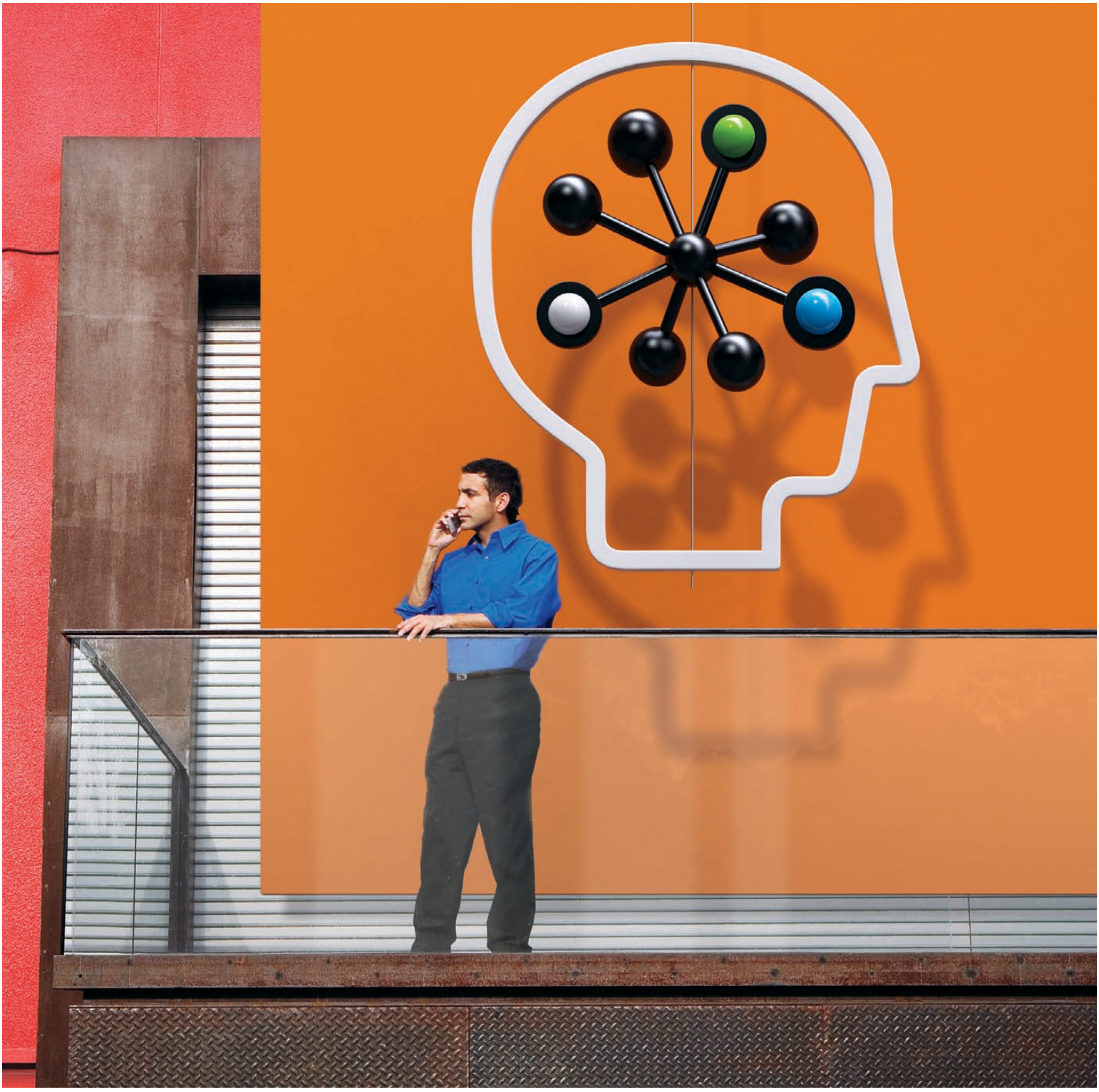
Road map to a Center of Excellence

A technical white paper



Executive summary

You have probably been reading and hearing a lot lately about the Center of Excellence (CoE) model. Chances are, your business could benefit by implementing a CoE to optimize application quality and performance. A CoE provides a central source of standardized products, expertise, and best practices for testing, deploying, and fine-tuning new applications. It can also provide the entire organization with visibility into quality and performance parameters of the delivered application. This helps to keep everyone informed and applications aligned with business objectives.

Once you've decided that a CoE could benefit your organization, what's next? Where is the most effective starting point for your business? How do you build your quality management processes, architecture, and governance policies to grow along with your organization? What additional benefits and challenges can you expect as your CoE evolves? And what are the people, process, and product considerations at each phase?

This paper answers those questions, providing a stage-by-stage analysis of the roles, processes, and deliverables of an evolving CoE—along with specific products and services to implement at each phase. For each of the four key stages of the CoE evolution, this paper offers practical advice and recommendations to help smooth the road toward a fully functional, well-managed, cost-efficient, and highly regarded CoE.

As the industry leader in business technology optimization (BTO) products and services, HP is uniquely positioned to help companies that wish to make the move to the CoE model. In addition to this paper, you can find useful information about implementing quality, performance, security, and service oriented architecture (SOA) centers of excellence using HP products and services at **hp.com/go/software**.

CoE momentum

Organizations of all shapes and sizes are embracing the CoE model as an effective way to improve IT operations. Among the advantages of the CoE model for application and service delivery:

- **Reduced cost:** CoEs help reduce costs by consolidating software licenses, testing, and training—lowering the risk of production downtime and achieving the same or greater levels of testing and service development with fewer resources.
- **Increased efficiency:** Centralizing your technology and expertise allows you to optimize your staff and operational efficiency across projects by implementing consistent, repeatable processes and enabling the sharing of products, staff, resources, and best practices across geographically distributed teams.
- **Reduced risk:** CoE models help reduce risk by providing cross-project visibility to quality metrics and services re-use, by continuously monitoring the status of testing and service development, and by verifying that release decisions are based on quantifiable business risk.
- **Improvements:** Best practices in testing processes, SOA architecture and governance policies, organizational structure, and artifacts can be collected from across the organization. These practices can then be standardized, improved, and re-distributed to the entire organization—shortening the learning curve for new testing and SOA projects. It also reduces production risk by improving the consistency, quality, and reliability of all applications and services.
- **Alignment:** The CoE model can help organizations synchronize business goals with IT priorities, resulting in better end-user services. Standardized processes improve communication and productivity. The CoE model helps organizations adopt a risk-based

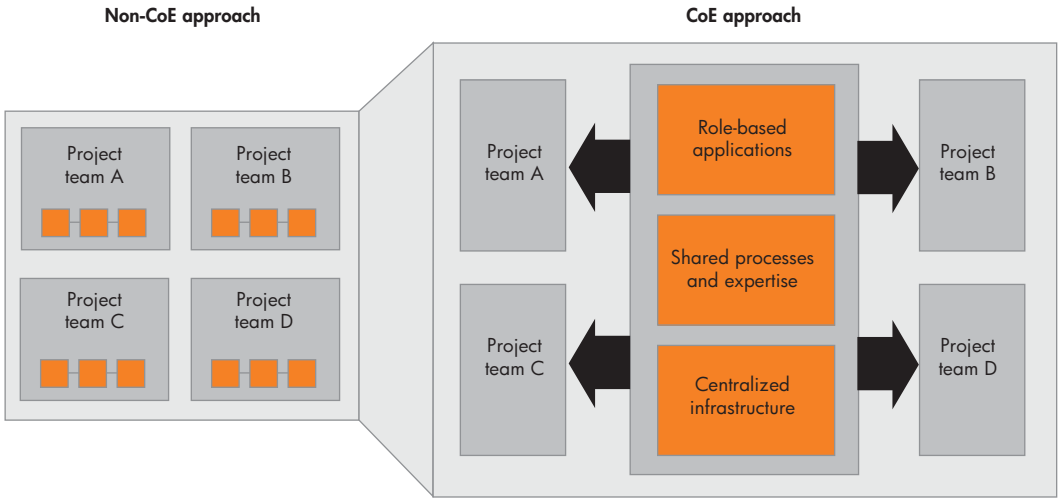


Figure 1. A CoE is an organization focused on optimizing application characteristics such as quality, performance, or availability. It provides a management and automation platform for processes, consulting, and support services, as well as leadership and advocacy to help the organization optimize these attributes.

approach to managing the application and service lifecycles, and connecting quality and SOA with strategic and operational processes and systems.

- **Practicality:** Building a CoE is an achievable goal. You can start on a small scale by leveraging existing resources and expanding its capabilities as the value is proven. Companies frequently find the CoE model to be self-funding.
- **Career advancement:** The CoE model creates a compelling new career opportunity for IT professionals. This enables the most skilled resources to be directed to areas where they provide the greatest value, which in turn helps the organization recruit and retain top talent.
- **Outsourcing/offshoring:** A CoE can help verify that application quality, performance, security, and SOA teams meet the same development standards—for both in-house and outsourced applications.

The key question for many chief information officers (CIOs) today is not whether the CoE approach would benefit the organization, but rather how best to make the transition to the CoE model. The next section outlines the four key stages and the potential benefits of each. Subsequent sections examine each stage in more detail.

A CoE can be a logical or physical "service bureau" that provides expertise across projects in a "shared services model." The function of the CoE is to drive standardization of quality products, architecture and governance policies, and processes across the enterprise. The main goal of the CoE is to focus on process and efficiency—leveraging a centralized management and automation platform for processes, consulting, and support services, as well as delivering leadership and advocacy to help the organization improve business outcomes.

CoE evolution: an overview

One of the key advantages of the CoE is that it can initially be built on a small scale, with minimal incremental expenditure. As its value is delivered to management, the IT staff, and individual project teams, you can iteratively evolve and scale up its resources, services, and capabilities. The CoE model can also be a critical asset for distributed organizations, providing centralized processes, infrastructure, and reporting.

It is important to note that the value of the CoE is not limited to the IT department. Expertise, tools, and best practices, which are relevant to application quality, performance, security, and availability, in addition to architecture and governance processes, are spread throughout the company: research and development (R&D), lines of business (LOBs), IT operations, applications management, project managers, capacity planners, etc. This is, in effect, an ecosystem of interdependent contributors who all have a stake in the success of a particular application. And the ecosystem can extend beyond your own company. Additional expertise with specific tools and technologies are all available through partners, suppliers, vendors, and even customer organizations.

HP's approach to centers of excellence is designed to help our customers:

- Facilitate consistent improvement in release delivery by:
  - Supporting manual and automated quality, performance, security, and SOA testing
  - Leveraging out-of-the-box best practices based on the HP Maturity Model

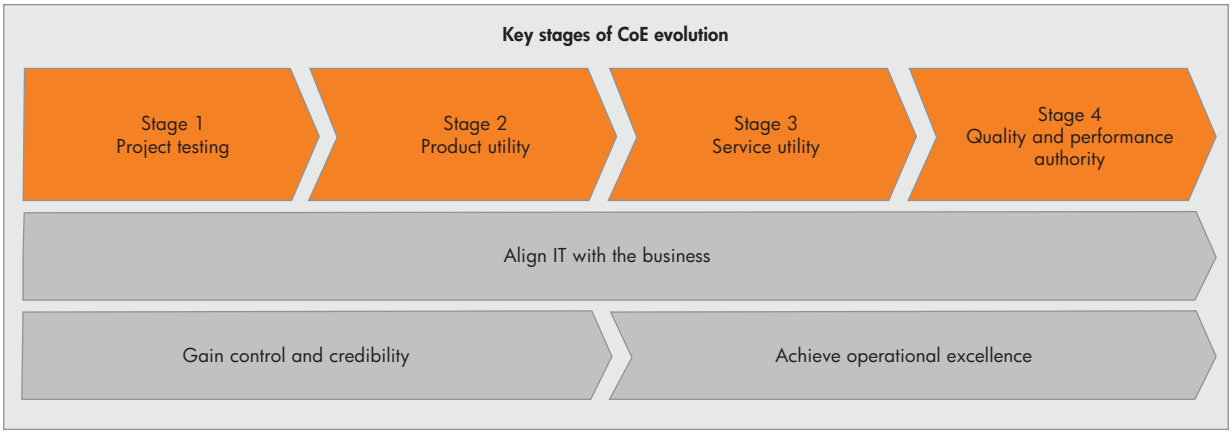


Figure 2. The CoE evolution features an organic evolution from addressing project issues to enterprise optimization.

  - Implementing robust and repeatable processes for globally distributed teams and projects
  - Verifying that SOA stays aligned with enterprise architecture objectives

- Measure success and compare across projects by:
  - Making changes and measuring improvements
  - Reducing the number of overruns, slippages, and failed or canceled projects
  - Enabling "go/no-go" decision based on quantifiable business risk
  - Verifying that service consumers will trust services to support re-use

- Improve efficiency, development, and re-use by:
  - Leveraging and re-using staff, products, resources, and processes
  - Broadening the impact of shared services
  - Promoting global collaboration across the entire application and service lifecycle
  - Providing cross-project visibility to verify that services can be effectively re-used

Key stages

HP, by working with literally thousands of customers, has found that a CoE typically goes through a four-stage evolution, as shown in Figure 2. No two organizations have the same requirements, resources, or starting point for building a CoE; likewise, no two companies take identical paths of evolution. However, the flexibility of the CoE model enables companies to achieve tangible results almost immediately, and to reap even greater rewards as they migrate to the next stage in a way that is most convenient and effective for their specific situation. The CoE evolution features a fundamental process, which goes from addressing project issues to enterprise optimization.

Many companies still conduct little to no application testing before an application is moved to production. They often don't have adequate architectural governance processes in place. Although not shown as a stage in Figure 2, HP calls this "Stage 0." Sooner or later, companies that have not yet implemented any form of testing begin to experience firsthand the inherent risks associated with insufficient testing and lack of architectural governance through having to roll back applications that were moved into production.

Applications that aren't sufficiently tested may cause problems through poor performance, security breaches in production, low end-user productivity, or, in the case of customer-facing applications, direct negative impact on company profitability and public perception. Eventually, project teams in different departments or LOBs are forced to improve the quality, performance, security, and compliance of the delivered applications and services and begin formally testing.

Stage 1 of the CoE model, the "Initialization" phase, is the first step toward formalizing processes—formally testing applications before they move into production, and implementing some governance processes. This stage, often undertaken at the departmental or LOB level, helps improve application quality, performance, and security. It implements some level of governance while also reducing the total costs for specific projects. The cost of correcting application and service faults found in production has been well-documented to be many times the cost of fixing them earlier in the cycle. The savings in moving to this stage can be easily projected and estimated. It can also help organizations begin documenting the costs of specific quality, performance, or security problems, or the costs of insufficient governance, so that the benefits of the solution can be quantified.

In the *"Initialization"* phase, though, project teams in different departments or LOBs find themselves constantly reinventing the wheel—wasting time, money, and IT talent—and generating an ever-growing assortment of incompatible tools and inconsistent practices. The move to the next stage is really the first step toward implementing centralized and standardized testing capabilities. This *"Product Utility"* model—where a centralized product is available as a shared service and governance guidelines are defined and integrated into processes—is shown as Stage 2. Leveraging this model, LOBs can increase the return on investment (ROI) of the technology infrastructure by consolidating hardware, software, and training costs.

The next step in the evolution, Stage 3, is called the *"Service Utility"* model, in which the CoE becomes a central source of services and expertise to improve quality, performance, and security. Stage 3 may also include automated compliance checking of established policies, proactive monitoring of business services linked to component services, business strategy driving progression of service development, and re-use and proactive monitoring of business services linked to component services. Typically, testing projects and SOA implementations are limited in the knowledge and use of industry best practices and processes. Even if they're experts in this area, maintaining expertise at an LOB level is simply inefficient. With the CoE model, a broad range of project groups have access to the experience, best practices, and integrated toolsets used by the experts.

The last step, Stage 4, is the transformation to a *"Center of Excellence"* in which the CoE becomes a routine part of application and services development, deployment, and operation. This contributes to an organizational culture focused on operational excellence. Under the Center of Excellence model, no application or service makes it to production without going through consistent quality, performance, security, or governance processes and meeting agreed-upon quality and compliance standards. Governance processes cross organizational boundaries; organizations implement automated service lifecycle coordination; and the management of business services is incorporated into the business operations lifecycle and integrated between applications and operations. Once established, Centers of Excellence can even compete against third-party outsourcers since they have the expertise and track record that is unmatched by outside vendors. The Centers of Excellence can also control delivery by the third-party outsourcers in terms of quality, performance, security, and compliance before it reaches the organization.

People, process, and product considerations

Whatever path your company has taken toward implementing the CoE model, it is imperative to evaluate people, process, and product considerations before taking the next step.

- **People:** The CoE should collect and package any expertise and best practices relevant to the services it provides both internally and externally. In some cases, you may need to upgrade existing knowledge or even bring in totally new skill sets. Because of this, it will be critical to facilitate smooth, efficient knowledge transfer between employees and among cross-LOB project teams. Furthermore, utilizing outside experts for organizational design, training, and mentoring may be required. For example, advanced services such as J2EE optimization or standards creation are specific skills that are frequently not available within an IT organization.
- **Process:** When you apply industry best practices, you can create world-class processes. Providing consistent processes, built from a high level of expertise within your projects, will result in more consistency, quality, and reliability of applications and services while reducing both cost and production risk. At the same time, you need to maintain the flexibility to adapt your approach and your capabilities to different project frameworks and organizational cultures.
- **Product:** Robust infrastructure and automation platforms and automated service lifecycle coordination are essential to success of the CoE. One of the primary goals will be to reduce piecemeal tools and incompatible platforms among various project teams. By standardizing on industry-leading, state-of-the-art testing products, your company can accelerate time-to-market and realize significant savings at the same time. Standardized CoE products can also help your organization maintain superior efficiency of delivered services; automate processes to facilitate consistency and repeatability; and gain control and visibility into CoE activities.

Making your move: roles, processes, and deliverables

The discussion so far has centered on CoE basics: how a CoE works, benefits it can deliver, and considerations for building a CoE strategy. This section provides a more detailed look at the four stages of CoE evolution and the incremental benefits of moving from one stage to the next.

Moving from Stage 0 to Stage 1

Your company is at Stage 0 if it has not yet implemented any formalized testing processes or architectural governance processes. You are not alone if you find yourself at Stage 0. Many organizations, large enough to have an IT department, still have not begun significant formalized testing and governance of even the most critical applications and services.

You begin the transition to Stage 1 by choosing to implement formalized testing and governance processes. Many corporations have made this choice, and there are many resources to assist you. Companies often prefer to start with applications or services that are important to the business; not the most critical applications or services. This approach enables the organization to gain some experience before addressing mission-critical applications or services. You may also consider starting with critical applications or services that apparently did not go through any testing or compliance checking beforehand—where any testing or governance will be an improvement.

The second step is to identify the team that will be responsible for implementing the testing and governance processes.
Typically, for testing, this will be a standard quality assurance (QA) team, led by a QA manager/director who reports to the applications team or a QA organization. For architecture and governance, it will typically be the Enterprise Architects. Alternatively, you may wish to establish a team that will implement processes for specific projects or use one of the project testing or architecture teams.

The Initialization stage usually involves managing the testing process and automating some aspects of application testing—or implementing some level of governance—but with individual responsibility for compliance. Automation is the key to improving the speed, accuracy, and flexibility of the testing process, and can give companies the ability to find and fix more defects earlier. Some companies may need to hire or bring in an automation expert at this stage.

From a product perspective, the move to Stage 1 involves selecting and deploying testing or SOA governance applications.
For example, some organizations begin initial implementation with defect management because it is very easy to quantify the value from the first projects. Additionally, test automation typically delivers an ROI for any application that has a significant lifecycle—that is, any important application. These steps require the deployment of a product such as HP Quality Center software for defect tracking and management of other aspects of the testing process, and HP QuickTest Professional software, which provides functional and regression test automation for practically every software application and environment.

You're ready to transition to Stage 1 if you have…

- Applications with poor quality, notably sluggish performance, or security risks
- Applications that are consistently late to market and over budget
- Testing resources that are not being used efficiently
- No architectural governance processes

Benefits to expect

- Increases in the quality, performance, security, and availability of business systems
- Reductions in high-impact outages
- Reduced time to bring an application to production, increasing your ability to comply with regulatory agencies/requirements
- Protection of current revenues by reducing risks and impact on current operations

New roles

- Test automation expert
- New skill sets might be required of the existing development team. Typically, a QA team is created to implement defect tracking, test management processes, requirements management processes, functional and regression test automation, and performance validation processes.
- Web application security testing engineer
- Enterprise Architect

New processes

- Requirements management
- Test management
- Test automation
- Defect tracking
- Security quality testing
- SOA Architecture and governance
- Operations manages applications and infrastructure in terms of service level agreements (SLAs)

Deliverables

- Test plans
- Structured testing processes in selected projects
- Test automation infrastructure
- Performance and quality baselines for projects
- Project teams skilled in quality, security, and performance management
- Governance policies and compliance checking
- Case studies of successful IT projects in terms of delivered quality
- Web application security infrastructure, test plans, and monitoring capabilities

Products

- HP Quality Center Enterprise software
- HP QuickTest Professional software
- HP Performance Center software
- HP LoadRunner software
- HP QAInspect software
- HP SOA Systinet software

Services

- HP QuickStart offerings
- HP Quality Center/QuickTest Professional Deployment and Site Upgrade Services
- Tool Enablement and Functional Testing Consulting
- Quality Management Software and Process Consulting
- Test Strategy and Best Practices Consulting
- Quality Management Assessments and Quality Planning Services
- HP Software-as-a-Service

Challenges

- The move from Stage 0 to Stage 1 involves cultural change as well as new skill sets. Project team members must understand and accept the need to change old habits, try new tools and techniques, measure and report results more rigorously and consistently, and work together across the full development lifecycle. Project plans should account for the new processes and associated activities.

Practical advice

- Start with processes that are high impact, such as defect management; use your success to prove the value of the model and secure support for additional projects.
- Focus initially on the projects with high visibility where fear of failure is high.
- Position the move to Stage 1 as an incremental change—a natural evolution—rather than a broad organizational change.
- Internal selling is essential. You will need to have executive support. You will need to communicate and prove the value of testing and governance throughout your organization.

"With HP, we've substantially improved our application time-to-market and have had similar results in reducing the number of bugs or problems that we have with our applications after deployment."
John Novak, CIO, La Quinta

La Quinta is a major hospitality chain in the United States. It wanted to move from a "high touch" to a "high technology" organization and invest in new technologies to support growth, such as enhancing the LQ.com proprietary customer booking Web site to enable online booking, launching PeopleSoft to support its key business processes, and providing guest satisfaction and bottom line results through guaranteed system uptime. To accomplish this, La Quinta implemented HP Quality Center, HP Functional Testing, and HP LoadRunner to help reduce development time by approximately 30 percent; improve testing efficiency by more than 60 percent; lower defect rate by 90 percent; and achieve several million in net IT and business value over a five-year period.

Moving from Stage 1 to Stage 2

After your organization has experienced success implementing structured testing and governance processes and test automation, there will be a natural inclination to replicate those successes on additional projects. Other development teams will begin to test their applications and build new services; it is likely that they will go through the same processes of choosing their architecture and applications, learning new processes, and creating new approaches to improving application quality and governance. They will likely run into many of the same problems and learn "the hard way" how to solve them.

A more effective approach is to create a CoE and make a core set of standardized tools available to all developers, architects, and testing teams. At this stage and subsequent stages, the technology/platform is physically centralized, but access is decentralized to serve team members who are not physically in the same location (such as distributed development or outsourcing environments). The inefficiencies of the piecemeal approach to product procurement, operation, and usage will become more obvious, and the benefits of a Product Utility will become more apparent.

In the Product Utility model, testing applications and governance systems are centrally installed and centrally managed to provide 24x7 availability for all development teams. Individual development, architecture, and testing groups have access to these tools as a service provided by the Product Utility. The products are available as reliably as electricity is, hence the term "Product Utility."

This stage is the first time that you've actually centralized resources, and it is at this point that you will need to create a centralized CoE team. This team is led by the manager of the CoE, who is responsible for the overall success of the CoE. This individual ideally should have at least two years experience with the company's IT organization, as well as a general business background. In addition, the CoE will need a product administrator, who will be responsible for technical functions such as applying patches, adding new users and privileges, backing up databases, etc.

The CoE may also require an infrastructure administrator to keep key hardware and software elements up and running, and a customer support representative to address specific problems. These two employees may be part of a Shared Services organization to help keep costs low, or they may be hired directly into the CoE organization if there is sufficient need.

You're ready to transition to Stage 2 when…

- You've achieved successful results with several projects in Stage 1, Initializing.
- You've demonstrated tangible benefits to management and received its support.
- There are piecemeal tools and resources used by individual project teams.
- There is fragmented responsibility for quality management, performance optimization, application security, or governance processes.

Benefits to expect

- More efficient use of a smaller set of tools
- Reduced IT cost through reduction of multiple/redundant products and infrastructure
- Reduced IT costs through reduction of duplicate hardware environments

- Higher ROI from the tools on which your organization standardizes
- Faster time-to-market due to less time spent learning numerous products
- Governance guidelines defined and integrated into processes
- SOA becomes federated (but not yet integrated)

New roles

- CoE manager
- Product administrator
- Infrastructure administrator
- Customer support representative

Processes

- Center management: charge-back, project communication, demand management
- Administration: product and infrastructure
- Operations manages business services

Deliverables

- 24x7 enterprise-wide availability of the testing applications and governance applications
- Product support
- Centralized resource scheduling and license management
- Product Utility service-level reporting
- Basic cross-project quality, security and performance reporting, and cross-project visibility to verify that services can be effectively re-used
- Product Utility marketing within the organization

Products

- HP Performance Center software
- HP Quality Center Enterprise software
- HP Business Process Testing software
- HP QuickTest Professional software
- HP Product and Portfolio Management software
- HP DevInspect software
- HP QAInspect software

Services

- HP QuickStart offerings
- HP Quality Center, HP QuickTest Professional Deployment, and Site Upgrade Services
- Tool Enablement and Functional Testing Consulting
- Quality Management Software and Process Consulting
- Test Strategy and Best Practices Consulting
- Quality Management Assessments and Quality Planning Services
- HP Software-as-a-Service
- HP Performance Center Implementation Service
  - Strategy and planning
  - Product implementation
  - Center administration
  - Product Utility organizational design
  - Product operational training and mentoring
  - Demand Management implementation
- Functional Test Automation Implementation

Challenges

- This is the first time the organization actually centralizes anything, so this is the point at which individual teams are first asked to give up some measure of control and use a central service, which can be a difficult organizational change.
- In some cases, additional training or mentoring may be required for certain individuals.

Practical advice

- You can help alleviate any resentment that may occur by emphasizing the personal and professional benefits of adopting the new tools and the CoE model. For example, point out that standardizing on one toolset makes it possible to collect and use specific metrics in a consistent way, making it easier for QA professionals and Enterprise Architects not only to do their jobs better but also to share information and results with other project teams. Also point out the frustrations of traditional non-procedural development, governance, and testing processes—the inability to reconstruct what other team members have done when they're absent or leave the company; the inability to achieve compliance; the delays caused by inconsistent use of tools or incompatible products; and so on. In addition, emphasize that mastering industry-standard tools and procedures will help advance their skill base and their potential for career advancement.
- Assign a champion to drive the transition to Stage 2 proactively (essentially this should be a CoE manager). Since this is the first actual centralization effort, this transition will require a higher level of executive buy-in and management support. Don't be shy about showing off successes and accomplishments.
- Educate your organization, evangelize IT management, and create workshops for the decision makers.
- Don't dictate that the chosen testing and governance applications are required to be used on every project. Offer services that provide value to the individual project teams so they choose to utilize the central service. For example, for the initial projects, provide them access to the testing and governance applications for no charge, or offer to help conduct performance or security testing during non-production hours. Alternatively, verify that the central group makes the testing or governance application always available, applies software patches, backs up test assets, etc.

"The role of software testing is business critical within our organization. As a bank, we must have stable, reliable software. It must meet our business requirements at an enterprise level. And reliable software also helps us earn the continued trust of our users."
Henri Mulder, Team Lead Performance Competence Center, Rabobank

Rabobank Group, a leading bank in the Netherlands, supports the needs of 188 affiliates leveraging sophisticated software testing and diagnostics capabilities. The company's cooperative-based organizational structure means that it's business critical to support a variety of regional IT environments—while building trust around adoption of a more centralized enterprise model. To do this, Rabobank leverages HP Performance Center software to verify that its central IT-developed applications are stable and fully meet the cooperative's business needs. The IT benefits realized include improved ability to verify that software meets specifications, re-using scripts to save script development time, leveraging click-and-script capabilities to shorten SAP test script development from as much as four hours to less than 60 minutes, and utilizing diagnostics and reporting to increase the value of QA to the rest of the IT department. The business benefits included implementing applications that better support the bank's business needs, saving money by leveraging automated, repeatable scripts that would otherwise require hundreds of employees to perform manually and sizing the hardware to better fit its needs.

Moving from Stage 2 to Stage 3

After you've successfully implemented the Product Utility model and centralized quality, security, and performance testing applications and governance systems, you'll likely want to do the same thing with expertise and certain testing activities. HP refers to this stage as the Service Utility, where in addition to the availability of the testing and governance applications, value-added services are delivered by the central group.

The Service Utility provides centralized personnel who can offer QA teams and Enterprise Architects expertise and advice on how best to take advantage of the standardized products or processes. The Service Utility can help projects improve quality, security, performance, and governance by collecting best practices and distributing them throughout the organization; training and mentoring project teams; providing testing and governance services across multiple LOBs; helping build governance processes and testing processes such as defect tracking, test planning, and results analysis; providing a dashboard with visibility into project status, service re-use and more. Service Utility expertise can also be outsourced as its experience and expertise matures.

Since the centralized organizational infrastructure for a CoE was created in Stage 2, the transition to Stage 3, the Service Utility, involves the addition of a few new roles, such as performance experts, Web application security experts, test automation experts, test engineers, technical architects, enterprise architects, and data engineers—the people who have best-practice expertise and advanced technical knowledge. These people play a vital role in advising, training, and mentoring individual project teams across departments and LOBs, and they facilitate consistency in the application of best practices across the application and service lifecycle.

The Service Utility can also provide hands-on assistance with the toughest projects or the projects that are in distress. They offer a level of expertise that no individual project teams can match, and have the experience to immediately troubleshoot and remedy issues that are creating delays or budget overruns.

You're ready to transition to Stage 3 when…

- The benefits of the Product Utility have been proven to management.
- There is inconsistent application of practices across application or service lifecycle stages.
- QA teams and Enterprise Architects have experienced the benefits of centralizing product resources and are ready to extend the model to best practices.
- There is a lack of skilled resources in the project teams.

Benefits to expect

- Quality, security, and performance benefits are extended to more and more applications across the organization.
- Automated compliance checking for established best practices
- Business strategy drives progression of service development and re-use.
- Reliable, high-quality, inexpensive testing services drive higher quality, security and performance.
- Unexpected departures of highly skilled individuals no longer cripple key projects.
- The CoE becomes more highly regarded internally, creating an upward spiral in its value and effectiveness for the organization.
- Project costs continue to decline while time-to-market continues to improve.

New roles

- Project manager
- Service coordinator
- Technical architect
- Performance engineers
- Web application security engineers
- Enterprise Architects
- Test engineer
- Test environment manager
- Data engineer

Processes

- Center management: enhanced demand management and resource management
- Test project management
- Requirements management
- Risk-based quality management
- Test management
- Defect management
- Functional test planning, development, and execution
- Functional test automation
- Performance validation
- Performance optimization
- Web application security validation
- Ongoing monitoring of Web application security in production
- Automated compliance checking for established policies
- Proactive monitoring of business services linked to component services

Deliverables

- Structured automated testing processes
- Performance validation and optimization
- Web application security validation and optimization
- Training and mentoring
- Knowledge management
- Advanced cross-project quality, security, and performance reporting
- Advanced cross-project reporting to verify that services are effectively re-used
- Service-level reporting
- Service marketing

Products

- Any required product options (HP Monitoring and Diagnostics for J2EE, HP Deep Diagnostics, or additional protocols, for example)
- HP Quality Center Premier software
- HP Performance Center software
- HP Assessment Management Platform software
- HP Center Management for Quality Center software
- HP Center Management for Performance Center software
- HP SOA Systinet software

Services

- Service Utility organizational design
- Knowledge management
- Pilot projects
- Extended quality, security, and performance processes
- Project management
- Internal marketing processes
- Quality Management Software and Process Consulting
- Test Strategy and Best Practices Consulting
- Quality Management Assessments and Quality Planning Services
- HP Software-as-a-Service

Challenges

- The transition to the Service Utility may require some individuals to discontinue techniques and practices they're familiar and comfortable with, possibly leading to resentment.
- As your organization becomes more standardized and centralized, costs are shifted to the central group (such as recruiting and hiring people to fill the new roles). While the overall costs of project delivery are reduced, this can be difficult for senior management to accept unless they clearly understand the charter and the benefits of the CoE.
- In some cases, the very success of the CoE can create a challenge: As the CoE gains a reputation as the destination for the best and brightest engineers within the company, others can begin to feel like second-class citizens.
- Competition is fueled with third parties already providing services to the organization.

Practical advice

- As the reputation of the CoE grows, it becomes easier to convince executives that the investment is paying off. Make sure the successes of the Product Utility phase are strongly communicated among QA engineers and Enterprise Architects throughout the company.

"Friends Provident's Testing Best Practice Team utilizes components of HP Quality Center software and HP Performance Center suite to replace a myriad of PC-based project systems. The new corporate system provides a customized platform for application development lifecycle standards that has enabled the execution of more than eight million automated checkpoints."
Craig Gibbons, Senior Consultant, Testing Best Practice, Friends Provident

Friends Provident is a leading UK financial services group and a member of the FTSE100 Index. Its objective was to reduce the cost and improve the effectiveness of software testing in its global organization. Friends Provident implemented HP Quality Center software and HP Performance Center suite to deliver a robust and auditable testing platform, to support its global CoE Testing team. The IT improvements included identifying and resolving issues earlier in the testing cycle, predicting user behavior to verify that IT met the criteria defined in service contracts and reduced test administration through test automation. The resulting business benefits included better collaboration across global teams using a single platform to reduce test administration and compress cycle times, exceptional service levels as a result of extensive automated functional testing, and reduced cost of auditing due to standardized systems.

- At the same time, make sure all QA teams and Enterprise Architect teams throughout the company understand that the CoE is there to help them, not replace them. Offer advanced classes on testing techniques to increase the skills of QA and Enterprise Architect teams.
- Achieve successes with a few projects prior to organizational rollout.
- Create a best practice repository and continually update it. Proactively distribute best practices to development, QA, and Enterprise Architect teams.
- Create standardized templates for project initiation, test requirements, test plans, governance processes, etc.
- Continue to evangelize the successes of the CoE. Make sure the CoE manager is visible to the application development, architecture, and governance leadership.

Moving from Stage 3 to Stage 4

The move from the Service Utility to the Center of Excellence (CoE) is essentially a means of institutionalizing the tools, techniques, and practices of the CoE. This is now simply the way applications and services are architected, governed, developed, tested, and delivered, enterprise-wide. Once standards are created, the CoE begins to focus on additional processes. For example, the CoE team may influence the development methodology to address quality and governance issues earlier in the development cycle.

Once you've made the transition to Stage 4, you have enough metrics, enough consistency, and enough of a track record to greatly simplify the process of justifying the existence of the CoE—anecdotally as well as financially. You have implemented standardized services and metrics based on best practices; you have achieved real-time visibility and end-to-end traceability; you have true knowledge and expertise sharing; you have centralized management and authority. And you have successfully extended the ROI benefits of Stages 2 and 3 to the enterprise.

From a personnel standpoint, the CoE model adds a Standards and Methodology group, so you will need to identify and recruit experts in those roles. You may also need to hire a technical writer at this point, as well as a compliance officer who can specify what the process is for complying with the specified QA, governance, and development processes and audit the compliance.

You're ready to transition to Stage 4 when…

- The concept of centralized, standardized tools and practices has been proven to upper-level management by the success of the Product Utility and Service Utility stages.
- Your organization is facing difficult compliance issues or tight compliance deadlines, such as Sarbanes-Oxley or Payment Card Industry (PCI) compliance.
- You want to verify that all applications and services follow a standardized process and meet agreed-upon requirements before being promoted to production.

Benefits to expect

- Extension of the ROI benefits of Stages 2 and 3 to the entire enterprise
- Plentiful and precise metrics that help pinpoint quality, security, and performance issues
- An efficient, holistic organization that not only addresses quality, security, and performance problems but actually helps prevent problems before they arise

- A true testing community that shares ideas, advice, and knowledge
- A cost-effective, virtually self-funding organization

New roles

- Standards and Methodology groups
  - Manager
  - Process architect
  - Process specialist
  - Technical writer
  - Compliance auditor

Processes

- End-to-end quality, security, and performance engineering
- Standards enforcement
- Formalized process improvement
- Governance processes cross organizational boundaries: architecture, quality, and operations
- Automated lifecycle coordination
- Management of business services incorporated into business operations lifecycle of security and integration between applications and operations

Deliverables

- Organizational and performance standards
- Expert quality, security, and performance services
- Re-usable SOA services
- Advanced training and mentoring
- Organizational knowledge management
- Organizational performance reporting
- Organizational education

Products

- IT governance for cross-organizational process automation
- HP Quality Center Premier software
- HP Performance Center software
- HP Assessment Management Platform software
- HP Center Management for Quality Center software
- HP Center Management for Performance Center software
- HP SOA Systinet software

Services

- Tight integration of quality/security/performance/governance authority into organization
- Quality/security/performance/governance authority organization design
- Process management
- Standards and methodology management
- Process improvement process
- IT governance workflow

Challenges

- No individual project groups have authority to change testing processes.
- Pockets of untapped expertise exist within project groups.
- As in any environment that is rich in processes, you need to verify that processes are not over-engineered.

Practical advice

- While the goal is to standardize processes and practices to offer the lowest cost and the highest efficiency, you need to be "easy to do business with." This means flexibility to adopt your approach and your capabilities to the customer's project framework and even culture. This flexibility has well-defined limits at this stage. The power of the CoE should be its ability to help the organization manage the transition to the new standards.
- Make sure that you measure your achievements. This is important for controlling the value of the CoE and proving that value to the outside world.
- Provide your customers with high visibility into your progress, status, and findings.
- Maintain hands-on experience by providing expert services. It is easy to be perceived as "overhead process police" if you do not deliver actual assistance to the organization.
- Go beyond the boundaries of the testing and governance process to create awareness and a culture of excellence across organizational silos.

"SOA Governance is critical for Delta as we move toward SOA adoption. The implementation of an HP SOA Center of Excellence has accelerated our efforts and has provided an excellent foundation for our SOA Governance initiative and our SOA program overall."

Melanee Haywood, vice president, Engineering & Common Services, Delta Air Lines

Delta Air Lines is a major global airline that sought to develop new services, but lacked a SOA framework and methodology for its projects. Delta was experiencing Tuxedo point-to-point services migration backlog. It needed a reference architecture and governance to improve its service levels and address significant operational challenges. HP helped Delta design, implement, and deploy a SOA Center of Excellence. HP also provided a service factory approach to help Delta address its services backlog. The implementation, including SOA lifecycle methodology, reference architecture, governance, and quality assurance, was on a TIBCO ActiveMatrix and J2EE technology platform. The business benefits enabled Delta to improve its time-to-market by 50 percent; achieve services re-use of 50 percent; improve its service re-factoring by 20 to 40 percent; and accelerate its maturity and SOA deployment by one year.

How to choose an implementation path

Planning the implementation of your Center of Excellence isn't a small task. Because there is organizational change involved, there are many aspects that need to be considered. Fortunately, you can take an incremental approach to implementing your CoE.

Companies that are successful implementing a CoE always focus on specific problems that need to be solved. The CoE addresses those problems and, in so doing, provides value either through reduced cost or improved time-to-market that can be used to justify further investments in the CoE.

Typically the most difficult stage to implement is the first one; whichever one you may choose that to be. There are a number of issues that need to be addressed: finding a champion in the development, an Enterprise Architect and QA groups; communicating to management the long-term vision and value of the CoE; finding the appropriate funding model; overcoming organizational resistance to change; building new skill sets; and others.

To facilitate your success in the initial step toward a CoE, make sure you work with someone who has proven their ability to deliver a Center of Excellence. Depending on your specific situation, you may want help crafting a strategic plan that specifies how your CoE will evolve over time. Regardless of whether or not you use outside resources to create this plan, make sure that it is in place before addressing your first project.

Your first project may help you move from one stage to the next; you may even choose to skip a stage in the model described above. When choosing this initial project, we again recommend that you work with a trusted advisor who can help guide the specific project with the end vision in mind. In addition to fully testing the specific application that you choose, be sure to create the appropriate organizational structure and processes that will enable you to address additional applications. Make sure that your team becomes self sufficient in the usage of the testing applications—especially in the new processes that are created.

When first implementing a CoE, look for ways to reduce risks. Two risks that are easily overcome are those associated with knowledge transfer and the administration of the testing and governance applications. HP Software-as-a-Service can dramatically reduce these risks while at the same time reduce the total cost of ownership of the CoE platform.

HP Competency Centers™: building an efficient CoE

HP offers integrated software, services, and best practices to help companies make the move to the CoE model quickly, efficiently, and cost-effectively. HP Competency Centers can help design, implement, and manage application quality, security, performance, and SOA Centers of Excellence. HP Competency Centers enable IT functional teams to work in a centralized, automated fashion—saving time, cutting costs, and increasing the effectiveness of critical IT activities. In

addition, HP Software-as-a-Service can provide you with a pre-installed and managed Center platform, together with mentoring and coaching services to support your move to the CoE model.

HP helps our customers design, implement, and manage Centers of Excellence with our:

- Unique, CoE-specific products to support geographically distributed teams and projects
- Enterprise-scalable products, services, and best practices to design, implement, and manage Centers of Excellence
- Holistic approach to quality management and service lifecycle governance encompasses people, process, and technology
- Focus on automating the entire SOA governance process including lifecycle, policies, and service consumption relationships.

For more information on how to build a CoE, download our eBook, "How to Build a Center of Excellence": **www.hp.com/go/coe-ebook**.

Summary: the rewards of CoE evolution

The CoE model has already proven its value at hundreds of companies worldwide. The CoE is an efficient change agent, which drives optimization in an organization. Individual initiatives or per-project attempts to achieve better quality typically have a very limited organizational impact—and major roadblocks often occur when implementing them. Deploying and evolving a CoE enables organizations to improve application quality and performance in an organized way, at its own pace, while simultaneously cutting costs. It provides greater visibility into the application lifecycle and provides metrics for improving quality and performance in a rigorous, consistent, procedural way. And it appeals to both engineers and managers, offering a compelling new alternative for skill development and career advancement.

Technology for better business outcomes

To learn more, visit www.hp.com/go/software

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