

# Federated Service Knowledge Supercharges Field Service Operations



Tokyo Electron Limited (TEL), established in 1963, is a leading supplier of leading edge semiconductor production equipment (SPE) worldwide. Tokyo Electron is a publicly held company listed on the Tokyo Stock Exchange. TEL SPE product lines include coater/developers, oxidation/diffusion furnaces, dry etchers, CVD systems, surface preparation systems, gas cluster ion beam technologies and test systems. To support a diverse customer base, Tokyo Electron has strategically located research & development, manufacturing, sales and service locations all over the world. Tokyo Electron America (TEA) is a wholly owned subsidiary of TEL responsible for North American sales and service support.

***Once our engineers started to see the benefits at their fingertips, they started using it more and more. It has been incredibly well-received so far.***

***Ed McMurray, Director, Field Service Team, North America, Tokyo Electron America***

## Unifying a Decentralized Knowledge Ecosystem

With a rapidly expanding portfolio of high-tech products in an industry locked in a mad dash with Moore's Law, Tokyo Electron's field service team

### Industry:

Semiconductor Production Equipment (SPE): Service and Support

### Business Goals:

- ▶ Improve upon best-in-class service performance in response to growing customer base while keeping costs flat.
- ▶ Develop further standardized and streamlined service teams across all product lines and regions, optimize resource utilization and continue to deliver high C-Sat scores.
- ▶ Lead the SPE industry in demonstrated safety and quality driven knowledge-centered service execution. (This program is known internally at TEL as The Journey to Excellence.)

### Coveo Solution:

Coveo for Advanced Enterprise Search

### Results at a Glance:

- ▶ Powerful, single-point access to service information across a multitude of repositories, database applications and geographies while respecting complex and localized permissions.
- ▶ Service knowledge retrieval integrated into service event logging and escalation processes.
- ▶ Improved mean-time-to-repair for targeted worst-case-scenario events by up to 28%.

needed a next-generation solution to speed the identification and retrieval of critical engineering and service information from a growing and highly decentralized global knowledge infrastructure. Architecting a heterogeneous solution around Coveo's unified indexing technology, the US field service team brought online a knowledge system that was both quickly adopted by end users and immediately improved on targeted goals. As the service arm of a leading global SPE manufacturer, the TEA field service team (500+ field service engineers) maintains a tremendous array of highly configurable and complex manufacturing equipment. Each of the 6+ SPE product lines are manufactured in separate factories in Japan and the US – with each serving an industry niche. This led to nuanced and localized practices in each product's engineering, manufacturing and service information infrastructure. As a result, the TEA field service team employed a variety of small-scale solutions that could negotiate the various and localized character of primary information sources. Compounding the complexity was the multi-lingual nature of the information and the highly granular, layered permission systems governing access to information. As a result of the depth and breadth of the knowledge ecosystem, whenever there was a push for a unified, monolithic solution it quickly faded when no solution seemed available to the team within the budget, organizational and geographical constraints of the situation.

Like any world-class service organization, the service management team was highly aware of service performance and challenges in meeting contracted service levels. One challenge that continually rose to the surface was worst-case-scenario events occurring on advanced technology, first-of-kind tools where normal engineering or service information was not readily available. Even in these scenarios, the service team was amazingly able to achieve 95% compliance to service levels; however, the service management team wanted to do better. Over several months, the management team isolated actions and parameters contributing to the 5% of events that exceeded time limits. Upon analysis, it was apparent that if knowledge retrieval could be improved these worst-case-scenario events could be shortened by as much as 33%.

However, while the problem was plain the solution

was not simple. The information important in these scenarios was patchy and disparate. Additionally, the amount of new knowledge concerning these target tools dramatically increased daily. "In one month alone, we had nearly 200 different, complex documents produced for only one product," said McMurray. The requirement for 200 field service engineers to read and then file such a large number of documents contributed to the costs of maintaining high service levels. During a peak month, this cost could exceed \$80,000. "We needed to better structure our organizational assets to enhance performance and competitiveness," McMurray continued.



***Amazing is too weak of a word for what Coveo was able to accomplish; as our employees were providing feedback, Coveo was configuring the solution in real-time, on the fly. It went beyond amazing.***

***Kevin Chasey, Senior Vice President, North America, Tokyo Electron America***

The problem of the rapidly accumulating data was just the tip of the iceberg. The larger problem was identifying, normalizing and aggregating the multitude of primary and secondary knowledge sources that were highly local to return meaningful results. TEL's digital knowledge consisted of equipment manuals, manufacturing, engineering and service information authored in a variety of formats and built to an assortment of specifications. Even when a TEL engineer knew where to look for information, retrieving that information in a timely manner was a formidable challenge. In practice, groups would often assign a single field engineer with a talent for finding information as the 'documentation' person who would find technical information since it required deep skills and a fair share of heuristics. Quickly, it became apparent that the TEA service team needed a powerful indexing solution that would find technical information where it resided and federate it quickly and sensible fashion.

## Selecting and Implementing Coveo

The first attempt at implementing an enterprise search solution proved more difficult than the team initially imagined. "We learned very quickly that in describing the science behind search engines, Thunderstone makes it look very easy. But if you try and use them on your own, it's very difficult. We had one bright software engineer tasked with making the Thunderstone search appliance work, and it was a constant struggle and steep learning curve," said Chasey.

The initial enterprise search solution was eventually shelved because of its inability to successfully index all of the TEL knowledge repositories and applications. Additionally, the search solution was not able to negotiate and respect the multiple layers of permissions set by role and user level. As a result, search results were unsecure, incomplete and took an unacceptable amount of time to be returned.

The team returned to the drawing board certain DIY was not viable and now looking for the next level of search solution – a comprehensive and advanced information access solution that could extract and interpret the taxonomies and logic built into the various repositories and applications. After an intense selection process that involved several deep and detailed proof of concept exercises, the team unanimously selected Coveo. "A key success factor for us was the proof of concept," said Laura McCanlies, Manager of Business Solutions and Information Systems. "It became very apparent during this exercise that Coveo was the clear winner."

Aside from the results, the thing that most impressed the selection team was the ease with which the Coveo team assembled a personalized proof of concept to the challenging specifications provided. Having failed once before, the team had a good idea of what would challenge a search appliance.

As soon as the team interacted with TEL information using Coveo with TEL systems and information, there was little doubt as to the power of the application. "They don't subscribe to the sales presentation hype," Chasey commented on the Coveo test team, "When they show you a demo, it always works very smoothly."

## Implementation

The Coveo professional services team configured the installation based on TEL service requirements and the TEA service team completed a full roll-out of the solution built around Coveo in August 2012. The implementation went off without a hitch, though the pace was accelerated and the application was configured regularly in real time in response to TEA service team feedback. "These guys know service," said McMurray. "Before I finish explaining the issue, they are already implementing the fix."

## Results

For TEL, the impact of rolling up technical information from various, highly localized sources into a single search box has been tremendous. Field service engineers can be short on tolerance for breaking in new systems, but the Coveo solution has met with resounding end-user success. The solution is simple but casts a wide net and provides an intuitive interface to dive deep into issues while pulling from a variety of sources. "It can get very granular," said Chasey "down to the tool serial number while aggregating the system history."

Other regions have been watching with interest as the TEA service team wrestled with defining the next generation service knowledge management solution. With a decisive success behind them, Chasey and McMurray have begun presenting the solution to TEL's global service teams. "We think it's going to be very well received," said Chasey.

### GET STARTED WITH COVEO

For more information visit Coveo's website at [www.coveo.com](http://www.coveo.com), or call Coveo at **1-800-635-5476**.