

Managing in the 21st Century

A Perfect Fit for A World of Management

By

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Introduction

Web 2.0, also known as “Participative” and “Social Web” refers to websites that emphasize user-generated content, ease of use, participatory culture, and interoperability (i.e., compatible with other products, systems, and devices) for end users.

Web 2.0 provides a revolutionary opportunity to create a system for managing business performance in the form of a neural network of people and information that is self-aware, self-monitoring, and self-correcting.

This whitepaper describes principles currently used for organizational management versus the wonderful opportunity for a highly advanced management system available in “Management 4.0.” We believe the appropriate management control system for the future is what we call “Advanced Management Insight” (AMI). We believe it will be a means to transcend and bring alive a complete framework for managing a business.

The AMI architecture and real-world implementations have been proceeding for the past several years.

We believe it is not only a revolutionary concept, but also a practical and easy-to-implement approach.

This narrative describes the ideal management system for any business, the constraints that keep us from implementing it today, and some of the potential critical success factors.



Problem

“ Human capital is a critical asset to all businesses, and the problems associated with leveraging it are well known. One of the primary problems all managers have is implementing newly gained knowledge and putting best practices into action. ”

Management systems in the 21st Century must be simple to implement, as simple as setting up a spreadsheet or checklist. Let's first take a look at management 1.0, 2.0, and 3.0.

Management 1.0 - Hierarchies

What we call management today has its origin in the US in the early 20th century. During the second industrial revolution labor had to be organized for mankind's first real mass productions. The purpose and content are given from the top and the organization is designed and managed in a top-down fashion. People must adapt to the organization.

Interestingly, many principles and practices still used today have already been developed during those early days. While the environment has changed dramatically.

Management 2.0 - Models

As Management 1.0 was not flexible in its approach to grow with new models, many add-on models were created, e.g. Balanced Scorecard, Six Sigma, Theory of Constraints, or Total Quality Management.



But all these models still assume that organizations are managed from the top. And all these approaches have been made for people being at the top of an organization.

Management 3.0 - Complexity

The break-through in understanding modern organizations came in the 1980's and 90's with the rise of systems and complexity sciences. When you depict organizations as social networks or self-organizing systems – and not machines – it is much easier to understand their behavior. This was paradigm shift with serious consequences. A commercial company is just one special case of a “social system”. Creating viable structures means that the purpose of a company cannot be seen in maximizing its profits.

Management is primarily about people and their relationships. To draw on people's ingenuity and creativity organizations must adapt to people.

Suddenly, the scientific foundation of management has been found in systems and complexity sciences. And not in business administration with its central focus on accounting.

In a networked knowledge-society, organizations create and shape the world. And managers create and shape organizations.

The profession of management has got the potential to make the world more human and more empathic.

GOALS AND OBJECTIVES OF AN IDEAL MANAGEMENT SYSTEM

The management information and control system of a business governs collection and flow of information and acts to set standards of governance, control, and visibility of business data. It is meant to ensure the proper flow and use of information upward to various management levels. It is also meant to serve the purpose of being a conduit of goals that are downward and across the organization, objectives, standards, best practices, and governance and communications.

Top executives understand that the design and execution of the management system is one of the few ways in which they can effectively direct the energy of their business.

“ The management control system must be the prescribed information system used by management to ensure the clean and honest flow of information. ”

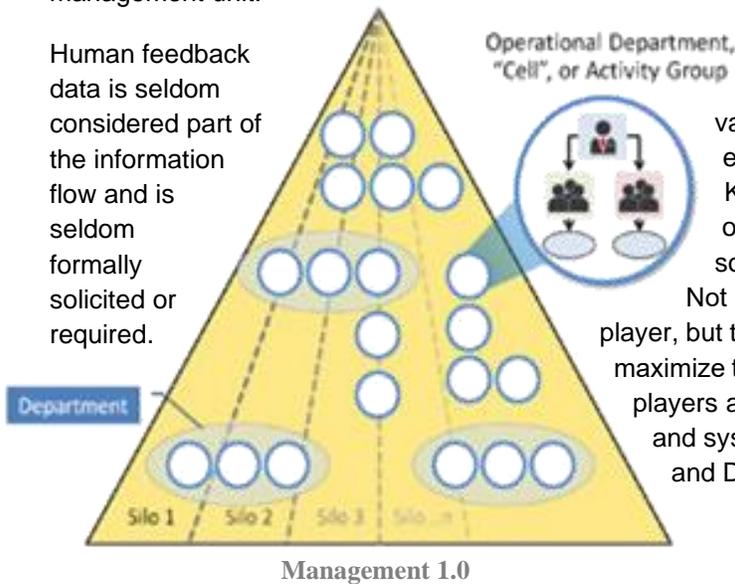
It must provide for efficient management interaction within the organization.



CLASSIC MANAGEMENT MODEL

In the classic model, information flow is often a collection of individually prescribed networks created by whoever the current managers are and their view of their own needs, which often changes. It is directly related to the immediate focus of the individual management unit.

Human feedback data is seldom considered part of the information flow and is seldom formally solicited or required.



Management 1.0

Human opinion/perspective from the participating stakeholders is typically provided by word of mouth in meetings, the hallway, or at the coffee machine. It is seldom in the record, or in individual written reports. The result is that the left hand often cannot know what the right hand is doing. At the operational level, individual islands of information and knowledge exist within a segment of the organization, and the collective knowledge of the lowest-level workers is never captured, much less leveraged.

Moreover, as personnel change, the information desired and the upward flow change. History is often lost, i.e., the meaning of the empirical data. The objectives, data flow, etc., run the risk of disruption and change with every significant change of manager, executive, or subject matter expert. Judgment and analysis within the

information flow is then highly impeded by new or less capable managers. Top management seldom has a comprehensive information flow within the organization. Instead of a constantly improving information flow, they face a constant change and lack of overall design.

All organizations have a constantly changing mix of individuals of various capabilities, experience, and talent. Knowledge drain is a fact of life, particularly in the social world of Web 2.0. Not everyone can be an “A” player, but the classic model fails to maximize the knowledge of the “A” players and to raise up, monitor, and systemically improve B, C, and D players.

MANAGEMENT 1.0 CONSTRAINTS

Multiple constraints impede the successful execution of current management systems, including:

Filtered Information

- ✓ Information, facts, risk, etc., can be hidden, either intentionally or unintentionally.
- ✓ Bad news is often filtered for too long by individuals before being communicated to management.
- ✓ There are many human data filters where individuals chose to decide which information flows upward, goes into the record, is changed, emphasized, or filtered.
- ✓ True management review and governance is extremely time-consuming or difficult, and in most cases is done with incomplete and filtered information.

Required Information Not Flowing

- ✓ Information tends to often flow only vertically in silo-like fashion.
- ✓ Smooth information flow and easy reuse of data is limited or non-existent.

Missing Feedback

- ✓ Operational (empirical) data, and feedback data (perspectives, opinion, judgment, etc.) are both important but the feedback is often overlooked.
- ✓ Classically, there is no formal record maintained of the feedback data.

Questionable Quality of Data

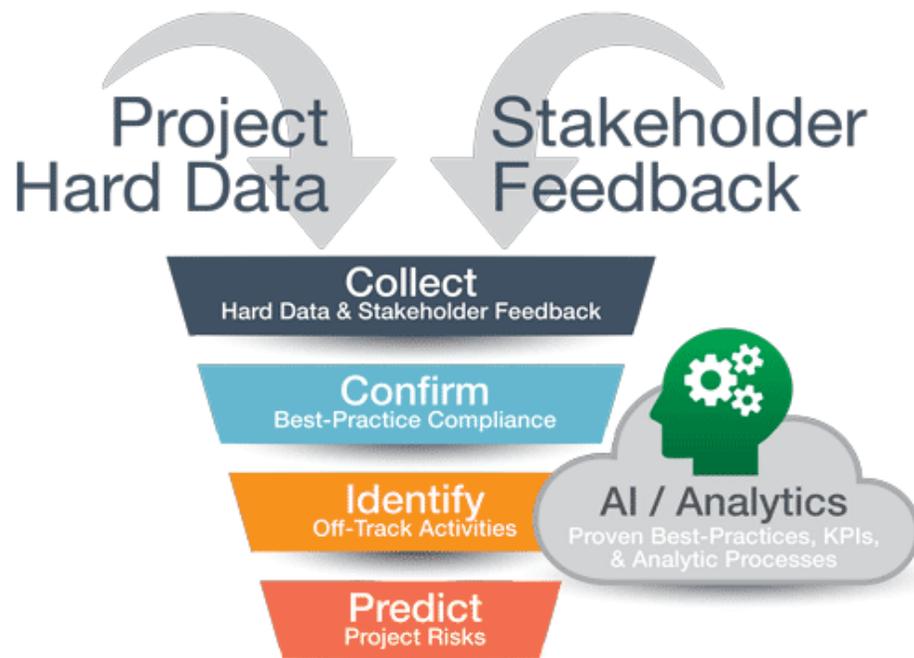
- ✓ There can be little formal checking and quality assurance (QA) of data and information as the data flows within the organization.

Lack of Records

- ✓ Formal records or repositories of information sometimes exist.
- ✓ Often there are islands of data that tend to serve operational objectives well but serve management visibility, governance, etc., poorly.
- ✓ Determining a true history of what really has happened is difficult.

Difficult to Modify

- ✓ These systems are hard to modify. As the business grows and adapts to a changing world, the management control system itself is unable to adapt. Whatever change is possible requires computer programmers, many of whom do not understand the business.
- ✓ The implementation cycle is months and sometimes years, by which time the business has moved in another direction.



Model for Managing in the 21st Century

Solution

The Ideal Management System

“ *Managing in the 21st Century will look very different than traditional management systems of yesteryear.* ”

The goals and objectives and underlying requirements of such a system include:

Collecting Operational Data & Stakeholder Feedback

- ✓ Provide true insightful information to management by including human feedback of stakeholders.
- ✓ Build a historical repository of business operational data and facts, and a consistent audit trail.
- ✓ Make available a common data platform for management use.

Confirming Best Practice Compliance

- ✓ Allow for the spreading of knowledge and best practices.
- ✓ Drive a fact-based culture and reduce anecdotal and story-telling management practices.

Identifying Off-Track Activities

- ✓ Provide risk assessment and governance facts and warnings.
- ✓ Allow upper management to advise and consult with lower and peer management.

Predicting Outcomes

- ✓ Provide a common language of facts and rules to manage and govern the company.
- ✓ Provide critical information flow throughout the organization enabling visibility, control, and governance.

Taking Actions

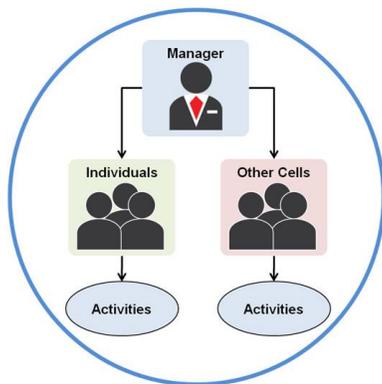
- ✓ Allow upper management to use their knowledge and judgment to evaluate operations.
- ✓ Provide properly distilled key information to all levels of management to understand what is occurring in their business, providing visibility into operations and into results.



THE MANAGEMENT 4.0 MODEL

Management 4.0 seeks to answer what may appear to be a simple question: what will great management look like in the 21st century? The 4.0 community is a neural network. It has a repository of knowledge, is aware of its mission, and is a growing and learning entity that will broadcast “critical insights” to stakeholders and provide unfiltered access to information.

Its lowest unit of self-management is what we call a cell. All business organizations are made up of collections of management units, i.e., a group or groups of people overseen by a manager.

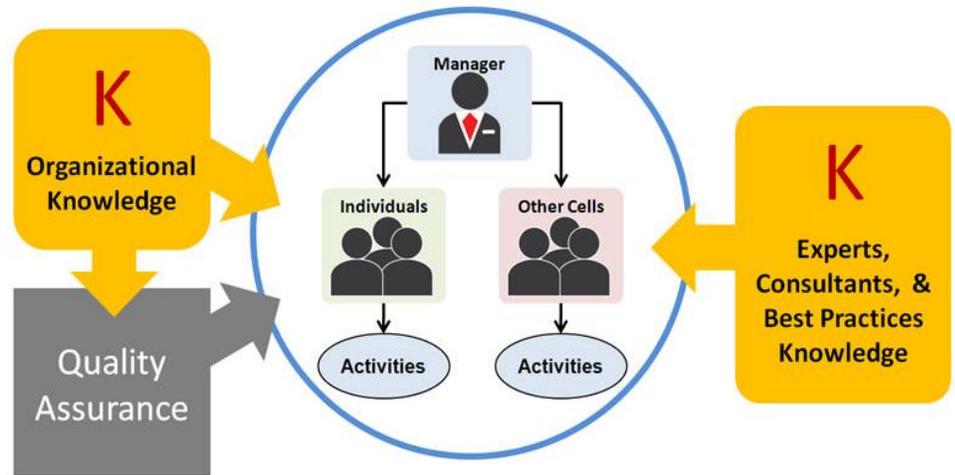


Management Cell

In most businesses, this will be a department, work group, or similar business unit. As with any organization chart, the cell can also contain underlying cells, such as a division made up of underlying departments or a department made up of underlying teams.

Cells have their own rules of engagement, focused on how to accomplish their work. The information that the cell uses to manage itself contains both hard data, such as key performance indicators (KPIs) and other numerical data; and soft data, such as opinions, perspectives, and similar human knowledge about the business and the work at hand.

objective (empirical) and subjective (human) knowledge needed to manage a business. It enables a business to intermingle this hard and soft data. In fact, the 4.0 business must have this enhanced view of its operations to remain competitive.

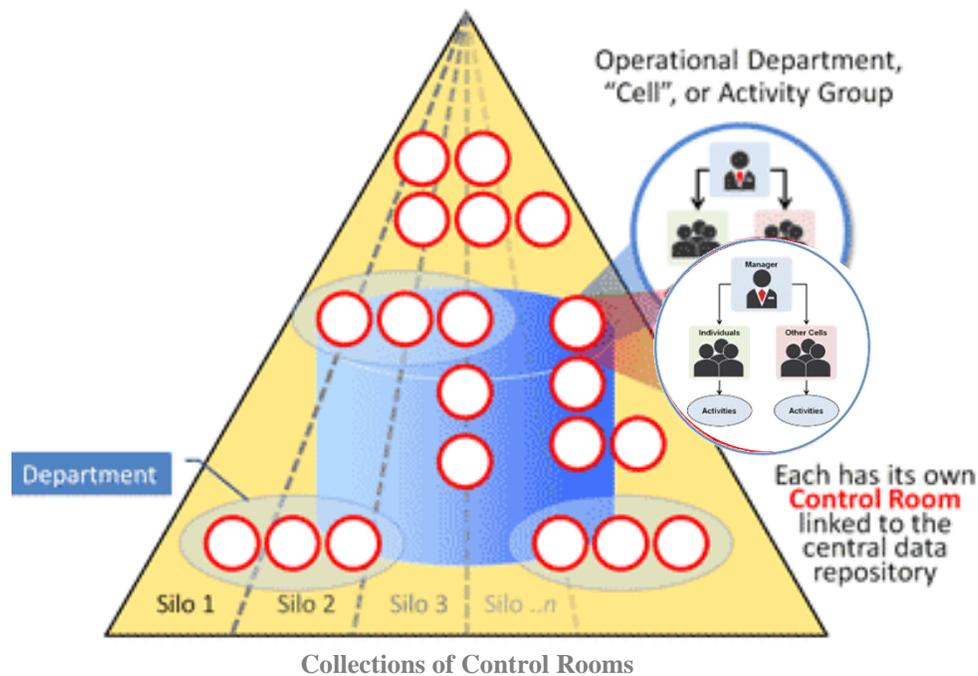


Leveraged Knowledge

The challenge for Management 4.0 is to create a common, easy-to-modify system that will synthesize rules, procedures, data, and information from the business environment and from the people impacted by it. We envision a control unit that manages this flow of hard and soft information. The 4.0 management model is designed to automate and institutionalize both the

This allows us to leverage knowledge, shown as “K” in the diagram. This allows us to know what data to collect, who to collect it from, and who to notify in exception conditions. This includes incorporating perceptive information from all stakeholders and reacting to it, where appropriate.





COLLECTIONS OF CONTROL ROOMS: MANAGEMENT 4.0

This is the absolute, stunningly simple value proposition, this ability to combine control rooms into higher-order, more complex management groupings. The strength of the model lies in its ability to network all cells in the enterprise, and to add new cells as a business organization changes. These changes can occur in the form of mergers and acquisitions, or by extending the model to incorporate entities previously excluded. They can also occur when a management cell splits into smaller ones. The management model for the 4.0 world must allow an infinite number of control rooms. With increased complexity, the guidance available is much more than the sum of its parts. This is the concept of “a rising tide floats all boats.” This allows managers to leverage the human insight of the “A” players so that B, C, and D players function on the same level as “A” players. This is a true democratization of information.

With the addition of formal and informal systemized knowledge relevant to the operation of the management cell, we can achieve better outcomes with fewer resources. We do so by:

- ✓ Deploying an agile management information flow.
- ✓ Integrating hard and soft data.
- ✓ Eliminating human data filters of bad news or exaggerating of good news.
- ✓ Providing formal checkpoints and quality assurance (QA) of information and information processing.

- ✓ Ensuring formal records of information exist within a permanent repository.
- ✓ Providing the ability for true management review and governance without the time-consuming efforts of needing to form a management picture of the past.
- ✓ Making all this easy to modify by formalizing the cell model in a control room environment.



Example

INTRODUCING THE AMI SOLUTION

“ *Advanced Management Insight (AMI) is a revolutionary framework for the design, build, control, and operation of a business’s management data and human reporting.* ”

It provides a business knowledge and quality assurance management control system. Its primary purposes are to:

- (1) programmatically define the gathering and flow of information in one or all business units and
- (2) allow for seamless knowledge dissemination into and within the business. All of this is done by easily designing and networking individual “control rooms” into a comprehensive network, a business intelligence and reporting system.

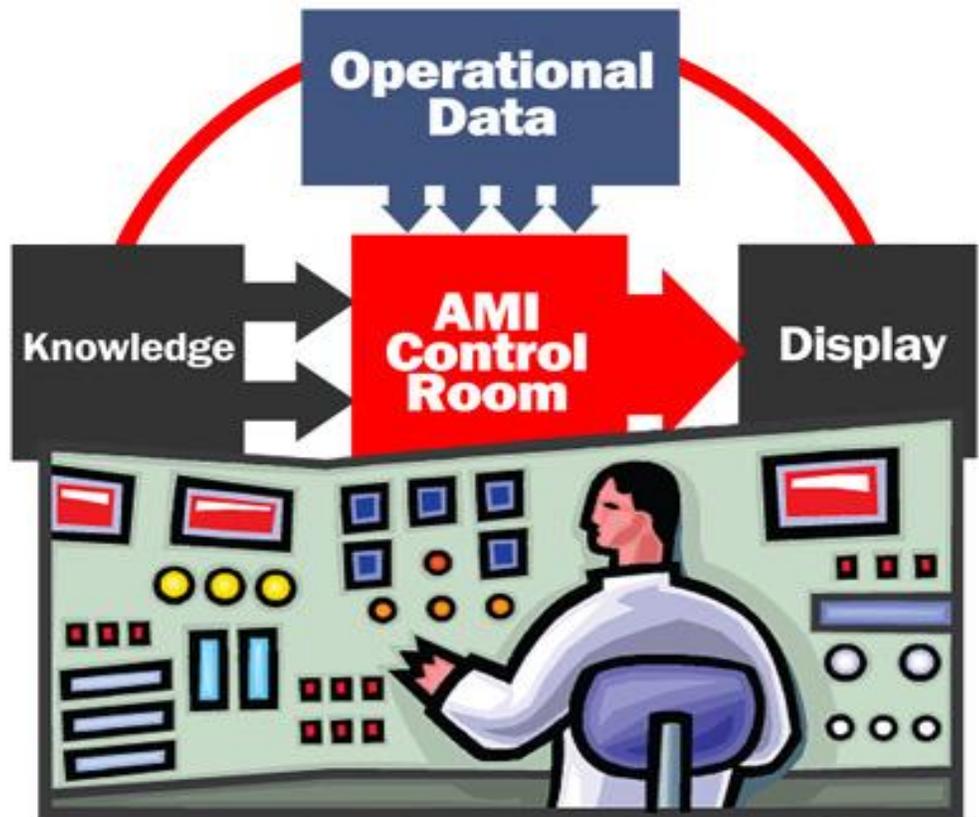
As an integrated repository of human knowledge within an enterprise, AMI provides a bold new frame of reference for effective management. We see it as a means to drive knowledge across the enterprise and retool management to perform more effectively in a 2.0 world. We also foresee challenges and tremendous potential for managing a transparent “democratization of information.”

THE BUSINESS MANAGEMENT SYSTEM: AMI CONTROL ROOM

One of the key purposes of a great management system is to promote identifying and using knowledge across the enterprise and to create a system to gather and disseminate this. This knowledge occurs in the form of books,

best practices, rules of engagement, checklists, etc. There are endless elements of knowledge that we are constantly trying to move into the working elemental cells of the business to confirm that knowledge is indeed being leveraged at the operational levels. So, the ideal management system is focused on the flow of information through the business, through the management system itself. It is very focused on widening knowledge, spreading, and pushing it

power plant, so to speak, constantly monitoring readings from all systems. This digital control room has all the information. It’s got knowledge and algorithms about why this temperature is too high, or too low; combinations of readings and algorithms. Its first job is to be an early warning system to provide warnings of danger based on sensory perception. However, a nuclear control room is much more sophisticated than a canary. It is not just a reactionary warning to current



The Control Room

into the business. Leveraging knowledge has consistently proven to have a great return for any business.

A key operational component for industries such as space flights, television broadcasting, and nuclear engineering is the use of a control room. A nuclear control room sits above the

conditions, such as the presence of carbon dioxide. Because of the continual increase of knowledge, having the right intelligence embedded within the system, and the flow of information to the control room itself, nuclear control rooms have become extremely sophisticated and even

predictive. They operate within a trajectory of information flows and provide early warnings of things that might happen.

One of the key discerning points for Management 4.0, and the revolutionary aspect of AMI, is the introduction of similarly intelligent "controls rooms," i.e., the capability for greater quality assurance, within the management control system. These are intellectual control rooms, data flow controls throughout the whole management system. Imagine a pipeline of information flowing between all the management cells of a business. AMI applies the concept of having a "best manager" or "best consultant" functioning as a control unit on this pipeline, constantly

examining the flow of data through it, constantly setting up dials and dashboards for warnings and analytics, constantly creating and enhancing the electronic repository of all this information. Like our nuclear control room, the AMI control room is aware of past performance, current operating conditions, and potential danger to the business. It has become a digital, organism, with intellect.

Control rooms thus provide a unique opportunity to apply internal and external knowledge to operational activities. They synthesize historical data with current knowledge and predict future courses of action. AMI is designed to enhance the sharing of information and provide agility in control rooms to allow rules and reasoning

procedures to be adapted as needs dictate. In designing it, we enabled "double loop" learning as defined by Argyris and Schön (1978: 2, and 1996:28 ff). Their classic single-loop example is a thermostat that turns on/off based upon the temperature of the room. If we apply double-loop thinking, we realize we aren't trying to control temperature at all; what we're trying to control is "comfort." So, we modify our model to incorporate measures and controls for humidity, air flow, and other characteristics in addition to temperature that impact our situation. This is what the AMI control room allows us to do. An individual manager can establish new perceptive qualifiers at any time, and thereby expand or transcend the current

paradigm for monitoring and control. This is indeed a new paradigm, one which will enlarge the frame of management capabilities.

This in turn allows total transparency into the operational environment. It addresses these critical factors:

- ✓ Available operational data (Where are we now?)
- ✓ Desired happenings (Where do we want to go?)
- ✓ Internal or external benchmarks (What is our target? What are the danger signs?)
- ✓ Must-do items (What are my checkpoints?)

It also incorporates things like "never again" knowledge; analysis and reports; team and management communications; and early warnings and alerts.

LIKE AN EXCEL SPREADSHEET

The nuclear control room functions as a power center, usually at the center of the organization. The AMI control room, by contrast, is a "bottom up" model, where every single entity uses a control room - and shares its information across the organization. It is also easy to implement, like plugging an air filter or carbon monoxide detector into every room in your house.

Democratization of information means that everyone has a control unit, a sensory monitor; it also means all control rooms are cognizant of all other control rooms, so that all can leverage the collective information of the neural network.



The concept of AMI, control rooms, and knowledge flow is wonderful, but it must be implemented in today's information systems and most likely via the cloud. Historically, we have spent decades doing analysis and architecting management information systems. Years writing, programming, and testing them. And after we accomplish a certain level of success, they remain at the heart of computer systems: changes are difficult and time-consuming. The technology, in fact, can stifle the flexibility we need to remain competitive.

What managers need is an implementation method as easy to use as an Excel spreadsheet, a model that allows a manager to build a control room very, very quickly. Where he/she can very quickly define the data, the rules, and what these mean to the specific business unit. And where the manager can quickly change dashboards, events, rules, etc., as easily as he/she can modify a spreadsheet.

That's because in the 4.0 world, once you build your control room, you need the ability to change it easily. It's not that you'd "like to," it's that you "NEED to" build those control rooms in a matter of days, not in months. You need to be able to build those control rooms without access to a software engineer. The manager is the one who understands the business. The manager understands the data. He/she is the one who needs to be able to define it and use it to manage the cell.

Imagine that one of us can build a control room to monitor our business unit or department or other organizational entity, just like the nuclear control room. And every manager in the organization can set up one for his/her business unit.

Each control room is like a LEGO piece that we can snap together into a coherent, integrated system. The assembled structure can leverage the collective awareness of ALL control rooms, so that a control room at any location in the structure is instantly aware of potential problems anywhere



The building blocks of many control rooms

else in the enterprise. This is true democratization of information. All pieces constantly aware, all assembled by business managers, none requiring computer engineers.

In Conclusion

Change is part of life. Technology architects are already dealing with designing and creating a constantly changing management system. This is one of the most technically challenging, and exciting, environments our industry has ever faced. With Advanced Management Insight (<https://AdvancedManagementInsight.com>) we are creating an infinitely open architecture that “automates” human knowledge across an enterprise.

