



Overview of Collection **Application Testing at Statistics Canada**

Janet Lefebvre, Chief, Quality Assurance Section Collection Systems and Infrastructure Division, Statistics Canada

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Outline

- Centralized quality assurance and testing for collection instruments
- QC process for CAI and web surveys
- STC partners in testing and quality control
- Issues, challenges, future directions
- Questions / discussion

Centralized QA and testing services

- Quality Assurance Section was created in 2008 in the Collection Systems and Infrastructure Division (CSID) with a mandate to provide centralized QA and testing services for all CAI and web collection instruments and other collection systems and tools developed by CSID
- Goal is to ensure developed applications meet client requirements
- Team currently comprises 12 people

Centralized QA and testing services

- Tests over 200 survey instruments per year for over 25 client divisions
- Provides services for social, business and agriculture surveys using CAI, web and multi-mode collection systems
- Uses manual and automated techniques

Five main activities support application development:

Specifications review

- To ensure that specifications accurately capture user requirements and conform to all applicable standards
- All specifications are in two official languages

Block testing

- To ensure compliance of developed block to specifications
- Uses manual and automated techniques
- Automated testing (TestPartner) compares the developed block to the client specifications looking at text, field limits and many of the CAI application standards

Integrated testing

- Functional testing to ensure compliance of developed (integrated) application to specifications and standards
- Uses automated and manual techniques
- Automated testing tool simulates interviewer/respondent interaction

Acceptance testing

Conducted by clients to ensure application meets requirements

End to end testing

- To ensure production readiness of collection application and infrastructure
- Conducted by various partners

Additional testing for web surveys

Accessibility testing

- Tests for compliance with the Common Look and Feel Standards for the Internet (CLF 2.0, a Canadian government-wide standard)
- Tests against Web Content Accessibility Guidelines (WCAG 1.0)
- WCAG 2.0 and CLF 3.0 coming soon

Additional testing for web surveys

Platform testing

 To ensure correct display and functionality on multiple browsers, screen resolutions and OSs

Usability testing

 To ensure web-based surveys are easy to use and understand

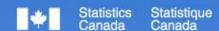
Security testing

 To check for common web application vulnerabilities

Tracking tool

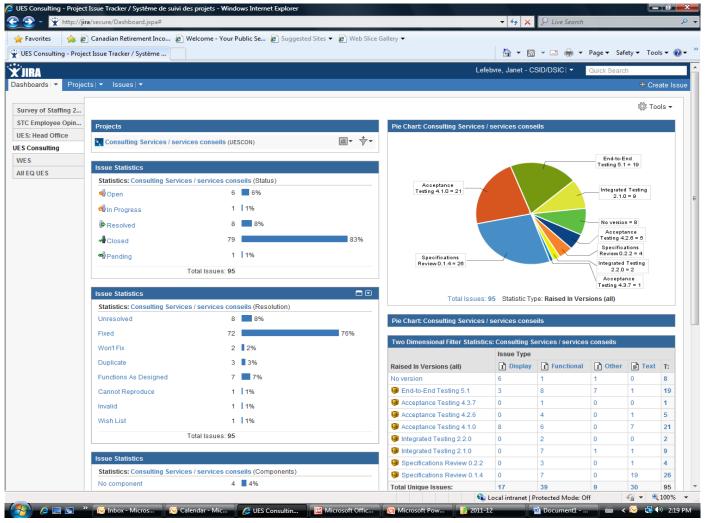
- JIRA is used as issue/defect tracking tool
 - Organized by survey project
 - Tracks issues by survey component; e.g., CATI, electronic questionnaire, pre-contact, etc., and testing phase
- Benefits of JIRA:
 - Corporately supported software tool
 - Flexible, open, customizable
 - Information can be used to inform process improvement





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Tracking tool (cont'd) - Example 1







Tracking tool (cont'd) – Example 2

	Issue Type				
Raised In Versions (all)	1 Display	[Functional	T Other	■ Text	T:
No version	6	1	1	0	8
End-to-End Testing 5.1	3	8	7	1	19
Acceptance Testing 4.3.7	0	1	0	0	1
Acceptance Testing 4.2.6	0	4	0	1	5
Acceptance Testing 4.1.0	8	6	0	7	21
Integrated Testing 2.2.0	0	2	0	0	2
Integrated Testing 2.1.0	0	7	1	1	9
Specifications Review 0.2.2	0	3	0	1	4
Specifications Review 0.1.4	0	7	0	19	26
otal Unique Issues:	17	39	9	30	95

Issues and Challengesthe usual suspects

- Getting complete specs in both official languages at beginning of development process
- Dealing with changes late in the process
- Many surveys in testing at the same time
- Testing schedules are the first to get squeezed when there are delays in development schedules, but collection dates rarely change!

Issues and Challenges EQ and multi-mode

- Coordinating QA & testing activities for multi-mode (web, CAI, paper)
- Coordinating testing activities with multiple testing partners
- Survey instrument development & testing in parallel with new system development & testing
- Standards for web surveys are a work in progress

Improve change management process

- Current process will be expanded to cover all survey types and modes within a consolidated, formal change management process
- Will ensure that impacts to cost, schedules and deliverables are thoroughly reviewed, and that decisions are well documented and effectively communicated
- Will take into consideration risks and impacts on other collection application or system development projects

Improve change management (cont'd)

- Will engage collection partners in deciding what to change and when
- Will reduce (hopefully!) number of changes late in the process
- Requests for change will be processed and approved according to level of impact
- Process will be administered by a Change Control Secretariat

Improve change management (cont'd)

Levels of impact:

Level 1 (low)	Approved, rejected or referred by survey collection manager		
	No impact on other projects		
	Change can be managed within existing schedule and budget		
Level 2 (medium)	Approved, rejected or referred by Change Control Committee		
	Minor impact within or across projects		
	Minor scheduling and/or budget adjustments		
Level 3 (high)	Approved or rejected by Change Control Board		
	Major impact within or across projects		
	Change may impact budget, timelines and allocation of resources across projects		

Increase test automation

- Develop automated tests to measure compliance of business applications against capture and edit specs
- Research and develop automated tests to verify electronic questionnaires against specifications template
- Research and develop automated tests for end-to end testing of web surveys; i.e., to test the connections between electronic questionnaire and electronic collection service components

Streamline testing services

- Currently testing for security, accessibility, etc., is done for each survey; goal is to test only when there are changes to systems (enhancements), infrastructure or in response to new regulatory requirements
- Longer term goal is to create a centralized corporate testing service
 - Must continue to be responsive to survey instrument development demands; i.e., very quick turn around for multiple surveys and phases of testing

Questions?

Janet Lefebvre
Chief, Quality Assurance Section
Collection Systems and Infrastructure Division
Statistics Canada
170 Tunney's Pasture Driveway
Ottawa, ON, K1A 0T6
Canada

Janet.Lefebvre@statcan.gc.ca

Telephone: 1-613-951-4987

Fax: 1-613-951-4674