidance to top executives.
- With the recent international financial crisis, the usage of AIS by external stakeholders (external reporting) is becoming more important and specially, much more critical.

(Van der Stede & Malone, 2010)
The focus of the present work is on the concerns that represent challenges that still do not have appropriate technological responses and therefore deserve to be the focus of future research.

Examples may be:
- external and compliance reporting,
- strategic analysis,
- benchmarking,
- forecasting,
- internal auditing,
- ...

Challenges & IT answers

9 accounting challenges and 9 most important IT answers
Web Services is communication through the Internet
It facilitates Enterprise Application Integration (EAI), meaning integration among applications or interoperability, like electronic commerce with clients and suppliers
Allow integration between different systems like AIS, operational systems and web applications
Enhance external and real time reporting, availability to a wider range of stakeholders, with nearly fulltime accessibility

IoS describes an infrastructure using the Internet as a medium for offering and selling services which become tradable goods
Among other services, online invoicing and online billing are frequently used by significant number of organizations
Other new services can be designed to support accounting and finance, like helping to provide strategic guidance, looking at what is happening outside, forecasting or benchmarking (comparing business to industry best practices)
Challenges & IT answers

Mobile devices

- Although consumers prefer to purchase in store, more than 3,000 mobile phone users around the world use mobile and other channels to support shopping experiences (24% read customer reviews on mobiles and 55% use or would like to use banking/finance apps on their mobile phone/tablet).
- This tendency reveals the importance of:
  - m-commerce, and so, the importance of integrating these systems and their performance data with AIS
  - using mobile to make real-time reporting, communicating with a wider range of stakeholders, like current/potential investors, creditors, fiscal or regulatory authority

Cloud Computing

- The technological answer may range between an hosted solution, a mixed online and on-premise solution or an wholly online accounting software, with a solution based on the cloud, which means an architecture based on Software-as-a-Service (SaaS), also known as Cloud Computing
- With this solution, different sort of stakeholders can access to solid accounting and finance management functionalities with real time reporting from anywhere
Environmental scanning can be defined as the acquisition and use of information about events, trends, and relationships in an organization’s external environment, assisting management in planning the organization’s future course of action.

Conventional accounting on the stewardship function of accounting is important but should not be its only.

Another cost perspective is current cost, corresponding to the price that must be paid for an asset or its use at a certain date.

Business Intelligence

BI helps to identify/develop new opportunities, at a strategic, tactical and operational level, providing insights, helping top/middle managers, offering tailor-made dashboards.

Engages processes like data mining, process mining, statistical analysis, predictive analytics or modeling, supporting concerns as forecasting, or management support concerns.
Challenges & IT answers
Enterprise Architecture & Enterprise Application Integration

- The holistic view of the enterprise is the most important characteristic of the enterprise architecture
- Systems integration joins information from unrelated domains
- Interoperability allows AIS more integrated to other systems, and more effectiveness (eXtensible Business Reporting Language (XBRL), a XML-based language contributes to that)

Challenges & IT answers
Business Process Management

- Processes is a common factor along all organizations
- The dematerialization of processes allows that BPM better support the delivery of non-financial data to AIS
- Material, human and other production costs or performance indicators of the processes can be managed at a lower or at a higher level
- BPM, with its workflow functionality accordingly integrated within AIS
Auditors need Computer Assisted Audit Tools and Techniques (CAATT) to enhance capabilities and productivity.

Many such tools and techniques can be implemented, ranging from maximized use of standard office suite software to Audit Command Language (ACL) and Interactive Data Extraction and Analysis (IDEA) for the extraction and analysis of data.

Can be used to perform a wide range of analytical actions on various financial data like general ledger entries, payroll and accounts payable data and trial balance calculations to flag outliers, miscalculations, or suspicious entries that might indicate fraud or misstatement.

Big companies always generate large amount of data.

Accounting and financial information from these different businesses across the world join large non-financial data.

The big data systems paradigm is supported by scale, parallelization, and agility, using numerous machines working in parallel to store and process data.
Conclusions and future work

- The response from the current technology to many of the concerns and challenges of Accounting domain is still poor.
- Technology answers identified and characterized in this work can be viewed as future directions of research in AIS domain.
- Although AIS research undoubtedly includes ERP systems, other emerging systems such as the ones identified in this work are also important.
- Unlike ERP systems, these new systems are not so thoroughly studied in AIS domain so more research is needed to find new potentialities and/or benefits that these systems can bring.
- This work is the cornerstone for future research with vast directions in the area of Accounting Information Systems.

References

This slides are based on the paper “Accounting Information Systems: Tradition and Future Directions”, from Fernando Belfo and António Trigo presented at CENTERIS 2013 – Conference on ENTERprise Information Systems.
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Comments and Contributions are appreciated

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