2.2.1 Target Population and Sampling Frame

The target population consists of USPTO continuous customers who have historically filed more than six patent applications per year. The sample unit will be the continuous customer filing those applications. These eligible customers will be identified on the file of agency records provided. If apparent ineligible records are discovered, we will identify those cases and convert the file to an eligible applicant-level file, from which the sample will be selected. We will use auxiliary information on the sampling frame, such as the frequency of customer contact, volume of patent activity, and technology areas to select a representative sample.

2.2.2 Sample Design and Selection

In Fall 2007 Westat staff "refreshed" the sampling frame initially selected for the first 5 waves of data collection on the CPQS. We have conducted four administrations of the CPQS using that updated frame and will be able to use it for an additional 2 more waves of data collection. In refreshing the sampling frame, we took all 10,000 cases from the original sampling frame and updated eligibility status and contact information. After January 2010, we will need to start over and select a new sampling frame as information on the cases will have aged too much to be usable for more than 12 waves of data collection. After the end of the first year on this contract, when selecting a new sampling frame is necessary, Westat will submit a plan for selection of the new sampling frame to the USPTO following the sample design criteria set out above and using auxiliary information on the sampling frame, such as the frequency of customer contact, volume of patent activity, and technology areas to select a representative sample.

As we have done in the past, Westat will be responsible for the panel design aspects of the sample design. This includes maintaining the customer panel in terms of representativeness, adding new members to account for attritions, adding new rotation groups, retaining nonrespondents, and tracing lost members to establish eligibility and maintain high response rates. Table 2-1 is an example of the rotation pattern used in the first 7 waves of data collection of the CPQS beginning in Fall 2006. This same pattern of rotation will be continued for upcoming waves of data collection.

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Table 2-1.   Example of rotation plan with 50% overlap between successive waves

Group							
Wave	1	2	3	4	5	6	7
1	X	X					
2		X	X				
3			X	X			
4				X	X		
5					X	X	
6						X	X

Although the USPTO does not have a predetermined level of precision desired for the survey estimates, we understand the primary importance of detecting significant differences in wave-to-wave changes. Table 2-2 provides the minimum detectable absolute differences for domain sample size yields of completes for a two-tailed t-test with 80 percent power and a 0.05 significance level. For example, for a domain-level sample size yielding 500 completes, the difference between two waves needs to be greater than or equal to 0.073 in order to be declared statistically significant at the 0.05 level.

Table 2-2.   Minimum detectable absolute differences

Sample size yields (completes) for each wave	Minimum detectable absolute difference[a]
1,000	0.051
750	0.059
500	0.073
250	0.103

[a] The calculations assume a unit correlation coefficient between waves equal to 0.6.

The minimum detectable absolute differences were computed based on simple random sampling. Even though there will be some marginal variance reduction benefits from our proposed design, the numbers in the above table can be used as a guide for what to expect from the resulting precision estimates.

2.2.3   Maintaining a Representative Customer Panel

Several changes will occur to membership of the target population of continuous customers. For instance, some will become ineligible, while others will become newly eligible. Some panel members will fail to participate in the survey. We are aware that if we do not maintain a customer panel that is representative of the target population, the possibility of biased survey estimates increases. Thus we propose the following activities to maintain the panel and reduce nonresponse.

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Newly eligibles/new rotation groups. To account for attrition, Westat will collaborate with the USPTO on the frequency of updates to the list of applications. Each year, a revised list of applications can be reviewed and evaluated for applicants newly eligible as continuous customers. The newly eligible continuous customers can be sampled and allocated to the remaining random rotation groups. Depending on the information provided about the existence of a revised list, we can modify this approach if necessary.

Promoting survey cooperation. Throughout the study, we will be using effective procedures and current best methods for promoting survey cooperation[3].These goals are reflected in our discussion of the survey instrument as well as in our descriptions of our proposed contact procedures and other survey materials. We also describe our approach to converting initial refusals (see Section 2.5, the Data Collection section of this proposal).

Retaining/tracing wave nonrespondents. Despite our best efforts to promote survey cooperation, we anticipate survey nonresponse because the population being studied is extremely busy. We plan to follow up nonrespondents and describe our proposed followup activities and relatively low-cost tracing activities in Section 2.5, the Data Collection section of this proposal. If those activities prove to be insufficient and higher cost followup activities are needed to reach the targeted number of completes for each wave, we will meet with the USPTO to discuss options. Please note, however, that in Waves 6 and 7 we conducted a follow-up study with nonrespondents and discovered that with respect to their ratings of overall patent examination quality, the nonrespondents did not exhibit a more negative perception of overall examination quality than respondents did.

In addition, we have budgeted for, and will conduct, standard nonresponse adjustments during the weighting process. Those adjustments are designed to reduce potential bias resulting from the failure of some selected customers in the sample to respond to the survey (our proposed weighting process is described in Section 2.6, the Data Processing section).

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[3] Biemer, P., & Lyberg, P. (2003). *Introduction to survey quality*. New York: Wiley.

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