



Harold van den Hauten



Chris Lyden

# Software maps the process automation genome

**PAS announces the launch of its 'Integrity Automation Genome' software following the completion of in-depth practical testing. The software generates a universal framework for the aggregation, simplification and contextualisation of data across an entire industrial automation system. I spoke to PAS president Chris Lyden in Paris to find out more about their new product.**

The Integrity software analyses production systems and controllers (the assets), as well as the functionality of the data flow within automation systems and between production systems. The software links all the individual data flows and uses a library of asset models.

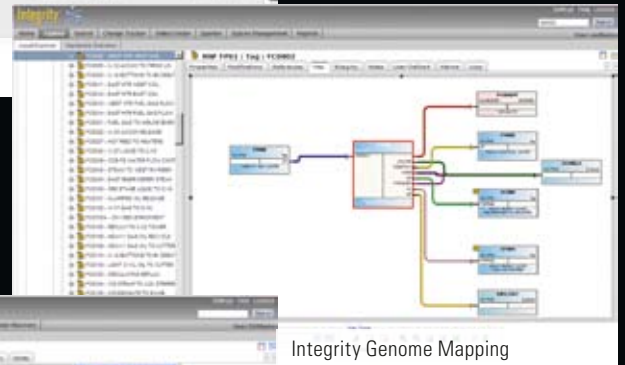
These models cover most currently available control systems (DCS) produced by the major manufacturers. They also cover PLCs, safety systems (SIS), HMI/SCADA packages, data historians and asset management packages. In addition, Integrity collects data from field

instrumentation and analysers. The application also collates information from systems that are less geared towards automation, such as Sharepoint, Microsoft's intranet framework. The Integrity software seeks to maximise the amount of knowledge amassed from the systems and provides advanced search features, together with a data mining facility. Industrial automation systems have a complex structure consisting of tags, programs and databases that are unique to each system. The creators of the Integrity software liken this

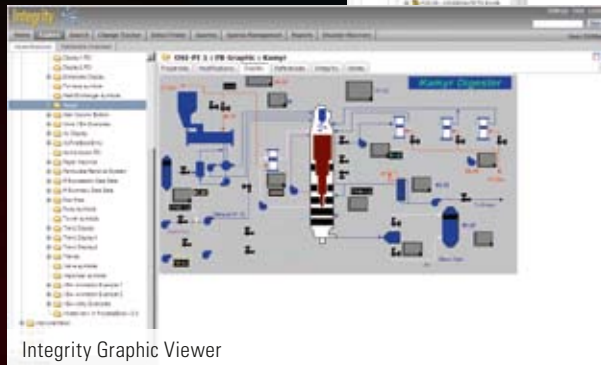
structure to information about the individual characteristics of living organisms stored in their DNA: the genome. In contrast to natural genomes, the 'automation genome' can change quickly, sometimes on a day-to-day basis. The term 'Automation Genome' describes the collective configuration of all automation systems in the plant. Effective management of assets in a plant is essential for the safety of personnel and the installation, and also to comply with legal requirements. However, the installation and the measurement and control systems do not form a uniform and static whole. As a rule, there will be a disparate mix of systems from different manufacturers. Moreover, the configuration usually changes over the course of time. An additional management and documentation challenge is posed by the enormous number of measurement points that can run into hundreds of thousands in modern plants, while the number of process management applications easily passes the 100 mark. The installation, configuration and maintenance of industrial automation systems requires investment in engineering and training, the cost of which may exceed the original investment many times over. As personnel involved in the installation and operation of systems leave the company due to retirement or for other reasons, there is an equivalent loss of know how and experience. Lyden: "A leading US refinery recently reported the loss of 2500 man-years of operator experience at a single site due to staff leaving. Another chemicals company reported that it expects to lose 75% of its operating personnel at its main plant by the end of the decade." Effective management of the automation systems and protecting the know how built up over the course of time is very important for day-to-day activities in the plant and for the retention of the intellectual property acquired over time. The Integrity software seeks to provide a solution with a comprehensive system for life cycle management, including the reliable collection of data and generation of documentation and reports, together with detailed recording and reporting of changes. Integrity imports data from the systems, checks data consistency and generates automatic diagrams for visualisation purposes. Details of a specific configuration can be visualised on the screen using a facility called 'Smart Link'. Clicking on an object shows the details of that object and its relationship to other objects. Lyden explains that the system



Integrity Defect Finder



Integrity Genome Mapping



Integrity Graphic Viewer

uses Web 2.0 technology, a buzzword we are likely to hear more frequently in the future. The aim of this technology is to improve the interaction between users and so to improve communication between people. This functionality is provided by the Collaboration module. The primary platform for this purpose is Plant Wiki. This allows users to add knowledge to the plant database or to change or view data, depending on their authorisation. Another specific example is the application of a 'smart link' to a Microsoft Office document or an e-mail message containing information relevant to a specific object. These documents are included as a copy in the knowledgebase in their original format. The idea here is that it is important not only to retain formal documentation, but also to amass and record the experience held in the heads of employees. Lyden sees the Disaster Recovery module as one of the 'killer applications' of the new software. This module creates a central database. It provides a mechanism for the automatic back-up and archiving of all data and the relations between data. The module

operates centrally across all systems, no matter how disparate. In the event of a disaster, it provides a facility to roll back to a specific point in time. The back-up frequency is user-defined and will depend on the dynamics of the system. Lyden is in no doubt of the value of his product for a whole range of sectors, primarily where complex systems are used, such as in the energy sector and the chemical industry. In principle, PAS software can operate with any automation system. It is also used by Honeywell and Invensys. ■

For further information:  
PAS: [www.pas.com](http://www.pas.com)