Institute For Enterprise Excellence

Bringing Purpose To Life

Systems By Design

September 2016

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Executive Summary:
Our first White Paper "Foundations For Transformation: Linking Purpose, People and Process"[1] described the common patterns that we have observed as executives and managers have attempted to create a culture of continuous improvement in their organization. Many find themselves trapped in a cycle of "program of the month" approaches that never seem to produce the sustainable transformation of management that is necessary. However, there are some who desire to break away from this pattern, and wish to switch the direction of their efforts by understanding the power of purpose, as well as learning and practicing new principles of management.

In a subsequent paper "One Approach to Deploying a Purpose and Principle-Driven Transformation"[2] we share our current thinking about "deploying a cultural transformation" based on the knowledge and contributions of many thought leaders, as well as observing patterns in organizations from many industries that are attempting and succeeding at a cultural and management transformation. One element of this deployment model is the "design and redesign of key systems."

Understanding how to adjust and design key systems is critical knowledge that can help to create a sustainable culture of continual improvement. This paper outlines some of the important concepts that we describe and teach in our "Systems By Design" workshop. This paper is not intended to be a "how to" workbook, and is not designed to be a substitute for attending the workshop. Here are the key topics that are covered in this paper:

I. Thinking Systemically
II. Understanding and Leveraging Systems
- a. Definition and Examples
- b. Types of Systems
- c. "System Redesign" is Step 4
- d. Adjusting Systems

III. The System Standard
IV. Working ON a System
- a. Purpose
- b. Behaviors
- c. Performance Outcomes

V. Working IN a System
- a. Process Flow
- b. Tools
- c. Triggers
- d. Measures

VI. Improving a System – Renewal Mechanism

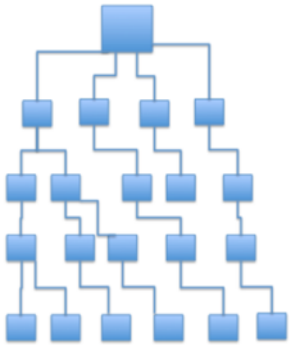
I. Thinking SysTEMically (not systemATically)
If we are to provide value to both internal and external customers and maintain constancy of purpose, it is imperative that we understand mental models, as well as how systems work. Systems thinking is not something that we were taught in school nor on the job, but it will be critical for success.

Here are some of the differences specific to seeing the world with a "systems" view as compared to our prevailing (machine) view of the world:[3]

1) We are overly focused on the parts (reductionism) to the exclusion of the whole (holism). For instance, a manager that is trying to meet his productivity target for his department can fall into this trap. In order to meet those numbers (optimizing his department) he will likely sub-optimize the larger system of which he is a part.

[1] http://bit.ly/IEXfoundations7
[2] http://bit.ly/IEXDeploy4
[3] *Systems Thinking Made Simple*, Derek and Laura Cabrera

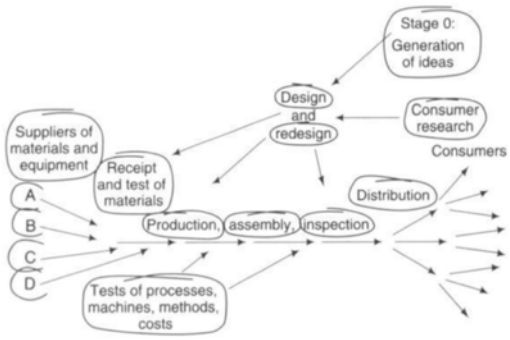
Figure 1. Prevailing View of an Organization



2) Our view is excessively hierarchical (we tend to view the organization as in Figure 1) to the exclusion of more complex, distributed networks. When we view the organization as a hierarchy, we do what needs to be done in order to please the boss, or the boss's boss. We don't see how our work connects with each other in order to meet the needs of internal customers and the ultimate customer.
3) We are over reliant on static categories rather than part-whole groupings that results from perspectives. We put things (including people) into static boxes. For instance, we see a physician (or a lawyer or an accountant) and we say, "all physicians think and act this way." However, this person could also be a father, or mother, a volunteer coach, a musician, a veteran, or a cancer survivor. The list goes on and on. Categorization of people and things into static boxes does not help us. These boxes are a tool that our mind uses to make sense of the world. But the boxes don't really exist – except in our mind.
4) Our prevailing view is overly linear and causal at the expense of seeing nonlinear webs of causality. When we see something (good or bad) we tend to look for the most immediate possible cause and say "this was the cause" – as if the world behaves like billiard balls. In actuality, the causes for what we see are many. All the factors interact with each other, including factors of which we are not aware.
5) We are biased toward seeing structural parts but overlooking dynamic relationships. Our IEX sustainability model is an example. Some people see the parts (tools, results, systems, purpose) as if it is a checklist. They may not grasp how the parts interact with each other – that's the most important part of the model.
6) Our view is based on bivalent (2-states) rather than multivalent (many states) logic. We tend to think in terms of "this or that" versus "this and that (and that, and that, etc.)" People may see things as "black or white" but miss the nuances of gray. The traditional performance evaluation system suffers from this fallacy. We grade, rank and rate the individual, but we ignore the systems that impact the individual. On the other extreme, we attribute the behaviors to the systems but ignore the contribution and role of the individual.

Another key concept that systems thinkers understand is the idea of optimization of the system, which (by definition) requires that the parts of a system will be sub-optimized. If the parts of an organization think only of themselves, the result is a system that is destroyed. Figure 2 (from *The New Economics*) illustrates what happens when the parts of an organization are pitted against each other. Here is how Dr. Deming describes the phenomenon:

Figure 2. Suboptimization of an Organization



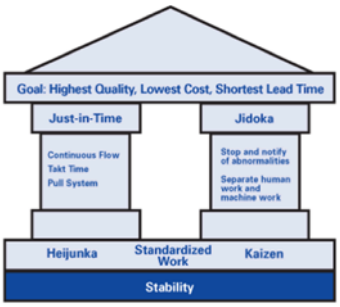
"Suppose that we take the flow diagram and break it up into competitive components: consumer research for one, design of product another, redesign another, each supplier for himself, etc. Every component now becomes competitive with the others. Each one now does his best, by some competitive measure, to make a mark for himself. Can anyone blame him? This is his only hope of survival."[4]

You will find this in most any organization that is managed by the prevailing style of management. The supposition is that the organization is a set of parts, and if each part does its best, then the organization as a whole, will do its best. In reality, we see the exact opposite. The typical approach for managing and trying to improve productivity is a good example. Every department is given their productivity target. Their job is to hit that number. By doing so, they are less likely to cooperate and collaborate with other departments. Why would they? Such efforts would cause them to miss their individual productivity goals. In the end, everyone loses (including those who meet their productivity numbers) because the system as a whole is sub-optimized. More example of this important concept can be found in The New

[4] *The New Economics*, W. Edwards Deming, p. 66.

Economics, pages 67-90 and The Deming Dimension, by Henry Neave.[5] Ironically, the end result makes the organization less productive.

Figure 3. Toyota Production System "House"



II. Understanding and Leveraging Systems

a. System Definition and Examples

We hear a lot about systems, including the importance of having a management system. For instance, the Toyota Production System is one of the most copied business systems in the world (see figure 3). If you were to visit a Toyota production plant, you would rarely see the "house" image. It's not really a system – it's a model, which represents their tools and systems. The production system is actually one of five business systems at Toyota, but it seems to be the one that is the most discussed (and copied). The danger is we copy without understanding how it may (or may not) fit within our organization. In our experience, you can give this approach about three months before it fails.

We talk about systems, but we aren't always on the same page. What do we really mean by systems? In this paper, we will use this as the definition of a system: A network of interdependent components working together to accomplish a common aim.[6] A collection of things that do not work together (are not interdependent) is not a system. A group of things that do not have a common aim is not a system. If you remove any of the parts, the aim will not be accomplished.

Let's begin with a simple example: how do you get ready for the day? What is the routine that you go through every day? Is it pretty consistent? What if you shift things around? How comfortable is the change? Another example is the way that you might drive to work every day. When we get to work, we might park in the same place. Why do we stick with the same thing? These are systems. Systems make it easier, they allow us to more easily do our work. By developing a common, predictable pattern, it is unlikely that people would want do things a different way (unless a better way could be offered and demonstrated to be superior).

Systems will emerge naturally whenever people work, as individuals or as a group. In any organization, there are both formal and informal systems. A formal system might be a procedure that accompanies a policy, such as the way people are paid in an organization. Examples of informal systems are numerous. They are "the way we do things around here." These are often unwritten and undocumented but they become known and followed by all. Which system will likely prevail? Formal or informal? Typically, the informal systems are the ones that will trump the formal systems.

The purpose of any system is derived from how it supports the larger system of which it is a part. We can use a mechanical system as an example. The same concept applies to social (man-made) systems or natural systems. We can use an automobile as an example. Refer to this link to watch a short video that explains these concepts: https://youtu.be/kA6fcpW6j1w

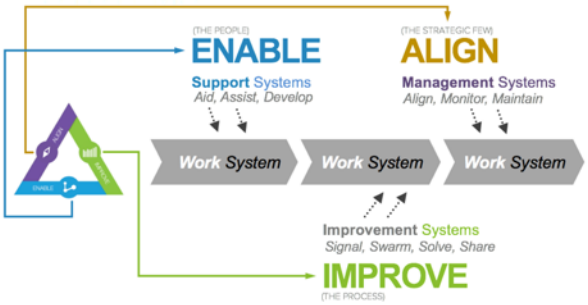
b. Types of systems

In our third white paper "Practical Wisdom for Addressing Problems,"[7] we described the importance of understanding the type of knowledge that is needed in order to solve various types of problems. Without this understanding, people are likely to fall into the trap of the "flavor of the month." The same consequence exists when we don't understand the type of system we are dealing with. A useful framework to understand the difference between simple, complicated, complex and chaotic systems is the Cynefin framework. A useful video that explains this sense-making framework developed by David Snowden can be found at the link in this footnote[8].

[5] *The Deming Dimension*, Henry Neave, 1990.
[6] *Out of the Crisis,* W.E. Deming, 1986.
[7] http://bit.ly/practicalwisdom5
[8] https://www.youtube.com/watch?v=N7oz366X0-8

In this paper are interested in two main types of systems (see Figure 4):
1) Work systems, and
2) Support systems

Figure 4. Types of Systems



A work system is directed toward providing value to a customer, internal or external to the organization. It is the "one system that rules them all," and is the only system that creates value for a customer. We describe support systems using the three dimensions of: align, enable and improve. All of these systems need to be connected to the work systems.

Here are some common examples of systems that you might find in the "align" dimension:
- Strategy deployment
- Visual management
- Voice of the customer

And some that you might find in the "enable" dimension:
- Recognition
- Idea generation and sharing
- Education and training

And here are some that you might find in the "improve" dimension:
- Problem solving
- Standard work
- Visual management

The exact dimension is not the critical point here. For instance, you will find some systems that are influenced by both "align" principles and "improve" principles. A visual management system is one example. It can help to align the work of the department to the work of the organization, and it can also provide signals of current state or "what to do next" to guide the work. The main point is that these are all support systems that work to support the people and their work system in order to align their work to the organization's goals, and to enable people to make improvements in the way they do their work.

c. "System Redesign" is Step 4

In our "deployment" white paper[2] we described three theories to change behavior that do not work (in a sustainable way), and one theory that does work. In this paper we described the pathway toward a sustainable cultural transformation, and the work that needs to start with senior leadership in an organization. After an organization's senior-most leadership gains some foundational understanding of the guiding principles for enterprise excellence, there are three critical first steps they need to take (and these can not be delegated to anyone else):

1. Leaders need to define what they want to see, beginning with the ideal behaviors that THEY will try to exhibit.
2. Leaders need to practice these new behaviors.
3. Leaders need to start having new kinds of conversations with others in the organization.

After these steps have been undertaken, then leaders can turn their attention to the fourth step:
4. Start adjusting their systems. This paper is about how they can go about adjusting these systems, and (when they are ready) how managers can begin to adjust their systems.

A system will not manage itself. Man-made systems require constant input of energy and guidance. Systems need to evolve to adjust to changing conditions. A designated "system owner" can help to guide the maintenance and improvement of the system.

Why is this so important?

We must emphasize an important concept at this point. WE ARE NOT MERELY INTRODUCING ANOTHER TOOL. We have noticed that many people latch on to this idea of the system standard and wish to proceed with its use WITHOUT TAKING THE TIME FOR STEPS 1-3 (what leaders must do first). To take this course of action (seeing the system standard as a tool) only reinforces Phase 2 of the prevailing approach to "program introduction" (versus creating a philosophy) that we describe in our Foundations of Transformation white paper.[1] See Figure 5.

Figure 5. The Program Path

When top management takes the first 3 steps, then proceeds with starting to create simple systems for themselves, they are leading the organization through the "clockwise" pathway through "purpose" and "principles" that will lead to meaningful and sustainable system redesign. See Figure 6.

Figure 6. The Philosophy Path

d. Adjusting Systems

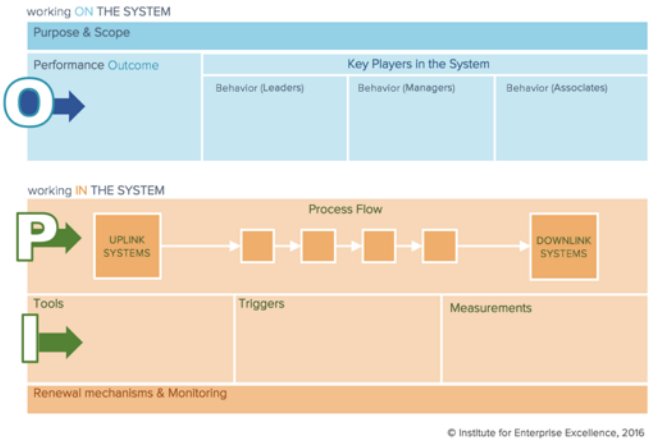
A key point from our Foundations white paper described the typical pathway of pushing new tools into existing systems (formal and informal). See Figure 5 above. The common response is that these systems "push back" for a variety of reasons. This paper describes what happens if you reverse directions in your transformation journey by first gaining a clear understanding of the purpose of the organization, and each department's and personal roles in accomplishing that purpose. See Figure 6 above. As you continue on the pathway, it's important to take the time to understand the principles for enterprise excellence. When you have started this study, you'll start to ask new and important questions: "what ideal behaviors do I want from these principles?" Another question might follow, "what systems do I need?" This paper can help you to then pull the appropriate tools into the system to get the right results. There is almost always something going on: a simple process, some tools, some activities. You are rarely starting from scratch. That's why we call this "adjusting systems." However, the same process that we describe in the following pages can be used to design new systems. Creating better systems is accomplished through a never-ending series of experiments using the PDSA cycle. Think of this as the application of the "embrace scientific thinking" and "think systemically" principles together.

Our recommended approach has five primary steps:

1. Identify the purpose and scope of the system. What is the aim of the system? How does it align to the goals and objectives?
2. Identify the key players, and the ideal behaviors that you want the system to drive.
3. Identify the overall outcome and results, the "performance outcome" that you want this system to produce.
4. Identify the process flow in simple, clearly-defined and well-connected steps.
5. Identify the other key parts – tools, triggers and measures – that will ensure that the process delivers both the right behaviors and the right performance.

We call steps 1-3 working ON the system, and steps 4-5 working IN the system.

Figure 7. The System Standard



III. The System Standard

As we have worked with people in organizations in a variety of industries, we have developed a template (or system standard) that will help to guide people in the adjustment of systems. We realized that most organizations don't have a standard for their

systems. Our system standard (Figure 7) helps us to answer these and other questions: What are the parts? How do they fit together? What is the desired aim of the system? How does this system connect with other upstream and downstream systems? How can we stabilize and then improve the system? How can we adjust the system as conditions change? How can we maintain the system so that it will continue to deliver sustained ideal behaviors and desired results?

This system standard helps to identify and align the system inputs, process and outputs (IPO). We will begin with the outputs. In our workshops, we get into much more detail than what we cover in this paper. We explain that we are creating a system standard – not an actual system. The adjustment or design of an actual system may take weeks or months. When we pick a system standard to work on, we recommend beginning with a simple support system in one of the dimension of align, enable or improve. We do not recommend starting with practice on a work system, or with a daily management system (which has components of align, enable and improve). We recommend starting simple and small.

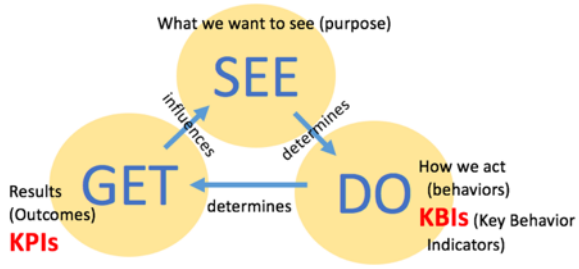
IV. Working ON the System

Working on the system provides the guidance to focus on the right things. Think in terms of putting together a puzzle. We start with the end in mind (what will the puzzle look like when it is completed?) Then we proceed with the corner pieces, then the edges to "frame" the inside of the puzzle. This "framing" is called "working on the system."

a. We start with the system purpose

What is the aim of the system? How does it align to the goals and objectives? Is there a difference between purpose, behavior and performance? It is common for people to get confused on purpose and performance. Figure 8 illustrates that purpose is "what we want to SEE," then we get a clearer understanding what we will DO, which will help us to be clear on what we want to GET. In that order: SEE -> DO -> GET. We often ignore the SEE and Do, tending to start our focus on the GET. We discuss this relationship in more detail in our ninth white paper "True, True North."[9]

Figure 8. The SEE-DO-GET Relationship



b. Desired Behaviors

When we get clearer about what we want to SEE (the purpose of the system), we can then turn our attention to the behaviors that we need to DO (the behaviors that this system will drive). We start with the principles that are behind the ideal behaviors. We will only need a few of the principles to guide the system. When we are practicing on the support systems of "align, enable and improve" we will use selected principles of enterprise excellence from those dimension. Principles help to steer us so that we do not get off track.

c. Performance outcomes

This is the "GET" - what do we want to GET from the system? If we DO this (ideal behavior) what will we GET? If everyone executes their role, what do you GET?

Here is a simple example. If we were adjusting a problem-solving system, one of the outcomes we want to get is a better ratio of problem finder to problem solver. In many organizations, there are many problem finders, but only a few problem solvers. The "GET" might be to see a ratio of 1:1 (one problem finder to one problem solver).

It is important to remember that the focus will be on the "ideal behaviors." This is what we will be observing every day in order to understand if we are "winning or losing" TODAY. We can adjust the behaviors today (by adjusting the system) in order to GET a better outcome in the future.

[9] http://bit.ly/truetruenorth4

V. Working IN the System

a. We start with process flow.

In this phase, we define the process flow, the process steps, including decision points. We've noticed that many people will try to start with his step, without first "framing the system" (working ON the system). These efforts rarely produce a viable system because it has no clear aim or purpose, and the desired outcomes AND ideal behaviors are not spelled out in advance.

b. Identify the most critical tools

Tools are tactical elements (forms, boards, huddles, meetings) that need to support the process toward the purpose and the behavior. If we use this tool, how will it move behavior? It is common to have many, many more tools than are actually needed. One of the first steps might be to "5S" the tools. How do you know if the tool is a part of the system? If you take the tool out and it doesn't impact the system, what would happen? If nothing, then it's not a critical part of the system. How does the tool's presence impact idea behavior?

c. Identify the key triggers.

A "trigger" is something that says "do this now." It is one of three elements that needs to be in place in order for a desired behavior to occur. The other two elements are "motivation" and "ability."[10] A system does not need a lot of triggers, only a few key points in the process are needed to activate the process steps in a "domino" fashion.

d. We identify the key measures to know how the process is working.

Measures and "performance outcomes" are often confused. Measures are connected to the performance outcomes, but they are not the same. Measures will help us to check on the status of the system and process. Measures can also be powerful drivers of behavior, which can circumvent the ideal behaviors that you want your system to drive. measurement – connected to the performance outcome.

In our Foundations white paper[1], we stated that managers are the primary owners of the systems in an organization. A system owner three responsibilities: to monitor, maintain and improve the system. The measures that you chose should help the system owner to accomplish these three things.

VI. Improving a System – a renewal mechanism

Without some type of a renewal mechanism, a way to study and improve the system, entropy will cause the system to not be sustained. Nature has the only self-regulating system. A man-made system will not manage itself.

Our White Paper Series:

Our first white paper "Foundations For Transformation: Linking Purpose, People and Process"[1] describes the common patterns that we have observed as executives and managers have attempted to create a culture of continuous improvement in their organization. Many find themselves trapped in a cycle of "program of the month" approaches that never seem to produce the sustainable transformation of management that is necessary. However, there are some who desire to break away from this pattern, and wish to switch the direction of their efforts by understanding the power of purpose, as well as learning and practicing new principles of management.

Our second white paper "Evolving World View: Implications for All Industries, Including Healthcare"[11] describes the sources of knowledge that will be needed to manage effectively in the twenty-first century. We described how the world view is changing from the "machine age" mindset that has driven the traditional "plan, command and control" approach, to a "systems view." We explain the evolution of thinking that is the foundation for the principles of enterprise excellence.

[10] http://www.bjfogg.com

[11] http://bit.ly/evolvingworldview5

Our third white paper "Practical Wisdom for Addressing Problems"[7] describes the practical benefits of understanding the difference between convergent and divergent problems, including what we can reasonably expect from ourselves and from others when attempting to address the important problems of management. The tendency for most executives and managers is to look to recipes and formulas to tell us what to do – a prescription for how to deploy a lean management system. There is no recipe, formula or prescriptions. But there is knowledge that can guide our actions.

Our fourth white paper "One Approach to Deploying a Purpose and Principle-Driven Transformation"[2] shares our current thinking about "deploying a cultural transformation" based on the knowledge and contributions of many thought leaders, as well as observing patterns in organizations from many industries that are attempting and succeeding at a cultural and management transformation.

Our fifth white paper "Principles for Personal and Organizational Transformation – Align"[12] describes the principles behind the IEX model, specifically those principles primarily focused on aligning the improvement efforts so that individuals can have a clear "line of sight" between the work they do every day and how it connects to and supports the organization's purpose.

Our sixth white paper "Principles for Personal and Organizational Transformation – Enable"[13] describes the principles behind the IEX model, specifically those principles primarily focused on enabling people to be engaged in, and improve their work systems.

Our seventh white paper "Principles for Personal and Organizational Transformation – Improve"[14] describes the principles behind the IEX model, specifically those principles primarily focused on improving the work.

Our eighth white paper "Systems By Design"[15] describes the importance of design and redesign of key systems, in particular supporting systems of alignment, enabling and improvement. We describe a method, including a "system standard" that can help any executive and manager design and redesign key systems that will help them contribute to their organization's purpose.

Our ninth white paper "True, True North"[9] describes the benefits of more fully understanding True, True North and how this can avoid the trap of the narrow definition of True North only as measures. This matters, because without this understanding the pursuit of true north can merely be "management by results" in disguise.

Our tenth white paper "Side (by Side) Management"[16] describes a more useful view of the traditional hierarchy model, and the implications for connecting strategy deployment to daily management in order to provide value to customers, as well as facilitating true knowledge creation in the organization.

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[12] http://bit.ly/alignprinciples4
[13] http://bit.ly/enableprinciples4
[14] http://bit.ly/improveprinciples3
[15] http://bit.ly/systemsbydesign3
[16] http://bit.ly/sidebysidemgmt

The Institute for Enterprise Excellence

The Institute for Enterprise Excellence (IEX) was established in 2013 as a research, education and coaching institution that focuses on helping organizations build principle-based architecture to achieve world-class results.

We bring purpose to life by advancing the use of practical application of principles, systems and tools in pursuit of enterprise excellence.

What differentiates us is our Principle-based Deployment Model, the culmination of many years of application experience and continuous research in the field of behavior and performance.

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