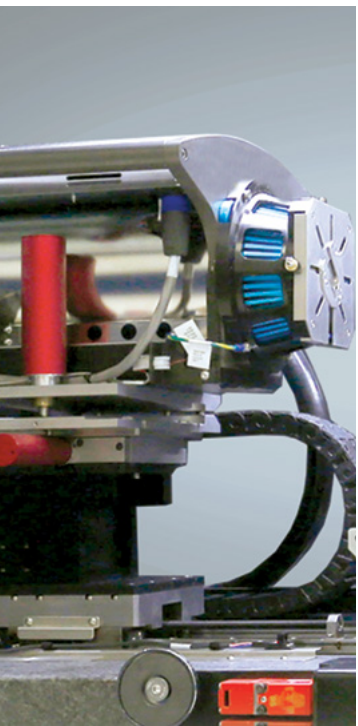


Case Study

How ZEISS Predictive Service Saves the Francis Crick Institute from Unexpected Downtime



Seeing beyond

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The Francis Crick Institute is a world-famous biomedical research center located in London, UK. Founded as a partnership between six renowned research organisations, the Crick opened its doors for the first time in 2016 and has since accommodated numerous world-leading academic and medical industry research projects.

As a critical part of the Crick's different research projects, it employs many different imaging systems – including confocal, electron, and X-ray microscopes – each allowing for the scientists to see the sample in a new light. Thanks to this correlative approach, researchers can work across different length scales and modalities.

The challenge: maintaining system performance and avoiding unexpected downtime

Daren Livett, ZEISS EMEA's regional XRM (X-ray microscopy) specialist received warning messages from Predictive Service about one of the Crick's microscopes, specifically their [ZEISS Xradia Versa](#).

To ensure remote support has an accurate and comprehensive picture of the state of the system, Predictive Service monitors several microscope components individually. In this case, Predictive Service had found a problem with the microscope's X-ray source.

According to [ZEISS Predictive Service](#), the microscope X-ray source's tungsten filaments were having problems reaching what is known as filament saturation point. This behavior is usually found in X-ray sources that are near the end of their designed operating life.

The Versa system had been installed at the institute for a few years before Predictive Service was activated. The Crick were one of the first institutes to adopt use of Predictive Service and since then the system has racked up over 8,500 hours of scan time. Taking this into consideration, Predictive Service showed

that the source, while still completely functional, was likely to fail soon. Any downtime of one of the Crick's instruments would jeopardize research projects relying on them.

The solution: Predictive Service maximizes the system uptime by giving early notice of possible issues

Given the risk of a sudden failure, Daren immediately got in touch with the Crick to let them know what Predictive Service had reported and organized for a new source as well as an engineer to fit the new part. This was important as the source was reaching the end of its life span and could fail in the short-term. The Crick reported that they hadn't seen any issues with their system at this point but gladly accepted the proactive approach from the remote service engineer.

Since Predictive Service gave early notice of the issue, the engineer went on-site with the replacement and was ready to fix the system. This time frame was enough for avoiding any system downtime during their experimental programmes.



Figure 1 Dr Jennifer Pearson-Farr and Dr Anne Weston of the Francis Crick Institute with the facility's ZEISS Xradia Versa 510.

"The customer suffered no unexpected down time. It was only offline when we replaced the source." – Daren Livett, Regional Technical X-Ray Support Specialist, ZEISS



Figure 2 ZEISS Xradia Versa 510

By predicting the failure, ZEISS were able to arrange a replacement part and engineer in advance and prevent unexpected downtime. Having the parts and personnel ready before any problem occurred meant downtime could be planned in to the operating schedule in advance, avoiding potential impacts on time-dependent experiments.

Moreover, the data Predictive Service collects is securely shared with the ZEISS data center. Predictive Service system logs don't include any personal or image data.

At the same time, with Predictive Service, tech support can provide a swift remote diagnosis. Without Predictive Service, users would only know of a problem with their microscope when it malfunctions or ceases to operate. Only then, when contacted by the customer, would tech support know of an issue.

Instead, Predictive Service monitors system readings and can remotely connect an engineer to a system to troubleshoot. In the case of the Crick's system, had the X-ray source failed unexpectedly, getting an engineer on site post-failure could have meant unnecessary downtime in supplying and fitting the replacement. As such, Predictive Service avoided the possibility of unexpected downtime and the direct consequences on the progress of the Crick's research projects.

"We are proactive and regularly see errors before the customers do" – Daren Livett, Regional Technical X-Ray Support Specialist, ZEISS

How Predictive Service works:

- Predictive Service comes pre-installed on every new X-ray Microscope as well as a number of our Electron Microscopy and Light Microscopy systems. You can choose to enable it and take advantage of the benefits available, or not.
- Once connected to your network, Predictive Service will monitor the health of your system – ensuring that it is running as effectively as possible.
- System condition information is shared between your microscope and ZEISS servers via a secure connection, ensuring the highest levels of data security. No image data or research information is accessed or shared.
- Predictive Service evaluates the performance of your microscope over time to ensure your microscope runs as efficiently and consistently as possible.
- If the system behaves abnormally, ZEISS engineers are alerted, can monitor the microscope's performance remotely, and then study the analytics data to understand what needs to be rectified. All this happens whilst you continue to conduct your research uninterrupted.

Further reading

- [ZEISS Predictive Service Overview](#)
- [ZEISS Predictive Service: Discover how you benefit from our Remote Service Program Product Information](#)
- [ZEISS Predictive Service: Technology information for our Remote Service Program White Paper](#)

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