

NDT Data Management- Archive and Data Sharing

Andrea KOETZ,
GE Inspection Technologies, Skaneateles NY 13152, USA
Tel: +1 315 554 2074
E-mail: Andrea.Koetz@ge.com
Web: <http://www.geinspectiontechnologies.com>

Today, there are no areas of industry and commerce, which remains untouched by the digital evolution. This is especially the case in the NDT field, where developments in digital radiography, automated ultrasonic, eddy current instrumentation and remote visual inspection systems have been made possible only by significant advances in digital technology.

One of the features of this new technology is the vast amount of information which is generated and the challenge has been to develop software systems to acquire the information, share it, analyse it and then manage it in an intelligent, fast and accessible manner.

Remote Experts & Data Sharing



Figure-1 Rhythm Remote View

As the demand for skilled experts increases around the globe, we have to become smarter with the allocation of resources and using the advantages made possible with digital data. Implementation of a software data management platform enables you to seamlessly share data across users in multiple locations, allowing improved utilization of expert resources by bringing the data to the experts versus taking the experts to the data. Using a standard imaging protocol like DICONDE (Digital Imaging Communication of Non-Destructive Evaluation) leveraged from the medical industry (DICOM) allows for not only the image to be shared but all critical information on how the data was collected and what asset they are looking at. Providing this information along with the image gives the expert everything he needs to make the inspection call at the first analysis without requiring dialogue back and forth at the inspection site to clarify what inspection is occurring and how the image was collected.

Data Management and Archive



Figure-2 Rhythm Enterprise Archive

Data Management starts with the ability to digital store inspection data in replacement of paper reports, film, photos, etc yet the question is how to effectively manage this increased volume of digital data and how to make it more productive in driving better quality inspection and in turn asset management.

A DICONDE software data management platform allows more efficient data searching for inspection data from all modalities; it can control image information workflow so that data can be routed to other experts for further analysis. Quick access to previous inspection data can boost up productivity output by as much as 50%. Pre-inspection plans can now be formulated more efficiently by taking actual inspection history into account. A similar order of productivity improvement can also be achieved in post-inspection, as only relevant inspection data needs to be sent for further analysis.

The power of the new archiving capabilities also opens up the way for the implementation of database techniques such as data mining and data fusion, so that data can be compared from different databases while information can be fused from sensors of different NDT modalities. This will assume greater importance and relevance as data management platforms extend into other NDT modalities.

A DICONDE based archival solution ensures that multi-modal inspection data will never become obsolete or inaccessible. It simplifies tagging of information without elaborate naming conventions, and allows rapid filing and facilitates data retrieval. Data can now be readily accessed from a central storage source by any number of remote interrogation sites.

In order to protect present and future investments, the interface of the archiving solutions needs to support a wide range of cutting edge technology and long-term data storage solutions. It needs to be scaleable, reliable, and provide a foundation for data mining. In other words, Operators must be able to quickly extract information and carry out all different types of analysis using different inspection modalities. When deploying an archiving structure, ones needs to keep in mind the following criteria:

- Data has to be quickly retrieved independent of when the information was generated. In some NDT industries data is kept for up to 2 years; in others, it is required to store data 50 years or more
- Enable inspectors to share data with others located outside their organization and to view / review inspection data reports, studies or images from any PCs that have Internet access.
- Architecture needs to be scaleable / expandable without negatively impacting the daily activities. Solution may need to expand from standalone departmental to a large-scale multi-enterprise, global solution.

In summary, a DICONDE based software data management platform can assist inspectors in improving dramatically the communications through the inspection process (i.e. from pre- to post- inspection stages), perform on-going asset management and evaluation thru the life of the assets independent of its origins (i.e. modality source) as well as extend knowledge with users like experts or customers who are not on a DICONDE network, enabling you to bring in the data to the experts instead of taking the experts to the data.