

# The Evolution of Assurance Software & Methodology

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I started my career in Internal Auditing (“IA”) over 20 years ago in the spring of 1981. 1983 marked my first exposure to computer assisted audit tools. (“CAATs”) It was a painful experience to say the least. The General Auditor of Gulf Canada at the time, Bruce McCuaig, had decided that his audit staff should learn to use a very new audit tool to query data and develop samples for audit testing. To use this radical new audit tool you had to punch decks of computer cards and send them down to the computer center for processing. If all went well (and it frequently did not, especially for me), your CAAT report would be ready the next morning.

Thankfully, there have been many improvements in assurance software since that time.

In this article I overview developments in the assurance profession and assurance software over the past 20 years, and provide some bold predictions on where assurance software is headed over the next decade.

The changes have been huge. The rate of change is expected to accelerate even further to respond to the current stakeholder “crisis in confidence” caused by the current plethora of unexpected corporate failures and disasters.

## **THE AUDIT TASK**

The diagram in Figure 1 provides an overview of the challenges internal auditors face. The primary task of IA historically has been to provide some form of assurance to senior management and the audit committee on some portion of the risk universe. IA mandates have varied widely, from reporting the results of whatever number of direct report audits were completed in the year on traditional topics like computer security, accounting, policy compliance and the like, to providing a comprehensive opinion on whether controls across the whole entity related to all types of risks and objectives are “adequate or “effective”, a tall order to say the least.

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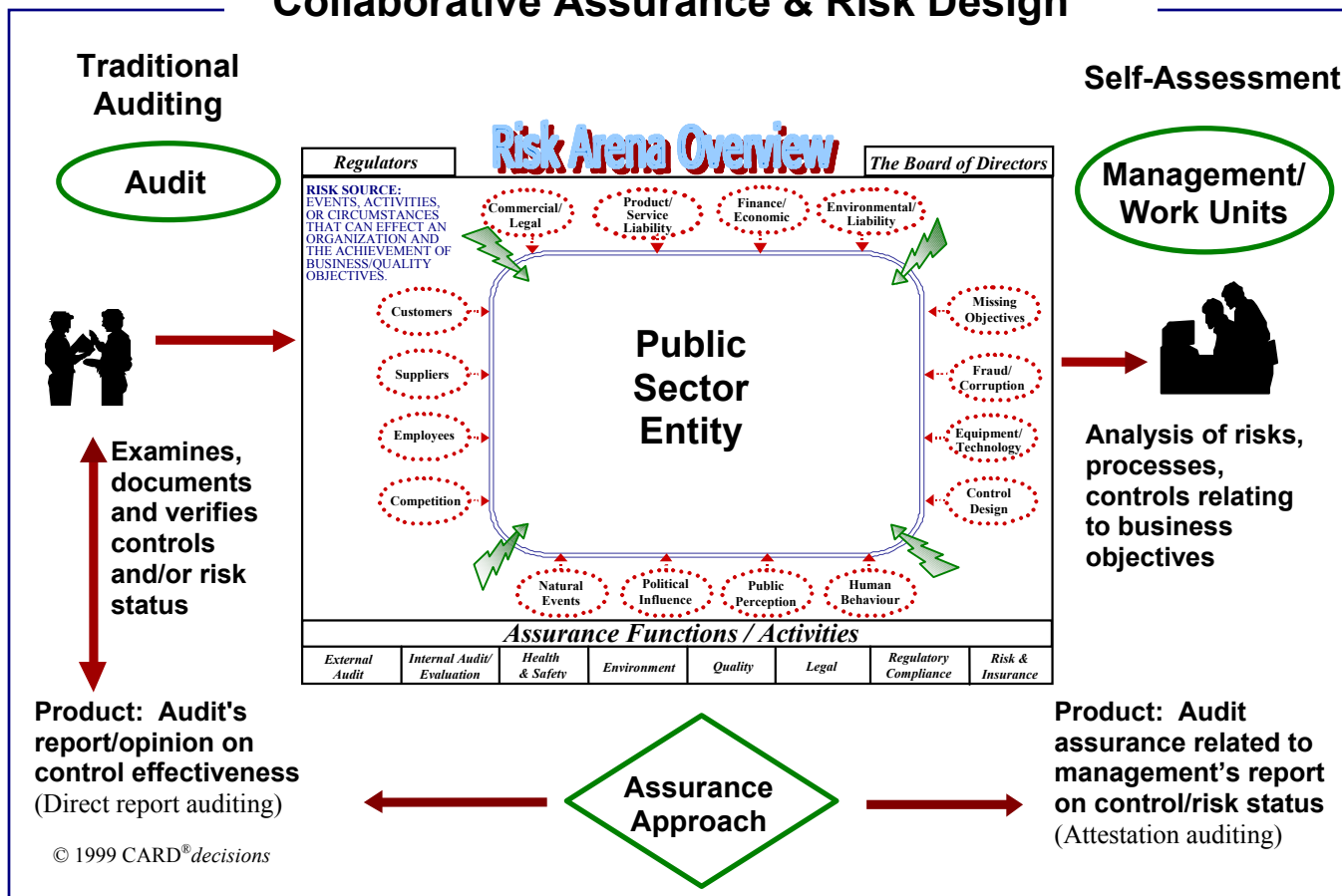


Figure 1

## DIRECT REPORT AUDIT TOOLS

It is fair to say that the vast majority of assurance software that has been developed over the past two decades has focused on automating the traditional, “direct report” approach to IA. These tools support approaches where internal auditors and other assurance specialists are the primary risk and control analysts and reporters. The primary product produced is a report summarizing findings, concerns or areas for improvement and management’s response to those observations. This approach is depicted on the left side of Figure 1.

These direct report audit software tools can be subdivided as follows:

CAATs – The dominant players in this class of software are ACL and IDEA.

**Traditional Audit Administration and Automation** – a wide range of products have emerged in this class to automate direct report audit approaches including TeamMate, Auditor Assistant, AutoAudit, Audit Leverage, ADM Plus, Pro Audit Advisor, Optial, Galileo, Pentana, Workforce, and others.

**Flowcharting and Data Capture** – Auditors have used a range of standard software applications to document their work such as MS Word, WordPerfect, Excel, Lotus 123, and a range of flowcharting tools. The sophistication of these tools has improved significantly over the past 20 years.

**Computer Security Monitoring Tools** – Specialized tools have evolved for IT auditors including such products as NT Auditor for IDEA, VigilEnt Security Agents, Unix Auditor for IDEA.

## **CONTROL AND RISK SELF-ASSESSMENT SOFTWARE**

Work started by Bruce McCuaig’s internal audit team at Gulf Canada Resources in 1986/87 began a global movement to encourage work units to actively participate in risk and control assessment and reporting. Early CSA efforts in the late 1980s were done mainly with the use of flipcharts. To increase sophistication, yellow sticky notes were sometimes used. This approach to assurance is shown on the right hand side of Figure 1. The IIA validated this new form of assurance with the launch of the new Certification in Control Self-Assessment (“CCSA”) in 2000.

**Computer Projected Word Processing** – As computer projectors began to drop in price in the early part of the 90s, business objective starting point control and risk self-assessment workshops began to use word processing templates to capture input from participants on work unit objectives, risks, controls and concerns.

**Voting Software and Hardware** – CSA practitioners that favored the “Control Criteria” approach to self-assessment began to experiment with the use of voting hardware and software around 1993. This approach involved the use of a class of software that today includes Sharpe Decisions, Option Finder, Resolver Ballot, CSA Pro, and others. This approach involves obtaining input from an audience on their view of the degree to which the organization is using or not using specific control criteria found in models such as COSO, CoCo, and others. Voting software can also be used to help prioritize the audit

universe, rank objectives and risks, and evaluate the effectiveness of controls and acceptability of residual risk.

**CSA/CRSA Software** – toward the latter half of the 1990s software designed specifically to support work unit risk and control self-assessment began to emerge. Software products in this class include Magique, Methodware Operational Risk Builder, Portiva, Amelia Financial, KnowRisk, Prism, and others. New entries are entering the scene at a brusque pace to meet the needs of 30,000 banks that must convince regulators that they have effective operational risk management systems by 2006.

## **INTEGRATED ENTERPRISE RISK AND ASSURANCE SOFTWARE**

In 1986 CARD<sup>®</sup> *decisions* Inc. began development of CARD<sup>®</sup> *map* software, a radical new class of assurance software designed for use by auditors of all types for direct report assessments (i.e. the left side of Figure 1) and, if an organization’s culture is conducive, by work units to complete a range of different types of risk and control self-assessment (i.e. the right hand side of Figure 1). In an integrated risk and assurance software system, when work units input some form of risk and control self-assessment, Internal Audit or other assurance specialists may have to “audit” or quality assure the work unit representation on control and risk status so that senior executives and the Board can rely on the information. This new form of Internal Audit activity is shown in the bottom right corner of Figure 1. The primary goal is to provide assurance to key stakeholders that the organization is likely to achieve its objectives with an acceptable level of risk.

The IIA is currently developing audit standards for the new form of “attestation reporting” auditing shown in the bottom right corner. The Canadian Institute of Chartered Accountants released audit standards for attestation reporting with the release of section 5100 – Standards for Assurance Engagements.

An integrated enterprise risk and assurance system is designed to capture and summarize all types of information on risk and control being generated by auditors of all types as well as all information on risk, control and assurance status being generated by work units. As of July 2002, CARD<sup>®</sup> *map* software is the only software offering this new assurance software category. More software products are expected to emerge in this new category over the next 5 years.

## **QUANTITATIVE RISK ANALYSIS SOFTWARE**

The new millennium brought yet another entrant to the assurance software field – quantitative risk assessment software. This software is designed to capture and store loss event information related to all types of risk for many years. This data can then be analyzed and reported on using a range of sophisticated analysis and modeling tools. The capability to compare a client’s loss statistics to other organizations nationally and internationally may also be included in this new class of software. This new software class includes product offerings from OpVantage, Algorithmics, Amelia Financial and others. The Basel banking reforms scheduled for implementation in 2006 require that banks add this new class of analysis tool if they wish to qualify for the most sophisticated risk approach – the Advanced Measurement Approach for capital adequacy calculations.

## **WHAT WILL THE NEXT DECADE BRING?**

Over the next decade you can expect to see many exciting new developments in the assurance software field:

1. Increased use of continuous monitoring business intelligence software. This software has the potential to identify areas in an organization where the performance indicators suggest a problem exists or is emerging and provide “early warning” reports for senior management and auditors of all types. Software companies like Cognos and Business Objects are pioneering new developments in this area. Major software houses such as SAP, PeopleSoft, JD Edwards and others are also showing interest.
2. Integration of quantitative risk analysis software and integrated qualitative enterprise risk and assurance software. Work has already begun to integrate quantitative risk analysis tools with risk and control self-assessment and integrated enterprise risk and assurance software systems.
3. Vastly improved direct report audit software that is capable of linking to real time performance and loss event data related to all types of objectives to help drive risk rated audit plans, track improvements that result from audit recommendations, and better allocate audit resources.
4. Creation of software that demonstrates the correlation between various risk and control combinations and performance. Visibility on the correlation between various control combinations and actual performance levels will allow auditors to empirically validate whether their control assessment conclusions and recommendations have been valid. It

will also allow provide the architects of a control model (e.g. COSO, CoCo, CARD<sup>®</sup> model, Cadbury, etc) to better determine the priority importance of various types or categories of control. As the world's understanding of what it really takes to have effective control improves, it may lead in time to control models that are numerically weighted out of 1000 possible points similar to the Baldrige and EFQM models. This will allow auditors to more objectively report on the "adequacy" of an organization's corporate control governance systems.

## IN CONCLUSION

The audit world has changed dramatically over the past 20 years. I believe that the rate of change will not only continue, but will accelerate rapidly over the next decade as new and better information technology emerges to challenge long held internal audit beliefs and approaches. Auditors who are willing to adopt these new, more effective tools and methods will thrive and be rewarded financially and emotionally. Auditors that cling to antiquated audit methods and tools will fall by the wayside or be ejected from their organizations by dissatisfied clients.

What is certain is that the assurance game certainly won't be a dull area to be in over the next decade. Anderson is living proof of the consequences of not meeting customer expectations. Internal auditors at many of these organizations should also come under scrutiny to determine if they met the expectations of the profession. Whether the world can find better assurance approaches and tools that meet the rapidly escalating stakeholder expectations is a task for all of us in the internal audit profession. I think it can keep busily employed for at least another decade - even if it does mean I have to learn to like software.

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