

# Procurement Information Architecture and B2B Connectivity: Intel takes RosettaNet into the Future

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Intel is one of the oldest advocates (and active users, in terms of volume) of RosettaNet as a replacement for traditional EDI connectivity. RosettaNet, a set of process and information connectivity standards based on XML (Extensible Markup Language) originally founded in the late '90s, was originally spearheaded by a number of large corporations in the high-tech manufacturing sector. Like EDI, RosettaNet has historically only made sense for larger direct material (e.g., manufactured parts, components, or materials) suppliers or customers.

Ariba, among other technology vendors pushing a "standard" XML-based document syntax (cXML in Ariba's case), had never seemed keen on seeing RosettaNet succeed. But with such High-Tech industry heavyweights behind it, RosettaNet has slowly and quietly carved out a place in the market. Many billions of dollars in transactions are flowing in and out of buyer and supplier systems every year based on RosettaNet standards, primarily replacing and augmenting EDI-based approaches to connectivity that are typified by batch file transfers of files containing rigid sequenced data fields. An XML-based approach, on the contrary, allows more flexible definition not only of these data types (e.g., syntax and semantics of the data "payload"), but also, in the case of RosettaNet, the business processes that create or consume them (which in RosettaNet B2B terminology are called "Partner Interface Processes"). This flexible modeling capability makes it easier for trading partners to be less reliant on a third party provider for the virtual Rosetta Stone. As such, certain vendors would like to see RosettaNet "killed" – a term that I've heard in polite competitive conversation. But, not only does RosettaNet continue to survive in its high-tech industry roots, it's also currently being stewarded and administered by **GS1**, the well-known non-profit focused on technology standards for supply chain in retail, CPG, life sciences, and more.

Yet, RosettaNet's implementations, like those in traditional EDI deployments, have focused primarily on connecting large buyers and/or suppliers for purchase orders, invoices, advanced ship notifications, and other typical high-volume commercial documents. Intel suggests on its own website that the typical criteria for suppliers is that the vendor "should have an interest and the **resources necessary** to automate their business processes" [emphasis added].

How large should the supplier be? Intel suggests that PO/invoice volume should exceed 50 transactions per month with large overall contract value, in excess of \$50 million. Suppliers should also hold "preferred" status with Intel, and the vendor's "infrastructure, both business and technical processes, should promote an environment for automation."

But there is one exception that makes a fascinating use case on designing an open procurement information architecture that embraces interoperability – of systems and processes. RosettaNet, having been designed by a large number of engineers in High-Tech, embraces such process definition and interoperability to provide better design. And while many may point to “German engineering” as an example of good design in the automotive industry, it’s fair to say that in High-Tech, Israeli engineering is more of the gold standard (or perhaps diamond standard is a better term). This brings us to the next chapter of the Intel study...

### **Intel and Israel: 10% of the Export Economy**

To call Israel a high-tech center is an understatement. On a per capita basis, the country employs more engineers and knowledge workers in high-tech areas than almost any other region on the planet (read Start-Up Nation for further background). Intel is no exception in utilizing this highly skilled, savvy, and collaborative workforce. Intel Israel is about to celebrate its 40th birthday (in 2014) and now directly employs over 8,000 people. Yet the employee numbers only tell part of the story. Intel is directly woven into the fabric of Israeli exports and overall GDP.

To put these numbers in perspective (Israel is, after all, a tiny country in terms of population), the chip giant represented 10% of all Israeli exports in 2012, a number in excess of \$4.6 billion. As the Times of Israel observes, “besides helping keep Israel’s export balance sheet in the black, Intel Israel continued to be Israel’s largest private employer in 2012. The company hired 760 new employees in 2012, bringing its total number of workers in Israel to 8,542. Taking into account the workers in other companies directly supported by Intel, which purchased about \$5 billion of goods and services from other Israeli companies, the company supports, directly and indirectly, about 25,000 workers.”

For Intel, Israel is not just about R&D (though R&D is a major emphasis). Manufacturing is also central to Intel Israel operations. The company maintains a large Fab (chip manufacturing facility) that has received significant investment in recent years. Overall, to support R&D and manufacturing operations, Intel spends more with suppliers in Israel than any other country except the US – roughly \$5 billion annually, according to their reported numbers.

Much of this spend is concentrated with larger suppliers, even though many of these vendors still fall under the recommended threshold required to connect directly with Intel’s global RosettaNet implementation. Yet the vast majority of this spend is still going through direct to supplier systems – with Intel’s full visibility into purchasing, shipment, invoicing, and related activities using the RosettaNet framework.

This sounds impossible, given that the vast majority of Intel Israel suppliers are not mega corporations who have the resources to implement RosettaNet themselves. But, these vendors are linked, indirectly, through a highly creative implementation of a B2B network via B2B cloud platform provider **Nipendo**, which acts as an intelligent hub (not just a basic hub and spoke system in a modern EDI sense) that lets Intel and its suppliers share documents and all the data associated with the transactions.

Using Nipendo and RosettaNet, Intel can send purchase orders to suppliers. Suppliers are initially on-boarded by Nipendo and can subsequently see the sales orders in their own systems, and then route and transmit invoices directly back into Intel’s ERP financial systems environment (and to check on invoice status or receive notification of invoice rejections).

Nipendo maintains the “metadata” (i.e., data about the syntax and semantics of the XML documents) for Intel and its suppliers because RosettaNet is very flexible and can be tailored to meet different companies’ requirements. The downside is that it’s necessary to keep track of (and potentially translate between) these implementation differences in order to prevent semantic chaos.

### **Beyond Intel: A Many-to-Many Connectivity Approach**

As part of an incentive to connect directly into the Nipendo environment (and subsequently Intel’s RosettaNet connectivity model), Intel’s suppliers can also connect to other customers on the Nipendo platform similar to the “network effect” value proposition espoused by other supplier network providers. In other words, once they connect a single time, they’re connected to all customers in the broader supplier network. The suppliers may even choose to join the network as buyers in a similar manner that their customers do with them.

Once connected, the network supports a range of activities, some of which we’ve outlined already, including PO transmission, PO modification/amending, electronic invoicing, and payment confirmation. The platform model also supports more complicated use cases than simple document transmission, routing, basic matching, and pre-validation. For example, Intel and its trading partners can aggregate multiple line items in an invoice and then match against a single line item on a PO without having to look up this data in underlying systems (since it is based on transactional data flowing through the network).

This example is only the beginning of what’s possible. By working with Intel, Nipendo is discovering that the beauty of using RosettaNet is that it is eminently customizable: it is a framework that includes not just the syntax of the fields in a structured document (i.e., it having a data “payload” that can be mapped to similar fields in an ANSI/EDIFACT X12-type EDI document), but also the XML-based metadata that defines how the fields (and document) are to be interpreted and processed by the trading partners.

Here is a [good document](#) that describes some of the basic concepts concerning RosettaNet. This is important for Intel, but it’s really important for Nipendo, who cannot just learn how to blindly manage data field mappings, but rather, develop intelligence on how different fields are used in various contexts by different trading partners connecting with Nipendo. This is critical to XML frameworks like RosettaNet that are extensible – rather than a syntax-bounded “standard” like cXML.

One of the more curious aspects of the Intel Israel Nipendo implementation (tied into Intel’s RosettaNet standard deployment) for supplier connectivity is that the system realizes a greater percentage of “straight-through processing” (i.e., no human intervention from the PO creation through to supplier payment) than a traditional RosettaNet implementation.

The platform provides an innovative and automated pre-validation service that uses a self-service “training” capability, allowing the trading partners themselves to establish the business validation rules and other key system behavior that ensures smooth downstream processing. This means administrators within procurement and accounts payable spend less time focusing on tasks that are best left directly for suppliers themselves to correct. Such activity could take the form of manual flagging and correction of incorrect quantities or blank fields, which are redirected back to the supplier before they would have originally “failed” in a traditional RosettaNet implementation because of an incorrect match.

## **Intel Israel Procurement: Structure and Opportunity**

Yuval Engel, MIS Operations Manager at Intel, explained to Spend Matters how Nipendo is complementing their existing investments and processes. Yuval segments Intel's supplier spending within Israel just as any other manufacturing procurement organization would. There is direct spend – which for Intel is all products and materials that go into the chips they manufacture. And there is indirect spend, which encompasses corporate facilities, IT, HR, sales and marketing, professional services, engineering, etc.

Intel has over a hundred different commodity managers focused on direct and indirect spend. Beyond providing tactical technology support (selection, implementation, and maintenance), Yuval's organization is structured as a center of excellence that supports the broader company across all requirements including systems, tools, and process improvements. For example, in the P2P area, this could include supporting requirements for enabling capabilities to drive search, shopping carts, requisitioning steps, purchase order issuance, etc. The stakeholders relying on the group include not only manufacturing, but also HR, legal, facilities – and other corporate services.

Prior to Nipendo, Intel Israel had its own procurement and AP transactional infrastructure – much of which was largely offline. Suppliers would send invoices via the postal service (hard copy) and invoices would then be keyed in and reviewed – and payment would be made. Usually payment was accomplished through bank transfers, the equivalent of ACH. Intel would reconcile the books on a monthly basis using information on invoices received, payments made, and matches (e.g., manual to PO)—and later started to use a supplier portal that was developed in house to enable vendor registration. This would in turn allow suppliers to send invoices electronically and to consent to receiving POs electronically. This was a worldwide effort for Intel; while internally developed, Intel continued to use third parties such as Ariba for sourcing, supplier management, and related areas.

### **Supporting Local Requirements**

But for electronic invoicing, Intel had other requirements in Israel that made the use of the global supplier portal (with linkages to the RosettaNet deployment for larger suppliers) more challenging. These included local security, tax, and other regulatory requirements in the Israeli market. Most important of all, Intel wanted to ensure that “the way we worked with our suppliers matched what the authorities required in Israel. We knew that the portal that we had internally would need additional improvements.”

After shortlisting and demoing various providers, Intel chose Nipendo and two other vendors in 2004 and used them on a pilot basis. By 2006/2007, Intel made the decision to standardize entirely on Nipendo for the exchange and management of its e-invoicing and related programs. To drive adoption across the long tail of suppliers, Intel made a key point to start with at least a selection of smaller vendors on the indirect procurement side of the equation, using Nipendo to route and translate both images and data from source documents.

Overall, it took Intel a few years to roll out the broader program to its “Pareto” suppliers, and by 2010/2011, 50% of invoices were being processed electronically using Nipendo in a true machine-to-machine basis (i.e., supplier systems interfacing directly with Nipendo and Intel's own ERP and procurement systems). Such an approach is quite different from how most companies focus on enabling long tail suppliers through supplier portals, email/PDF invoice submission and related

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programs – and has huge advantages for compliance, value-added services and broader supplier connectivity (mirroring and even improving the benefits of tight EDI integration – at a fraction of the cost and hassle of enabling and managing EDI for smaller and mid-tier vendors).

One of the benefits – typical of e-invoicing implementations using a network model – Intel saw in the Nipendo approach was using the platform sitting between the company’s own systems and procurement and AP departments to perform processes previously managed offline, with material latency as a result (e.g., automatic approvals, rejections, routing, and re-routing). But more than this, another benefit of the network was to enable Intel suppliers to work with other customers as well – using the same infrastructure – in a true many-to-many manner. Yet Intel also still maintains its own requirements within Nipendo, by spend type and category, based on specific material and related requirements (e.g., security or fulfillment programs).

This “private/public” ability of platforms such as Nipendo represents what Spend Matters sees as a critical missing link in many network-based capabilities. The ability to support highly customized processes by supplier, category, geography, and related custom requirements (export restriction compliance, etc.) often one-to-one requirements – or even transactional-specific requirements based on specific fields related to a particular requisition such as import/export components – as part of a broader many-to-many network environment, as opposed to in enterprise software itself connected to a network, is a prize that will be significantly valued by companies that have struggled to use networks and supplier portals beyond very basic connectivity.

The net result of Intel’s program speaks for itself. Over 80% of procurement and A/P transactions by document volume for Intel Israel are enabled via a machine-to-machine connectivity approach with significant compliance, efficiency, and effectiveness benefits that go far beyond more simplified e-invoicing-only supplier network connectivity approaches. Moreover, as the entire system sits on top of Intel’s RosettaNet implementation, all of the mid-tier (and smaller suppliers) that were initially overlooked by this program, given the integration and suggested volume requirements, can now take advantage of the similar connectivity automation that Intel’s largest suppliers do.

#### **Key Findings and Recommendations:**

- Intel Israel has broken new ground (and achieved significant results) by tying a broader supplier network/platform implementation directly into its RosettaNet program, enabling long-tail supplier connectivity in a machine-to-machine manner.
- Nipendo’s ability to support Intel’s requirements in the Israeli market (and with Intel’s systems and standards environment) go beyond what Spend Matters believes earlier generation networks and platforms are capable of without very significant customization and one-off supplier enablement headaches.
- Organizations should not overlook the complexity of such an implementation. The power of such extensibility (of RosettaNet) can lead to the dark side of XML – proliferation of fields and variability of interpretation of those fields. Procurement, A/P, and IT need metadata management built into the cloud integration platform if they are really going to use it to stand up a cross-industry network that can go deep into the individual industries, sub-industries, and buyer-supplier pairings. Nipendo is working hard not just to support these requirements at Intel Israel, but also lay the groundwork for supporting complex private/hybrid cloud business network capabilities with the ease of a public cloud network.