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## **Internal Audit Visualisation Service:** Effective identification of business risks and opportunities

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## The business need for improved Internal Audit analytics

The role of Internal Audit has changed significantly over recent years as new demands are placed upon the function. Internal auditors are facing greater accountability than ever before and are subject to increasing scrutiny from company management, regulators, shareholders and the media. In the US, the NYSE and Public Company Accounting Oversight Board (PCAOB) have confirmed that Internal Audit plays an essential role in corporate governance. Sarbanes-Oxley 404 compliance presents a continuing challenge to the function as standards evolve and best practices are still in the process of identification. In the UK, reports from the Smith committee and Sir Derek Higgs have made it yet more important for company boards to understand how Internal Audit generates value and how this value can be maximised.

Whilst the precise role of Internal Audit varies significantly between companies, it normally includes the following responsibilities:

- Providing assurance to the Audit Committee of the Board that major business risks are being appropriately managed
- Ensuring effective operation of the company's internal controls to manage the risk of loss or major embarrassment
- Identification of new risks to the business
- Adding value through performance improvement by facilitating comparisons with internal peers and sharing knowledge of best practices

With so much riding on Internal Audit, the optimal functioning of the role is a vital concern. Technology cannot replace the well-trained, inquisitive, risk aware internal auditor (at least in the current era) but it can help to increase the effectiveness of the role.

A key area in which technology can help is in supporting a top-down analysis of where risks and opportunities may lie within the business. As the complexity and volume of the management data available within large organisations has increased, the masses of data available need to be transformed into clear, objective analyses to determine where internal audit resources should most effectively be focused to conduct detailed testing procedures.

An audit process that typically has significant room for improvement is the conduct of the analytical review. This is the procedure aimed at identifying the main issues and areas for detailed follow up. Too often analytical review simply involves a cursory comparison of certain closing account balances compared with the previous year, and neglects an understanding of the trends and future directions of the business.

Following on from our work to support the information needs of those directing and managing large corporations, Metapraxis has developed a service aimed at supporting the top-down business analysis needs of Internal Audit functions. The service is called "Internal Audit Visualisation" (IAV) and its objectives are as follows:

- To provide a continuous, objective overview of the entire business to the Internal Audit function
- To enable the Internal Audit team to focus its resources more effectively
- To provide automated diagnostics that identify key areas of risk across the whole business
- To help the Internal Audit team 'hit the ground running' by highlighting the initial questions to be asked during the audit fieldwork
- To help Internal Audit to make hard-hitting presentations of business risks and opportunities to their Audit Committees which clearly communicate the fundamental messages



## Techniques used

Metapraxix has developed powerful diagnostic software (Empower.NET) that allows immediate 'docking' with all of the leading company consolidation and data warehouse systems. Data can be extracted and analysed at regular intervals, providing continuous coverage of the business that enables members of the Internal Audit team to really know and understand the numbers at every level appropriate to their role.

Used in conjunction with existing supporting and enabling technologies, IAV transforms data into visually intuitive analyses of performance trends and relationships, and highlights areas of risk and opportunity around the business. The analyses allow the internal audit team to carry out a comprehensive, rapid-reaction analysis across all the company's subsidiaries, and to focus resources more effectively. The ability to select any subsidiary, any product line and any key performance indicator and to have the appropriate graph displayed instantly on the screen reduces the internal auditor's 'marginal cost of curiosity' to zero.

These automated techniques are proven in many comparable multinationals, and are in use by external auditors to support their audit programmes. The following examples explore a range of questions that can be answered and discussed using visual analysis.

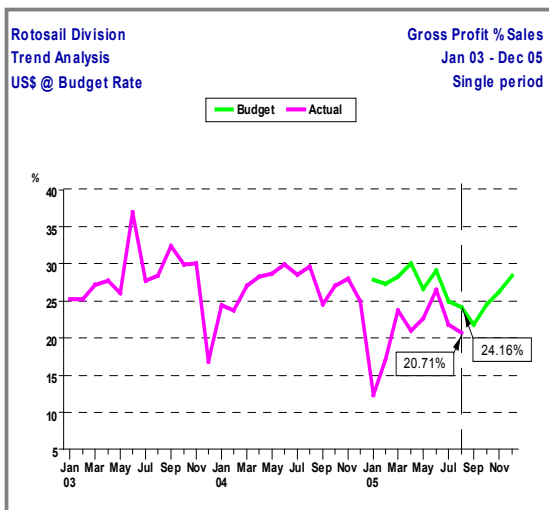
## Visualising underlying trends

Accounting traditions often cause business reports to be presented as numeric tables. However these 'walls of numbers' are a very inefficient way of communicating the underlying performance trends.

This example sets out the gross profit percentage on sales against budget since the start of the year. The company is apparently behind budget, but what does this really mean?

We can easily find out what it means by referring to a simple graph of the same information over a longer time period. In the accompanying graph the same data has been represented as a chart of monthly values over the last three years, together with the budget values for the current year.

	Budget %	Actual %
Jan 05	27.85	12.35
Feb	27.30	17.10
Mar	28.28	23.80
Apr	30.07	20.99
May	26.54	22.67
Jun	29.10	26.48
Jul	24.97	21.79
Aug	24.16	20.71
Sep	21.80	N/A
Oct	24.48	N/A
Nov	26.22	N/A
Dec	28.39	N/A



This chart of the same numbers enables us to see that actual performance has been haemorrhaging for three years and shows no sign of fundamental improvement. Furthermore, the seasonal pattern of favourable spikes each June at half-year should make us suspicious in relation to the temporary uplift experienced two months ago. There seems to have been a short period of rallying performance last year which was used to justify an optimistic budget.

The chart tells us clearly that average gross profit margin has reduced over the period by about 10 percentage points.



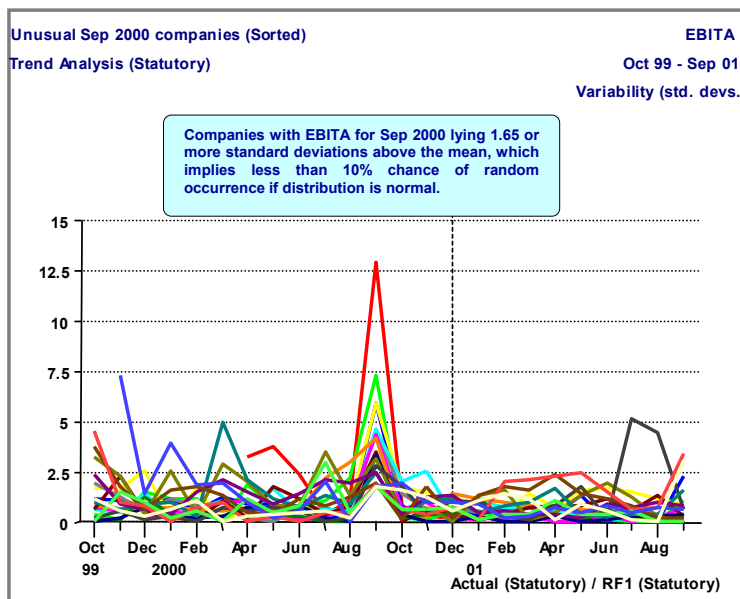
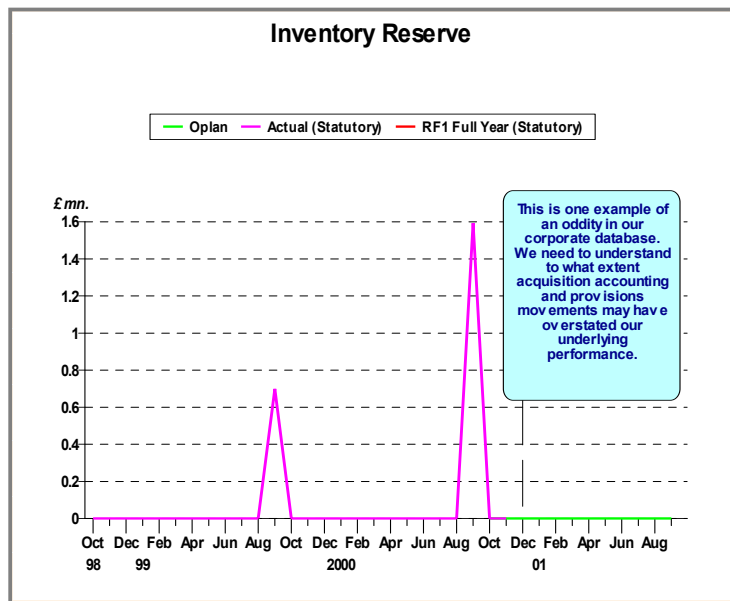
## Identifying implausible account movements and results

Before the advent of specialised software of the type deployed to facilitate the IAV service, the production of interpretative graphics on demand was prohibitively time-consuming because of the number of permutations of corporate data involved. For example, a company with 100 subsidiaries, each with 10 key product lines containing 100 key performance indicators creates a 'data space' of 100,000 possible trends.

However, Empower.NET can read corporate data from popular consolidation systems and create these analyses automatically.

The same techniques are also capable of scanning every performance trend automatically and highlighting those that exhibit behaviour that may not fairly represent the reality of the business. Three simple examples of the use of Visual Analysis to identify implausible account movements and are provided below results from Metapraxix client experiences.

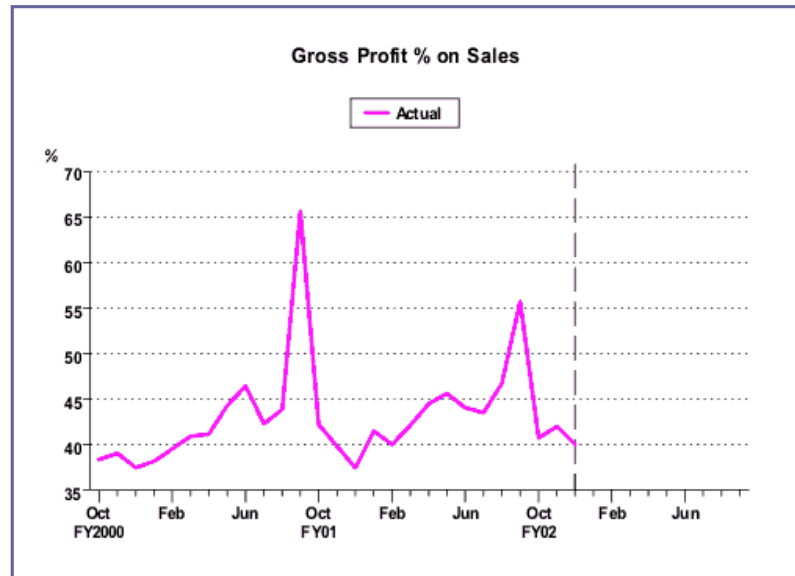
The chart on the right shows the trend of the Inventory Reserve account for a subsidiary of a client company with a September year end. Significant debits have been made to this account in September for the last two financial years, with no transactions occurring in any other months. The exceptional nature of these transactions has been flagged automatically by the Empower.NET software tool. The Internal Auditor has annotated the chart with an initial assessment and e-mails the chart to the appropriate member of the audit team for follow-up.



The chart on the left shows the trend of actual and forecast Earnings before Interest, Tax & Amortisation (EBITA) for a selection of subsidiaries. The data has been transformed from the reported EBITA numbers into a variability (standard deviation) score by the Empower.NET software. The magnitude of this variability score in any month gives an indication of the underlying plausibility of the numbers. The large peak at year end in September 2000 indicates the possibility of unusual accounting adjustments that may have led to an overstatement of EBITA.

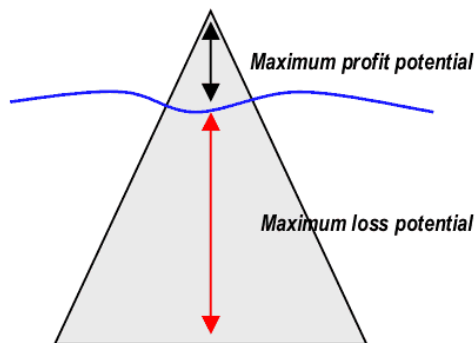


The chart on the right is an anonymised example of "inflating the GP" that was recorded by a UK multinational. The practice involves recording an unrealistically high gross profit on the sales of the final month of the year and correcting this in the first month of the following year. In these cases, the act of correcting the overstatement of Gross Margin will typically generate a sharp drop in reported profitability. This particular series was identified automatically; the visual evidence prompted a review of comparable data from across the group that resulted in a reduction of around £20 million in the company's declared profitability.



The same techniques can readily bring to light the similar practice known as "stuffing the channel" (i.e. booking excess sales of returnable goods to a distribution network).

## Avoiding the 'Iceberg syndrome'



down to annual sales of £5 million or less. In a good year a £5 million subsidiary might contribute a maximum of £1 million profit to a corporate group, but in a bad year it is quite capable of losing £3 million or more. If you multiply this potential loss by the appropriate number of small subsidiaries, the resulting figure can be very significant.

The conventional wisdom says that there is no point in spending significant time auditing a small subsidiary since its results are unlikely to matter very much to the group as a whole. However, the Iceberg Syndrome suggests that this logic may be unreliable.

The IAV techniques provide the capability to find the early warning signs that are often hidden in the data of smaller subsidiaries, by switching instantly from straightforward charts of monthly data to growth rates, moving averages and variability scores. It means that operational problems such as 'the business is below budget this month' can be interpreted by the Internal Auditor in strategic rather than tactical terms.

A clear view of performance across the entire business is critical when deciding where internal audit resources should be deployed most effectively. An emphasis will inevitably be placed on those subsidiaries that generate the greatest revenue. However, it is important to monitor the smallest subsidiaries: while they may never make much profit, they could generate enormous losses.

The 'Iceberg Syndrome' refers to the asymmetric comparison between a subsidiary's maximum profit versus its maximum loss. In an indicative multinational with 100 subsidiaries and £5 billion sales, the subsidiaries will not be of a uniform size. There will be a few £250 million monsters and then a long tail of much smaller subsidiaries, dwindling

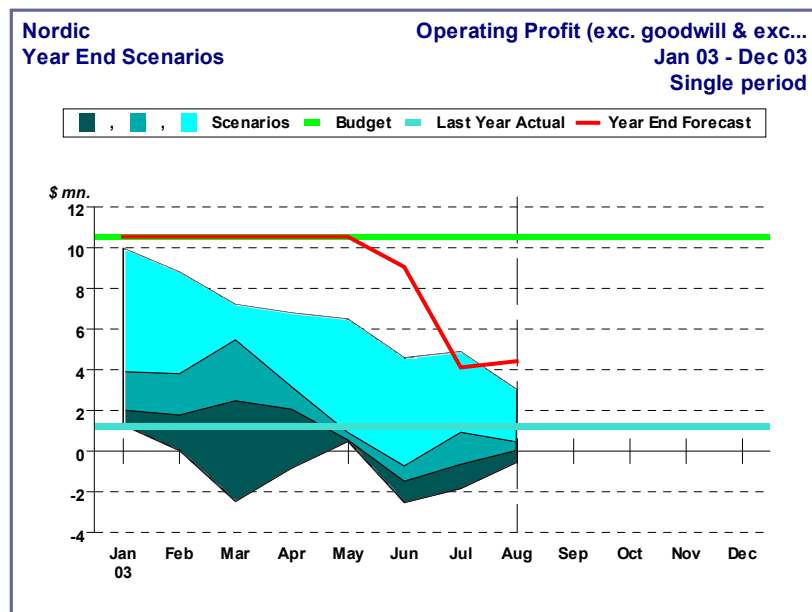


## Identifying businesses at risk of missing their forecasts

If the performance of a subsidiary is unlikely to meet market expectations, it can generate significant risk for the company as a whole. It is possible that local action may be taken to boost short term profits by the techniques such as those described on page 5. However, the difficulty is in identifying the subsidiaries where this is an issue early enough for questions and actions to take effect.

In order to address this, Metapraxis has developed a visual device called the 'windsock' chart that plots management forecasts against a predictive risk range created by a set of scenarios. The following four simple scenarios have been applied to many different industries and they can consequently be recommended as a robust starting point:

- The rest of the year will be on budget
- The year to date percentage shortfall or improvement on budget will continue for the rest of the year
- The rest of the year will be the same as it was last year
- The year to date percentage shortfall or improvement on last year will continue for the rest of the year



The 'Windsock' chart above tracks the evolution of the Nordic business's updated year-end forecasts throughout the year, while constantly comparing these with the evolving statistical risk range. This means that every point on each line on the chart is an alternative view of total year performance. Note that the horizontal timescale indicates the month in which the revised whole year forecast was made, rather than the month of the performance that is being described.

The green line is this full year's budget and the horizontal blue line is last year's result. The red line shows the revised year-end forecast from the subsidiary itself, plotted against the month in which its managers changed their forecast. The blue risk range corresponds to the four scenarios mentioned above.

The chart has been warning us throughout the year that the management forecast (red) has been consistently above the upper limit of the scenarios and therefore the management forecast is potentially risky.

From a few months into the year, forecasts can be reviewed against both this forward-focused risk range and current brokers' forecasts where available, and a visual assessment can be made as to whether the business concerned is under- or out-performing internal forecasts and external expectations.



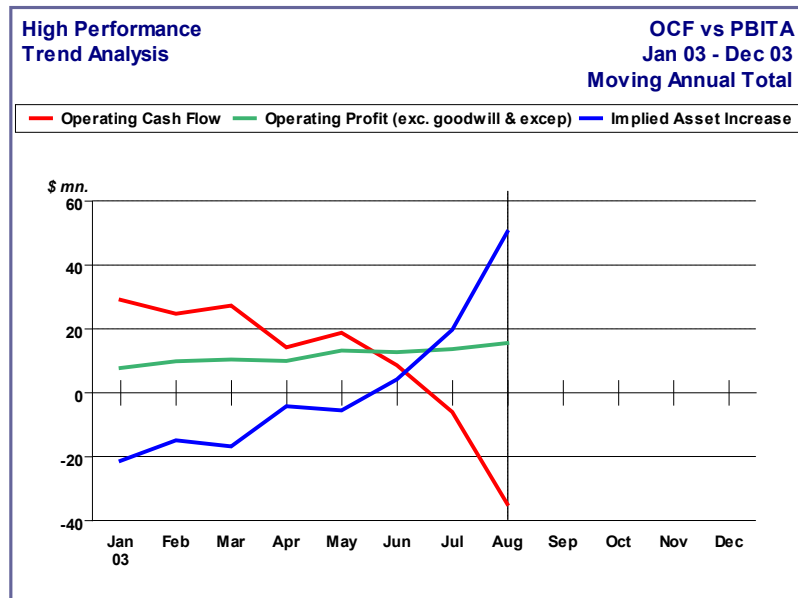
## Identifying where operating profit is not emerging as cash

While there are many different ways to measure the performance of a subsidiary, the importance of cash generation should not be underestimated. Companies that are found to have overstated their profit typically exhibit beforehand a widening rift between their profit declaration and their operational cash flow.

If operating cash flow is significantly lower than reported profit, the implication is that there must be an increase in the subsidiary's assets. An implied asset increase may be a sign that a subsidiary is overstating its profits or that the basis on which profits are being reported is unsound. Where the implied asset increase is significant, or if it continues to rise, some investigation into the reporting company may be appropriate.

Continuous monitoring of cash generation across the company can be compared with reported profits, allowing rapid identification of companies where this might be a developing issue.

In this example, the moving annual totals of Operating Cash Flow and Operating Profit are plotted against each other. The Operating Profit trend has been consistently growing, but Operating Cash Flow has been decreasing alarmingly over the same period. The difference between the Operating Profit and Operating Cash Flow is shown as the Implied Asset Increase, which is now running at an annualised rate of over \$50 mn. The Internal Auditor will want to investigate the reasons for this and satisfy himself that the declared profit in this case is a fair representation of the performance of the business.



## Conclusions

The examples shown in this paper illustrate the typical analyses provided by the IAV service to Internal Audit departments. They are an invaluable tool to help increase the effectiveness of Internal Audit as the demands upon the function become ever greater in today's environment. Specific applications include:

- Conducting a detailed investigation across the Group to prioritise areas for follow up
- Planning audit activities for a specific subsidiary
- Providing automated diagnoses that highlight questionable accounting procedures or possible fraud
- Facilitating internal performance benchmarking to support the sharing of best practice
- Communicating issues and opportunities to management and the Audit Committee



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## Track Record of the Techniques

The following is a selection of testimonials from Metapraxix clients deploying the techniques described within this paper.

- "You can't have effective operational control if you don't understand the fundamental trends. Graphical representation really wakes people up"
- "The project triggered our decision-making process - we brought forward our restructuring plans for a major underperforming subsidiary"
- "The organisation has changed as a result of the use of Metapraxix tools"
- "Our internal review and forecast procedures are now substantially more rigorous than they were a year ago"
- "The visibility of our total group forecast is now extremely well understood within the business"
- "In the past we would have been given ad-hoc answers, but the Metapraxix diagnostics force out the fundamentals"
- "The integrity and reliability of internal forecasting is essential to ensure effective external communication of market expectations. Forecasts are inherently uncertain and the Metapraxix techniques provide a powerful analytical tool to evaluate the likelihood of achievement."
- "This is a very powerful way of incisively summing up the progress of a country - or the lack of it - rather than going out empty-handed and having to rely wholly on the local management perspective."
- "This is outstanding. It enables a clear, graphic overview of business performance, and the ability to dig down to more detail. I am impressed with how it is integrated with our strategy."
- "You can find out in four weeks what it would normally take you a year to discover, by which time it's too late"

## Next Steps

IAV is typically an outsourced service provided to enhance existing reporting and monitoring systems. The analysis can be updated on a monthly or a quarterly basis, and the service offers continuous insight into the data collected throughout the company.

A typical implementation will begin with a short proof of concept, allowing the internal audit team to explore in more detail the analyses and benefits available.



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