

U.S. DEPARTMENT OF COMMERCE
Office of Inspector General



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PATENT AND TRADEMARK OFFICE

*Year 2000 Business Continuity and
Contingency Plan Is Comprehensive, but
Additional Risk Mitigation Is Needed*

Inspection Report No. OSE-11693-02 / December 1999

Office of Systems Evaluation



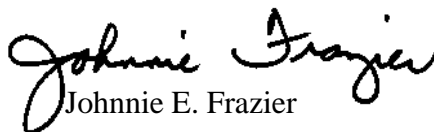


UNITED STATES DEPARTMENT OF COMMERCE
The Inspector General
Washington, D.C. 20230

December 22, 1999

MEMORANDUM FOR: Q. Todd Dickinson
Assistant Secretary of Commerce
and Commissioner of Patents and Trademarks

FROM:


Johnnie E. Frazier

SUBJECT: Final Inspection Report, *Year 2000 Business Continuity and Contingency Plan Is Comprehensive, but Additional Risk Mitigation Is Needed* (OSE-11693-02)

This is the second of two reports on the Office of Inspector General's review of the Patent and Trademark Office's Year 2000 (Y2K) readiness efforts. The first report, *PTO's Year 2000 Renovations and Test Program Are Effective but Agency Should Freeze Changes and Verify Inventory* (OSE-11693-01), September 1999, addressed PTO's renovation, replacement and testing of selected critical systems.

This report examines PTO's business continuity and contingency plan (BCCP). BCCPs are used by government agencies to reduce the risk of Y2K business failures. We found that in general, PTO has prepared a comprehensive Y2K BCCP. However, the plan needs several important additional elements to ensure continuity of operations and services if Y2K problems arise. The agency should establish and document minimum acceptable levels of outputs and services and should plan for the procurement of specific BCCP resources. Also, BCCP test plans need to be further developed, test teams established, and business process tests executed to validate contingency plans. In addition, PTO needs to develop risk mitigation procedures for high-risk periods and obtain a legal review of its BCCP.

In its response to our draft report, PTO concurred with all of our recommendations. The recommendations, a synopsis of PTO's response to each recommendation, and our discussion of PTO's response begin on page 7. The response in its entirety is included as Appendix A.

We appreciate the cooperation of PTO staff during the review.

BACKGROUND

Patent and trademark processing was identified by the National Performance Review as being a "high impact" federal program based on the public's reliance on these functions. Some of the computer systems PTO uses to process patent and trademark applications were originally

programmed using the last two digits of year dates (rather than all four digits). Two-digit year dates will cause inaccurate computations associated with Y2K because the computers cannot distinguish between the years 1900 and 2000. If systems are not Y2K compliant, services crucial to intellectual property protection could be jeopardized.

Even though agencies such as PTO have undertaken large-scale efforts to make their systems Y2K compliant, there remains a risk that one or more mission-critical systems will fail and severely affect the agency's ability to deliver critical services. Because of this risk, agencies must have BCCPs. The BCCP process focuses on reducing the risk of Y2K-induced failures. It safeguards an agency's ability to produce a minimum acceptable level of outputs and services in the event of failures of internal or external mission-critical information systems and services. It also links risk management and mitigation efforts to the agency's Y2K program and helps to identify alternative resources and processes needed to operate the agency's core business processes.

The General Accounting Office (GAO) published several guidelines to aid federal agencies in preparing for the year 2000 century change. According to GAO, a well-structured BCCP program includes the following four phases and supporting key processes:

- **Initiating a BCCP** - Establish a business project work group, and develop a high-level business continuity planning strategy. Develop a master schedule and milestones, and obtain executive support.
- **Analyzing Business Impacts** - Assess the potential impact of mission-critical system failures on the agency's core business processes. Define Y2K failure scenarios, and perform risk and impact analyses of each core business process. Assess infrastructure risk, and define the minimum acceptable levels of outputs for each core business process.
- **Contingency Planning** - Identify and document contingency plans and implementation modes. Define triggers for activating contingency plans, and establish a business resumption team for each core business process.
- **Testing** - Validate the agency's business continuity strategy. Develop and document contingency test plans. Prepare and execute tests. Update disaster recovery plans and procedures.

PTO developed an enterprise (agency) level BCCP that identifies broad areas of risk and general mitigation strategies and contingencies. The enterprise level BCCP is supported by detailed BCCPs. The detailed BCCPs were developed by representatives from PTO's five major business components: Policy, Patents, Trademarks, Information Dissemination, and Corporate Support.

PURPOSE AND SCOPE OF INSPECTION

The purpose of our review was to reduce the risk of business interruption due to the year 2000 century change by assessing actions taken by PTO and recommending practical risk mitigation and contingency planning activities. In our previous report, we examined a sample of PTO's mission-critical systems to determine the extent of PTO's renovation, replacement, and testing for Y2K preparedness. The focus of this report is the enterprise-level BCCP, the detailed Patents BCCP, and the detailed Trademarks BCCP. We evaluated PTO's initiation of a BCCP program and its business impact analyses, contingency planning, and business process testing.

The fieldwork supporting our prior report and this report was conducted at PTO between April and August 1999. Our exit conference with PTO officials was held on August 23. Issuance of this report was delayed by issuance of our first PTO Y2K report and other ongoing Y2K evaluations elsewhere in the Department.

The observations, conclusions, and recommendations in this report are based on PTO's draft enterprise-level BCCP, version 1.26, issued January 1999, and version 2.0, issued June 1999, along with supporting detailed BCCPs for both versions. System contingency plans were reviewed during our earlier evaluation of PTO systems for Y2K readiness.

PTO issued version 4.0 of its BCCP in October. We reviewed the revised BCCP to determine whether the changes made negated any of our recommendations. We found that some improvements had been made to the BCCP. For example, the detailed Patents plan now identifies the procurement instruments PTO will employ to acquire goods and services needed to activate its BCCP. However, the plan still does not identify sources or schedules for acquiring goods and services. Therefore, the conclusions reached after reviewing the first two versions of PTO's BCCP have not changed.

Our criteria were derived primarily from GAO's *Year 2000 Computing Crisis: Business Continuity and Contingency Planning*, August 1998, and *Y2K Computing Challenge: Day One Planning and Operations Guide*, October 1999. The GAO guidance has been accepted by the Office of Management and Budget, the Chief Information Officers Council, and the Department. Our methodology included evaluating PTO's BCCP documentation and interviewing staff within PTO's Office of the Chief Information Officer, Office of Patents, and Office of Trademarks.

Our work was performed in accordance with the Inspector General Act of 1978, as amended, and the *Quality Standards for Inspections*, March 1993, issued by the President's Council on Integrity and Efficiency.

OBSERVATIONS AND CONCLUSIONS

In general, PTO has prepared a comprehensive BCCP based primarily on alternative manual processes. However, the plan needs several important additional elements to ensure continuity of operations and services if Y2K problems arise. The agency should establish and document minimum acceptable levels of outputs and services for core business processes and should plan for the procurement of specific BCCP resources in the event of systems failures. Also, BCCP test plans need to be further developed, test teams established, and business process tests executed to validate contingency plans, and the plans should be revised, if necessary, based on the test results. In addition, PTO needs to develop risk mitigation procedures for high-risk periods and obtain a legal review.

I. PTO Prepared a Comprehensive Y2K BCCP

PTO's BCCP is composed of contingency plans from PTO's five core business areas: Policy, Patents, Trademarks, Information Dissemination, and Corporate Support. The plan is based primarily on alternative manual processes for PTO's core business areas. The descriptions of alternative procedures for "working around" any problems are presented in an easy-to-read format that should prove helpful to PTO staff with responsibility for implementing the BCCP. A consistent three-stage outline structure is used: first, risk mitigation; second, the business continuity approach; and third, the resumption stage. Moreover, the additional resources needed to implement the BCCP for each core business process are clearly identified.

PTO established an Executive Committee of senior level managers from all business areas to oversee the BCCP. The committee's involvement lends credibility to the BCCP effort by providing coordination across PTO's five core business areas and the Office of the Chief Information Officer. The committee prioritized the order in which PTO will address system failures based on business needs and established a business resumption team for each business area and a technical response team for each critical system.

II. Minimum Acceptable Levels of Outputs and Services Should Be Documented

PTO did not document minimum acceptable levels of outputs and services as part of its BCCP effort. For example, the contingency strategies for 18 of the 22 Y2K risks/threats that are identified in Patents' detailed BCCP use a combination of system fixes and "manual workarounds," but do not mention any service level standards for the contingency plans (for example, the number of hours or days for recovery).

BCCPs should include strategies for meeting minimum acceptable output and service level requirements for each core business process. Output and service levels should include recovery and processing times for contingency plans. Without documented minimum acceptable output

and service level requirements, business resumption team personnel may inadvertently exceed minimum recovery times or provide an unacceptable level of service. These deficiencies may affect the processing of other critical data and information inside and outside PTO, and it may make it difficult for PTO to make a decision to activate its BCCP.

Rather than following any specific guidance or methodology, PTO developed the BCCP based on knowledge of undefined “manual workarounds” by users in PTO’s five core business areas. However, the Department requested all bureaus to follow GAO’s guidance in preparing BCCPs, which requires agencies to define the minimum acceptable level of outputs and services in conducting business impact analyses.

III. Specific Sources and Milestone Dates for Acquisition of BCCP Resources Should Be Identified

PTO’s BCCP contains many references to acquiring goods and services later to support the implementation of the BCCP, such as a storage facility for patent applications and other documents that need to be retained during a Y2K disruption and additional staffing to photocopy incoming checks for patent application fees. However, specific sources and milestone dates for the procurement of these goods and services are not identified. In addition, potential Y2K failures may create a significant demand for vendor resources that might not be available unless PTO plans for the acquisition of these resources ahead of time.

IV. Test Plans Need to Be Further Developed, Test Teams Established, and Tests Executed to Validate Contingency Plans

PTO’s BCCP includes a test plan, but the plan lacks the following components: a testing schedule, establishment of test teams, rehearsals for the business resumption teams, and plans for test validation. The plan does not document that any tests have been conducted or are scheduled by either the Patents or the Trademarks business area.

The Executive Committee is responsible for triggering the BCCP, while the business resumption teams are responsible for managing the implementation of the BCCP. The test plan contains no references to joint rehearsals by the Executive Committee and the business resumption teams. Nor does it refer to establishing test teams or validating the test plan. Further, the plan does not discuss capturing “lessons learned” or updating the BCCP in the event that tested contingency plans do not meet minimum acceptable service levels.

The objective of testing is to evaluate whether contingencies provide the desired level of service to customers and can be implemented within a specified time. PTO needs to improve BCCP test plans to ensure that tests will accurately demonstrate alternative levels of support to PTO’s core

business processes. More detailed guidance is needed for documenting and executing BCCP testing procedures.

Because no test teams have been established to validate contingency plans, PTO cannot evaluate the BCCP's capability to meet minimum acceptable levels of outputs and services. Without defined procedures that identify specific test tasks, conditions, and standards, test teams may find it difficult to conduct effective, consistent BCCP tests. Without plans to rehearse the business resumption teams, it may be difficult to assure PTO managers that the teams are capable of implementing the BCCP.

Without plans to update the BCCP based on the validation of test results and lessons learned, PTO may not benefit from any improvements identified during testing. BCCP tests may reveal that errors and inaccuracies exist, which, unless corrected, might hinder BCCP implementation by business resumption teams during a potential Y2K crisis.

PTO believes that its Y2K systems remediation, replacement, and testing have sufficiently reduced its risk of Y2K-induced disruptions to core business processes. In our discussions with business core teams, representatives from Patents accepted the need for testing, whereas the Trademarks representatives were reluctant to do so. Trademarks was confident that its staff will know how to operate the Y2K BCCP alternative manual processes, although its detailed BCCP offers little explanation of "manual workarounds."

V. Risk Mitigation Procedures Need to Be Developed for High-Risk Periods

PTO as a whole has not sufficiently reduced its exposure to business risks during high-risk periods. All risks/threats in the PTO BCCP focus on only one date, January 1, 2000. PTO has not developed procedures for reducing risk to critical business processes for the days surrounding the century change. PTO's BCCP does not document plans and procedures for the period between Thursday, December 30, 1999, and Tuesday, January 4, 2000. Plans for this period are referred to as "zero day" or "Day One" plans.

We discussed the need for such plans during interviews with PTO personnel. The Patents and Trademarks BCCP teams indicated that they would identify business processes that could be executed early to reduce risks at critical periods (for example, Patents could provide data to the Government Printing Office for publication before December 31; Trademarks could similarly arrange for advanced scheduling of Trademark searches).

Agencies should develop a comprehensive set of actions to be executed during the last days of 1999 and the first days of 2000. These actions must be integrated with agency BCCPs and should describe the key activities and responsibilities of agency component organizations and staff. The objectives of a "zero day" plan are to (1) position an organization to readily identify

Y2K-induced problems, take needed corrective actions, and minimize adverse impact on agency operations and key business processes, and (2) provide information about an organization's Y2K condition to executive management, business partners, and the public.

The GAO guidance urges organizations to "consider the possibility that Year 2000 date problems may be encountered earlier than expected." Industry experts specializing in Y2K have estimated that only 8 to 10 percent of Y2K-related failures will occur at the end of December 1999 and the beginning of January 2000.

Acknowledged critical Y2K-related dates include:

- December 31, 1999 The last date that some older mainframe-based systems can store.
- January 1, 2000 The date on which system anomalies and possible shutdowns may occur in non-remediated systems that could affect other dependent systems and organizations.
- February 29, 2000 The first leap year date in the new millennium.
- October 10, 2000 The first time the date field uses its maximum length (10/10/2000).
- December 31, 2000 The 366th day of leap year, which may not be recognized by some systems.

Again, PTO believes that its Y2K systems remediation, replacement, and testing have sufficiently reduced its Y2K risk.

VI. The BCCP Should Be Reviewed for Potential Legal Issues

PTO has not documented any legal involvement or review of its BCCP to identify potential legal shortcomings. Some of the areas with potential impacts include human resource management policies and labor/management relation issues (for example, overtime, holiday schedules, and granting of leave during critical Y2K high-risk periods). GAO guidance states that "Access to legal advice is a necessity." The issue was discussed during interviews with PTO personnel, who indicated that they were considering legal review.

RECOMMENDATIONS

To ensure the continuity of core business processes in the event of system failures at the turn of the century, we recommend that the Assistant Secretary of Commerce and Commissioner of Patents and Trademarks direct PTO staff to take the following actions:

1. Update the BCCP to include minimum acceptable levels of outputs and services for each core business process.

Synopsis of PTO's Response

PTO concurs with this recommendation and has requested each business area to identify minimum levels of outputs and services. PTO has received some responses to this request and expects to update the BCCP with this information prior to the rollover period.

OIG Discussion

PTO's action is responsive to the recommendation.

2. Immediately request PTO's procurement office to proactively identify specific sources of good and services needed to implement the BCCP and establish an acquisition timetable.

Synopsis of PTO's Response

PTO concurs with this recommendation and has asked each business area to identify specific needs, sources, and timetables. PTO has received some responses from the business areas and expects to update the BCCP accordingly.

OIG Discussion

PTO's action is responsive to the recommendation.

3. Test and validate the BCCPs, and commit resources to:
 - a. Verify that test plans include a testing schedule.
 - b. Establish test teams and assign responsibilities.
 - c. Conduct business resumption team rehearsals.
 - d. Develop plans to validate BCCP tests, review test results to evaluate the capability of contingency plans against performance criteria, and update the BCCP based on this validation if necessary.

Synopsis of PTO's Response

PTO concurs with this recommendation and has carried out substantial testing of the BCCP, including both tabletop and actual testing/rehearsals. PTO provided documentation of these tests to Commerce's Chief Information Officer on

October 20, 1999.

OIG Discussion

PTO's action is responsive to the recommendation.

4. At a minimum, have each business area develop a "zero day" plan to reduce its exposure to business risks during the high-risk period, December 30, 1999, to January 4, 2000. Additionally, consider extending PTO's zero day plans to other high-risk dates.

Synopsis of PTO's Response

PTO concurs with this recommendation and has established a "Day One Schedule" plan that covers all business areas and critical systems. PTO has also established "call in" lists of employees identified as necessary to implement the BCCP should it be necessary to trigger the plan. PTO plans to modify the BCCP and adopt it for other high-risk dates and other non-Y2K potential disruptions following the turn of the century.

OIG Discussion

PTO's action is responsive to the recommendation.

5. Request and document the appropriate legal review of the BCCP.

Synopsis of PTO's Response

PTO concurred with this recommendation and requested a legal review of the BCCP and received an opinion from the Office of the Solicitor on October 14, 1999. According to the Office of the Solicitor, the plan does not appear to be "contrary to either the Patent Statutes, 35 U.S.C., or the Trademark Statutes, 15 U.S.C."

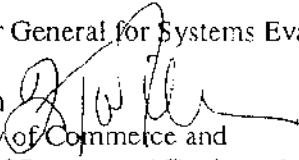
OIG Discussion

PTO's action is responsive to the recommendation.



DEC - 8 1999

MEMORANDUM FOR Judith Gordon
Assistant Inspector General for Systems Evaluation

FROM: Q. Todd Dickinson 
Assistant Secretary of Commerce and
Commissioner of Patents and Trademarks

SUBJECT: Draft Inspection Report

Thank you for the generally positive draft inspection report and for the constructive recommendations that should assist us in ensuring the continuity of our core business processes in the unlikely event of system failures at the turn of the century.

The following responds to the inspection report recommendations:

1. Update the BCCP to include minimum acceptable levels of outputs and services for each core business process.

We have asked each business area to identify the minimum levels of outputs and services under the procedures specified in the BCCP, should it be necessary to implement the plan. We have already received some responses to this request and expect to update the BCCP with this information prior to the rollover period.

2. Immediately request PTO's procurement office to proactively identify specific sources of goods and services needed to implement the BCCP and establish an acquisition timetable.

We earlier asked each business area to identify their specific needs. We have now asked them to work with our procurement office to identify specific sources and timetables. We have received some responses from the business areas and expect to update the BCCP accordingly.

3. Test and validate the BCCPs, and commit resources to:
 - a. Verify that test plans include a testing schedule.
 - b. Establish test teams and assign responsibilities.
 - c. Conduct business resumption team rehearsals.

-
- d. Develop plans to validate BCCP tests, review test results to evaluate the capability of contingency plans against performance criteria, and update the BCCP based on this validation if necessary.

We carried out substantial testing of our BCCP, including both tabletop and actual testing/rehearsals. We provided Commerce's Office of the CIO with documentation of these tests on October 20, 1999.

4. At a minimum, have each business area develop a "zero day" plan to reduce its exposure to business risks during the high-risk period, December 30, 1999 to January 4, 2000. Additionally, consider extending PTO's zero day plans to other high-risk dates.

We have established a plan that we call the "Day One Schedule" that covers all business areas and their critical systems. We have established "call in" lists of employees identified as necessary to implement the BCCP during the high-risk period, should it be necessary to trigger the plan. We do intend to modify the BCCP and adopt it for other high-risk dates and other non-Y2K potential disruptions following the turn of the century.

5. Request and document the appropriate legal review of the BCCP.

We did request a PTO Office of the Solicitor review of the BCCP and received an opinion from them on October 14, 1999. According to the Office of the Solicitor, the plan does not appear to be "contrary to either the Patent Statutes, 35 U.S.C., or the Trademark Statutes, 15 U.S.C."

Thank you again for your cooperation and assistance in this matter. If you have any questions or need further information, please contact Ronald Mack, Administrator for Computer and Telecommunication Operations.