

WCAG 2.0 Compliance Costing Model

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Accessible Media, Web and Technology
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3:30 – 4:30 PM Cotton Creek II

6 November 2013 v6

Our agenda



Project Overview

I/T Web Project Life Cycle

Sample sites & pages

Testing Results

Costing Model

Policy Considerations

Opportunities & Challenges

Why this presentation?

Our experience is relevant to organizations and web properties trying to estimate the costs of accessibility compliance.

Project Overview

Questions that need answers:

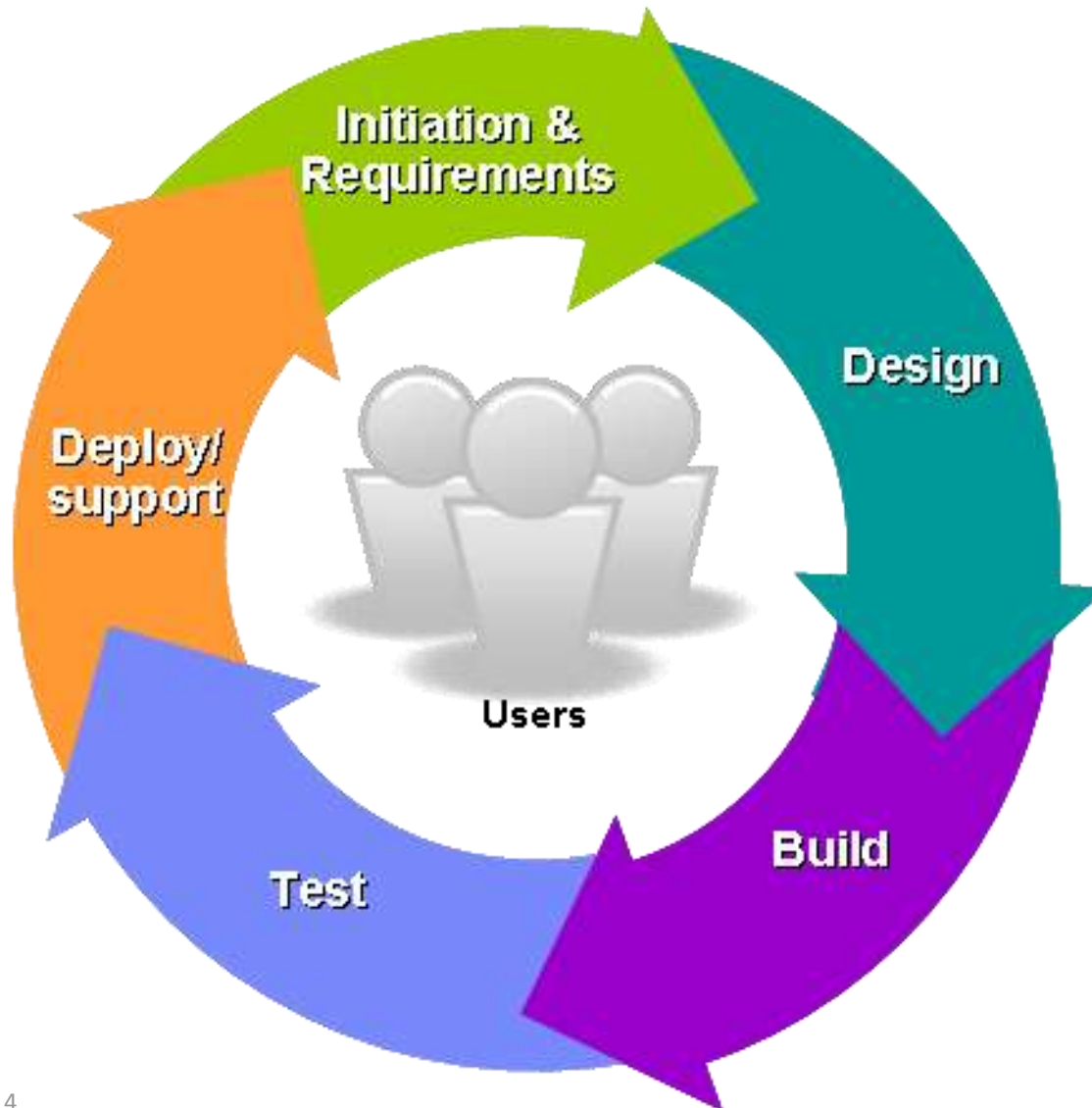
- What does it take to **make** a website accessible?
- What does it take to **keep** it that way?
- What are the opportunities and challenges?

Project Steps

- **Identify** candidate sites and sample pages
- **Assess** (test) sample pages for accessibility
- **Estimate** cost to test, repair, and maintain
- **Apply** project experiences to sites and policy

7 week timeline for initial project

I/T project life cycle (a simplified view!)



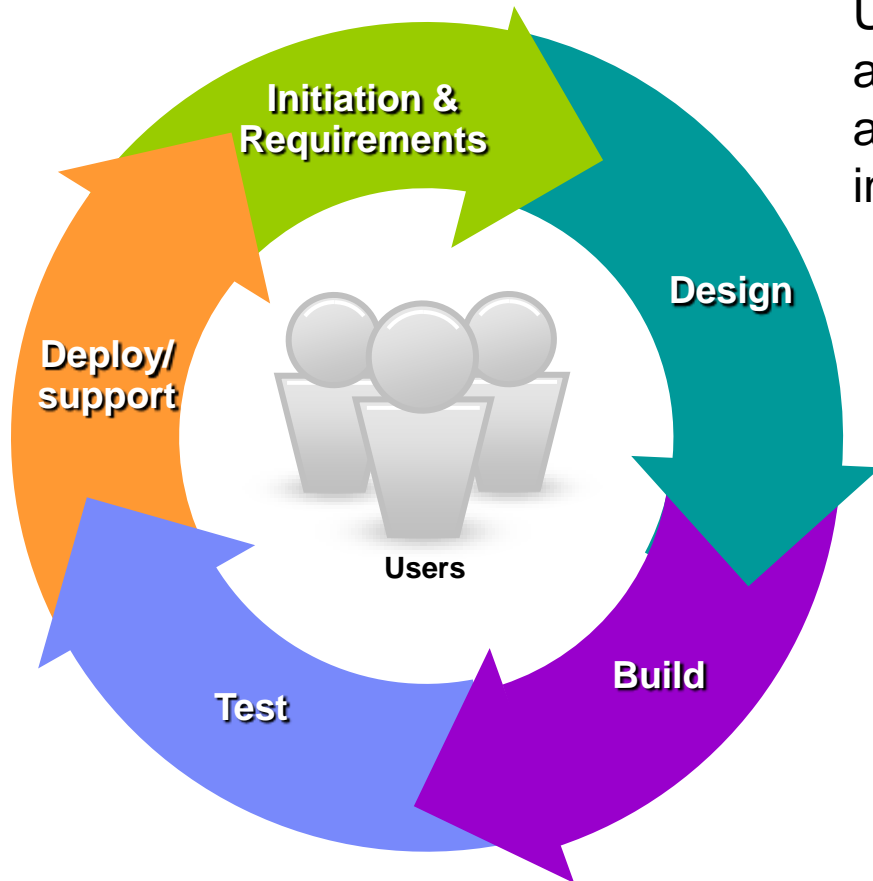
User experience, including accessibility and support for inclusive design, should be at the heart of your project – and needs to be integrated into every phase of the project.

Roles:

Activities:

Deliverables:

I/T project life cycle



User experience, including accessibility and support for inclusive design, should be at the heart of your project – this can be integrated into every phase of the project.

Roles:

- Business Owner
- Marketing
- Project Manager
- Solution Architect
- Business Analyst
- Designer
- Developer
- Tester/QA
- Technical writer

Activities:

- Manage procurement
- Define requirements
- Creative Design
- Macro and micro design
- Develop application
- Define & execute test plans
- Document solution
- Support users
- Plan for next cycle

Accessibility impacts by role

Business Owner - correct policy (accessibility standards) and funding in place

Marketing – requirements, communications and awareness (i.e, launch)

Project Manager – requirements, checklist, and project milestones and status

Architect - enabled and capable technology designed into the solution

Designer - design and implementation guidance complies with standards

Developer - coding implementation to comply with applicable standards

Tester - QA and system testing to ensure compliance with applicable standards

Technical writer – documents accessibility features, tutorials, etc.

Web site refresh cycles

Two factors to consider

1. **Look and feel** (branding and navigation)
 - Expensive to update – redesign and significant coding changes. If you get accessibility wrong, it can be broken everywhere.
2. **Content** – e.g. seasonal hours of operation, ‘contact us’, online restaurant menu, new products and services.
 - This information can be relatively dynamic and changes frequently.
 - Compliance is a problem if the CMS is not enforcing the presentation style

How often do organizations update their sites ?

- Consensus from 5 web developer agency interviews
 - Static sites seem to be updated every 3 years, with a refresh of look & feel, navigation, menus, branding, and certainly refresh of content & technology
- Our test sample (10 sites)
 - Refresh periods varied over time. Anecdotal and a small sample.
 - In the last 5 years, most sites appear to have been refreshed on a cycle of **< 2 years**.

Sites selected and description

99% of businesses¹

Company Size / Site complexity	Small	Medium	Large
Static web pages	A1 Restaurant A12 Township	B1 Insurance	C1 Restaurant chain
Dynamic	A2 Online magazine	B2 University department	C2 National Retailer C22 Government department
E-commerce		B3 Computer retailer	C3 Automaker online store

Most businesses are small businesses

Canadian experience

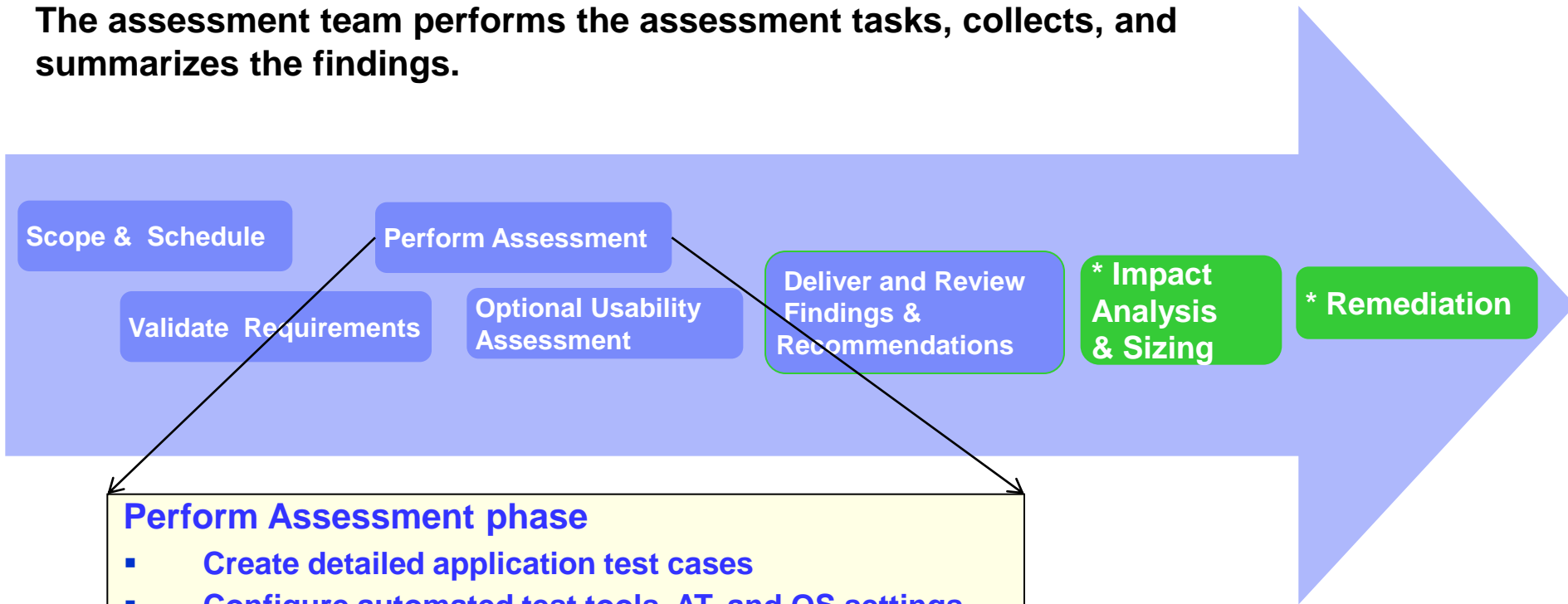
- 380,000 businesses
- small and medium
 - 1 to 49 employees: 94.8 %
 - 50 to 200 employees: 4.2 %
 - 1 to 200 employees: 99.0 %
- large
 - > 200 employees: 1.0 %

Site pages tested

Company Size / Site complexity	Small	Medium	Large
Static web pages	<p>A1: 5 of 8 Homepage, Contact, About Us, Menu, Press</p> <p>A12: 5 of 154 Homepage, Contact, Map, Community Events, News & Announcements</p>	<p>B1: 5 of 46 Homepage, Forms, News, Contact, Sign In</p>	<p>C1: 6 of 50 Homepage, Location/hours, Nutrition calculator, Community, Card, FAQ</p>
Dynamic	<p>A2: 5 of 380 Homepage, Registration, Search Results, Video Page, Blog Page</p>	<p>B2: 6 of 126 Homepage, Permission forms, Graduate studies list, Publications, Calendar</p>	<p>C2: 7 of 107 Homepage, Search results, Sign up, Locations, E-flyer signup, Weekly flyer, Sports, Golf</p> <p>C22: 5 of 14 Homepage, Welcome, FAQ, Introduction, Step 1</p>
E-commerce		<p>B3: 4 of 1,434 Create account, Product, Shopping Cart, Order Confirmation, (Third Party "Place Order")</p>	<p>C3: 5 of 201 Build and Price, Choose Model, Choose Options, Choose Accessories, Summary</p>

Testing methodology

The assessment team performs the assessment tasks, collects, and summarizes the findings.



Perform Assessment phase

- Create detailed application test cases
- Configure automated test tools, AT, and OS settings
 - ¹ Run test using automated test tools
 - ¹ Conduct test using Assistive Technologies
 - ¹ Conduct manual test using expert techniques
- Inventory and summarize findings
- Assign severity ratings to issues
- Review issues with technical stakeholders

LEGEND

Assessment *Remediate

Note: ¹Comprehensive testing methodology

Testing results – number of issues

Company Size / Site complexity	Small	Medium	Large
Static web pages	63 issues 68 issues	87 issues	200 issues
Dynamic	248 issues	85 issues	32 issues 160 issues
E-commerce		48 issues	28 issues

Notes:

1. Total number of issues does **not** reflect the relative effort to remediate issues.
2. Total does **not** always reflect the relative maturity of a site.
3. Total does **not** reflect the severity/impact of various issues.
4. Total does **not** reflect the nature of a site's category.
5. Sample size may **not** be large enough to draw conclusions.
6. Totals are **not** strictly comparable due to variance in number of pages assessed.

Testing results – types of issues & challenges

Company Size / Site complexity	Small	Medium	Large
Static web pages	<p>A1: identical ALTs, no keyboard, video ownership</p> <p>A12: no keyboard, confusing; staff content</p>	<p>B1: Easy to understand, predictable, parsing errors, good attachments</p>	<p>C1: Pretty good, except Nutrition table, parsing errors</p>
Dynamic	<p>A2: Advertising, “messy”, “accessible, just not usable”, parsing issues</p>	<p>B2: good text-based navigation; unreadable attachments</p>	<p>C2: 900 Parsing errors, large but “pretty good”, minor structure issues</p> <p>C22: Step 1 focus issue, by line navigation</p>
E-commerce		<p>B3: Horrible code, “busy”, 3rd party transaction</p>	<p>C3: flash front end (not tested), On input error</p>

WCAG 2.0 Success Criteria and Techniques

4 Principles
 12 Guidelines
 38 Success Criteria (A + AA)
 100's Techniques

Perceivable

- 1.1 Text alternative
- 1.2 Time-based media
- 1.3 Adaptable
- 1.4 Distinguishable

Understandable

- 3.1 Readable
- 3.2 Predictable
- 3.3 Input Assistance

Operable

- 2.1 Keyboard Accessible
- 2.2 Enough time
- 2.3 Seizures
- 2.4 Navigable

Robust

- 4.1 Compatible

4 Principles/ 12 Guidelines

- 61 Success Criteria
 - 25 Level A
 - 13 Level AA
 - 23 Level AAA

Understanding WCAG 2.0

- Rationale and Benefits
- Examples
- Sufficient Techniques

WCAG 2.0 Techniques

- General (G1-G199)
- HTML (H2-H91)
- CSS (C6-C63)
- SCRIPT (SCR1-37)
- SERVER (SVR1-4)
- SMIL (SM1-14)
- TEXT (T1-T3)
- ARIA (ARIA1-4)
- Common Failures (F1-F89)

How to Meet
 Interactive – gives views by priority and technology

Issues/topics by WCAG 2.0 Success Criteria

	A	B	C	D	E
1	Issue	WCAG	WCAG#	Topics covered	Technique
2	ALT incorrect	Non-text content	1.1.1	ALT missing ALT should be empty ALT too long ALT not accurate	H24: Providing text alternatives for the area elements of image maps G94: Providing short text alternative for non-text content that serves the same purpose G82: Providing a text alternative that identifies the purpose of the non-text content G144: Ensuring that the Web Page contains another CAPTCHA serving the same purpose G143: Providing a text alternative that describes the purpose of the CAPTCHA
3	CAPTCHA inaccessible	Non-text content	1.1.1	Using visual-only means of confirming human user	
4	Content missing structure	Info and Relationships	1.3.1	Headings missing Lists missing Table poorly used as layout Using bold instead of semantic markup Missing labels for form fields NOTE: Title missing covered separately)	F49: Failure of Success Criterion 1.3.2 due to using an HTML layout table that does not make sense when linearized H49: Using semantic markup to mark emphasized or special text H44: Using label elements to associate text labels with form controls H25: Providing a title using the title element
5	Content not ordered properly	Meaningful Sequence	1.3.2	Using an HTML layout table that does not make sense when linearized	
6	Contrast insufficient	Contrast (Minimum)	1.4.3	Text without sufficient contrast from background	
7	HTML - improper use	Name, Role, Value	4.1.2	Invalid characters used Deprecated HTML used	H88: Using HTML according to spec
8	Inaccessible attachments	N/A		Documents linked or embedded in page are not accessible	
9	Instructions or context needed	Labels or Instructions	3.3.2	Unclear labels Unclear headings Inadequate instructions or context for form fields Label not well positioned	G131: Providing descriptive labels G130: Providing descriptive headings G184: Providing text instructions at the beginning of a form or set of fields that describe the form or set of fields G162: Positioning labels to maximize predictability of relationships
10	Keyboard inaccessible	Keyboard	2.1.1	Mouse-only based event handlers (e.g., onmouseover) Incorrectly emulating links with scripting	F42: Failure of Success Criterion 1.3.1 and 2.1.1 due to using scripting events to emulate mouse events
11	Keyboard trap	No Keyboard Trap	2.1.2	Can't escape from control	
12	Language missing	Language of Page	3.1.1	LANG value not set on page	
13	Link unclear	Link Purpose (in Content)	2.4.4	Link name not clear Link purpose not obvious	
14	Markup incorrect	Parsing	4.1.1	Tag missing	F70: Failure of Success Criterion 4.1.1 due to incorrect use of start and end tags or attributes
15	Navigation - "skip to" missing	Bypass Blocks	2.4.1	Skip to missing	
16	No captioning on audio or video	Time-Based Media	1.2	The subsections of 1.2 are very specific. Will break out as we encounter	
17	Other				
18	Title missing or inadequate	Page Titled	2.4.2		G88: Providing descriptive titles for Web pages H25: Providing a title using the title element

Costs of Web Accessibility remediation

– Hours of effort by role (Level A)

	12 Guidelines		25 Success Criteria (Level A)	Biz	Mkt	PM	Ach	Dev	QA	TW	
1.1	Text Alternative	1.1.1	Non-Text Content	4 ¹		*	1	1	*		All
1.2	Time-based Media	1.2.1	Audio-only and Video-only (Prerecorded)	1		*	1	1	*		+ \$ 2.25 / min
		1.2.2	Captions (Prerecorded)	1		*	1	1	*		+ \$ 4.00 / min
		1.2.3	Audio Descriptions or Captions (Prerecorded)	1		*	1	1	*		+ \$ 2.25 / min
1.3	Adaptable	1.3.1	Info and Relationships			*	2	8	*		All
		1.3.2	Meaningful Sequence			*	1	2	*		none
		1.3.3	Sensory Characteristics			*	1	2	*		none
1.4	Distinguishable	1.4.1	Use of color			*	.5	1	*		none
		1.4.2	Audio Control			*	.5	8	*		none
2.1	Keyboard Accessible	2.1.1	Keyboard			*		4	*		8/10
		2.1.2	No Keyboard Trap			*		24	*		none
2.2	Enough Time	2.2.1	Timing Adjustable	2		*	2	4	*		none
		2.2.2	Pause, Stop, Hide	4		*	1	8	*		1 site
2.3	Seizures	2.3.1	Three Flashes or Below Threshold			*		.25	*		none
2.4	Navigable	2.4.1	Bypass Blocks			*	1	8	*		9/10
		2.4.2	Page Title			*	.1	1	*		6/10
		2.4.3	Focus Order			*	.5	12	*		2/10
		2.4.4	Link Purpose			*	.1	1	*		8/10
3.1	Readable	3.1.1	Language of Page			*		.25	*		9/10
3.2	Predictable	3.2.1	On Focus			*		12	*		1 site
		3.2.2	On Input			*	1	12	*		4/10
3.3	Input Assistance	3.3.1	Error Identification			*	.5	8	*	5	Help, Tutorials
		3.3.2	Labels or Instructions	1		*	.5	4	*		7/10
4.1	Compatible	4.1.1	Parsing			*		1	*		All
		4.1.2	Name, Role, Value	1		*	4	8	*		2/10

Costs of Web Accessibility remediation

– Hours of effort by role (Level AA)

	12 Guidelines		13 Success Criteria (Level AA)	Biz	Mkt	PM	Ach	Dev	QA	TW	
1.1	Text Alternative	1.1	Text alternatives								
1.2	Time-based Media	1.2.4	Captions (Live)	4		*	1	1	*		none
		1.2.5	Audio Description (Prerecorded)	1		*	1	1	*		5/10
1.3	Adaptable	1.3	Adaptable								
1.4	Distinguishable	1.4.3	Contrast (4.5:1 minimum)			*	6	3	*		4/10
		1.4.4	Resize text			*		8	*		none
		1.4.5	Images of text			*	2	1	*		1 site
2.1	Keyboard	2.1	Keyboard Accessible								
2.2	Enough Time	2.2	Enough Time								
2.3	Seizures	2.3	Seizures								
2.4	Navigable	2.4.5	Multiple Ways			*	4	8	*		3/10
		2.4.6	Headings and Labels			*	1	2	*		none
		2.4.7	Focus visible			*		8	*		2/10
3.1	Readable	3.1.2	Language of Parts			*		.5	*		none
3.2	Predictable	3.2.3	Consistent Navigation			*	.5	1	*		none
		3.2.4	Consistent Identification			*	.5	1	*		none
3.3	Input Assistance	3.3.3	Error Suggestion	1		*	.5	4	*		1 site
		3.3.4	Error Prevention (Legal, Financial)	1		*	.5	4	*		none
4.1	Compatible	4.1	Compatible								

Example rates by role

Large ICT businesses

\$130	Level 2	Business Owner
\$72	Level 1	Marketing
\$83	Level 1	Project Manager
\$115	Level 1	Architect
\$115	Level 1	Designer
\$83	Level 1	Developer
\$83	Level 1	Tester/QA
\$72	Level 1	Technical writer

Rates per day (7.25 hrs)

Experience

Level 1 = 2-4 years,

Level 2 = 4-9 years,

Level 3 = 10+ years of experience

Small ICT businesses

Rates approx. \$40 to \$100

15 page sites range from
\$3k to \$5k

Surveyed 5 small businesses

Assessed 10 sites

Preliminary survey – 5 web development teams

A very small sample

- 5 web development businesses (2 sole-proprietor, 3 teams (6, 20 , 60))

Common themes

- Small sites (< 10 pages) are still reasonable candidates for an HTML solution
- Most sites are now implemented with a Content Management System (CMS)
 - CMS allows the end client to maintain their own site content
 - Emerging support in CMS for accessibility standards (Drupal, WordPress)
 - Some consultants have a proprietary CMS – this creates a dependency
- New sites?
 - 10 to 15 pages cost in the range of \$3,000 to \$5,000 – with an open-source CMS
 - Municipalities – publicly available information (newspaper article) – refresh the look and feel and the information architecture of 4 municipal web sites @ \$57,000 with AODA (WCAG 2.0 AA) compliance - 8 years since last refresh
- Knowledge of accessibility and standards
 - General awareness (5 of 5)
 - Some consultants seem to have a good understanding (4 of 5 in this sample)

Sample Remediation costs

Company Size / Site complexity	Small	Medium	Large
Static web pages	<p>A1: \$ 4.5k – \$ 18.5k 50 hours to 199 hours</p> <p>A12: \$ 4.8k - \$ 16.4k 53 hours to 184 hours</p>	<p>B1: \$ 4.8k - \$ 16k 52 hours to 178 hours</p>	<p>C1: \$ 12.4k - \$ 32.3k 134 hours to 349 hours</p>
Dynamic	<p>A2: \$ 10.3k - \$ 34k 112 hours to 382 hours</p>	<p>B2: \$ 4.5k - \$ 21.2k 50 hours to 247 hours</p>	<p>C2: \$ 9.2k - \$ 34.8 100 hours to 385 hours</p> <p>C22: \$ 2k - \$ 10k 24 hours to 115 hours</p>
E-commerce		<p>B3: \$ 3.7k - \$ 19.9k 41 hours to 224 hours</p>	<p>C3: \$ 2.4k - \$ 13.5k 27 hours to 152 hours</p>

Notes:

1. Level A + AA costs for Business Analyst, Architect, Design, Development, & minimal Project Management (remediation costs did not include QA/Test).
2. Costs above only to remediate 5 sample pages.
3. Some remediation costs quickly exceed site redesign costs.
4. Ranges reflect variability in site design, technology choices, and applicable accessibility requirements themselves.

Example of variability

3.3.2 Level A Provide labels - Labels and input instructions

Sighted user sees the ‘Search’ button

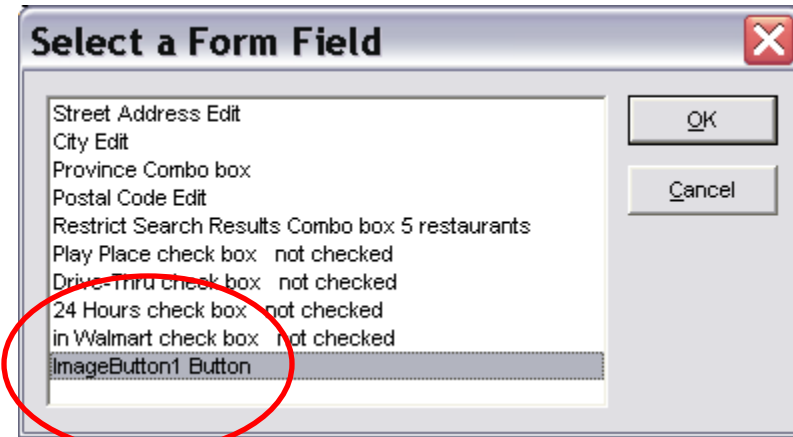
below. To refine your search further, enter a postal code or address, or select from the specific restaurant features listed below.

The screenshot shows a search interface with two tabs: "Search By Address" and "Search By Intersection". Under "Search By Address", there are input fields for "Street Address", "City", and "Postal Code". Under "Search By Intersection", there are a "Province" dropdown menu and a "Restrict Search Results" dropdown menu set to "5 restaurants". A yellow "SEARCH" button is located at the bottom right of the form area and is circled in red.

LIMIT SEARCH RESULTS TO RESTAURANTS WITH THESE FEATURES:



Blind user hears “Image Button 1”



JAWS screen reader displays list of fields

Technology choice has greatest impact on variability of remediation costs

- Maintenance considerations
- When technology changes
- In-house custom built vs open source vs vendor
- Trends: Today’s technology may not be tomorrow’s problem

Example of variability

1.4.4 Level AA Resize Text - Non-HTML may not resize



Video content zooms - **good**,
but player controls and labels don't zoom - **poor**

Fix choice requires major re-work or major dependency

Site type and design impacts maintenance costs

Company Size / Site complexity	Small	Medium	Large
Static web pages	<ul style="list-style-type: none"> Poor page structure Poor navigation Poor design/template affect whole (but small) site Little CMS usage 	<ul style="list-style-type: none"> Average page structure Uses CSS well Easy Navigation 	<ul style="list-style-type: none"> Poor control labels Poor keyboard Poor page structure Poor navigation
Dynamic	<ul style="list-style-type: none"> Dependency on inaccessible Non-HTML unique user interface components Poor page structure Poor navigation 	<ul style="list-style-type: none"> Document repository accessibility will be large burden to maintain accessibility of all the documents 	<ul style="list-style-type: none"> Good Navigation Good Keyboard Good Form labels Needs nested headings
E-commerce		<ul style="list-style-type: none"> Transactions cannot be completed with keyboard Difficult to understand Poor form labels Poor page structure Poor navigation 	<ul style="list-style-type: none"> Flash movies have no audio or text descriptions Poor keyboard Needs long description of pictures

Note: Example of maintenance impacts

Costs assumed outside model framework

Technical and business IT costs

Project level overhead costs

Organizational costs

Technical and business IT costs

1. **Software tools** purchases and training
 - Automated tools like IBM Rational Policy Tester, a-Designer, etc.
 - Tools costs still impact to business and out sourcing groups
 - Opportunity for government to provide automated tools to small business?
2. **Technical accessibility skills training**
 - Architects, designers, developers, and testers
 - Assume the skills and resources are available
 - Costs are still impact
 - Opportunity for government to provide some training?
3. **Technology accessibility enabled**
 - Newer technologies and proprietary toolkits may not yet be enabled
 - Newer technologies and proprietary toolkits may be better enabled
 - Alternative or redundant solutions driving costs to 50% and beyond.
4. **Return on Investment (ROI) not factored into model framework**
 - Increased sales, increased employee productivity, etc.
 - Studies and pilots needed

Costs assumed outside model framework – continued

Project level overhead costs

5. **Schedule**

- Model framework assume its part of an existing project - so no schedule delay/costs due to additional accessibility testing for example.

6. **Project overhead**

- It's part of an existing project - so no additional costs for project management, regression testing, etc.

Organizational/Enterprise costs

7. **User Accommodations & support**

- Costs for ensuring that employees, citizens, and end users have a reasonable level of supporting assistive technology, internet access, latest enabled browsers, and a supporting operating system platform and the amount of training required to configure and use the technology efficiently – not included in model framework.

8. **Periodic Audits**

- Quarterly or Annual audits are recommend to better maintain compliance. Measurements (scanning & testing) and reporting (including executive dashboards) drives accessibility compliance for the organization / agency – not included in model framework.

9. **Application portfolio management**

- Should include accessibility and other attributes such as quality, privacy, security, internationalization, etc. - assumed are in place.

10. **Document Management**

- Additional costs depending on business/organization - assumed are in place.

Accessibility is less expensive when “built-in”

Pre-existing site

(add accessibility after site built)

Accessibility Assessment
(one time costs)

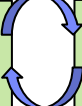
Remediation efforts
(one time costs)

Training and education
(periodic costs)

Tools and integration
(one-time & maintenance)

Project and Overhead
(schedule and costs)

Governance integration
(one-time & maintenance)

Quality Assurance  **Remediation**
(periodic costs) (less over time)

New/Re-design site

(build-in accessibility before design)

[avoid these costs]

[avoid these costs]

Training and education
(periodic costs)

Tools and integration
(one-time & maintenance)

Project and Overhead
(schedule and costs)

Governance integration
(one-time & maintenance)

Quality Assurance  **Remediation**
(periodic costs) (less over time)

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Accessibility costs LESS than NOT doing accessibility

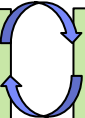
Building in accessibility

Training and education
(periodic costs)

Tools and integration
(one-time & maintenance)

Project and Overhead
(schedule and costs)

Governance integration
(one-time & maintenance)

Quality Assurance  **Remediation**
(periodic costs) (less over time)

Not doing accessibility

Law suits
(recurring costs*)

Customer loyalty
(recurring costs)

Reach less customers
(lost revenue)

Search Optimization
(recurring costs)

Adaptation for Mobile
(recurring costs)

Brand value
(recurring costs)

*lawyers are more expensive than web developers

Do most businesses have the internal skills to maintain their own web sites?

In a word ... no.

87% of businesses have fewer than 20 employees (Statistics Canada 2009)

- Most of these organizations will not have an I/T person on staff
- They would typically outsource their web site development and maintenance (based on interviews with 5 web development companies)
- If the site is implemented in an accessible CMS, content can be well-maintained locally (consistent, accessible, and following the rules)
- I/T and related technology based businesses may have internal skills available – (see report under IT capacity & skills)

5.2 % of companies have 50 or more employees

- Reasonable to assume these companies may have I/T staff capable of developing and maintaining accessibility of the web site.

Canadian Accessibility Regulations

Ontario: Accessibility for Ontarians with Disabilities Act (AODA)

- Covers BOTH public and private sector
 - 380,000 obligated organizations
- **Customer service** (like U.S. ADA)
- **Information and communication** (more than U.S. ADA & 508)
 - All government (public sector) – WCAG 2.0 A now, AA later
 - Businesses with > 50 employees must provide WCAG 2.0 (A, later AA) web sites for customers
- **Employment** (like U.S. ADA)
 - I/T must support employees with disabilities, or organization must provide reasonable accommodation

Government of Canada

- WCAG 2.0 A and AA for all federal departments & agencies

Policy Considerations

Ownership of the problem / content – will require applicability guidance

- Content vs hosting vs links
 - Own content but not hosting environment (uncaptioned video on YouTube)
 - Own hosting environment but not content (documents & web services from others)
 - Own both (applicable) and/or links (not applicable)
- 3rd party services and/or components/widgets (who and when in life cycle)

Evolving technologies – will require updates to policy

- Mobile apps (native & web), platforms, service providers, content owners, etc.
- HTML 5

Conformance claims guidance

- **Platform:** Which OS and browser to test? (Usage, ubiquity; which browser to recommend?)
- **Testing tools:** Which tools to use to make claims? (Cost, ease of use, supporting AA criteria)
- **Assistive Technology:** Which AT to make claims? (JAWS, ZoomText, AT failure, down level versions, etc.)

Identified challenges and recommendations

Our project challenges reflect the realities to be faced by web site properties

- Insufficient testing tools, improving testing methods, uncertainty with guidelines, challenges with issue summarization, coordination of resources

Training - there's a significant learning curve – WCAG standards are complex to learn and use.

- Universities – fundamental inclusive design curriculum
- Universities – add accessibility to accreditation
- Practical & relevant training for web developers
- Professional associations and certifications

Tools – for development, testing, and reporting

- Different tools/approaches give different results
- Recommendations & support for tools, sponsor W3C WAI
- Work with vendors and open-source community (e.g. Drupal CMS)

Processes – templates

- A library of resources, especially helpful to small organizations
- Collaborate with international partners on reusable assets (e.g. G3ict.org)

Summary

Relevant to organizations and web properties estimating the costs.

Considered **all roles and activities** in the IT project life cycle.

Reviewed company sizes, web **site complexities**, anomalies.

Reviewed **accessibility testing** methodology and results.

Understanding **Costing Model** framework, costs, and variability.

Skills availability and regulations.

Policy Considerations.

Challenges and Recommendations.

Questions?



The Inclusive Enterprise

Enabling human-centric business transformation



IBM Accessibility



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IBM Accessibility

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