Mix of Lab Experience and IT Skills Enable Fast and Efficient Upgrade of Merck Lab Computing Environment

After its parent Merck® merged with Schering-Plough, Merck Research Laboratories (MRL) found itself with differing lab computing models and processes, partnered with outdated systems and potential data security issues. The MRL information technology (IT) team developed a standard environment that addressed these challenges and substantially improved the integrity and stability of their lab computing infrastructure. As a partner for implementing these standards, Merck selected PerkinElmer's OneSource® Laboratory Services for a pilot project to upgrade 220 systems to the new environment. "PerkinElmer OneSource's flexibility and expertise in lab computing helped them turn the project in less than two months," said Allan Ferguson, Senior Director, MRL IT for Merck. "We have experienced substantial improvements in efficiency and data security and have asked OneSource to move ahead and upgrade the balance of our lab computing systems (that require upgrades)."

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Critical Role of Lab Computing

Merck researchers have a mission to discover, develop and provide innovative products and services that save and improve lives around the world. Scientists use laboratory instruments and other equipment in a wide range of experiments that are directly involved in discovering and developing these products. Lab computing systems play a critical role by securely transferring data from laboratory instruments to the scientific analysis and interpretation platforms where the data can be analyzed and used to make decisions to move research projects in the right direction. "The lab computing environment sits between the instruments that generate the data and the scientific data analysis environment where scientists make decisions such as which compounds are promising enough for further study," Ferguson said. "We want to make this interface as seamless as possible from the users' standpoint."

"But as we surveyed our assets after the merger, we were concerned that many of our systems made our users work harder than necessary, impeding the research process," said Mike Walton, Manager, Lab Computing for MRL. "For example, some systems did not meet our current corporate networking standards which meant that our researchers had to find alternative means to safely transfer data. Other systems needed additional memory or storage capacity to meet our corporate hardware standards. We were also concerned about ensuring data security especially for older systems. Many of these older systems did not communicate with our backup system so we needed to think carefully about ways to avoid loss of data if a hard drive failed. Also, we had an opportunity to improve our ability to manage and monitor the utilization and lifecycle of these systems."

Lab Computing Environment Implementation Challenges

MRL IT department worked to develop a lab computing environment that included minimum hardware standards for each platform, the current supported operating system with security patches installed, appropriate network connectivity and the latest version of the company's scientific data management system, etc. "The Merck Lab Computing IT department is a lean organization that focuses on selecting technology and setting standards that improve the functionality of the lab computing environment," Walton said. "We chose to expand our resources through a partnership with PerkinElmer OneSource to expedite an upgrade of the lab computing systems to the new environment. We are aware of many IT services companies with capabilities in the lab space and wanted to ensure that we worked with a partner that had sufficient experience in the specific technologies, business processes and understood the challenges of lab computing."

Specific knowledge and experience is required to integrate laboratory instrumentation with enterprise software systems through the deployment of lab specific integration technologies. Varying instrument vendor technologies can create many unique technical challenges. Additionally, the planning and implementation requires the capture of processes and execution plans to meet regulatory requirements.

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Merck had already centralized responsibility for maintenance of a large proportion of laboratory instruments in several facilities with OneSource Laboratory Services as part of the LAMP Program. A key driver was to shift from an exclusive full insurance model – where each instrument OEM provides all maintenance – to a self insurance model – where on-site service engineers deliver maintenance for all instruments – provided a more cost effective model for support of instruments. The consolidated maintenance program also streamlined the entire vendor management process, significantly reducing the daily administration burden and allowing scientists to focus on research, not managing multiple vendors.

Pilot Project with Tight Deadline

"Merck IT was familiar with the capabilities of PerkinElmer OneSource based on close partnership with Merck's Laboratory Asset Management Program (LAMP)," Ferguson said. "Up to this point their involvement had been limited to instrument maintenance, so we wanted to establish if they had the skill set that would enable them to take on additional responsibilities for the lab computing environment. I met with OneSource and discussed their resources and their bandwidth. We decided to embark on a pilot project to confirm if OneSource had the capabilities to upgrade our lab computing systems at several sites and set a target for completion of two months." PerkinElmer OneSource provided a proposal for the deployment. Merck accepted the proposal and PerkinElmer OneSource created a project plan that broke the project down into four phases. During the project planning and initiation phase, OneSource worked with Merck to acquire an accurate inventory of upgradable systems and the associated contacts. In the transition phase, a four person team was established with the technical skills required to upgrade each workstation. The team was trained in the required tasks including confirming site security access, learning customer terminology, lab computing operating procedures and the technical problem escalation process.

The work execution phase of the project required the OneSource team to install core utilities on OEM computer systems to ensure compliance with corporate IT standards. If the utilities could not be installed, the OneSource team diagnosed the workstation performance and capabilities, identified the root cause of the problem and completed the installation, if possible. If the installation issues could not be resolved, the OneSource team escalated to Merck's Lab Computing (IT) group and where appropriate, replaced the workstation with a new workstation and installed the full standard computing image.

As part of the upgrade process, the OneSource team added systems to the corporate domain, resolved registry issues, installed additional hardware including full computer replacements, installed core utilities, identified and corrected connectivity issues, created disaster recovery images and installed security patches.

Job Completed in Five Weeks

The work was completed over a five week period, following execution plan goals for each week. The team tracked project status in real time on a SharePoint™ site. In addition, a weekly status report was provided and a weekly meeting was held to maximize project and resource productivity. The project closure phase came after the execution was completed. The Merck and OneSource teams met to discuss what went well in the project and what areas could be improved. Merck enthusiastically provided positive feedback on the project performance.

"We appreciated OneSource's ability to accommodate our need for a fast turnaround," Walton said. "The results exceeded our expectations. The work was done correctly and efficiently without disrupting our workflow. The OneSource service engineers demonstrated expertise in the areas of scientific instrumentation and information technology to provide a single point of accountability for problem resolution. The OneSource project team also proved its ability to get the right skills engaged to resolve issues, whether the needed knowledge was instrumentation, operating systems software, networking or computing hardware. Their complete solution helped us get the job done quickly while minimizing downtime."

"The lab computing systems have become virtually seamless and transparent so the scientists can focus more time and energy on their primary job, making discoveries that will improve the state of healthcare. The upgraded environment also ensures the safety of our valuable scientific data," Ferguson said.

"The pilot program demonstrated that a team with the capabilities of PerkinElmer can help us roll out higher standards to large numbers of users on a timely basis," Ferguson concluded. Based on the success of this project, Merck has already engaged PerkinElmer OneSource in upgrading the balance of its lab computing systems requiring various upgrades to comply with Merck's network and lab infrastructure standards. In addition, OneSource upgraded end client software for Merck's scientific data management system and another scientific computer software package on short notice.

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