

DXC Technology Big Data Platform

DXC Technology Big Data Platform technology finds the right skills for the job with Micro Focus® IDOL



Overview

As part of DXC Technology's internal Qualifications Inventory resume repository, a new solution called "Resume Search" is based on Micro Focus IDOL: an artificial intelligence (AI) platform for unified search and analytics of text, image, video, and audio data. The solution helps Resource Brokers meet its labor demand more quickly by finding the right in-house talent for contracted service engagements worldwide.

"The Resume Search tool adds a powerful new text-based search tool and rich source of resume data to the Resource Broker's toolkit. It also extracts structured data from the resumes so that the Resource Broker can search on variables such as language, experience, education, and other characteristics."

SILVIU NEDEA

Project and Program Manager
HP Global IT

Challenge

When businesses need outside help to move their workforce in a new direction—say, enabling a mobile enterprise, improving customer experience, or making the most of combined resources following a merger—they need to move fast, and with confidence that the experts they hire will ensure a successful transition. Companies on the move need rapid change management, enterprise modernization, shifts in their business model. And they need a host of other transformations to happen smoothly, without interrupting the growth that got them to this critical decision point in the first place.

Major business transformations like this are the bread and butter of DXC Technology. With more than 135,000 specialists, DXC Technology needs to manage its own workforce carefully to handle the growing demands from its clients around the globe. "We need an accurate view of both the market demand and our talent pool. We need to know what people we have available, what their skills are, and how to balance the need in the marketplace with our supply of talent," explains Jeanne Brekelmans, Business Operations Chief of Staff for DXC Technology.

At a Glance

- **Industry**
Software & Technology
- **Location**
United States
- **Challenge**
Provide a fast, reliable means for finding the right talent for contracted service engagements in DXC Technology's client base.
- **Products and Services**
IDOL
- **Results**
 - + Used the new Resume Search solution to supplement the native PPMC Resource Finder
 - + Posted about 70,000 resumes that are included in the repository
 - + Extracted structured data from the resumes so that Resource Brokers can search on variables such as language, experience, education, and other characteristics
 - + Provided future potential to empower DXC Technology recruiters and talent managers with new tools to find the right candidates for DXC Technology positions as well



The complexity of DXC Technology's talent pool—a constantly growing body of individuals, each with different levels of skills, and different degrees of familiarity with current and emerging technologies—has made it critical to understand the unstructured data in the steadily evolving resumes of its staff. To help with this need, DXC Technology created the "Labor Demand and Supply Management" program, or LDSM. The goal is putting the right people at the right place at the right time. One of the keys to LDSM is having a clear picture of all people's skills and resumes.

In June 2014 and as a part of the LDSM Program, DXC Technology introduced Resume Search, a new solution that leverages the company's patented algorithms to form a conceptual understanding by extracting results that are accurate and comprehensive, finding resumes in all formats that are conceptually related to a query, yet not dependent on key words. At the heart of Resume Search is IDOL, a highly advanced big data platform which uses multiple search models to help significantly improve the speed, accuracy, and completeness of

search while providing automatic extraction of entities such as names, email addresses, locations, and languages directly from the resumes. This powerful new capability is now part of DXC Technology's internal Qualifications Inventory resume repository.

What follows is a discussion of the business case for DXC Technology's talent supply and demand management, and the role that IDOL plays among the various technologies involved.

Solution

Resume Search: The Case for Automation

There are two major roles for DXC Technology managers once service engagements become contracted and scheduled. “First, the project team describes the demand; second, our resource brokers determine how to fill that demand,” Brekelmans explains. “There are checks and balances, and we have many standard processes for handling this work efficiently and properly. When a contract is awarded, we need a fast, reliable system to provide the optimal matches. On a major development project, for example, we have many ‘pieces of demand.’ We need project managers, team leads, developers with specific skill sets; you have to find test leads, testers, training, and documentation people. All of these pieces are captured in a project, detailed according to when we expect a person to start, finish, and how many people within a given discipline are needed. Our goal is to find someone internally, which is much faster process than trying to find someone externally. We have to locate the right people, and get them quickly.”

DXC Technology’s system for managing this challenge is based on Project Portfolio Management (PPM), the commercially available software package from Micro Focus that helps companies manage business needs and priorities against goals and resources. The internal solution DXC Technology developed is based on PPM, the Qualifications Inventory, and the enterprise data warehouse (EDW).

The system can be thought of as three pillars: PPM is the system of record for demand, Qualifications Inventory handles the supply, and the EDW handles reporting to tie it all together. This ecosystem is responsible for managing the demand within DXC Technology, as well as matching the people to that demand. There’s

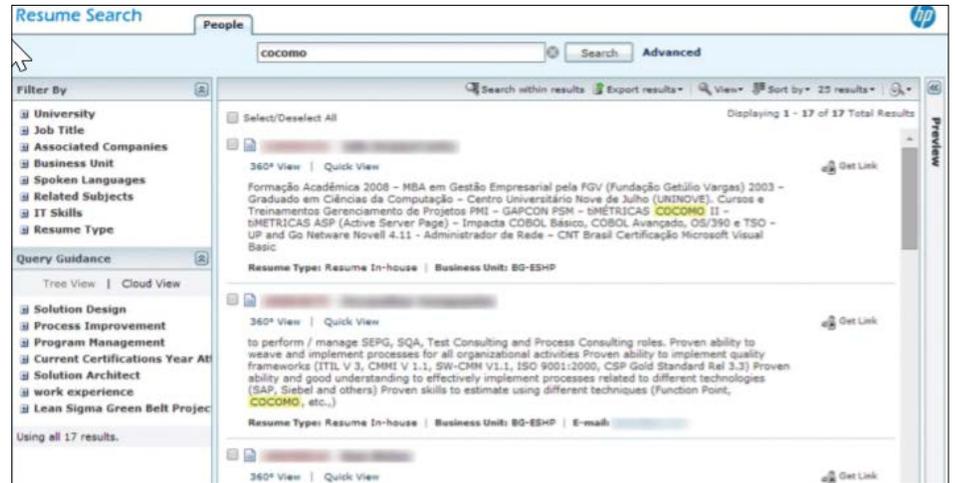


Figure 1. After performing a search on “COCOMO” the tool guides the user and the phrase “estimation of software” provides a clue to a deeper meaning.

also a delivery component, a Bid Management tool, which manages the bids provided to DXC Technology’s clients.

The Resume Search capability is a recently added function of the tool, and it’s where the Big Data Platform comes into play. IDOL is the engine driving an automated text-based search solution that can “understand” the resumes of DXC Technology employees who are available to work on internal or external projects. This new search system is designed to help a DXC Technology Resource Broker identify resumes that meet the specific talents and skillsets required by any number of projects that come online within the business, especially customer engagements that demand experts in any number of software and hardware scenarios. The Resume Search solution is a major addition to the Resource Broker’s toolkit. It has enabled DXC Technology to improve accuracy and speed, and to find and place internal candidates most likely to contribute to a project’s success.

“In addition to the skills listed on resumes, which can be found through the tool’s automated matching, I can also do free-format searches using the resume search capability,” says Brekelmans. “This is a nice and powerful addition. I can look for a certain skill set across 70,000 or more resumes, and see if I get any additional fits that didn’t show up on my original search. This is based on the ability to ‘understand’ the meaning and context for what is being asked for, even if the specific terms are not used to describe a type of skill on a resume.”

‘Meaning-Based’ Search Inside Unstructured Data

Gil Doron, Project and Program Manager for Hewlett Packard (HP) Global Functions IT, explains the extent to which IDOL’s search capability surpasses a simple search on a string of characters—what most of us do when we look for key words in a Word doc or PDF. “This is where the unstructured data capabilities in IDOL come into play,” says Doron. “All resumes are unstructured; there are no tables created

in order to 'enter' talent data into the system. Consider what this means. With structured data, say in a spreadsheet, you have columns and rows that can be addressed and often understood according to data type. With unstructured data, as in a resume, you're dealing with data that isn't at all consistent, especially from one resume to the next. And the IDOL engine is able to take that unstructured data, store it, and retrieve it easily through verbose, everyday language queries."

An example of a meaning-based search is a natural language query, for example: "I want a project manager who also has SAS skills." IDOL's breadth of connectors to different repositories, its ability to re-use existing indexes, and its meaning-based computing technology combine to create relationships within data that delivers intelligent, personalized search. IDOL is able to extract text from these documents and store it in such a way that allows queries to return results in seconds. It also can rate the likelihood of finding what a user is looking for according to a set of keywords. When it finds a resume that contains the keywords they're searching for, it can then drill down and find other resumes that closely match it in a cross comparison.

"These resume documents can be in any format—a Word doc, a PDF, a plain text file, etc.," says Doron. "You can drop all these file types into a single directory, and Autonomy will search it without any additional work on the user's part. A resume comes in, you add it to a folder, and the system automatically indexes it for you."

Finding the Right Talent

"When you're searching for very common phrases like, 'Project Manager,' you're going to find that phrase a lot within 70 thousand or more resumes," says Doron. "The phrase could refer to the person's skills, but it could also

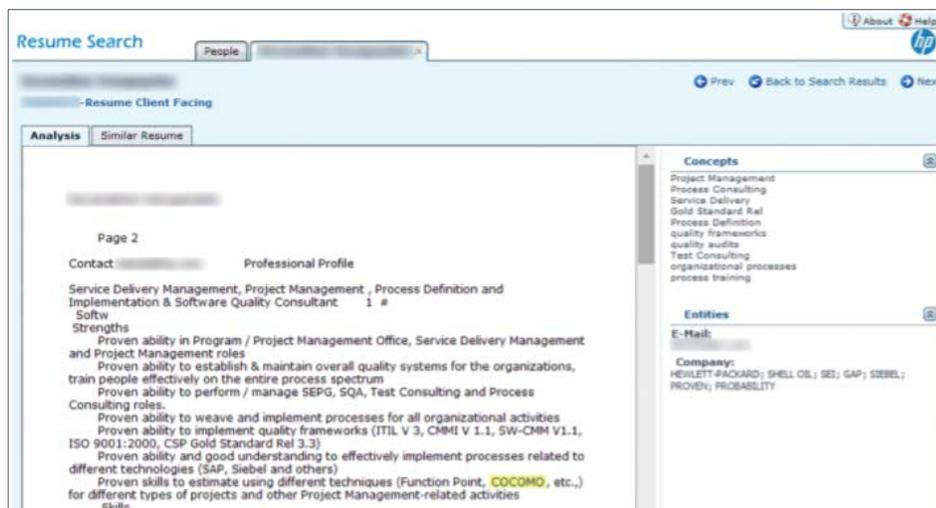


Figure 2. Intelligent Universal Search's 360 View feature provides a brief summary of the resume in addition to the resume's concepts and entities on the right hand side.

appear in a description of a project, referring to someone's boss or colleague, which has nothing to do with the person's skill. With big data, you can be inundated with information like this. The IDOL engine helps drive meaning out of that data."

"You can narrow down your search. Say you're looking for a project manager in a certain geography, or with a certain background or specific certifications. You're able to build your ideal profile, and the system will come back and show you all profiles that match. And while you may be searching for particular key words, there may be other very valuable things that you don't know to search on. IDOL technology can help you by, in some cases, ignoring key words but focusing instead on a profile type for a certain person—taking the content of a specific resume (not the key words you used to search) and its context to deliver more candidates that are similar. You'd never be able to do that with a traditional keyword search."

The Resume Search system also provides a visual representation of searches. "You can look at the actual resumes, of course, says Doron. "But you can also give you a Vis rep the key words based on the set of resumes returned in the search. You can see how frequently a skill set occurs, because the system enlarges and bolds the font of the word that matches the skill." In addition to the resumes, you are also presented with concepts and entities, highlighting key concepts such as a person's roles, skills, and competencies, plus other entities, such as companies that person works for or has worked for in the past.

Silviu Nedeia, project and program manager for HP Global IT, offers another example, based on a use case that was discovered during a pilot with the DXC Technology Resource Brokers. "Let's assume that I'm a resource broker and have been asked by a project manager to find someone with COCOMO experience. Not knowing what COCOMO is, I perform a search on COCOMO and let the tool guide me. The results appear as shown in Figure 1.

“Now the phrase ‘estimation of software’ grabs my attention. At this point I might simply be interested in learning more about COCOMO. With the help of the 360 View feature of IUS, I can see a brief summary of the resume, along with concepts and entities on the right hand side. So I click on 360 View to learn more, and the results display as shown in Figure 2. “After only a few seconds it is now clear to me that COCOMO is an estimation tool/model. Without Resume Search, the Resource Broker would have to check for ‘COCOMO’ against the list of skills in the catalog and would, in this case, come up empty handed. Not being able to help out, the Resource Broker may have gone looking elsewhere—possibly outside the enterprise—to source this position, when in fact we had people with COCOMO skills and experience within DXC Technology all along. Additionally, Resume Search can serve as an educational tool for anyone who’s unaware of what a particular skill, competency, or certification means; something that’s important with the myriad skills that are growing and evolving in today’s constantly changing IT industry.”

Expanded Use of IDOL and Features of Resume Search

DXC Technology’s resource brokers not only use the LDSM system to know who has the right skills for an assignment, but also who needs training in certain areas. “We may be short on certain skills,” says Brekelmans. “We may have too many people within a single skill set. There is all sorts of analysis that comes out of LDSM, which gets rolled up into many places within DXC Technology—for annual planning, for instance, where we’re going with our people and our accounts.”

“Now that the solution has been in place for six months, we’re seeing users reach out to

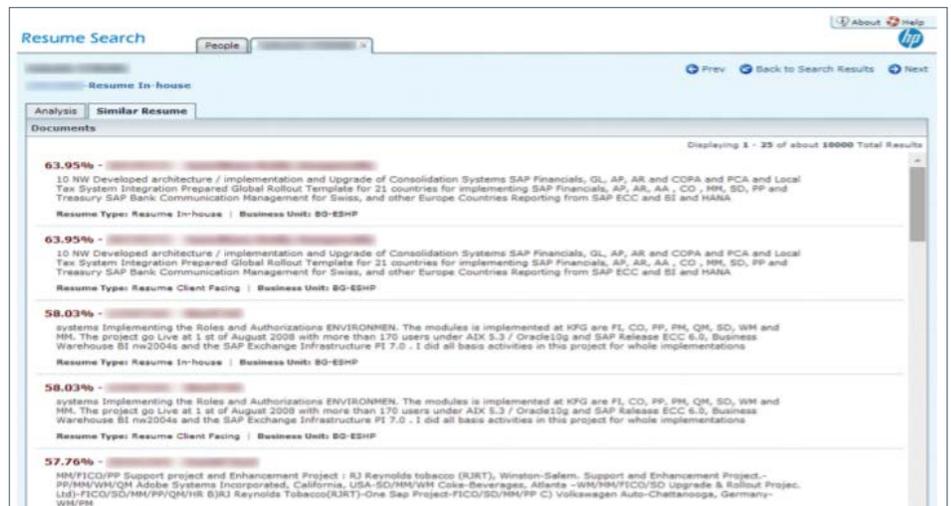


Figure 3. The 360 View offers the “Similar Resume” feature, which finds candidates with similar skills to the resume being viewed

us with new and innovative ways that will further enhance the product,” says Nedeia. “We are seeing requests to bring in additional information from PPM and the Human Capital Management system to provide a holistic view of the person’s current availability and current location. In our bid process we ask applicants to quantify their depth in certain skill sets. We’re starting to see more requests for rarer skills that are not in our qualifications catalogue. With the IDOL-based Resume Search capability, we’re able to answer those questions. These requests most often come from RFPs, but we’re seeing them come increasingly from our own internal projects and analysis from DXC Technology.”

The faster and more accurately the team can answer these questions, the less time is wasted trying to find information. The tool also includes features for social search, tagging,

etc. These features benefit teams of searchers who, for instance, have a “super recruiter” who can leave guidance via social tagging for her teammates along a successful search trail.

Implementation

The Resume Search solution was integrated into the talent management application environment. The solution consists of the following software components:

- IDOL and Intelligent Universal Search (referred to as IUS in Figure 1) capabilities.
- Resume Search user interface based on Intelligent Universal Search.
- Java authorization plug-in, PPMC@ES security view Figure 1 shows the process flow of the solution, beginning with the Qualifications Inventory tool (Oracle database) that houses the resumes.

“The volume we’re dealing with is huge—more than 130,000 resources, and that’s not even all the resumes.”

JEANNE BREKELMANS

Business Operations Chief of Staff
DXC Technology

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initial conversations with our talent management group and planning a pilot with a select group of recruiters, hands on, as we build user stories describing how they envision using the tool on a day-to-day basis.”

Results

The Resume Search solution was successfully deployed in the talent management environment in May 2014. With the new capability, Resource Brokers can identify resumes with key attributes, skills, and experience required by DXC Technology projects. When combined with existing PPMC tools, the DXC Technology team has a powerful toolkit to match demand for specific skillsets to employees with those skills.

Since DXC Technology began using the tool six months ago, it is seeing some feedback from Resource Brokers regarding ways to integrate with other tools and features to make the already helpful search results stand out even more.

Business Benefits

Any one company’s skills taxonomy can never keep up with the ever-changing set of IT skills that are available. “Not only the skills taxonomy, but we need to get people to update their resumes, and that’s hard,” says Brekelmans. “The volume we’re dealing with is huge—more than 130,000 resources, and that’s not even all the resumes. And we absolutely need tools to keep us sane in our hiring processes.”

“There’s an obvious use case here beyond the DXC Technology talent pool,” says Nedeia. “We have a real opportunity to empower DXC recruiters and talent managers with powerful and highly efficient tools to find the right candidates for positions. We have already kicked off