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JANUARY 2014

## **Inductive Automation’s Ignition Technology Offers Potential to Disrupt HMI/SCADA Market**

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## Overview

In the last several decades, disruptive technologies have fundamentally changed many industries. The term “disruptive technology,” coined in 1997 by Harvard Business School professor Clayton Christensen, describes the phenomenon by which a new technology displaces an established

When a new product achieves success in a mature industry, it may be attributable to more than just features, pricing or other quantifiable factors. Inductive Automation believes that Ignition will disrupt current technology, licensing models, and business models for HMI/SCADA software.

technology, often in an unexpected way. It is more than an improvement to an existing technology, and it means more than being innovative, since a product can innovate without being disruptive.

Clearly, the industrial software market is ripe for disruption. In one potential example, in January 2010, a startup software company in Northern California launched “Ignition by Inductive Automation,” an industrial software platform with a variety of modules that can be combined to create custom human-machine interface (HMI), supervisory control and data acquisition (SCADA), and manufacturing execution systems (MES) solutions. According to the company, its objective was not just to improve existing technologies, but to introduce disruptive technologies and business models with the potential to fundamentally change the industrial software market.

Product differentiation in a mature industry may be attributable to more than just features, pricing, or other quantifiable factors. Inductive Automation is positioning Ignition’s differentiator to be the disruptive nature of its technology, licensing model, and business model.

## What Makes a Technology Disruptive?

### The Distinguishing Hallmarks of a Disruptive Technology:

- It redefines its category
- It changes how business is done
- It creates new markets

The distinguishing hallmarks of a disruptive technology are its ability to redefine its category, change how business is done, and create new markets. A disruptive technology can be so unexpected that, initially, it may not seem to fill an identified market need or niche because there is not

yet a market for it. The value of a disruptive technology product might be hard to recognize at first because it seems quite different from what most people have become accustomed to.

The unexpected nature of disruptive technologies tends to blindside incumbent companies, which usually focus on operating in established markets and making incremental improvements to existing products. This is why incumbents can fail to recognize the benefits and opportunities that disruptive technologies can bring, and why slow adopters can be caught off guard when a competitor finds a way to leverage a new technology.

### Disruptive Technology Example: The Smart Phone



A historical example of a disruptive technology in the consumer sector is that of cell phones, which not only caused many people to stop using landlines, but have evolved into smartphones, which converge phoning and computing. New technologies are also causing disruption in the manufacturing sector. Big Data and analytics are challenging companies to not only handle exponentially larger amounts of data but also to convert it into actionable information. The Cloud is changing IT as we know it, shifting a large amount of data storage and computing tasks off local physical servers to web-based cloud services. The Internet of Things will connect a wide network of intelligent devices that will increase automation in factories and offices. Mobile and social technologies are bringing web-based connectivity to the workplace and every other facet of life.

These technologies all share certain commonalities. Each is driven by data, increases access to information, and enables real-time connection between human and non-human assets. They facilitate greater collaboration across departments, companies, and industries. Cumulatively, these disruptive technologies are shaping what the manufacturer of the future will look like; a highly connected and automated environment in which more data is available to more people at more points throughout the enterprise.

## Disruptive Technology Commonalities



DRIVEN BY  
DATA



ACCESS TO  
INFORMATION



REAL-TIME  
CONNECTIONS



GREATER  
COLLABORATION

## Disruptive Technology for HMI, SCADA, and MES

The worldwide HMI/SCADA market continues to evolve to meet the needs of both discrete and process users and OEMs. Rather than being just a standalone component, the HMI/SCADA platforms are evolving into integrated solutions that help solve user and OEM problems to improve business performance. Despite these evolutionary changes, ARC believes that the HMI/SCADA market is ripe for disruption, particularly as it relates to ease of use and total cost of ownership.

Global competitive pressures require users and OEMs to increase the integration of automation with other enterprise applications. This has driven the convergence of HMI/SCADA and MES platforms.

Although technological advancement will continue to be an important factor, the focus of discrete and process users and OEMs has moved toward seeking solutions that can help them better manage their manufacturing operations while dealing with the reality of having to pare back their in-house capabilities to engineer and support automation systems. In addition, global competitive pressures require users and OEMs to increase the integration of automation with other enterprise applications. This has driven the convergence of HMI/SCADA and MES platforms.

Increasingly, these converged HMI/SCADA and MES platforms help users visualize both key automation and business metrics and KPIs, such as overall equipment effectiveness (OEE) and energy savings, to help maximize the productivity and profitability of their businesses. Users and OEMs alike are all too aware of global competition and escalating energy costs, as well as the need for automation solutions that can help companies achieve more flexible production while reducing environmental impacts. These platforms will become a primary building block for industrial

automation systems in many manufacturing plants. Increasingly, however, users and OEMs want the converged platform to serve not only as an operator interface window into the application, but as an enterprise integration tool. As the trend toward open systems in the automation and enterprise markets continues to unfold, the converged platform needs to emerge as a single device to support a wide range of applications. This opens the door for new technologies, such as Ignition, that can change the way that data and information is made visible and actionable across the plant floor and throughout the enterprise.

## **Ignition Software, Disruptive by Design**

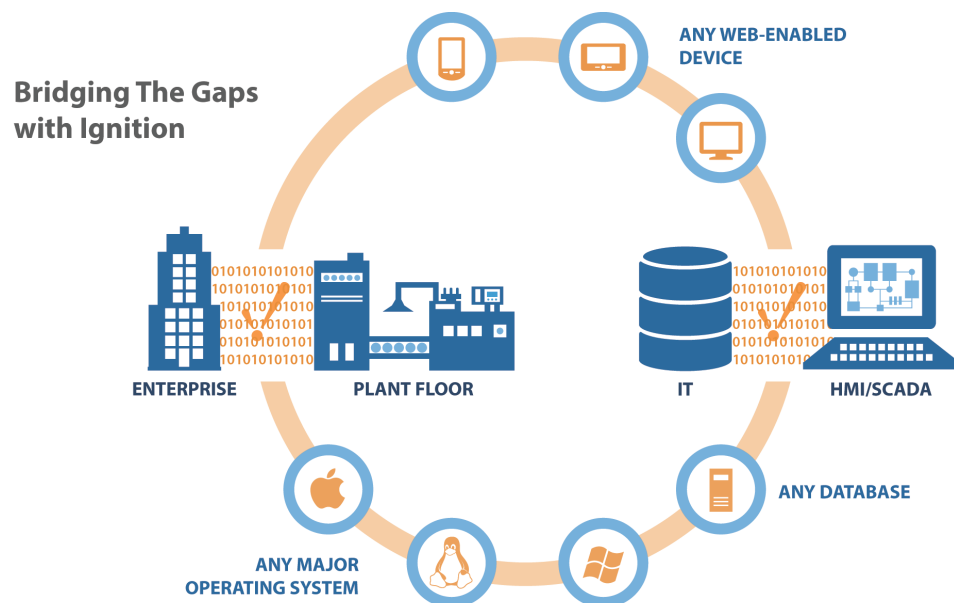
While enterprise-level technologies have become increasingly web and cloud-based, that is not the case for many traditional HMI/SCADA software systems. That is why Inductive Automation designed Ignition to be fundamentally different than traditional HMI/SCADA software in a number of ways.

Unlike other offerings, Ignition is licensed by the number of servers and comes with unlimited free tags, runtime clients and licensing.

While this is changing to a certain degree, there has often been a technological gap between traditional HMI/SCADA software systems and information technology (IT) systems. Once the software is installed, the user can face issues, such as flat file storage with time-series data only, individually installed clients, a lack of database applications, limited and proprietary connectivity, simple trending information, decentralized maintenance, and limited security options.

Ignition software uses a different approach. It is web-based, which can make it quicker and easier to install and use with faster downloading and without requiring users to install a driver. It can be set up on a cloud network or on a local network and launched to any computer or device with a web browser. It connects to structured query language (SQL) databases, runs on web servers, and enables users to develop their own database applications. According to Inductive Automation, by converging IT and control technologies, Ignition helps close the gap between the plant floor and the enterprise, allowing data to flow throughout the business. This helps improve efficiency, security, productivity, and reliability.

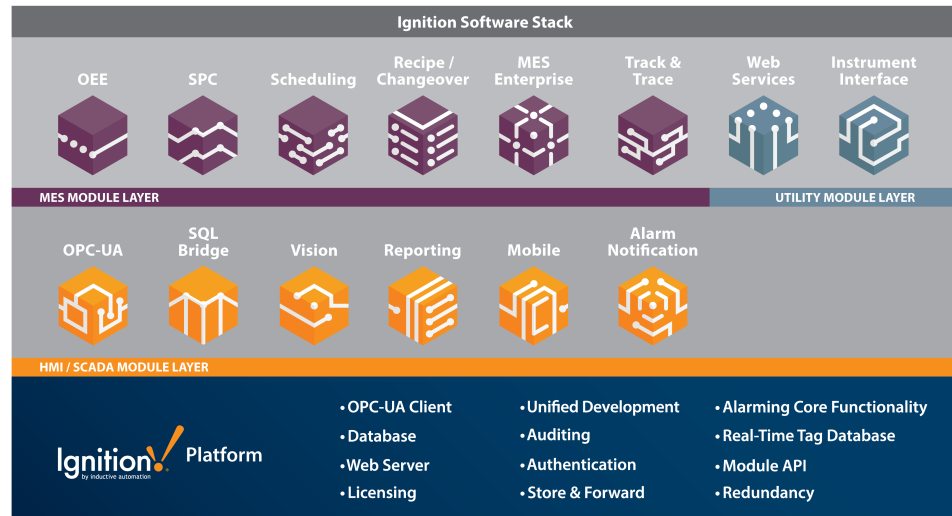
HMI/SCADA software typically communicates with a specific type of database. In contrast, the developers of Ignition designed a database-agnostic HMI/SCADA software solution. This design allows unlimited database connections that can interoperate with any type of database and support any database server. This is a desired connection point between different software applications. Ignition can leverage SQL databases, the most commonly used type of database. This allows users and OEMs to put PLC/PAC data into a relational database, integrate HMI/SCADA with existing MES and ERP systems, and log historical data from the HMI/SCADA system in a SQL database. The Ignition SQL Bridge Module enables users to bridge the gap between OPC data and SQL databases.



Built entirely on the Java programming language, Ignition is cross-platform compatible and web-deployable, offers remote viewing and control, interaction with legacy systems, and integration between the factory floor and supply chain. Use of Java differentiates Ignition from many other HMI/SCADA software systems. Ignition also allows users to build a control system on Linux, an open-source operating system.

Ignition provides the flexibility to develop solutions that transcend the neatly defined categories of HMI, SCADA and MES.

The modular nature of the Ignition platform allows for a high degree of customization. Users can connect different Ignition modules on the unified foundation to increase its range of functionality with each module they add. The modules handle specialized functions, while the platform handles non-specialized functions such as deployment, development, security, licensing, and connectivity. Modules can be added or upgraded on-the-fly, causing only minimal downtime.



Adding modules to Ignition is similar to downloading a new app onto a smartphone or tablet. And much like an app store, Ignition has a module store, the Module Marketplace, for which third-party developers can create software applications and Ignition users can try and then buy any module. In this manner, Ignition provides the flexibility to develop solutions that transcend the neatly defined categories of HMI, SCADA, and MES.

## A New Model in Software Licensing

Another traditional HMI/SCADA software approach is to charge users by the client, point, report, etc. The revenue models for most HMI/SCADA software systems are designed based on the number of tags or clients used. Runtime clients and offline designers are sold separately, installed separately and sold by the seat. This type of licensing model can make it expensive for many users and OEMs.

In response, Ignition developed a potentially disruptive, IT-like licensing model. The software is licensed by the server and provides unlimited free

runtime clients, tags, and development clients. This allows users to add on to their system without spending more on software. Users no longer need to worry about how many people are using the system simultaneously, or need to justify buying a more expensive seat license every time they want to add a user.

From the beginning, Inductive Automation's mission was to employ disruptive technologies to reinvent HMI/SCADA software. In many respects, Ignition's web-based, database-centric, modular, Java-built, cross-platform solution goes beyond what is traditionally thought of as HMI/SCADA.

Ignition can also be connected to a range of devices and works with MES or enterprise resource planning (ERP) systems, allowing data to flow through an organization. By allowing users to add unlimited tags, clients and

connections to their HMI/SCADA systems and to scale it out without the constraints of licensing costs, Ignition allows its customers to increase the usage of their systems without a subsequent increase in costs.

## Conclusion

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From the beginning, Inductive Automation's mission was to employ disruptive technologies to reinvent HMI/SCADA software, not simply to make incremental improvements to existing models. In many respects, Ignition's web-based, database-centric, modular, Java-built, cross-platform solution goes beyond what is traditionally thought of as HMI/SCADA.

Through its licensing, Ignition has also reinvented the industry's business model. Rather than selling pre-packaged software to users and charging them for additional tags, clients, seats, screens, etc., the company sells an open-ended platform that encourages customization and innovation. Instead of charging integrators for support, the company offers free support to integrators and caters to many of their needs, making them an extension of its own sales force.

Ignition provides discrete and process users and OEMs with opportunities to innovate and become disruptive forces in their own right.

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