



*CONSORTIUM FOR  
SERVICE INNOVATION™*

# **The KCS<sup>sm</sup> Operational Model (Knowledge-Centered Support)**

*Version 3.7*

## Knowledge-Centered Support

### The Changing Landscape of Product Support

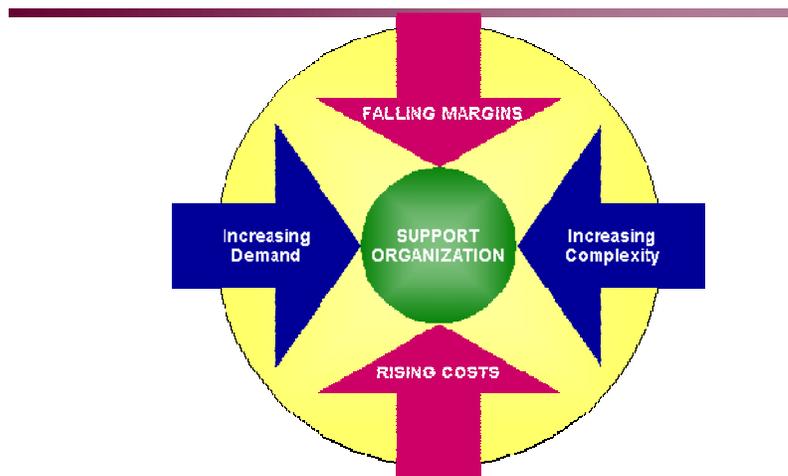
Whether you support products for a corporate help desk, a product manufacturer, a channel, or a third party provider, chances are you're under the gun to better manage your resources and improve your service levels. **Knowledge-Centered Support (KCS)** is a business methodology that was developed and put to the test by members of the Consortium for Service Innovation. *The goal of KCS is to solve a problem once . . .and use the solution often!* Adoption of KCS has improved operational efficiency, employee moral, and customer satisfaction. This brief examines the need for a knowledge-centered strategy as well as the organizing principles of KCS and its benefits.

#### Addressing the Challenges: Everyone Wants a Piece of You!

The service organization's primary goal is customer productivity and satisfaction within the constraints of a shrinking budget. This mandate is getting increasingly harder to achieve. Whether our customers are technologists with sophisticated problems or neophytes who are confused by the technology they must use to get their job done, the need is the same. There's an incredible demand for top-quality support delivered in a clear and efficient manner. The challenge of keeping up with advancements in technology is also daunting. Each new product is more complex and must be integrated into an increasingly complex environment. And tough competition has narrowed profit margins all along the supply chain. The challenges have never been more intense.

### THE CRITICAL CHALLENGES

### Critical Challenges



When these challenges go unmet, the consequences can be severe.

- Customers or end-users lose confidence in the company and the products. That's particularly dangerous when competitive product vendors are standing by ready to attract disgruntled customers.
- The support staff gets overwhelmed and discouraged, loses faith in management, and leave the company...taking their valuable knowledge with them.
- The support organization, and eventually the entire supply chain, suffers from waning expertise, higher training costs, decreased responsiveness and a negative image with customers or end-users.

Clearly Intranets and the Internet offer a significant opportunity to serve these increasing demands. Use of the web to deliver answers to customers' questions can reduce the number of calls received and change the economics of delivering information. A web-delivered solution typically costs less than a dollar, while phone calls cost \$15 to \$50 or more per call. But, how do we economically populate a web support site with relevant, useful and accurate content? KSC can help.

## THE VALUE OF KNOWLEDGE

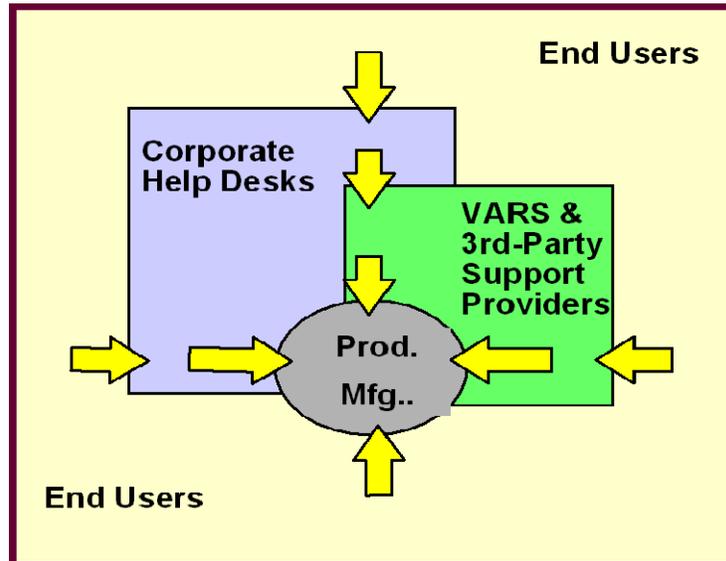
Service organizations have adopted sophisticated telephone switches and call management systems to track and route support calls. However, these tools don't help much with the knowledge needs of the organization. They concentrate on call administration without addressing the issues of teamwork and collaboration. They can't help capture, organize or evolve valuable content.

Meeting the challenges of today's support environment requires more than technology. Customer service organizations have spent millions on technology only to be disappointed with the return. KCS is about people, process, and content - not technology. KCS represents a shift in how we think about and manage customer service.

In order for our service organizations to deliver higher value to its customers, we must focus on the source of the value: knowledge. We must transition from a call-centric, transaction-oriented model to a knowledge-centric, relationship-based model. We must recalibrate our measurement systems to measure the creation of value, not just activity. We must rethink the role of people, information, management, and customers to take full advantage of the knowledge that emerges from the experience and interactions of the service organization.

In most companies, the service department is the hub of a tremendous influx of vital product information, streaming in daily from customers and partners.

## The Players



The SUPPORT SUPPLY CHAIN

Fig 1-2

In fact, customer service is often the primary contact customers have concerning the products they are using. The customers' productivity and satisfaction with the product will be influenced by their service interactions, which in turn will impact their future buying decisions. Keeping track of how the customer uses the product is also vital for providing feedback to all those involved in product design, development, deployment, marketing, and sales.

The opportunity to learn from our service interactions is huge! First because of the "redundancy factor" - support organizations report that 60 to 90 percent of the problems they solve have been solved before, they are reinventing answers and fixes that already exist somewhere in the organization. There is significant time to be saved if the support analysts had access to each other's experience. Second, the product improvements based on customer experience and feedback through the support process can be a significant contribution to customer loyalty and market relevance.

## Knowledge is the by-product of experience and interaction.

We learn by assimilating meaning from our interactions and experiences. Suppose we were able to create a "collective memory" so we could benefit from the interactions and experiences of others? KCS is a methodology used to capture the experience of solving a problem in a "collective experience base" or knowledgebase. This is the essence of Knowledge-Centered Support - creating organizational learning through a collective memory.

THE  
PREMISE  
OF  
KCS

For most organizations the adoption of KCS represents a transformation. It requires a shift in the organization's culture (i.e. values and focus). It requires a shift in focus from:

- Individual to Team
- Activity to Results
- Completion to Evolution
- Escalation to Collaboration
- Content to Context
- Knowing to Learning

KCS takes teamwork to a new level. The organization must shift to a perspective that sees knowledge as an asset owned and maintained by the team, not an individual. The focus of the team is to capture and improve the collective knowledge, not just to solve individual customer problems, but to improve organizational learning.

IT'S ABOUT  
THE HEALTH  
OF THE  
INTERACTION

The organization must find ways to support and nurture interactions; connecting people-to-content and people-to-people based on their needs, context and legitimacy. The health of the organization is directly related to the health of the interactions within the organization. If the organization focuses on creating relevant interactions and capturing the knowledge that is created it will drive unprecedented organizational learning. This in turn will drive higher levels of efficiency and enable new capabilities in the organization.

The transition to KCS is not easy; it requires both persistence and patience. The benefits, however, are profound.

Consortium members who have implemented Knowledge-Centered Support in their customer service organizations are reporting dramatic improvements in call resolution and training times, in customer satisfaction, and in support analyst job satisfaction. As a result, they are realizing substantial savings in operating costs at the same time they are seeing improvements in service levels.

FROM  
THEORY  
TO  
PRACTICE

*Some of the companies that have implemented KCS:*

- |              |             |            |
|--------------|-------------|------------|
| • 3Com       | • Hitachi   | • Novell   |
| • Attachmate | • HP        | • Oracle   |
| • Compaq     | • Legato    | • Progress |
| • Ericsson   | • Microsoft | • QAD      |
| • EMC        | • NCR       | • VeriSign |

### The benefits of KCS:

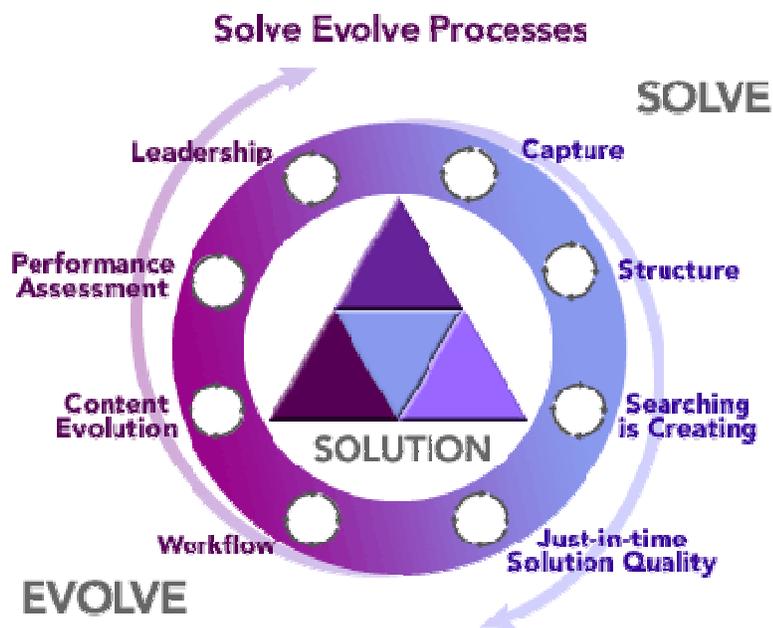
- **Solve Cases Faster**
  - *50 - 60% Improved Time To Resolution*
  - *30 - 50% Increase in First Call Resolution*
- **Optimize Use of Resources**
  - *70% Improved Time To Proficiency*
  - *20 - 35% Improved Employee Retention*
  - *20-40% Improvement in Employee Satisfaction*
- **Enable eServices Strategy**
  - *50% Case Deflection (solved via web self-help)*
- **Build Organizational Learning**
  - *10% Call Reduction due to Root Cause Removal*
  - *20% Increase in Lower Tier Resolution*

HERE'S  
THE  
BEEF...

*"Knowledge management is a critical competency for technical support organizations," says Mike Lyons, VP & General Manager Customer Services, Novell. "Successful implementation of a knowledge management practice requires more than technology. It requires a comprehensive business strategy that focuses on culture, process and content. And, ultimately it will involve the entire organization."*

Ok. . . so how do we do it?

It's a two loop job...



The objective of the KCS practices and processes is the creation, use and evolution of knowledge. The knowledge created becomes a key asset of the organization and enables a support organization to increase its operational efficiency (capacity), improve the customer experience and productivity and drive product improvements based on the customers' experience.

KCS is a double loop process. There are those things individuals do to solve problems; this is the event level, in KCS we call it the *Solve* Loop. There are four key Practices that make up the Solve Loop:

- Capture in the workflow
- Structure for reuse
- Searching is creating
- Just-in-time solution quality

The second loop is made up of the organization level processes that occur across a collection of events or a collection of content. This is the *Evo/ve* loop and it is made up of the following processes:

- Workflow
- Content vitality
- Performance assessment
- Leadership

**KCS IS NOT SOMETHING A SUPPORT ORGANIZATION DOES  
IN ADDITION TO SOLVING PROBLEMS, KCS BECOMES  
THE PROCESS FOR SOLVING PROBLEMS.**

### **Content is King – Creating and evolving solutions**

KCS captures and evolves the organization's collective experience through a knowledge object we call the *solution*. Our goal in creating solutions is to make them good enough to be findable and usable by a target audience. Solutions are more than just answers; it turns out answers in the absence of the question are not very useful! A few important concepts about solutions:

- A solution captures the experience of answering a question or solving a problem.
- Solution creation should start as close to the point of demand (user or customer) as possible.
- Solutions include the question or problem in the users/customer's context (vocabulary), the question is as important as the answer
- Solutions are not verbose, they are made up of brief statements that represent complete thoughts, like a good outline
- A solution has a little bit of structure; the problem or question being addressed is distinct from information about the environment (i.e. hardware/software products, release levels)
- Solutions are created in the workflow;
- Solutions have a life cycle; they evolve through use and the visibility of the solution is based on its state.
- Solution states such as work-in-progress, draft, verified, and published, influence the solution's visibility (not everyone can see everything in the knowledgebase)
- Solutions are not static, they are dynamic; every time a solution is used it should be updated and improved
- Solutions are not complete until they are obsolete!

The KCS practices and processes focus on solution creation, reuse and evolution. Solutions are created in the workflow. When the support analysts closes the

incident or hangs up the phone there is a reusable solution in the knowledgebase. If the problem was resolved, others have immediate access to the solution; this avoids re-creating answers to problems that have already been solved. If the problem was not resolved, the solution availability is limited to others who work in this product area. This way others in the organization know that the problem is being worked on.

## The solve loop – The KCS Practices

- **Capture in the workflow** - context and content are captured as the problem is being solved. In the case of web-based self-help, the customer begins the capture process as they are looking for a solution in the knowledgebase. Their search statements become a framed solution that is submitted to the support center in the event they can not find an answer and request assistance. Then, as the support analyst interacts with the customer the key points are captured in the solution. It is critical that the support agent capture information in the customer's context and not the support agent's context - this improves findability. We find that if a support agent solves a problem and closes the incident and then writes a knowledge article (even a few minutes late) they will write it in their context not the customers'. Capture in the workflow ensures we are capturing the customer context.

The second benefit of capture in the workflow has to do with the issue of tacit and explicit knowledge. Explicit knowledge is the knowledge we know we know while tacit knowledge is the stuff we know but don't know we know until someone asks (see David Snowden's work at <http://www.cynefin.net/> ). Experienced support analysts have a lot of tacit knowledge. If asked what they know they can tell you some interesting things, if faced with solving a problem or answering a specific question they will use knowledge they cannot tell you about in the absence of the question. Tacit knowledge becomes explicit in the moment of use and capture in the work flow allows us to collect tacit knowledge as it becomes explicit in the context of demand.

Solutions are reviewed based on demand (re-use). As others find solutions in the knowledgebase that are valuable, they are responsible to ensure the solution is complete and appropriate to deliver to the customer, a judgment they make every day in the call-centric environment. In this way only the solutions that are being used are being reviewed. If the solution is not reused there is no post call knowledge engineering on the solution, this is very important to the economics of the KCS methodology. Support analysts are trained to create well structured solutions in the workflow.

- **Structure for reuse** - A little bit of structure greatly improves the readability of the solution and in some cases (depending the search technology) can improve findability. Structure refers to the content and format of the solution. Statements in the solution are complete thoughts, not complete sentences (we are not expecting the support analysts to become technical writers). Statements have roles; the problem description, the environment and the fix or resolution. This simple

structure gives the words and phrases in the solution context which greatly improves the readability and usability of the solutions. The content standard described in the Content Vitality practices defines the structure and style of a solution in detail.

- **Searching is creating** - As people interact with the knowledgebase the words and phrases they used to search are preserved. There are two outcomes of searching, a solution is found that resolves the problem or a solution for this problem does not yet exist. In the case where a solution is being reused, the statements that were used to search are possible updates to the existing solution. In the event no existing solution is found the words and phrases used to search become the basis for a new solution. This preserves the context of the situation in the requestors' terms. The unsuccessful search statements become a framed solution that is submitted to the support organization for resolution. When the answer is determined, the framed solution is finished by adding the resolution and possibly a cause. The process of framing and finishing solutions draws people into using the knowledgebase as the basis for asking questions and solving problems, which in turn ensures the collective experience of the organization is being captured.
- **Just-in-time solution quality** - The culture of the KCS environment is such that people take responsibility for what they see in the knowledgebase. If a solution is considered good enough to give to a customer (in the judgment of the analyst it meets the requirements of the situation) it should be immediately available to the peers of the analyst who delivered it. If that solution is found by another analyst, they must review it for appropriateness for the situation they are working on, they may modify or update the solution to ensure it is appropriate for their specific situation. If a solution is unclear or incomplete, they fix it or flag it for review by someone who can fix it. Solutions are reviewed and evolve in the workflow based on demand.

We know from experience that 80% of what is in the knowledgebase will never be reused, 20% of what is in the knowledgebase will be reused and some of that 20% will be reused a lot. A process that requires review of 100% of the solutions that are created is therefore a huge waste of time and money. The problem is, at the moment of creation, we don't know what the future value of the solution might be. If the question or problem is worth resolving, then it should be in the knowledge base. This creates organizational learning based on the complete experience. We let demand (reuse of solutions) draw our attention to those solutions that have value. The demand driven review process is a critical factor in the efficiency of the KCS methodology.

This system works only when the analysts are trained on KCS as a problem solving methodology and rewarded for their contribution to the collective learning of the organization.

It is important to note that different players have different levels of authority in the system for creation, visibility and update, not everyone can see or update everything.

The companies that have been successful with KCS have implemented an internal KCS certification or licensing program that links a Support Analysts rights and privileges in the system to their demonstrated KCS competency. KCS proficiency management is part of the performance assessment processes in the evolve loop.

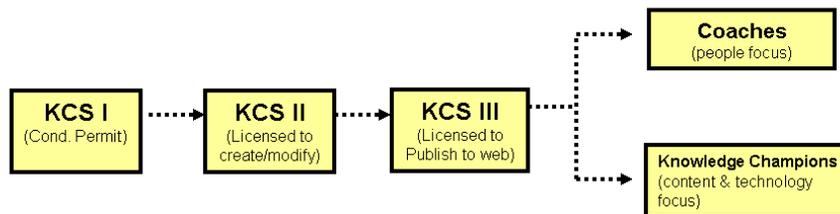
A program to develop, maintain and assess the support agents KCS skills is critical.

**KCS Practice competencies - skills and abilities**

(Certification criteria for individual roles within the organization)

- KB user (reader, user of the knowledge base, no training)
- KCS I (trained user, provisional license, work is reviewed by coach)
- KCS II (licensed user, can create, modify solutions without review for broad internal use)
- KCS III (publisher to the web (external), journeyman position)
- Coach (KCS practice expert, focuses on proficiency development of KCS I, II & IIIs)
- Knowledge Champion (monitors collections of solutions, monitors patterns and trends to identify potential improvements in the products)

## **KCS User Development**



*KCS knowledge, competency  
defines system rights and privileges*

*The goal is to have as many KCS IIIs as possible  
(just-in-time publishing)*

## The Evolve loop – The KCS Processes

- **Workflow** – We want a repeatable process that creates and updates (maintains) solutions in the knowledge base as problems are solved. This requires tools and technology that support the Solve loop practices and the Structured Problem Solving Process.

In the support center environment, it is important that the incident management system be integrated with the knowledge management system such that it is easy to put information into the correct fields without duplication or excessive navigation.

Following are some key considerations in the area of workflow:

- Processes and tools must support Structured Problem Solving -
  - Start with the literal, move to diagnosis then to research
  - Search early, search often
- Integration of call management, knowledge management and problem solving systems with the process
- Infrastructure/tools must align with the workflow and function at the speed of conversation
- Ideally the knowledgebase enables/facilitates access to both content and relevant resources (people)
- Feedback is captured as part of the interaction with content and people
- Solutions are both reviewed and improved in the workflow based on use

The Structured Problem Solving Process is about managing the conversation with the customer to separate the administrative elements of the call from the problem solving elements of the call. Structured problem solving also emphasizes three phases of problem solving; literal, diagnostic and research. The literal phase involves listening to the customer and framing the problem in their terms (this may be done by the customer via a web interface). This is also the phase where the knowledge base is engaged to determine, as early in the process as possible, if the problem is known. We often find that analysts jump too quickly into the diagnostic and research phases in their desire to solve the problem. When this happens we miss capturing the customer's context and identifying if the problem is known. This results in wasted effort, i.e. solving problems that have already been solved. The structured problem solving process encourages the analyst to seek to understand what the organization knows about this or similar situations before they seek to solve.

- **Content and the content life cycle** - Our goal is to create Solutions (content) that are findable and usable and that are migrated to new audiences based on demand. As Solutions are captured in the workflow they are built to adhere to the content standard for the organization and made available to the peers of the person who created the solution. For example, a level two analyst creates a solution, and that solution is immediately visible/searchable by other level two analysts. If the solution is reused by a peer (and therefore reviewed) it would be marked as a candidate to be made available to level one analysts. In turn, if it is reused by level one it should be made available to customers via web-based self help. In this way, solutions are constantly migrating closer and closer to the customer based on demand.

Some of the important elements of content vitality are:

- A content standard for each collection of content that defines simple rules for solution structure, preferred vocabulary, solution states and visibility, it also defines what a good solution looks like for each product family (or knowledge collection)
  - A process of random sampling and scoring solutions in the knowledgebase for solution quality and feedback to the creators and modifiers of solutions
  - Content evolution; the migration of content to new audiences based on demand. Content that is being reused is reviewed for context (reuse is review) and made available to an ever broadening audience.
  - A process to identify overlap and gaps in collections of content to drive improvements to the content standard and workflow
  - Identification of patterns and trends in collections of content to drive product/application improvements that will eliminate the source of the problem (this most often involves development/engineering)
- **Performance assessment** - The organization must facilitate and encourage participation in the KCS practices and then recognize and reward those who create value. Most organizations find they must shift their performance assessment practices from individual and activity focused measures to team and value creation based measures. A very helpful concept, from the book "The Balance Scorecard" by Kaplan and Nolan, distinguishes performance drivers (understanding why) from leading indicators (activities) from lagging indicators (the results/outcomes).

We have found, without exception, that when an organization places goals on leading indicators (activities), such as Solution creation or reuse, it will lead to corruption of the knowledgebase. In a KCS environment, management must take responsibility for the performance drivers, goals should be set for the desired outcomes (lagging indicators) and the support agents must have visibility to and responsibility for the leading indicators (activities) in the form of trends.

The creation of value cannot be measured by any one indicator. It requires a holistic or balanced view. The creators of value can be identified by looking at trends in the leading indicators, performance against goals in lagging indicators and the solution quality index. The solution quality index is created for both individuals and teams based on scoring a sample set of solutions from the knowledgebase.

Some of the critical considerations for performance assessment are:

- Monitoring trends in the leading indicators (activities) and making them visible to the players (solution creation, modification and reuse).
  - Do not put goals on activities or leading indicators!
  - Identify key results (outcomes) with objectives or targets
  - Monitor solution quality using a sampling technique
  - Proficiency management, the license metaphor (KCS I, II, III)
  - Persistent Feedback; the integration of objective and subjective indicators
  - Panoramic attention for those who are creating value (reputation model)
  - Rewards, recognition and compensation linked to the creation of value (not activity)
- **Leadership** - The adoption of KCS is transformational and requires strong leadership. Understanding the relevance of KCS to the organization; how KCS contributes to the organizational goals is critical. The leadership of the organization must have a vision and be able to articulate that vision in terms that each of the layers of the organization can relate to. A clear understanding of the organization's purpose values and goals is required in order for the players in the organization to make the right decisions in accomplishing the goals. Leadership should focus on *what* the organization needs to accomplish and the people doing the work should be allowed to determine *how*.

Key considerations for leadership include:

- Creation and communication of a vision and a purpose that elicits a positive emotional response
- Alignment of the organization; understanding and agreement to the purpose
- Definition of success and scope
- Encourage, support, recognize and reward innovation and the creation of value.

## How does an organization make the transition to KCS?

A few things we have learned about knowledge that may seem counter intuitive:

- Knowledge is not pristine, it is messy and chaotic. How well organized is our own knowledge?
- It is not static, it is dynamic. Do any of us feel we are done learning? Do we have complete knowledge about anything?
- It is as much about context as content. Information out of context is useless. We have a lot to learn about context.
- It is not about technology, it is about people, values, connections and creating knowledge flows.
- "Knowledge is the by product of experience and/or interaction" (Livia Wilson).
- Customers know more than vendors give them credit for - we have created an arbitrary boundary between us and our customers which is not helpful.
- "We don't know what we know until someone asks us." (David Snowden). The most valuable stuff we know becomes clear as a result of demand.
- "Companies don't own the knowledge ... at best, they lease it from the employees." (Hubert Saint-Onge).
- Knowledge is personal. How important is what we know to who we are? Knowledge is a significant element in our identity.

**INVITING  
Vs.  
IMPOSING**

David Snowden from IBM's Knowledge Management Institute points out "Knowledge can not be conscripted - it can only be volunteered." The theme in a successful adoption of KCS is an invitation to engage. Successful adoption requires the creation of new heroes; a new role model for the valued employee in the organization. Equally important is an invitation to engage in something that creates an emotional connection for people. It requires alignment to a purpose that people can relate to and value. Knowledge is personal - business, generally, is not. The business model must engage the hearts and minds of the people, as they are the source of knowledge and therefore the source of value in a knowledge-based economy.

The adoption of KCS inevitably changes the nature of interaction between the levels/tiers in the traditional support model. The distinction between support levels diminishes, creating a sense of one team aligned to a common purpose.

## **KCS adoption requires strong leadership . . . not strong management**

### **In Summary**

1. The KCS practices are not in *addition* to the process of solving problems, KCS *becomes* the problem solving process.
2. Solutions, in the context of the customer, are created as a by-product of resolving a problem or question.
3. If a question or problem is worth answering, it is worth having in the knowledge base
4. Demand driven solution creation and review, done in the workflow, focuses the organization on improving the valuable content and not spending time on content that is not being used.
5. Demand (reuse) helps identify relevant content for web-based self-help.
6. Just in time training - The solutions in the knowledge base help speed the delivery of answers to known questions and problems as well as help analysts solve new problems faster because of the shared experience. It is just-in-time training vs just-in-case training.
7. Wholly beneficial - KCS does not compromise anyone, all the stakeholders; customers, employees and the business benefit from the KCS Practices.

**So . . .  
WHAT'S  
DIFFERENT  
ABOUT  
KCS?**

You can learn more about the Consortium for Service Innovation's KCS program and how it might be of value to you or your company by visiting our website at [www.serviceinnovation.org](http://www.serviceinnovation.org).

The Consortium is partnering with the Help Desk Institute (HDI) to develop training and certification programs for KCS. HDI offers the workshop "Knowledge Management Foundations - the KCS Principles" (for more information please visit [www.thinkhdi.com](http://www.thinkhdi.com) )

The Consortium for Service Innovation is a non profit alliance of service and support organizations. Through a process of collective thinking and shared experience, the members develop and validate innovative ways to improve customer support. This work bridges emerging academic thinking and research to implementable practices which optimize business results.

If your organization would like to participate in the continuing evolution of the Knowledge-Centered Support models or other programs under way, consider joining the Consortium for Service Innovation. Information on membership is available on our website.

**ABOUT  
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