



**GRANTEK**

**Integrating Communications Portals  
at Manufacturing Facilities**  
*Grantek Solutions that Go Beyond Compliance*

## Overview

A major challenge in achieving an optimally automated manufacturing facility is getting all systems to talk to one another. As production facilities are modernized and upgraded, data from older systems must be integrated with data from newer systems and distributed as required to achieve efficiency, regulatory compliance, data security, and actionable reporting capability. Facilities making food or beverage products, pharmaceuticals, or other consumables all face the task of importing and making efficient use of data generated by many different systems.

## How Grantek can help

Grantek's many years of experience in this market space enable us to provide data integration services that allow data transfer among multiple systems of different eras and from different vendors. Though the data integrity and data documentation requirements for pharmaceuticals may be more stringent than those of food production, all manufacturers of food and beverage must meet similar requirements for tracking product.

As experts in manufacturing automation and integration, Grantek offers analysis and data integration services at all levels, ranging from full customization (where there are no data standards, and/or a system does not make use of a well-known interface structure) to implementation of standardized data.



Grantek can design customized interfaces that can gather data, read and/or generate 2D and 1D barcodes, images, or whatever type of data the customer's manufacturing machines require. Grantek can configure and gather raw data generated by the equipment into a local database and then standardize the data structure and pass it to the facility's enterprise business system. The data can be configured for use in monitoring of live production, for planning and analysis purposes, or both.

Grantek has extensive experience integrating with SAP, whether through standard interfaces such as Simple Object Access Protocol (SOAP), or through direct integration with SAP systems. We can leverage standard interfaces to talk to the SAP's Java Connector (JCo) interface to SAP.

We also have the knowledge and capabilities to integrate factory production systems directly to standard SAP as is comes out of the box, or via specialized interfaces. Performing SAP integration via the interfaces on the production side, rather than customizing SAP itself, is more cost-effective in many cases. It may be financially beneficial to engage Grantek to customize machine interfaces to communicate with SAP, rather than turn to costly SAP customization. Grantek's interface specialists are

knowledgeable and familiar with the SAP interface toolkit, but the truly important aspect is having the knowledge regarding what is needed to exchange data with the appropriate SAP business modules. Grantek has the skillset needed to understand how SAP works and how its systems integrate. This enables us to best design a customized interface to get the data into SAP in the most efficient way possible, without resorting to SAP customization in most instances.

## **Project Planning**

When planning an expansion or upgrade project, engaging Grantek early in the planning process allows us to provide information on reasonable and practical expectations for information exchange and communication among affected systems. We can assist with identifying data metrics, how they may be utilized to improve processes, and how to leverage existing technologies.

Grantek encourages anyone interested in integrating data from diverse production systems to contact us for information on our data communication portal services. We can provide support for all aspects – from identifying data that can be derived from existing systems, through capture and communication of that data to business applications; with full support in between and ongoing support after the systems go live. Grantek’s long history as an integrator uniquely positions us to understand data interfacing requirements and how best to meet them.

Some points Grantek will evaluate and consider when helping a customer approach the design of custom data interface and communication portals are the following:

- Does the approach enable the use of one language to access all data on the network?
- Does the approach facilitate sharing of existing data, created and manipulated by existing data management systems?
- Does the approach encourage users to share data and use the facility provided? How evolutionary is the approach?
- Will a failure of one node in the network cause a failure of data sharing?
- Does the approach promote or hinder further development of data management systems?
- What are the implementation considerations?
- What are speed considerations?

Grantek can support equipment modernization, process optimization through business analysis, and provide data services as part of another upgrade project or expansion.

## **SAP Data Integration**

SAP is a comprehensive system that, though it is standardized, may have many adaptations and interfaces specific to a facility’s operation. Grantek has been customizing production system data for SAP compatibility for many years.



When we approach a new project requiring SAP integration, we may spend two or three months evaluating the customer's needs to ensure all requirements are addressed when we begin developing the interfaces necessary for data compatibility. We have written tools for monitoring orders and production completion.

In a typical system, the production line makes the production order. Grantek can obtain all the information from the order – equipment and users get requests, and the SAP system is kept updated in real time. Providing timely data to SAP enables more accurate prediction and forecasting, which helps match batches to orders, and provides more granularity in production reports.

This type of interface can also be implemented by Grantek for pharmaceutical production. Working on the product output side of the factory floor, Grantek can implement product serialization checking for production using a SAP interface. SAP generates the serial number and tracking data, which is distributed to the product. Actual data from the floor is then reported back up at each packaging level, from the unit package all the way up to the pallet.

## Expertise

When Grantek receives a request for proposal, we typically help develop the customer's communication requirements, typically at the business level. We assist customers in determining their needs and in assessing the need for communication among various systems at the facility that may be affected by an expansion project. Grantek helps write the detailed system interface requirements and helps develop long range plans.

Grantek then works at the system level to determine communication between equipment protocols as well as the production records required for exchange of information. We also develop a timing diagram to know when data is needed.

Then, Grantek works at every level to define reporting that can be provided to the system. We help customers define network design, in the current configuration or in the redesigned/upgraded system. The Grantek team works with the client's facility IT and security to define firewalls and network transport security.

Grantek's system interface design experts have experience with Matrics, IBM, SAP, and other business system vendors. We have worked with blind interfaces where the vendor does not provide information

about their internal data structures but merely provide their “data in” and “data out” requirements. We are also familiar with the “handshake of traversal” that ensures data elements flow properly from one system to the next, and the acknowledgements flow back. Typically a project begins with a data analysis to determine the data each customer can obtain from their manufacturing systems, what they have done with their data historically, and what they would like to do with it going forward. Grantek analyzes the systems to design customized interfaces and data portals that will achieve the customer’s goals of data sharing and also allow the data to drive decision-making.

We utilize Grantek Enterprise Systems Bus (GESB), a proprietary tool developed in-house for interfacing systems and talking to the programmable logic controllers (PLCs), vision systems, and other devices that create data outputs on the production floor. Grantek can capture and interface data from any equipment that has a serial or Ethernet data output and map the data to any interface the customer needs.

In any integration project, it is more efficient to consider the data interface requirements from the beginning in order to design it into the system, whether building a new production line or replacing equipment. Grantek’s experience as a system integrator allows us to work with vendors at all levels of production, ranging from factory machines to weighing and measuring equipment all the way up to the ERP system. Engaging with us early in a project helps to ensure that all aspects of the project are considered when designing the data flows. Grantek can work directly with equipment suppliers to define the needed interfaces from the start rather than relying on “blind” interfaces which can result in inefficiencies in the future if troubleshooting is ever needed.



Another area in which Grantek excels is the integration of legacy data from older systems and equipment back into the upgraded production systems. Legacy integration can range from data collected by a PC with custom data all the way to MES systems.

To ensure a successful project, it is important to engage early to capture complete requirements, and to do proper audits of the existing systems to ascertain that all requirements are known before starting the work.

## Support

Grantek provides ongoing support for system communication interfaces. Typically a SAP customer will call SAP if a problem is seen with SAP user interface screens, and Grantek typically provides support for the rest of the interface. Grantek does the research and troubleshooting and works with customers to resolve issues. To help ensure seamless ongoing support and knowledge transfer, the Grantek communications system engineer responsible for designing and overseeing the interface project is also the engineer who provides ongoing support.

*For over 30 years, top manufacturers in Food & Beverage, CPG, Pharmaceuticals and Energy have called upon Grantek to solve their most complex business and manufacturing challenges. Grantek's team of professionals located in 17 offices across the globe deliver solutions to complex problems in Smart Manufacturing, Industrial Networking, Automation and Industrial Safety. Call 1.866.936.9509 or email [info@grantek.com](mailto:info@grantek.com) to learn more.*