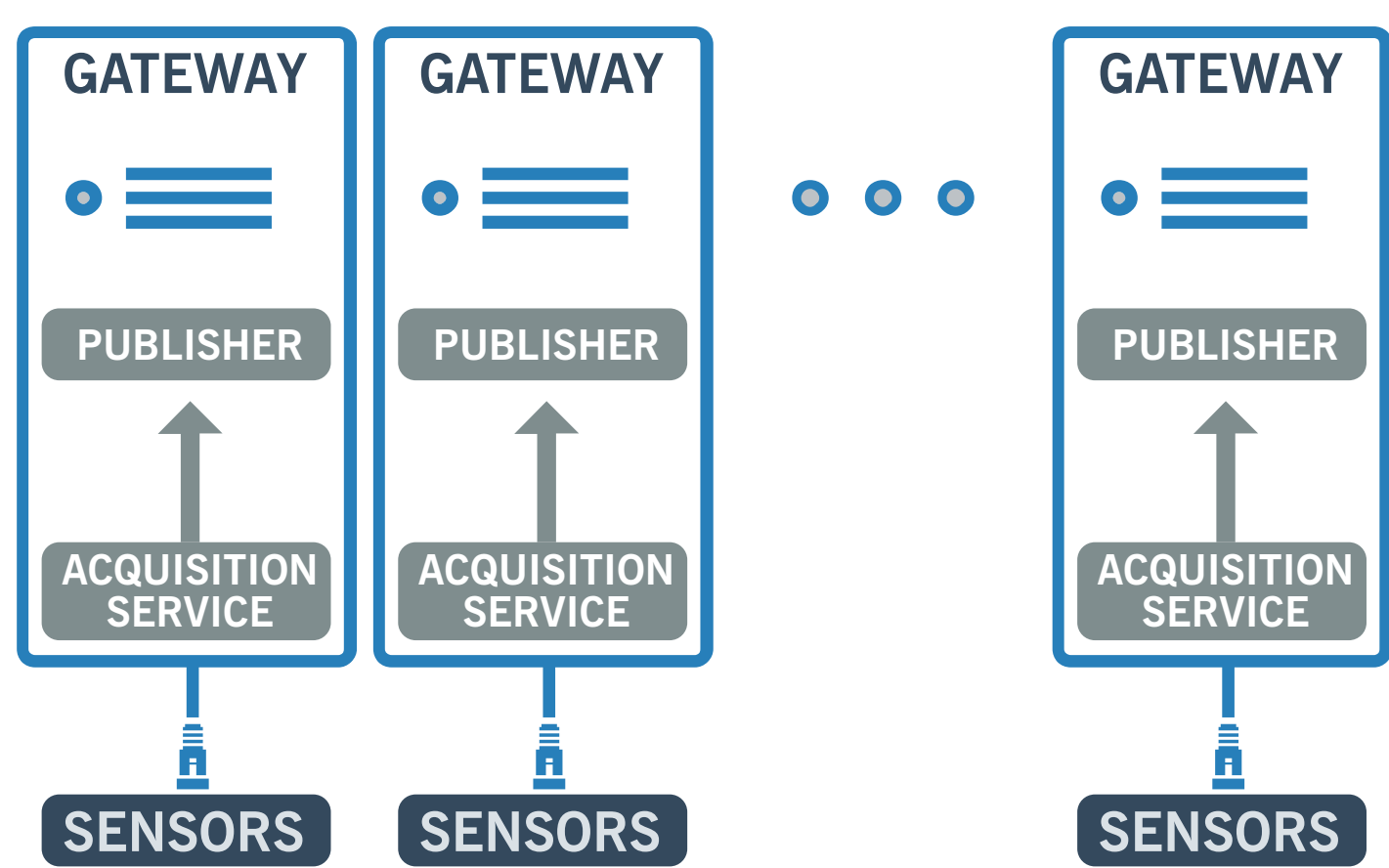


## PATBox IMPLEMENTATION ON PROPAT PROCESSES

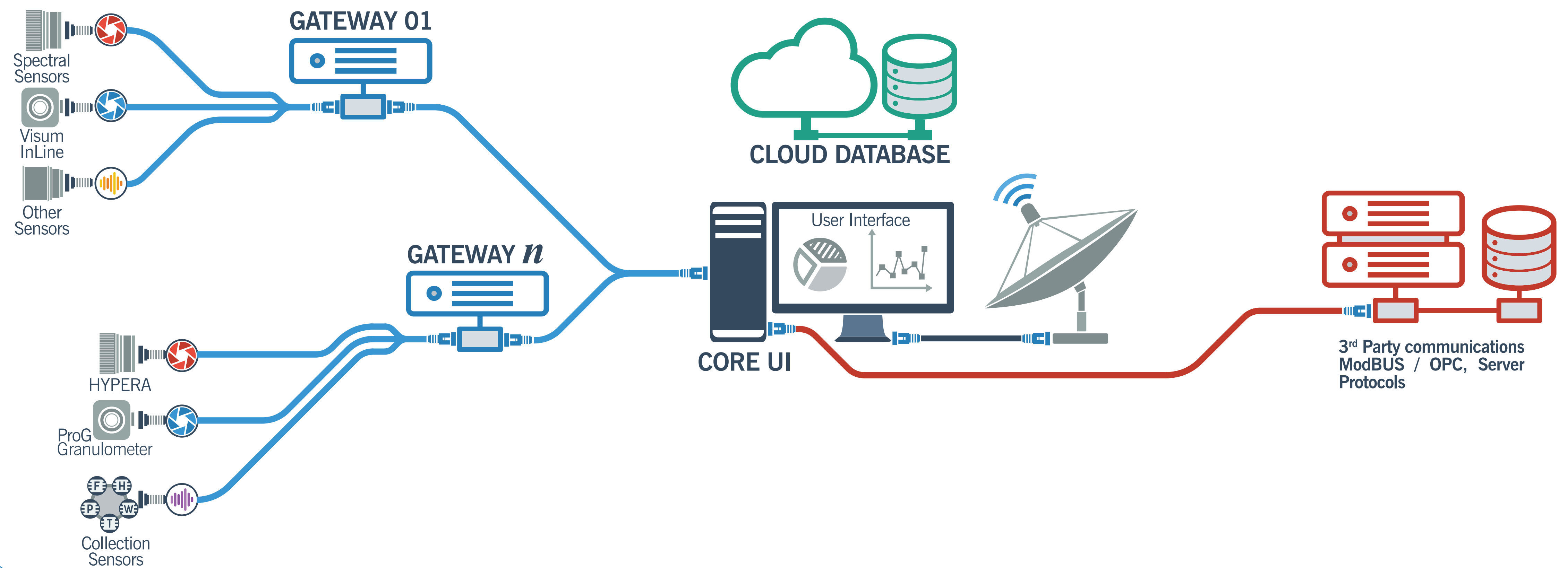
Implementation stages of PAT systems at ProPAT processes: 1) Data collection is made by using analytical probes located at critical control points of different processes in pharma, metals, mining and chemical industries. 2) To develop stochastic-data-based predictive models by applying data mining tools to the analytical data. 3) To optimize the process according to the best model achieved by collecting and mining data. 4) To perform model maintenance along the life-cycle of the optimized production line.

### SCALABILITY

Platform architecture has been designed so that the computational load of the data acquisition layer is divided into sub systems named Gateways. This feature gives the system the capacity of being resized according to the process needs up to a quantity of 256 Gateways or sensor nodes, where each node manages up to 4 analyzers.



### SYSTEM ARCHITECTURE



### CONFIGURABLE

The Global Control System allows to customize the plant configuration and to have different user profiles: Administrator, Manager and Operator.

### EASY TO INTEGRATE

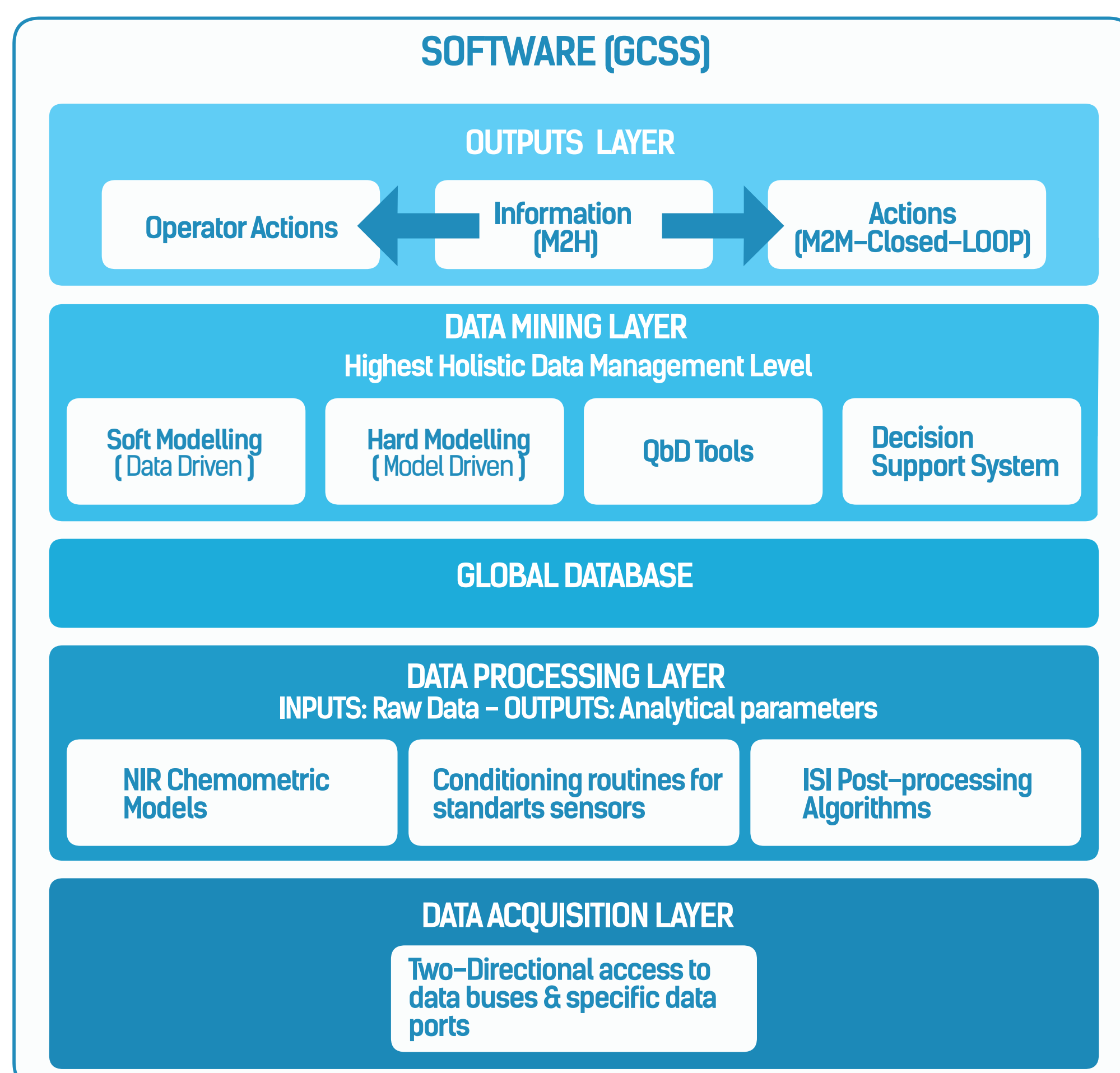
Industrial communication protocols as ModBUS and OPC UA makes this one a very powerful tool able to be integrated into third party systems.

### FLEXIBILITY

Management Data System is flexible and allows the users to save their processes in a local server or directly to the Cloud.

### PREDICTIVE SOFTWARE TOOL

The Global Control System provides self-learning and predictive capabilities aimed for reducing overcosts derived from even slight deviations from the optimum process.



Data Processing and Data Mining layers can be dynamically implemented by charging external files of chemometric and process control models, giving the system a high adaptability to a vast quantity of processes and model maintenance capacity.

### REAL-TIME PROCESS INFORMATION



Multiple information obtained from different analyzers and sensors and from the process analysis itself, can be followed in real-time in a user friendly interface.

### INDUSTRIAL STANDARDS

PATBox will be CFR 21 (Part 11) compliant in order to guarantee the traceability of the data process and to meet Good Manufacturing Practice GMP system used in the pharmaceutical industry.

“PAT: Taking the analytical capabilities from the lab to the production line for implementing a comprehensive knowledge-based process control”