The New Imperatives for High Technology Support

A Survey of Best Practices in Problem Resolution

Executive Summary

In order to understand emerging trends in high-technology support, DB Kay & Associates undertook a comprehensive research program in 2003. Over the course of the year, DB Kay interviewed a large sample of executives responsible for customer support at leading high-technology companies, including over one-fifth of the vendors in the personal computer whole product space. The research program's objective was, fundamentally, to understand the issues that keep support executives up at night and to learn the best practices that leaders are applying to those problems.

While the participants in this research work in highly diverse environments, the core challenges they face are remarkably consistent—and daunting. And, as we talked with more and more executives, a clear pattern of responses to those challenges emerged in the form of four strategic shifts through which leaders are guiding their organizations. Because these initiatives are so important to support organizations, and because they all focus on the process by which support organizations resolve (or avoid) customer issues, we call them the four New Imperatives for Technical Support.

"Customers keep asking us to do more for less, especially because of the current economic environment. I think this is a good thing because it forces us to rely less on headcount and more on technology."
–VP of Services and Support, Enterprise Software Company

Briefly, the four New Imperatives are shifts:

- *From Product Support to Solution Support.* Yesterday's model of support, which focused simply on solving break-fix issues with individual products, is yielding to a more business-oriented model that maximizes the value that customers receive from the whole solution based on their needs.

- *From Reactive Support to Proactive Support.* While fast and accurate resolution of incidents remains important, leading support organizations realize that the best outcome is not having the problem arise in the fist place. So, they're learning more about their customers in order to proactively deliver the knowledge and tools required to make sure that problems are avoided, not just solved.

- *From Solving Problems to Improving Products and Knowledge.* As counterintuitive as it may be, support leaders are taking the very people who are best able to solve customer problems and applying them instead to improving the organization's capacity to solve problems. In Stephen Covey's words, they are "sharpening the saw" by using product specialists and subject matter experts to improve the usability and serviceability of the products they support, and to share support knowledge with the rest of the organization.

- *From Just-in-Case Training to Just-in-Time Knowledge Transfer.* As products, their business applications, and their interactions with other products grow increasingly complex, the historical model of training becomes obsolete. The support organization isn't able to reliably predict in advance which facts the analyst will need to be successful in the job, but must instead surround the analyst with knowledge and expertise that can be applied both to known, emerging, and completely new issues.

These four imperatives, taken together, stake out a new way of approaching support. Rather than making existing processes more efficient, they redefine the value delivered by the support organization away from the negative (fixing broken products) and towards the positive (increasing the value of the customer relationship). They also change the view of the support analyst from a human repository of facts to a problem solver empowered by knowledge. Finally, they change the view of the customer from a source of incidents—really, problems—to a partner in realizing value and a source of input for improving products.

Research Methodology

DB Kay & Associates bases the conclusions presented in this paper on a rigorous program of primary and secondary research. Highlights include:

- Interviews with 32 executives responsible for customer support at leading high-technology companies throughout the United States

- Interviews with numerous industry analysts and innovators

- Review and analysis of tens of industry analyst reports

- Qualitative and functional surveys of over 40 high-technology support websites

The Interviews

The cornerstone of this research is the series of executive interviews that provide both quantitative data and, more importantly, the business insight behind the organization's challenges and actions. These interviews were secured by developing a target list of high-technology innovators, identifying the responsible executive, and proposing a meeting to him or her. In some cases, a nominal honorarium was provided.

Meetings were facilitated by one or two associates who used a discussion guide to ensure consistent and comprehensive data collection. Detailed verbatim notes were taken during the interviews. Interviews averaged ninety minutes, and almost all were conducted in person. Most covered a broad range of support issues, while others focused on a particular topic of interest (such as peer support forums.)

According to best practice in market research customer conversations, interviews moved from open-ended to more structured. During the discussion, participants were guided to describe their organization and the nature of their responsibilities. The discussion then moved to an exploration of their challenges, asked for feedback on candidate concepts and messages, and closed by receiving quantitative feedback on pain points and candidate product functionality.

Leading Indicators

The scope and the targeting of the research provides a broad and useful view of customer service imperatives. However, the results are not intended to be statistically representative of all support organizations: we found the companies and individuals who elected to participate in this research to be more-than-usually thoughtful and articulate about the business of support. So, we view the insights gained from this research to be leading indicators of best practice in support, not necessarily representative of common practice.

Profile of Respondents

Companies

Companies were selected from a list of leading personal computer hardware, software, and peripherals companies; enterprise software and services companies; computer systems companies; and network equipment manufacturers. For a broad range of perspectives, select participants from telecommunications services and enterprise support (IT help desk) were also included.

All but two companies were publicly traded on US exchanges. Most had annual revenues in the hundreds of millions of dollars, although several multi-billion dollar companies were also included.

The following were among the 32 companies interviewed:

- Adaptec
- Cadence
- CheckPoint
- Iomega
- JDA
- Oracle
- PeopleSoft
- Rational Software
- SONICBlue
- StorageTek

Individuals

The individual executives interviewed had either direct responsibility over customer support (e.g., "Director of Technical Support") or a broader responsibility that included customer support (e.g., "Vice President of Worldwide Customer Service.") In some cases, we spoke with a team that included both participants. In all cases, customer support was the executive's responsibility and they were able to speak to support issues in detail.

Individuals quoted in this document are identified by generic title and company category.

Complexity of Product Supported

High-tech support organizations vary greatly depending on corporate culture, products supported, company size, channel strategy, and customer type. Of these factors, the most important is the nature of the product supported and the complexity of the support required. A consumer electronics company's support organization will be different from an enterprise software company's in many ways, including the use of outsourcing, the use of CRM and knowledge technology, the deployment of self-service, interest in communities, and the need for customer implementation-specific knowledge.

Other analysts have focused on the customer, drawing a distinction between business to business (B2B) and business to consumer (B2C) support organizations. B2B companies do often support complex products, and B2C companies often support simpler ones, but our research suggests it's the product complexity that matters more than the customer type. We identified the following categories:

- *High-Complexity Support Centers.* We define support centers in which support analyst productivity is tracked on the basis of incidents per day or per month as high-complexity. None of our participants who tracked productivity this way reported more than four issues per day, and others handled issues so complex that a single analyst was expected to close only ten issues per month.

- *High-Volume Support Centers.* We define support centers which use call-handle time as the metric of analyst productivity to be high-volume. Our survey showed call handle times as high as 15 minutes and as low as four.

- *Hybrid Support Centers.* Some support centers combine aspects of high-volume and high-complexity. In these hybrid centers, the majority of calls is closed quickly at tier one, but the majority of time is spent on a smaller number of more complex issues. As you'd expect, these hybrid centers have a combination of the characteristics of both models.

Characteristics	High-Complexity	High-Volume	Hybrid
Productivity Metrics	Cases closed per support analyst day or month	Call Handle Time and First Call Close Rates	All, with a focus on escalation rates
What Is Supported	Customizable solution	Out-of-the-box product	Highly configurable product
Outsourcing	Rare	Common	Sometimes at tier one
Field Service	Common if hardware is included	Rare	Uncommon
Tiering Model	Fluid and collaborative	Fixed and defined	Fixed and defined, at least at tier one
Website Goal	Customer empowerment	Call avoidance	Both
Cost Driver	Problem resolution, especially diagnosis	Problem resolution, especially finding the right knowledge	Problem resolution, especially transferring knowledge to tier one

Table 1: Support Center Characteristics By Complexity of Product Supported

Both high complexity and high volume support organizations agreed on the fundamental New Imperatives of service. But high complexity organizations were especially vocal about the benefits of supporting solutions, not just products, and delivering support more proactively.

The Need for Better Problem Resolution

"On The Rack"

> *"Everyone feels [like they're on the rack.] You can't add resources at the level of the growth of the call volume, so you need to figure out how to get more productive. There are only three ways to do this:*
> - *product quality*
> - *trying to get customers to use a self-help technique*
> - *increase the productivity of your own people."*
>
> *–VP of Services and Support, Enterprise Software and Services Company*

One point on which we received universal agreement: customer support organizations are caught between the powerful forces of increasing customer demand and tightening budgets. (When we used the graphic analogy of "the rack," the medieval instrument that stretched hapless prisoners with sturdy ropes attached to opposing winches, support executives nodded vigorously.) Executives cited:

- An ever increasing installed base demanding support
- Increasing product complexity
- More multivendor and product interaction issues
- Increased customer expectations set by 24 x 7 "internet time" service
- Tighter support budgets

Specifically to the point of tighter budgets, executives characterized the change as being no longer able to scale the support budget with the growth of revenue. Enterprises that had previously accepted support costs as a fixed percentage of product sales now expect support executives to deliver more with less.

Telephony and CRM to the Rescue?

Support organizations have dramatically increased the efficiency with which they perform administrative processes with telephony and CRM technology.

Most organizations we spoke with had made and continue to make investments in telephony. For example, several were investing in VoIP to enable "follow-the-sun" support worldwide. And others were using skill-based routing and computer-telephony integration (CTI) to get the right call and the right information to the right analyst. Organizations were generally satisfied that they had wrung maximum efficiency out of the process of taking and routing calls, or soon would.

The other investment most organizations had made or were making was in a support tracking system and customer information system, generally implemented as part of a cross-functional customer relationship management (CRM) implementation. Benefits cited for an integrated CRM system were more efficient call-taking (for the administrative portion of the call) and a more comprehensive, integrated repository of customer activity. Another benefit cited was web-based incident submission, which most respondents felt was more efficient than telephone or email based support because of its ability to capture structured information, service less proficient users of English with English-speaking support, enable outsourcing, and eliminate "call-chasing," or repeated incident status checking.

While CRM and telephony investments have paid off in incremental improvements in efficiency, neither has been the complete antidote to the support executive's "rack." That's because the processes that they improve represent the minority of the time and cost spent by support organizations.

The 80:20 Rule

"Solving problems is the crux of why we're here...people have invested in CTI and CRM over the years, but what have you done to help at the point when you're actually talking to a person? ...The goal of customer service is to answer questions, so let's focus on doing it as inexpensively as possible."
–Director of Support, Consumer Electronics Company

A variety of sources have stated that 80% of the cost of delivering support is in actually solving customer problems, as opposed to routing incidents, managing customer information, performing entitlements, and other administrative functions. For example, recent research from the Service and Support Professionals Association (SSPA) has put the problem resolution cost at 82% for incidents resolved at first contact, and over 90% for longer, more complex incidents.

We validated this point in our interviews and found overwhelming support for the notion that the majority of the expense of support is incurred in actually solving customer problems. While no one claimed to have definitive cost data to support it, executives felt either that the 80% number was "about right" or "too low." The more complex issues handled by the support center, the more likely they were to think that 80% wasn't high enough.

The result is that many of the initiatives and much of the spending in today's support center have gone towards making processes that represent 20% or less of the expense of service delivery more efficient. The reasons for the relative lack of investment in problem resolution vary, with some support centers believing that technology can't address their high-complexity issues and others, contrarily, believing that their issues are too simple to be improved by the application of technology. Returns received by successful adopters of problem resolution technology, however, cast doubt on both of these concerns.

Problem Resolution Technology Today

Certainly, one reason problem resolution technology hasn't been as widely adopted as telephony and CRM is its relative lack of maturity. Both telephony and CRM solutions are available from a set of successful established vendors that are commonly recognized within well-defined markets. The solutions are available in suites that combine the broad range of features required to solve a complete business problem. And, they are mature enterprise applications which support and align with established business processes, and which can be tuned with rules and workflow to support common variations on those processes.

In contrast, problem resolution technology has historically been available as point tools that deliver one or two elements of required functionality but do not provide comprehensive suite capability. For example, consider the following overlapping technology categories, mentioned to us during executive interviews and audited on websites, which must be rationalized and integrated to deliver the full range of problem resolution:

- Knowledge base authoring
- Self-service search
- Agent-facing search
- Agent collaboration
- Autodiagnostics
- Self-healing
- Expert forums for peer support
- Interview scripting or decision trees
- Web portal for proactive self-service

Not only must these capabilities be integrated with each other, they must be integrated into the rest of the business processes of support with flexible business rules and customization capabilities.

In short, the problem resolution market in early 2003 was not sufficiently mature to support the same level of investment that support organizations were making in CRM and telephony.

Knowledge Base Authoring

"[A leading knowledge base vendor] sucks. The bulk of the set-up was designed for people putting information in, rather than getting it out. Why should a user have to tell you what kind of fact a statement is? [Their product] is a friggin' nightmare. Their whole approach is insane... absurd."
–Director of Technical Support, Computer Peripherals Company

Many executives appeared especially frustrated over the difficulty, complexity, and time required to capture knowledge and structure it in traditional knowledge bases. With only one exception, surveyed executives felt that capturing knowledge for reuse is important. But a combination of challenges implementing a sustainable knowledge capture methodology and working with cumbersome technology made knowledge base authoring a particularly hot button in many interviews.

The primary issues cited by respondents are:

- **The complexity of authoring.** Because existing tools were hard to use, many organizations saw limited adoption, high training costs, and use that tapered off over time.

  "Everything is very formal and structured in the [knowledge] products in the market, so it's not appropriate for the dynamic way enterprise software support really works."
  –Director of Technical Support, Enterprise Software and Services Company

- **High redundancy/high noise.** Especially in organizations that encouraged support professionals to capture knowledge in the workflow, there were stories of massively redundant and low-value knowledge cluttering up the knowledge base. Redundant content is hard to maintain and results in inconsistent answers to the customer; low-value content can make it harder to find relevant content, especially with less sophisticated search technologies. The root causes of these knowledge base problems include insufficient technology to support the detection of similar content, misplaced metrics (e.g., 100% of cases must have a linked solution), lack of processes for ongoing knowledge quality assurance, and retrieval systems that aren't up to the task of bringing the most relevant content to the head of results lists.

  "We started with 100% linking of solutions to cases. We got 5000 solution objects, but then we had to step back, eliminate 1500, and rewrite 1000."
  –VP of Customer Support, Internet Infrastructure Software Company

- **Long time to publication.** Product defects and other causes of support drive the highest support costs in the days and weeks immediately after they're discovered, meaning that knowledge about these issues is most valuable when published quickly. Yet, because a combination of technology and methodological barriers (including authoring complexity, a reliance on dedicated authoring staff, extensive review processes prior to content use, and inflexible workflow), support knowledge could take as long as two months from discovery to publishing. Needless to say, these two months result in much costly and unnecessary rework. Leaders track time to publication and are seeking to reduce it.

  "The 'time-to-market' for content is too long. From an action being opened to when content is available to the customer can take 50 days... and as you know, much of this content has a shelf life."
  –VP of Support Knowledge Management, Enterprise and Infrastructure Software Company

Autodiagnostics

It is critical that support analysts and the knowledge-based systems they use have accurate information about the user's environment. Yet, frequently, users are incapable of reliably answering even simple questions about their systems. So, effective support organizations are starting to apply technology that provides analysts and their systems detailed environmental information as part of the problem resolution process.

> *"The collection of diagnostic data is the biggest issue [in the resolution process.] If you're talking with the accounts payable clerk, they may not know the full process. You need to get this electronically. [There are security and firewall issues,] but most of the customers will do what it takes to make resolution faster."*
> –VP of Service and Support, Enterprise Software Company

For proprietary and complex products, such as network equipment or enterprise software, autodiagnostics capabilities are built into the product by the product development group, often with input from the support organization. In the personal computer space, a number of standards and third party products enable machine state harvesting.

Although autodiagnostics is in an early state, especially in its integration with self-service, many service organizations believe that the speed and accuracy of environmental state gathering will be reflected in increased speed and accuracy of resolution.

Collaboration

> *"I think that it seems as though any time we seem to screw up or step on ourselves, it's around speed of escalation or collaboration – how to get the best resource on the issue immediately. In 95% of the cases, this stuff can get done really fast – either it's easy or the right people get on it right away. How can we make the flow easier? How can we make sure that the top three experts are available for the customer?"*
> –VP of Customer Service, Enterprise Software and Systems Company

Most support executives concede that ad-hoc collaboration is happening in the support center, but are concerned that it is:

* Unmanaged and unmeasured
* A series of interruptions detrimental to productivity
* Bothersome to experts who are repeatedly asked the same question
* Not capturing knowledge for reuse

Some organizations have put formal mechanisms for collaboration in place, while others have resigned themselves to the informal use of instant messaging, phone calls, and cross-cubicle visits. In only two cases were initiatives being launched to use a more structured, formal, and reusable collaboration mechanism, but executives expressed interest in exploring such a solution.

Self-Service

The area in which support organizations were furthest along in the process of automating problem resolution functionality was in self-service. We were told that customers of products as simple as a mouse or as complex as a financial application expect to be able to directly access support information from a vendor's website, 24 x 7. Self-service, along with other website improvements, was the most frequently cited individual support initiative in our research, and most websites surveyed had at least some informational and transactional self-service capability. (In many cases, product registration was the sole transactional self-service capability on the site.)

Self-service was broadly praised by both low and high complexity support organizations, although for different reasons.

Low complexity and B2C support organizations focused on call avoidance. They relied on awareness programs or restrictive entitlement policies to drive users to serve themselves instead of opening an incident. Those that had entitlement policies also saw self-service as a safety net for unentitled customers, ensuring that everyone would have at least one support option. Many of these organizations felt that self-service was meeting its objectives very effectively.

> *"I'm not especially looking for call avoidance. I need self-service because I need to have a credible alternative [when I use entitlement to cut access to the contact center.] I need to make it a little more painful to get to the phone."*
> –Director of Customer Support, Consumer Products Company

High complexity and B2B support organizations took a somewhat broader view of self-service. They focused on customer empowerment—helping customers receive more value from their products and solutions by giving them the knowledge they need to be successful. In other words, they viewed the self-service channel as an augmentation of traditional assisted channels, not a replacement. They also saw the benefit of siphoning off easy—and boring—calls, upgrading the challenge and sense of accomplishment within their support centers. While these higher complexity organizations saw clear potential benefits to self-service, they were less positive about its success to date.

> *"Search indexing isn't good. …We find that 30% of our incidents get closed in one day; 60% in two. I suspect that's because the engineers are just better at using the search engine than customers are. I want to make that work go away."*
> –VP of Support Knowledge Management, Enterprise and Infrastructure Software Company

A challenge shared by all self-service users is the lack of a commonly accepted, highly meaningful success metric for a self-service interaction. Some organizations trended and extrapolated from a very small number of survey responses, often coming from only ½% - 3% of website users. The non-response bias inherent in these surveys makes it difficult to extrapolate their results, in absolute terms, with any confidence. Other organizations used surveys on individual pieces of content rather than sessions. Yet others counted each selected document as a successful interaction.

All of these approaches can provide useful apples-to-apples information for trending the success of self-service. But trying to extrapolate these results to absolute volumes, especially to calculate call avoidance, is very challenging. Even if one knew with certainty what percentage of self-service requests are successful, it's hard to know how many of those requests would otherwise have resulted in an incident. Most likely, most web self-service interactions are solving problems that otherwise would have simply gone unsolved.

Conclusion: The State of Problem Resolution

To sum up, although most of the opportunity for making support delivery dramatically more effective is in the area of problem resolution, the challenge of doing so is high, especially since the maturity of problem resolution technology has historically been so much lower than telephony and CRM. The most enthusiastic adoption of problem resolution tools has been in the self-service space, although different support organizations have different goals, different perceived levels of achievement, and different metrics for assessing success with self-service.

The New Imperatives

Before	After
Product Support • Solving break-fix issues • In the context of the product	**Solution Support** • Adding value to the solution • In the context of how the product is used
Reactive Support • After something has gone wrong • Goal: fix it fast	**Proactive Support** • Before there's a problem • Goal: avoid problems altogether
Solving Problems • Best analysts work hard incidents • Analysts valued for what they know	**Improving Products and Knowledge** • Best analysts also provide structured product feedback, capture knowledge • Analysts valued for what they contribute
Just-in-Case Training • Training is predefined, static • Relevant content determined in advance	**Just-in-Time Knowledge Transfer** • Knowledge is delivered as needed • Analysts learn based on actual user demand

Table 2: The New Imperatives for Problem Resolution

The new imperatives for problem resolution dramatically transform the organization's goals from reducing cost to adding value, from transactions to relationships, and from execution alone to execution integrated with self-improvement.

Imperative One: Supporting Complete Solutions

> *"It's an evil thought to think that a product support model can work for complex solutions. You're relying too much on the customer knowing things and being able to diagnose effectively. So, we're trying to organize around our vertical solutions to deliver solution-based support...In solutions, you need to have a much tighter link between services, sales, and support."*
> –VP of Customer Support, Enterprise Systems Company

Customer support has evolved from a very simple model: sometimes products broke, and it was Support's job to fix them. The so-called "break-fix" model is the primary mindset inside and outside most support organizations today. Fast and accurate fixing is the accepted standard of support excellence.

Yet, when we think of our own experiences as customers, we see that the break-fix model covers only a tiny subset of what we want from our vendors after purchase. We want:

- Products that start working and keep working (so we don't have to call Support)
- Products that are easy to use how we want to use them and with the other products we already own (so we don't have to call Support)
- Help avoiding problems that are likely to crop up (so we don't have to call Support)
- Guidance about other products that complement this one (so we can get the most value out of it)
- Advice about how best to use the product (so we can get the most value out of it)

As a matter of fact, we would just as soon not discover just how fast and accurate break-fix support is—we'd rather avoid the "break" altogether. (That being said, of course if something is broken, we demand a fast and accurate fix.)

At the same time consumers' expectations for more comprehensive support are increasing, enterprises are demanding more value from their support organizations. Once seen as cost centers that must be managed down, support organizations in leading enterprises are now profit

centers. They generally must deliver profitable revenue in the form of support contracts, but they also are expected to increase core profits by increasing customer loyalty and average lifetime customer value. They must do this in two primary ways: increasing the perceived solution value, and eliminating dissatisfaction while increasing delight.

Increasing Solution Value

"Our differentiation is insight [about our application area]. Especially for big customers: 'you're paying me $1M a month, so we want to help you figure out how to use our stuff better.'"
–VP of Customer Support, Enterprise Systems Company

As Geoff Moore made clear in his landmark book *Crossing the Chasm*, the product that people purchase extends beyond the specific device or software that's shipped from the vendor: people really buy a whole product that includes all the complementary hardware and software, system integration, training, and perhaps most importantly, support needed to get value out of the product. So, as part of the whole product, customer support organizations need to add to the product's value as perceived by customers. In the simplest sense, this is done by fixing problems quickly and accurately, making them go away. However, support can deliver value far beyond this reactive function by providing feedback to the development organization to make products better for customers, providing information to help customers use products more effectively, and proactively telling customers how to avoid problems. The more the product is perceived as a whole product (or "solution") rather than a device, the more opportunity the support organization has to increase the value of the solution to the customer. This is especially important in cases in which availability or reliability is a key part of the product's value proposition, as is often the case with enterprise software, systems, and servers.

By increasing the value of the whole product solution, the support organization increases the amount customers are willing to pay for solutions, which increases margins. Support also moves metrics of referenceability, loyalty, repurchase, and share in the right directions.

Eliminating Dissatisfaction and Increasing Delight

"We have good customer satisfaction, and we like to think about the 90%+ who are happy with us, but we need to move into a 'glass half empty' mode. Let's do the math: extrapolate out the 1.2% that hate us, and we have 120 customers who are really [upset]. So don't manage to happy customers, but try to reduce the unhappy ones."
–VP of Customer Support, Enterprise Systems Company

"The customers who rate you 6 and 7 [out of 7] are the ones doing the high buying. In a business like ours, you can't be just mediocre."
–VP of Customer Services, Enterprise Systems Company

The traditional goal of customer support (after saving money) has traditionally been customer satisfaction. Most support organizations use some combination of survey techniques to measure "C-Sat," and assess individual and team performance accordingly. Yet, a former IBM executive confided to me that, in days gone by, a full 75% of the customers who defected to competitors surveyed as "satisfied."

This supports the point that a number of the executives we talked with clearly communicated: the right focus is not customer satisfaction, but customer dissatisfaction and delight. Customers who are dissatisfied are negative references, are highly likely to defect, and conversely can respond most positively to extra attention from the support organizations. Customers who are delighted are likely to provide positive references, stay loyal, and buy more. Although some studies have shown a correlation between average satisfaction and financial results, the executives we talked with agree with loyalty maven Frederick Reichheld that 'fixing' dissatisfied customers and making more customers delighted delivers an immediate and clear payoff.

Imperative Two: Delivering Proactive Support

"What you've described is sound as it describes a remedial process, but it would be much more interesting to have a proactive process to deliver more value to customers. If you just display [insight] during the resolution process, then you're missing out on proactive opportunities to be the trusted advisor, opportunities which happen outside of support incidents."
–VP of Customer Support, Enterprise Systems Company

"We need to service the software. Right now, all interactions are transactional: there is no persistence of information that people give us, so we have to ask for it all over again. Our fix is an enterprise management tool which packages up instrumentation data [from customer installations] which will go into a single repository that will hold all customer configurations. Once we do that, we can compare their actual configurations with supported configurations and best practices and make recommendations, or 'health checks.' ...We can also do find once, fix many."
–VP of Support Knowledge Management, Enterprise and Infrastructure
Software Company

As mentioned in the section above, the key problem with reactive "break-fix" support is that it requires something to break. Much as modern medicine has been evolving from treating sickness to fostering wellness and public health, support leaders are making the transition from reactive to proactive support.

Knowing Your Customers

"Wouldn't it be great to surround each customer with all of the relevant information and context that's been developed throughout the relationship?"
–Director of Information Technology, Enterprise Software Company

The core enabler of proactive support is knowing your customer base: what products they have, what they do with them, and in what environments. In reactive support, this information is typically gathered in the process of opening and solving the incident—then, for all intents and purposes, thrown away. But to deliver proactive support, this information must be retained and maintained for all customers on an ongoing basis. Otherwise, support actions and communications cannot be targeted precisely enough.

Gathering and maintaining this information without saddling customers with onerous and error-prone tasks requires creativity and integration with other systems. For example, "as-built" or "as-shipped" information about systems can be transferred from sales or manufacturing to support and used as the basis for customer records. When new facts emerge during a support incident, they should be used to update and augment the customer record, not just hidden away in the incident. And the automated harvesting of configuration information from the system itself is the most reliable and efficient way to get objective system information, whenever privacy and technology considerations permit.

Find Once – Fix Many

"The big part of our service, where the value is, is in the proactive diagnostic highlights – that's how we can provide continuous availability."
–VP of Customer Services, Enterprise Systems Company

Support organizations struggle to avoid rework—solving problems more than one time. The traditional way of avoiding rework is to capture relevant knowledge in a knowledge base, so that the next time the problem arises it can be recognized and solved quickly and easily. Still, this is a reactive model—the problem must occur and the customer must be inconvenienced to the point of opening an incident before the knowledge can be reused.

In the find once – fix many model, support organizations don't stop with adding knowledge to the knowledge base. They then run the problem against their customer profiles to identify other customers that might encounter the same problem, and proactively deliver a fix. In some cases, the support organization may require the customer to take action on the fix; in other cases, the relationship is deep enough that the fix can be implemented by the support organization directly. In either case, good things happen: a potential problem is avoided and the support organization demonstrates value.

Health Checks

"Wouldn't it be grand if we could take everything we know about a customer and their configuration and run that up against the knowledge base? If we did a comparison of a proposed configuration to a data base of existing configurations, and answer the questions, first, has anybody done this? second, if they did, what issues did they have and how can they be mitigated?"
–VP of Customer Support, Enterprise Systems Company

As exasperated support executives testify, many of the thorniest problems are caused by configuration issues: products working with incompatible products, inappropriate customizations or settings, "version-itis," and so on. Development and support organizations develop and communicate configuration requirements and painfully learned configuration best practices which customers often don't understand or implement incorrectly, resulting in difficult-to-diagnose incidents.

A number of the executives we met with are or will be implementing a model of proactive "health checks," in which a combination of customer provided and automatically harvested configuration information is compared against a database of supported and recommended configurations. Then, customers are provided with a report that raises red flags for potential problems and identifies recommended improvements, upgrades, and so on.

As with find once – fix many, problems are avoided, the support organization provides visible value, and both the support organization and its customers win.

Making Knowledge Base Results More Precise

"How do you solve the search problem? Since we have product and configuration information, we should be able to use that along with the customer's context to constrain the search."
–VP of Support Knowledge Management, Enterprise and Infrastructure Software Company

In addition to powering heath checks and find once – fix many, an emerging trend being explored by some executives is to pass environmental information to the knowledge base as part of the search in order to make results more precise. This is especially important to self-service, where customers might not know what environmental information is relevant or how to specify it.

The technology required to support this is complex, because the search has to be sophisticated enough to map environmental data to concepts expressed inside support content, and to selectively use only relevant information to narrow the search. However, as organizations publish tens and hundreds of thousands of pieces of content to the web, this kind of automated refinement grows increasingly important to bubble relevant content to the top.

Imperative Three: Improving Products and Knowledge

Suppose you were to come upon someone in the woods working feverishly to saw down a tree.

"What are you doing?" you ask.

"Can't you see?" comes the impatient reply. "I'm sawing down this tree."

"You look exhausted!" you exclaim. "How long have you been at it?"

"Over five hours," he returns, "and I'm beat! This is hard work."

"Well why don't you take a break for a few minutes and sharpen that saw?" you inquire. "I'm sure it would go a lot faster."

"I don't have time to sharpen the saw," the man says emphatically. "I'm too busy sawing!"

–Stephen R. Covey, *The 7 Habits of Highly Effective People*

Traditional support organizations were trapped by a ceaseless flow of broken products to fix. Like the woodsman in Covey's story, they were so busy closing incidents that they didn't take time to make themselves more effective.

Support leaders today are breaking out of the trap of repetitive question answering and rework by taking some of their best people off the phones and investing their time in "sharpening the saw." These experts, often called product specialists, are providing structured feedback to the development organization to make products more reliable and usable. In some cases, the sustaining and usability engineering teams are integrated with support, effectively insuring that fixes and improvements are driven by real customer needs. And, they're capturing the knowledge they develop in the process of solving problems to make other support engineers more effective in solving the same problems for other customers— a few even have staff dedicated to creating tools to automate the diagnostic process.

"[Having as many people in Tier 3 as in outsourced Tier 1 and 2] may sound top-heavy, but the Tier 3 people not only participate in remote diagnostics but are responsible for the integrity of the knowledge base and for serviceability enhancements and proactive work based on assessing problems."

–VP of Customer Support, Enterprise Systems Company

Although executives told us that taking some of their best staff off the line (at least part of the time) was difficult, the return on investment is undeniable—as evidenced by the nearly universal adoption of the 'product specialist' model.

Improving Products with Structured Feedback

"We have a kind of service product management organization that basically sits with the product management organization and the engineers; they're co-located with them. Product management used to have a theory about what they were going to do but now we're working on futures together. So, we've built support into the product development process.

–VP Customer Service, Enterprise Systems Company

The executives we talked with felt a responsibility to be a customer advocate to development and product management organizations. Without denying the importance of the customer engagement performed by product managers, support executives know that their organization has a unique view into the problems, frustrations, and needs that customers have.

Historically, support organizations have only been able to deliver requests for specific urgent patches and anecdotal information about more general customer needs. Although CRM systems are widely adopted, they have not been able to drive product improvements: the general incident classification is at too high a level to be useful, and the details are locked away in unstructured text notes fields.

The development of structured feedback requires human expertise augmented by technology. The human expertise comes from the product specialist. Executives we talked to described how they:

- Perform "deep dives" on a sample of incidents to truly understand and capture the root cause
- Categorize incidents based on detailed notes to develop a statistical profile of their causes
- Calculate the most costly causes of service by looking at how often specific knowledge base articles are used

The product specialists are aided in their analysis by technology that:

- Automatically captures machine state information from broken systems and does data mining to develop signatures that predict certain kinds of problems
- Reports on how often knowledge base articles are used
- Categorizes incidents automatically based on free-form text in notes fields
- Analyzes concepts in queries posed by support analysts and end-users to correlate symptoms and environments

The net result of this work by product specialists is to deliver actionable feedback for the product group. Unlike anecdotal and high-level feedback, this structured feedback puts the support organization in its rightful place as a key agent of product improvement. And, as with other new imperatives, both the support organization and customers win when products are more reliable, more supportable, and easier to use.

Two of the support organizations surveyed in this research took the next logical step in this process by integrating sustaining and usability engineering into the same group as support. Both sustaining (maintenance) and usability requirements are, or should be, best understood by the support team, because they are most directly exposed to customer issues. For example, one executive told us that many of the support incidents for a hardware product were caused by the poor usability of the third party software people used with it. He was able to unilaterally make the decision to build and bundle highly usable software for the hardware he was supporting; in doing so, he increased customer satisfaction with the product and vastly lowered incident volumes, easily recouping the cost of developing and maintaining the give-away software.

Improving Support by Capturing Knowledge

"I put a huge emphasis on tool development. I took my two best people off the line [to have them develop tools and content.]"
–VP of Service and Support, Internet Infrastructure Software Company

It takes time to engineer usability and reliability problems out of products, and a 100% support-free high-technology product will never be possible in the dynamic and complex world we support today. So support leaders tell us that, in addition to investing in product improvement, they're investing in support improvement—and the key investment they're making is in knowledge.

In earlier times, support knowledge was thought to be a pristine set of precise answers to well-defined problems and situations. Sometimes knowledge is this way, but it can be much more. Knowledge management experts define knowledge as information that allows one to take action. So, support knowledge is any information that support analysts or customers can use to solve problems, either by providing a known fix or workaround, describing diagnostic procedures, suggesting avenues of exploration, or explaining supported or suggested configurations.

In different knowledge management methodologies, different groups of people author support content—sometimes all support analysts, sometimes dedicated content developers. But most of the support organizations we talked with leveraged their product specialists as the lead authors and quality assurance experts for support content. By leveraging their expertise across the support team, their investment of time was returned many times over compared to simply solving incidents.

Removing Dissatisfaction with the New Imperatives

Recent SSPA research outlined the major sources of customer complaints about support. Of these, the top six complaints (and all the ones with double-digit percentages of occurrence) can be avoided with the New Imperatives:

Complaint	Resolved By
Time to resolve Issue	• Improving Products and Knowledge • Mastering Just-in-Time Knowledge Transfer
Quality of Product	• Improving Products and Knowledge • Supporting Solutions, not Products • Delivering Proactive Support
Lack of Resolution	• Improving Products and Knowledge • Mastering Just-In-Time Knowledge Transfer
Knowledge of the Service Rep	• Mastering Just-in-Time Knowledge Transfer
Time to Reach Rep	• Improving Products and Knowledge • Mastering Just-in-Time Knowledge Transfer
Availability of Online Resources	• Improving Products and Knowledge

Source of complaints: SSPA 2003 Support Industry Benchmark Study

Table 3: The New Imperatives Reduce Customer Complaints

Imperative Four: Mastering Just-in-Time Knowledge Transfer

"The fundamental issue is knowledge transfer—anything we can do to figure out how to make knowledge transfer more complete and more timely, that's the right thing... I want to give everything to everyone."
–VP of Service and Support, Internet Infrastructure Software Company

Wouldn't it be great if all of the analysts in your organization were as good as your best one?

The traditional approach to raising analyst skills is training: a survey from the Help Desk Institute shows that a sample of support organizations spend an average of $1725 to $3100 on training per analyst, depending on his or her level.

Training, especially in soft and diagnostic skills, can be an important part of analyst development. But, it's extremely limited in its efficiency as a knowledge transfer mechanism. It's what Greg Oxton, Executive Director of the Consortium for Service Innovation, calls "Just-in-Case Knowledge Transfer." That is, people are trained based on a best guess of the information they will need to know—with content that grows increasingly obsolete as soon as the training is ended.

The alternative to Just in Case Training is Just-in-Time Knowledge Transfer. In this environment, each analyst is surrounded by the relevant information and expertise needed to quickly solve problems without a costly and frustrating escalation. Just-in-Time Knowledge Transfer has two main components: Just-In-Time Knowledge, and Just-in-Time Expertise.

Just-in-Time Knowledge

"I would trade almost anything for speed in the knowledge publishing process."
–Director of Technical Support, Enterprise Software and Services Company

When organizations continually improve their knowledge base as described in Imperative Three, they not only speed resolution but create an environment in which all analysts are being fed the right knowledge when they need it, at the point of customer demand. By searching early and often in each customer interaction, agents are presented with answers, diagnostic tips, and items that may send them in the direction of a successful diagnosis and resolution.

The result of this just-in-time knowledge delivery is dramatic:

- *Faster time to proficiency.* One adopter of a just-in-time knowledge methodology reports being able to put analysts on the phone in one or two months instead of six.

- *Broader scope.* A single analyst supported by just-in-time knowledge delivery can support a much broader range of products, offering more organizational flexibility and higher employee motivation due to increased feelings of accomplishment.

- *Fewer escalations.* By supporting tier one analysts with just-in-time knowledge, first call resolution rates go up and escalations go down. Also, dispatchers who previously only could take contact information and log the incident are able to solve some portion of issues.

- *Higher confidence.* Analysts are people, too, and no one likes the feeling of being asked a question to which they don't know the answer. Having a knowledge base and a process for using it increases analysts' confidence that they can handle the next call, reducing
their stress.

Just-in-Time Expertise

"Collaboration is good, done right. Force people to capture the knowledge [in each interaction.] If it's structured, it has to be great!"
–VP of Service and Support, Internet Infrastructure Software Company

In addition to explicit knowledge captured in the knowledge base, analysts can benefit from the tacit knowledge locked away in the heads of other analysts throughout the organization. While informal, ad-hoc collaboration naturally happens at most support centers through phone calls, instant messages, and queues-at-the-cubes, the process has historically been unmanaged and inefficient. Analysts go to the same experts again and again with the same questions. Analysts ask people they know, whether or not they're the most appropriate resource. Experts are interrupted while they're trying to work. And answers aren't captured, so the next time the question comes up the cycle starts over again.

Support leaders are replacing ad-hoc collaboration with a managed and structured process, enabled by technology that provides expert location capabilities and captures answers for re-use. In most cases, the collaboration process is a complement to, not a replacement for, escalation. But, it makes the support center far more flexible to swarm and quickly close incidents at first contact.

Let DB Kay & Associates Help You Get Started

"Having the knowledge is a good thing, but figuring out how to make it effective for customers is a big thing."
–VP of Customer Support, Enterprise Systems Company

The new imperatives are delivering substantial benefits to the support leaders we interviewed who adopted them. Depending on the current state of your support organization, they may seem like too much to take on. However, there are a number of simple, incremental steps that can help identify the low-hanging fruit.

DB Kay & Associates (www.dbkay.com) is a consultancy that helps high-technology customer support organizations plan, measure, and execute technology initiatives to deliver dramatic business results.

David Kay, principal of DB Kay & Associates, has been a leader in applying technology to knowledge-intensive business processes like customer support since 1984. He has developed business processes and applied software for knowledge workers in customer support and beyond. Kay has pending patents covering the use of next-generation technology in customer support, is a Help Desk Institute Certified Trainer for Knowledge-Centered Support[SM], and has been recognized as a Customer Service Innovator by the Consortium for Service Innovation.

DB Kay & Associates has a cost-effective service package to kick-start the new imperatives. In brief:

Imperative	Goal	Task
Solution Support	Define the "whole product" your customers are buying and the value proposition support offerings play in it	• Perform gap analysis • Develop a plan to fill gaps
	Re-examine the way your organization measures customer satisfaction	• Define satisfaction metrics that predict loyalty and revenue
Proactive Support	Identify indicators of high-volume incident classes	• Estimate how often you can find once - fix many • Identify most important facts to collect and store
	Validate value and acceptablility to customers	• Survey customers about privacy concerns • Survey customers on perceived value
Improving Products and Knowledge	Define current and optimal feedback mechanisms	• Document current formal and informal feedback channels • Survey development team about desired feedback and required evidence
	Assess ROI of product improvements	• Sample incidents to determine percentage that could be avoided or shortened by suggested improvements • Determine possible cost of implementing improvements and return from avoiding / shortening incidents
	Benchmark current knowledge capture methodology	• Document current methodology • Assess key metrics (time to publish, staffing) • Compare metrics and methodology with industry best practices; identify opportunities
Just-in-Time Knowledge Transfer	Document and assess current collaboration practices	• Discuss and observe collaboration in the call center, documenting channels, frequency, redundancy • Document current technology for collaboration • Identify value and opportunities for improvement
	Assess use of knowledge base	• Determine use: how frequently, by how many analysts, how often are problems solved • Assess role of knowledge base in training process • Identify current barriers to use

Table 4: The DB Kay & Associates "New Imperatives Kick Start Package"

Another approach is to focus on knowledge management methodologies. A good first move is to send one or two support managers to the Help Desk Institute's training in Knowledge Centered Support, available from DB Kay & Associates and other HDI partners listed on www.thinkhdi.com.

For more information on the New Imperatives Kick Start Package, training, or other DB Kay & Associates offerings, please contact us at 408.568.3551 or email imperatives@dbkay.com.

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