Export controls – Breaking new digital ground and driving impact through internal audit at Siemens


Automation and data analytics will never solve all the problems of export controls, but, write Philip Ankel and Eric Clark, they can be critical tools helping to identify higher-risk transactions and thus extremely valuable in the allocation of compliance resources.

The risks associated with non-compliance of national and international trade controls are well known, and include soaring monetary penalties, loss of market access, and costly hits on a company's reputation. Yet, the practice of trade compliance remains an esoteric challenge for many companies and the law's intricacies often leave executives glassy eyed. How then, do company executives gain assurance that risks are being effectively managed?

Consider the environment at Siemens – a company operating with 377,000 employees in 200 different countries; an electrification, automation and digitalisation business that encompasses everything from trains to turbines, and global shipments numbering in the tens of millions per year:

How can we provide sufficient assurance that a large multinational like Siemens is prospectively steering clear of export control violations?

How can we adapt our internal audit methodology to provide 'foresight' to the business and address emerging risks before they materialise?

How can internal audit drive 'impact' with limited resources to bring change where change is needed?

One of the keys to answering the questions posed above is to better harness the power of data. Automation and data analytics will never solve all the problems of export controls, but in a complex business like Siemens, it is critical to identify the highest risks in order to focus the experts' attention where it is needed most. We see great potential to use automation and analytics for this, which will in turn create more efficient use of human resources and greater levels of compliance.

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In this article, we discuss our risk-based approach to audit and how we have augmented it with the use of data analytics and visualisation software through two primary avenues.[1]

First, we began developing increasingly-sophisticated visualisation tools to strengthen the risk bases driving our audit work, initially at the facility level and now at the enterprise level.[2]

Secondly, we have built up automated mass audit capabilities to our portfolio, expanding audit coverage far beyond what was possible before. We describe these efforts below.

Step one – The evolution of internal audit: How to stay relevant and impactful

The BIS Export Compliance Guidelines suggest that an effective audit programme include 'reviewing sets of transactions and determining how well they were executed in relation to established procedures'. The challenge of making this approach relevant to senior management grows with the size and complexity of the business. Considering Siemens' footprint described above (e.g., tens of millions of sales transactions per year), how can an audit team review a sufficient number of transactions to provide

meaningful feedback on process effectiveness?

We began with a risk-based approach to audit focused on where breakdowns in corporate controls were more likely to lead to regulatory violations, and in particular those type of violations most likely to result in sanctions. Although any violation is unacceptable, we understand, and take into account, that the regulators will place more scrutiny on the risk of national security (Wassenaar) controlled technology leaking to China or dual-use items to Iran than, for example, mammography system shipments to Syria (i.e., sanctions busting). By looking at 'high-risk' transactions, management buy-in for potential fixes and solutions becomes far easier to obtain.

The needle in the haystack – Finding the right transactions to test

Finding the 'risk' requires a review of the broader export control environment mapped to the activities and products of the company. When looking at the overall landscape, we considered:

a. Which countries are in the focus of the regulators for enforcement actions (for example, Iran, China, Syria, Russia)?
b. Which countries are known proliferation diversion points?
c. What products are in focus for enforcement?
d. What types of intermediaries are of concern (freight-forwarders, resellers, etc.)?

The next step was to map those more generalised risk categories to the activities of the company:

a. What products or technologies do we use/produce?
b. To where do we sell and through what channels?
c. What is the typical logistics chain for our various products (e.g., direct shipment, drop shipment, software downloads)?

Cradle to grave review

Once we'd identified our 'higher-risk' transactions, it was time to roll up our sleeves. Until recently (as further detailed below) we'd not yet identified a better way to truly understand the relevant transactions than by doing a 'cradle to grave' review of all the relevant documentation for each sample. For that review, we would look for and screen all parties to the transaction (buyer, intermediaries like freight-forwarders and carriers, end-user, etc.); confirm the commodity classification (if appropriate); and, where it made sense, take a deeper dive into the parties to the transaction (through internet research and other searches).

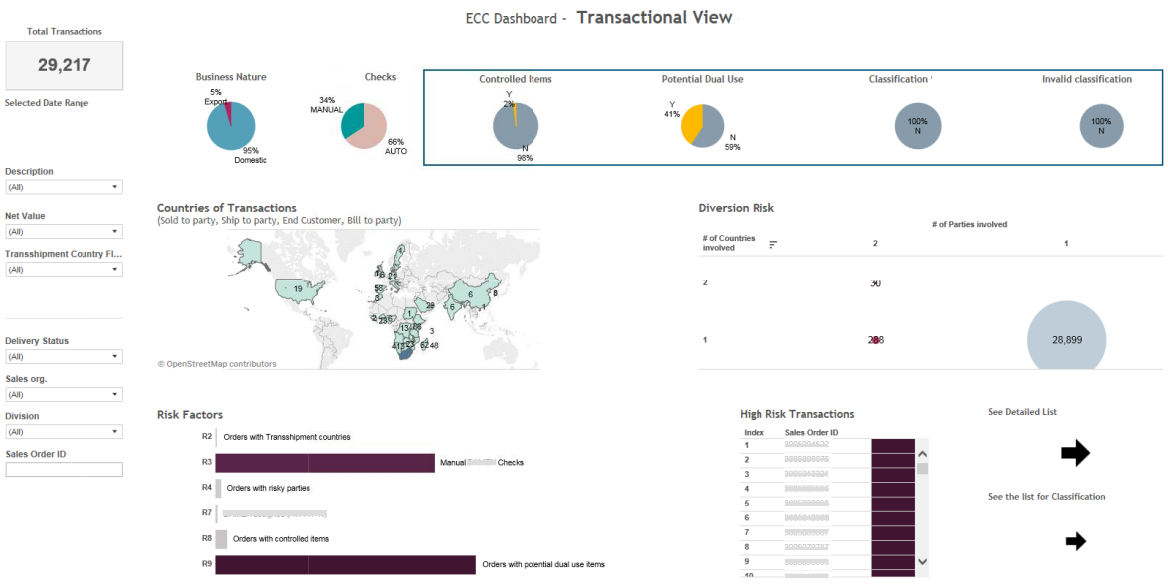
Driving impact

With this approach, results are typically far more impactful for senior management than the standard 'random sample' approach. Where we uncovered shortcomings, the results drove improvements because each shortcoming represented a real operational breakdown (lack of training, management commitment, etc) in a high-risk transaction. With targeted and tangible risks, the impetus to correct shortcomings is clear and the management buy-in for those changes much easier to obtain.

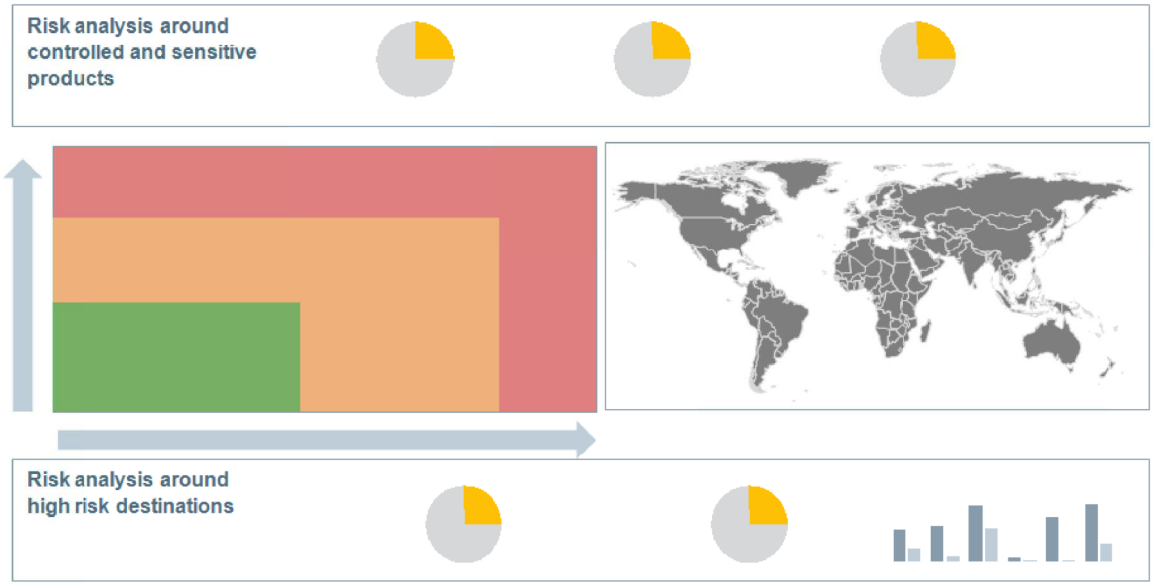
Initially, we conducted this type of transaction sampling manually – going to relevant businesses and digging through transaction records to look for transactions with more risk characteristics. Ultimately, we found useful transactions to review but this effort is quite time- and labour-intensive. Even more importantly, inherent in a manual approach such as we used is a limitation on the number and sophistication of risk criteria that can be applied to the transactions.

We could apply 8-10 risk factors to the tens of thousands of sales transactions in a selected business and rank all the transactions from highest to lowest risk.

Visualisation of multiple factors provides a better understanding of risk



More efficient risk analysis



Step two – Going digital: Using big data to get a global view of risk

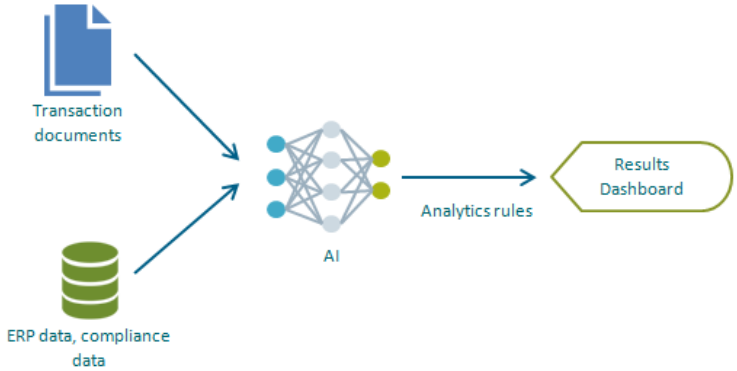
By building up our capacity for data analytics (using a series of stored procedures to normalise and combine data elements and sources) and visualisation (using Tableau software), we got a far better picture of risk in a particular business and exponential increases in the number of transactions that could be risk-scored. Just as importantly, these analytics allow us to layer multiple risk factors on a scale not possible with our former approach. That is, we could apply 8-10 risk factors to the tens of thousands of sales transactions in a selected business and rank all the transactions from highest to lowest risk. This already provides an entity-level risk profile far more advanced than what the company had been able to previously produce.

Visualisation of multiple factors provides a better understanding of risk

Our next step is to expand the risk-profiling capabilities into a global view so that we can instantly and dynamically see all of the hundreds of entities that make up Siemens and how risky their respective business is. The result is a dynamic risk analysis directing auditors to the emerging risks. Want to know where your controlled products are produced and shipped? Check. Want to track classes of products by their sanctioned country interest? Check. Want to ...? Check. We now have the ability to direct our audits where we see an emerging risk with, for example, Crimea, North Korea or a new technology, rather than being locked in to an annual review cycle. Importantly, it also fosters closer engagement with our business and export control governance colleagues as it allows for an active dialogue with everybody speaking about the same data set.

All of this gives us great insights into targeting risky businesses and risky sales transactions. However, it does not change the underlying work of manually reviewing those risky sales to ensure compliance with corporate and legal requirements. In a company with the business volume that Siemens has, manual sample review has limits as a way to drive change. Each new audit begins to feel like a whack-a-mole game (find issues, fix them, audit again, find issues...). So we asked ourselves if we could augment our risk focus with a mass screening capability to assess compliance with key process requirements on a broad scale.

Machine learning will provide audit insights not possible through manual reviews



Step three – Continuous automated audits

Consider one core element of the export control function: assuring that all relevant transaction counterparties are properly screened for various risk factors. That screening typically occurs automatically in the relevant ERP (e.g.,

SAP) systems. But what happens if a party is not entered into the ERP for screening or if the screening is only partially completed (sanctioned party lists are checked but end-use restrictions are not considered)?

Here, machine learning offers the opportunity to review all transaction documents (e.g., contracts, purchase orders, delivery instructions, etc.) on a mass scale against relevant restricted party lists. Where transaction documents are accessible, machine learning (using text analytics, natural language processing, and matching algorithms) can train a programme to recognise various document types and identify in them all parties to the transaction. These can then be matched against those parties that have actually been screened by the ERP or the relevant export control processes; in fact, the machine can actually perform the screening itself.

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We have already piloted such a programme, with the goal of large-scale feedback on the effectiveness of our corporate screening practices. The pilot programme has proven to be viable – we have reviewed the end-user controls for over 30,000 sales transactions vs. the 250 typically covered through our manual approach. We are now building-up capabilities to provide real-time feedback on the effectiveness of end-use controls throughout Siemens.

Final thoughts

Analytics and automation have already significantly altered the way we audit export controls and increased the sophistication of the insights we have provided to the business in terms of better managing risk. Yet we sense that we have only scratched the surface in terms of what is possible. In that vein, our successes have come in part because of efforts to foster close coordination among internal audit, corporate governance functions, and the business. We are effectively positioned as the '3rd line of defence' with the shared goal of keeping our company away from trouble, as opposed to the more-typical role of being 'just' the auditor. To this point, our advances in audit techniques have utility beyond internal audit and may well be useful, or even better used, as part of the 2nd line of defence. Part of our close cooperation therefore involves sharing insights and technological developments between governance and internal audit.

Other aspects will likely never be automated using digital tools. For example, certain classification topics as well as detailed license application documents reviews are likely too fact and transaction specific to make development of digital solution appropriate. Likewise, no algorithm can determine whether management commitment is sufficient or whether the company's risk appetite for certain business is appropriate. But that work is more fun anyway!

Links and notes

[1] Siemens uses and produces relatively few more highly controlled products. As such, this article discusses more the process of reviewing transactions for sanctioned parties/countries risks.

[2] Our approach has always been 'results' focused, meaning we start by assessing the effectiveness of the compliance checks (the outcome) and then focus on the processes to identify root causes of any identified shortcomings. From our perspective, process adherence is less important than actual compliance.

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