



## **The Institute of Internal Auditors, Singapore**

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3 August 2007

Dear Members

# **2 Days Seminar on Advanced Analytics & Continuous Control Monitoring**

**18 – 19 October 2007 by Dr Dan Kneer & Mrs Kimberley Kneer**

**What you will gain from this seminar:**

### **UPON COMPLETION OF THIS COURSE, YOU WILL BE ABLE TO...**

- Recognize and apply multiple types of analytics.
- "See" opportunities to audit quicker.
- Reduce sample size, and audit costs by performing analytics (\$0.05 test) versus tests of controls (\$1 test) or substantive tests (\$4 test).
- Apply ISA 520,
- Fulfill Basel II and SOX requirements.
- Run, hands-on, the most productive analytic technique (regression analysis) via Excel.
- Introduce efficiency into the audit process, while not losing effectiveness.
- Learn why 99% of the Analytical Procedures used by auditors are DOOMED TO FAILURE.
- Assign a statistical confidence or reliability to our analysis.
- Be able to identify the business rules for critical core processes, and to quantify the necessary Critical Success Factors (CSFs) and related Key Performance Indicators (KPIs).
- Construct management dashboards for Continuous Monitoring.

### **Course Description**

Audit research has proven that Advanced Analytics **is** the most efficient and effective audit technique. Advanced analytics allows you to reduce cycle time. Also, you decrease your response time ... and lessen your travel time (as you "bring the data to you"). Further, as you audit by exception, you will deploy your resources in a more efficient manner. Finally, Advanced Analytics provides for more robust (and better received) audit findings. Analytics works best with operational data, and thus are highly applicable for:

- Fraud Audits (advanced analytics has been proven to be the # 1 FRAUD FINDING TECHNIQUE in the world)
- Operational/Efficiency Audits (analytics is the basis of CONTINUOUS MONITORING)
- Program/Policy/Agency Audits
- Performance Audits
- Compliance/Statutory Audits (analytics can help in BASEL II and SOX compliance)
- Enterprise Risk Assessment and Management
- Financial Audits (analytics is the genesis for CONTINUOUS AUDITING)

Advanced analytics forms the foundation of Continuous Control Monitoring, the necessary building block (e.g., the “secret sauce”) for AUTOMATION and CONTINUOUS REAL-TIME MEASUREMENT/NOTIFICATION of:

- Entity-Wide Risk Assessment and Management
- Corporate and IT Governance
- Sustainable BASEL II (Operational Risk) and SOX Compliance
- COSO-ERM Compliance
- Control and Risk Self Assessment
- Compliance/Statutory Audits (analytics can help in BASEL II and SOX compliance)
- Real-Time Business Intelligence (Balanced Scorecards, Budgeting, Forecasting, Benchmarking, Business Optimization, Process Control, 6 Sigma)
- SAS 70
- Finding (and Deterring) Fraud Waste & Abuse (advanced analytics has been proven to be the number one FRAUD FINDING TECHNIQUE in the world)
- Continuous Assurance (Audit Smarter, Not Harder: Efficient and Effective Auditing)
- Advanced Analytical techniques are supported by the Yellow Book, AICPA Standards (SAS 56) and IIA Standards (SIAS # 8)

Analytics has long been recognized as the most cost-effective audit evidence available. Consider the AICPA's three "pots" of audit evidence.

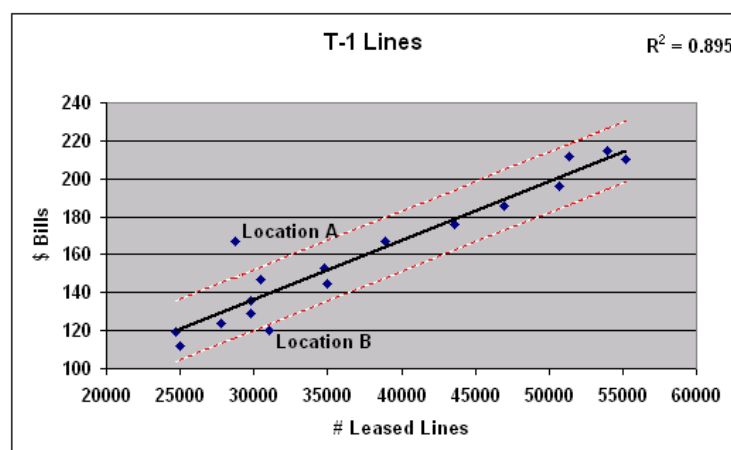


For every audit labor dollar spent performing Control Tests, you could receive equivalent audit satisfaction from Analytics for 5¢ or from Tests of Details for \$4! You be the judge of which technique to select.

Why don't auditors perform many analytics?

The answer is that we were trained in financial ratio analysis. Financial ratios are, usually, balance sheet driven and full of adjustments. Their predictive power is limited. We can generate better KPIs (Key Performance Indicators) that reflect the operational characteristics of the entity being audited.

For example, consider the audit of telecom costs below.

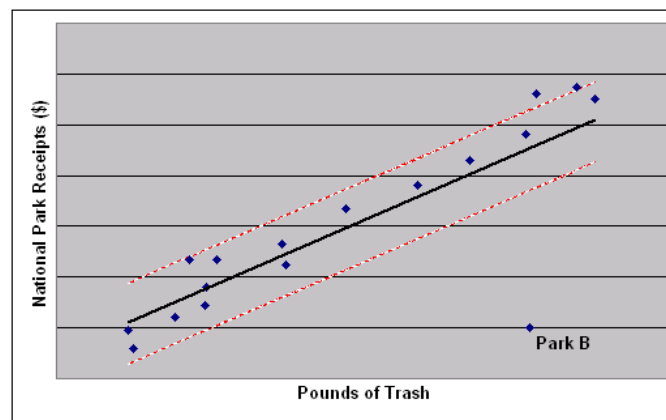


By running simple techniques available in Excel we could **quickly** (e.g., cheaply) determine several relevant audit factoids, such as:

1. Most of the locations (each dot) have a reasonable cost performance.
2. We can really cut audit scope because only two outliers exist.
3. We'd better get to Location A and see what's wrong.
4. Perhaps we should visit Location B, as "best practice."

Note that the above analysis is useful for financial audit, operational audit or performance/ program audit.

Here's another great use of analytics. Suppose you were performing a "revenue protection" audit of our National Parks system. Further, let's theoretically say that a fraud is occurring (someone is skimming cash from the park receipts).



Auditors realize that testing for **unrecorded** revenue is the hardest test in the world (no audit trail and possible collusion). Well, using techniques in Excel, we could accurately **predict** park receipts by using trash volume (independent trucking company is used) as our predictor. (The reverse is also true. If we believed the park receipts figures were in fact, valid, we could "audit" the trash contractor for overstating trash volume!)

The best news of all is we can assign a statistical confidence or reliability to our analysis. Now folks, that's some powerful stuff.

This course will teach auditors how to perform a wide range of analytics. Thus the auditor is utilizing his/her laptop to save audit costs and increase efficiencies.

*Note: if you plan on attending this course, please read the Course Requirements below.*

### Course Outline

Please refer to Appendix I attached.

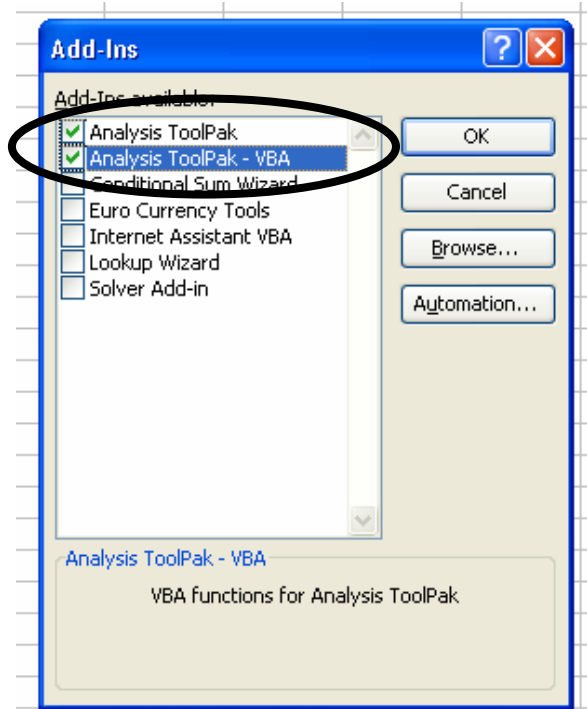
## Course Requirements

To maximize the value of this class, it is recommended that you have the Analysis ToolPak installed in Excel prior to coming to class. Below is a write-up of how to see if you have it and how to install it.

Get into Excel, and, in the menu, click on Tools. Do you see a menu item that says Data Analysis? (It's usually the last item in the list.) If so, CONGRATULATIONS, you've already got it! If you don't see Data Analysis, let's install it:

1. In the Tools menu, select Add-Ins.
2. From the Add-Ins dialog box, select (e.g., click to put check-marks in the boxes) Analysis ToolPak and Analysis ToolPak - VBA. Then click OK.
3. Now return to the Tools menu. You should have Data Analysis!

If you received an error message after you clicked OK, your machine was installed without it. Your IT support folks can put in the original installation disc to reinstall in just a few minutes ... then go thru the steps above, again.



## Participant Requirements

This course screams of being HANDS-On. Students will spend over 50% of the course learning/applying concepts and “pressing keys” along with “analysis time” for navigating governmental-specific computerized case exercises.

The only way students will learn these concepts is to “press the keys”. **It is really important that you bring your laptop to class. If you cannot ... it would “OK.” We will “buddy” you with someone who has a laptop.** A basic working knowledge of Excel is preferable, but not required.

## Course Materials/Takeaways

Each participant will receive the following:

- Workbook complete with screen captures and (numbered) step-by-step instructions.
- CD with computerized cases so they may practice and replicate the classroom experience (that is, APPLY this knowledge on the job).
- Very valuable and necessary add-ins, constructed by the Instructor (free for the students).

## About the Speakers

### *Dan Kneer, PhD, CPA, CFE*

“Dr. Dan” is internationally recognized as the “thought leader and innovator” in the teaching of “auditing smarter: not harder”. From his national award-winning PhD thesis (AICPA), on audit risk, to his recognition for a “Lifetime Contribution in the Innovative Usage of Technology in Auditing” (AICPA), Dan has reflected a 25 year period of sustained excellence regarding audit efficiency and effectiveness.

He has taught audit efficiency concepts to all of the Big 4, over 75 Federal agencies, 17 State Auditor Offices and, over 200 internal audit shops. He has taught this course for the IIA, the AGA, the AICPA and the ISACA.

Dr. Dan served as the National Director of Research of the (then) EDP Auditors Association (now ISACA) and he initiated the Research Monograph Series.

A Fortune Top 10 CEO recently said that Dr. Dan “built the Holy Grail” of Continuous Controls Monitoring. He is the world leader in the design of real-time monitors.

His hands-on training and revolutionary audit strategies increase audit efficiency by over 33% while reducing cycle and travel time. A Fortune 500 Company now saves \$300,000,000 per year, via his techniques.

Dan has been requested to participate/comment on many auditing standards (AICPA, IIA, COSO, CobiT, SOX, and the Yellow Book).

A noted AICPA standards setter (and members of the PCAOB board) said "Dan's ideas are so revolutionary that he will obsolete many current standards".

Dr. Dan has been voted "Americas # 1 trainer of auditors" and the # 1 speaker at multiple IIA International Conferences. The President of the IIA remarked that "while others teach in black and white, Dr. Dan teaches in full color".

### ***Kimberly Kneer***

Kimberly Kneer graduated from the School of Accountancy at the University of Missouri and has recently passed the CPA exam. She specializes in end-user software support.

Kim started her career in the healthcare field as a liaison between computer users and hospital data processing and financial management. She was in charge of all the financial modules in the mainframe computer software conversion. Kim also assisted the Big 4 external auditors in the annual audit effort. Her specialty is laptop-based software tools that assist auditors, inspectors, and examiners in the review of compliance, performance, operations and financial data. A masters degree in statistics is on her current "to do" list.

#### **Details of the administrative arrangements are as follows:**

Date : 18 – 19 October 2007

Time : 9.00 am to 5.00 pm  
(Lunch and refreshments provided)

Registration : 8.30 am

Venue : **Grand Plaza Park Hotel City Hall**  
Ballroom 1, Level 2  
10 Coleman Street  
Singapore 179809

CPE credit : 12 hours

Fee : S\$1,200 (IIA / ISACA Member)  
S\$1,560 (Non-member)  
**\* NO GST payable**  
**\*\*NO invoice will be issued**

Closing Date : 9 October 2007

Please return the reply slip together with your cheque made payable to "**The Institute of Internal Auditors Singapore**". **No invoice will be issued.**

Yours sincerely  
Lena Kuok  
for Education Committee

# REPLY SLIP

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2 Days Seminar on  
**Advanced Analytics & Continuous Control Monitoring**

18 – 19 October 2007 by Dr Dan Kneer & Mrs Kimberley Kneer

From: Mr/Mrs/Ms/Miss \_\_\_\_\_

Organisation: \_\_\_\_\_

Mailing Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Tel: \_\_\_\_\_ Fax: \_\_\_\_\_ Mobile: \_\_\_\_\_ Email: \_\_\_\_\_

| Name of Attendee | Designation | IIA / ISACA Membership No.<br>( where applicable ) |
|------------------|-------------|--|
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**Terms and Conditions:**

1. Notification of withdrawal in writing received **seven working days or more before** the event will be processed for refund after deduction of \$100 processing fee.
2. No refund will be made for shorter notice but you are welcome to send a replacement.
3. Registration is only confirmed when full payment is received. An official receipt will be sent to you.
4. Payment must be received **before** commencement of the event.
5. No invoice will be issued.
6. Programme may be subject to change.
7. Request for special food arrangement must be made at time of registration.

Enclosed is cheque number \_\_\_\_\_ for S\$ \_\_\_\_\_ being payment for \_\_\_\_\_  
IIA / ISACA member(s) @ S\$1200 and \_\_\_\_\_ non-member(s) @ S\$1,560.

**Participants will be awarded 12 CPE hours upon completion of the course.**

[ Cheque should be crossed and made payable to "The Institute of Internal Auditors Singapore" ]

**>>>> Complete and Fax to : (65) 6220 5972 for Reservation <<<<<**

## COURSE OUTLINE

1. Introduction and the Evolving Audit Process
  - a. Course Objectives
  - b. Introductions All Around
  - c. Visuals of the Audit Process
  - d. Evolving Audit Theory
  - e. Risk Analysis: The Engine That Drives an Audit
  
2. Analytics and Regression
  - a. Sources of Analytics Data
  - b. Basic and Intermediate ARTs
    - Vertical Ratio Analysis
    - Horizontal Ratio Analysis
    - Metrics (Case Study)
    - Reasonableness Tests (Case Study)
    - Mini-Max Tests (Case Study)
  - c. Promulgated Standards
    - SAS 56
    - SIAS 8
    - The Treadway Report
    - COSO
    - AICPA Audit Practice Release, Analytical Procedures
    - Deutsche Bank, The New Economy (29 June 2000)
    - AICPA, Continuous Audit Research Report (1998)
  - d. Relevant Research
    - Hylas and Ashton: ARTs as Fraud Finders
    - Stringer: Keep Regression Models Simple
  - e. Basic Regression Analysis
    - Terms: R and  $R^2$
    - $R^2$  versus Adjusted  $R^2$
    - Causality versus Correlation (Case Study)
    - Bivariate Linear (Case Study)
    - Minimum Number of Observations (Case Study)
  - f. Charting Regression - Seeing Is Believing
    - Plotting Data
    - Inserting a "Trendline"
    - Calculation of "Confidence Bounds" (not statistical)
    - Calculation of Statistical "Confidence Bounds"
    - Case Study
  - g. Advanced Regression Analysis
    - Multivariate Linear (Case Study)
    - Lagging Data, Dummy Variables (Case Study)
    - Nonlinear (Polynomial, Exponential, Logarithmic) (Case Studies)
  
3. Advanced Uses of Regression
  - a. Why Advanced ARTs?
  - b. Specific Audit Usages of Regression (Case Studies)
  - c. Process Control (Case Study)
  - d. Going Forward: An Implementation Plan
  
4. Class Presentations