

Accessibility

Putting People First in the Software Development Lifecycle

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Accessibility Architects

Great Lakes Educational Loan Services, a Nelnet Company

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About Us

The Great Lakes Accessibility Team

- Stacy Carston
- Marc Thorson
- We support hundreds of developers and their agile teams with the goal of continually providing state-of-the-art products and services that are accessible to everyone.

Great Lakes Educational Loan Services, Inc.

- 50+ years of supporting student loan services for millions of borrowers and thousands of schools and lenders
- Technology-centric company focused on doing what's right
- Recently acquired by Nelnet

Building software is a process.

High quality software is complex

- Reliability
- Performance
- Maintainability
- Security
- Accessibility

To make great software you need an established process

- Every organization is a little different
- Great Lakes has used both Waterfall and Agile methodologies

Every product is different

- User base
- Platform
- Accessible features available

Where does accessibility fit in the software development lifecycle?

Testing is a natural first step

- Many accessibility efforts start with an audit or evaluation

But, testing is not enough

- Fixing issues later is most costly than building it correctly
- Or it gets buried in the backlog

Accessibility must be part of the entire process

- Same as secure development practices

Great Lakes Development Methodology Waterfall

(1 of 4)

Analysis & Design

**Define Requirements
Design & Content**



Development



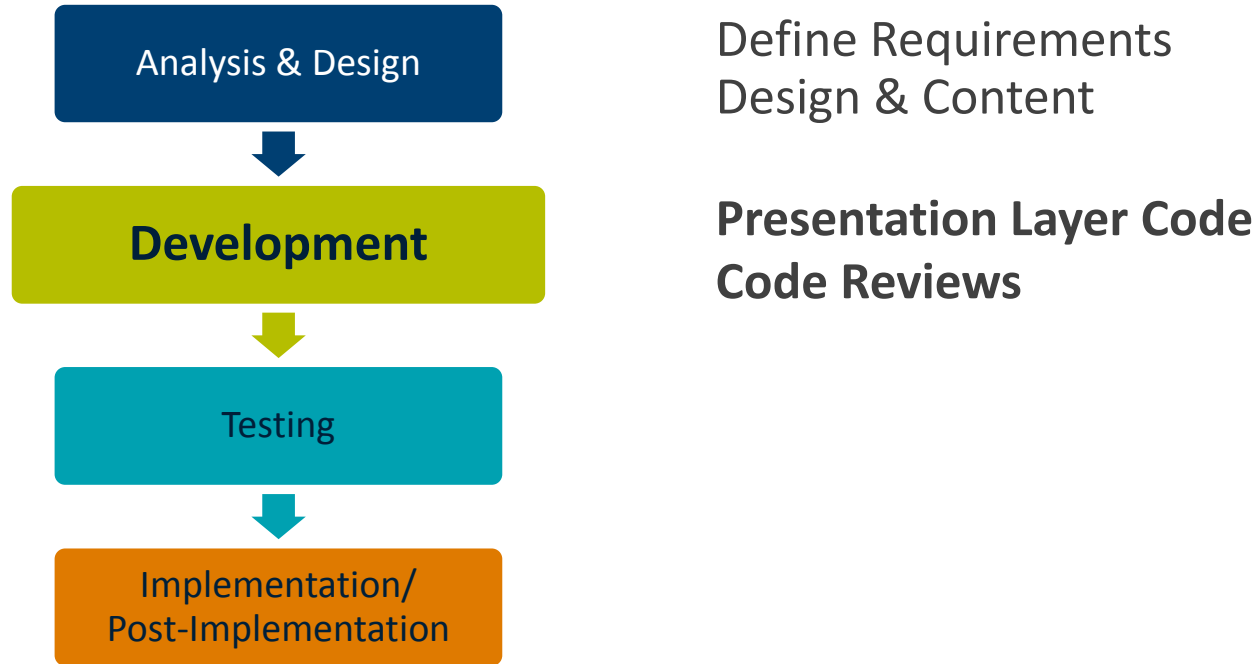
Testing



Implementation/
Post-Implementation

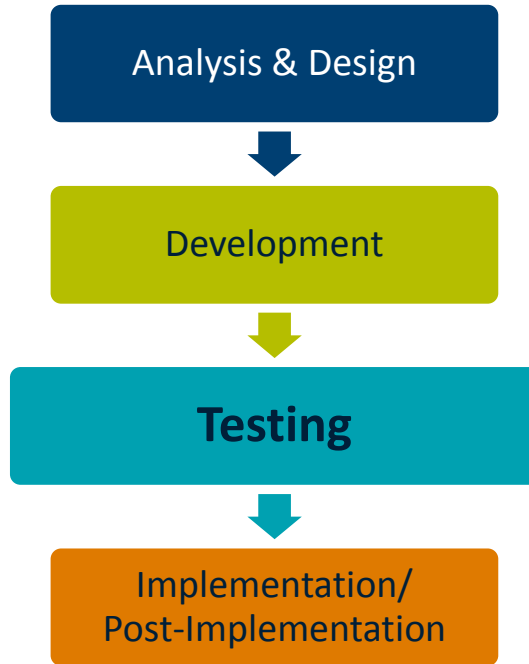
Great Lakes Development Methodology Waterfall

(2 of 4)



Great Lakes Development Methodology Waterfall

(3 of 4)



Define Requirements
Design & Content

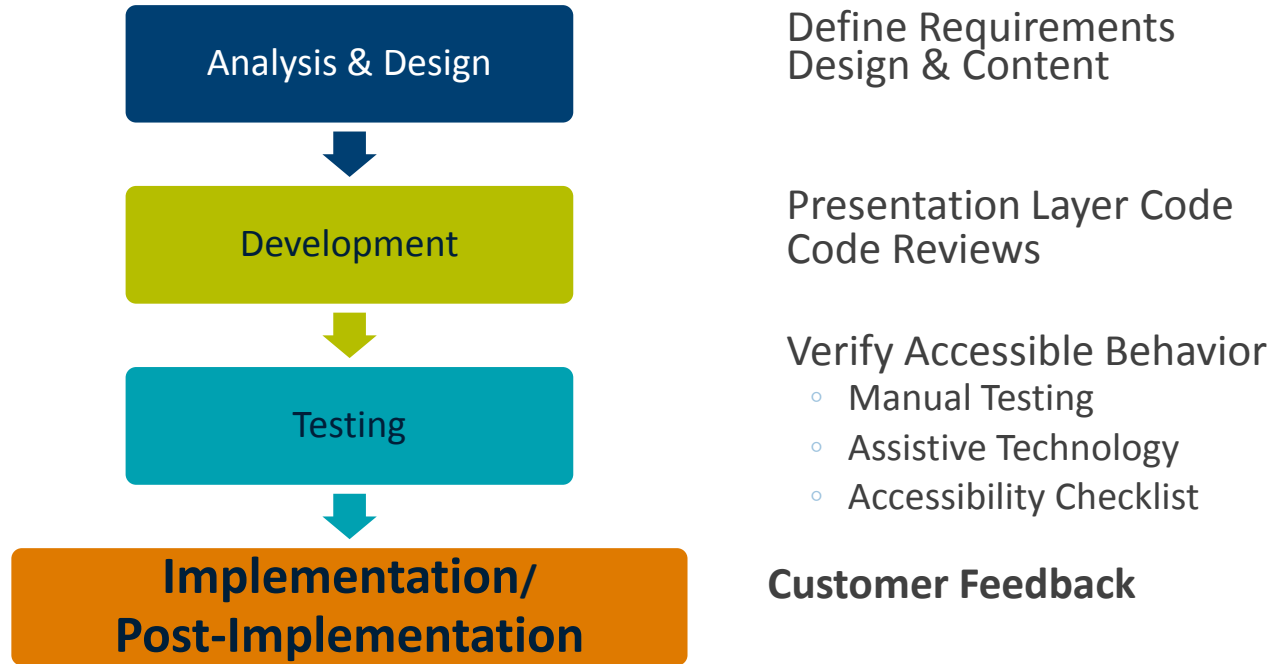
Presentation Layer Code
Code Reviews

Verify Accessible Behavior

- Manual Testing
- Assistive Technology
- Accessibility Checklist

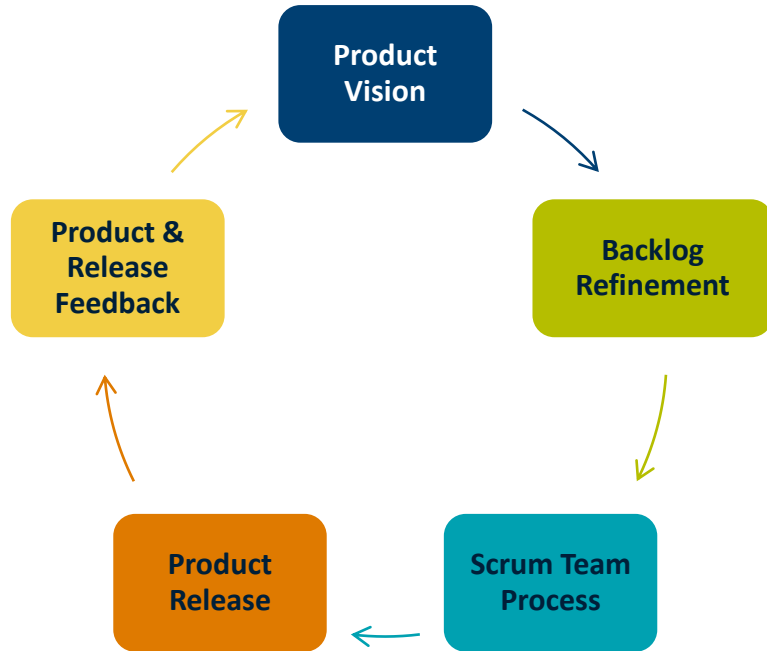
Great Lakes Development Methodology Waterfall

(4 of 4)



Great Lakes Development Methodology

Agile (Scrum)



Waterfall practices still apply, but the scope is often smaller

New practices

- Accessibility requirements added to acceptance criteria
- Accessibility in the Definition of Done
- Demonstrate accessibility related functionality in sprint reviews
- Dedicated accessibility sprints

Teams need a solid understanding of accessibility

The Toolbox: Supporting the Process

Documentation & Training

- Standard accessibility training for new hires
- Additional training available to teams on request
- Self-help Wiki

Pattern Libraries

- Reusable, accessible code

Accessibility Checklist

- HTML
- PDF
- Multimedia

How can we incorporate accessibility into the software development lifecycle successfully?

IT'S ALL ABOUT THE STAKEHOLDERS – EACH AND EVERY ONE

Business clients and project managers (the decision-makers)

High-level approach

Know who the audience is

- A widely distributed public website vs. a focused, internal business application

Need to make accessibility a priority

- Legal compliance
- It's the right thing to do
- Understand that accessible design, development and testing time is included in estimates

Should know how accessible their product currently is

- Set the direction
- Make team allocation decisions

Designers and content creators

Focus on the overall user experience

Principles of Accessibility - POUR

- **P**erceivable
- **U**nderstandable

Some Considerations

- Layout
- Color
- Headings
- Verbiage
- Interactive Elements (Links, Buttons)
- Navigation
- Images
 - Alternative Text
- Custom Experiences

Accessible design leads to more accessible code

Developers (the magicians)

POUR

- **O**perable
- **R**obust

Technical focus

- Accessible role, name, state, value
- Dynamic behavior (keyboard, screen reader, other assistive technology)
 - Custom widgets require robust scripting
 - Errors and Notifications
- Semantic elements
- Reading order
- Form input labels
- Native applications
- Unit tests for accessibility

Testers/quality assurance specialists (the defenders)

Running automated tools (aXe, WAVE)

Manual testing, including use of assistive technology

- Screen readers
- Magnification
- Responsive behavior / various devices

Verify

- Reading order
- Keyboard behavior
- Checklist completed

Check for understandability / edge cases

Accessibility expert

Fill in the gaps

- Provide guidance where a team might be lacking expertise

Training & Consulting

Advocate for accessibility

- Help prioritize issues

Can also be a member of the team who is passionate about accessibility

Customer service (the listeners)

Interact directly with customers

Require awareness of individuals with disabilities

- Knowledge of what we offer (such as alternative formats)

Yearly accessibility training

Support customer independence

Customers (the last word)

Our goal is to provide a product that all of our customers can use

Give customers a voice by providing an easy feedback method

- Complaints
- Suggestions

Be aware of trends and how our customers are changing the way they access our products

- Mobile First / Responsive Design

The Bottom Line

Accessibility is a team game.

A product is only as accessible as its weakest link.

All stakeholders need to consider accessibility and take an active role.

Whether your process is waterfall or agile, incorporating accessibility into the whole process will lead to a better end product.

Questions?

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