



**PDF Days
Europe
2025**

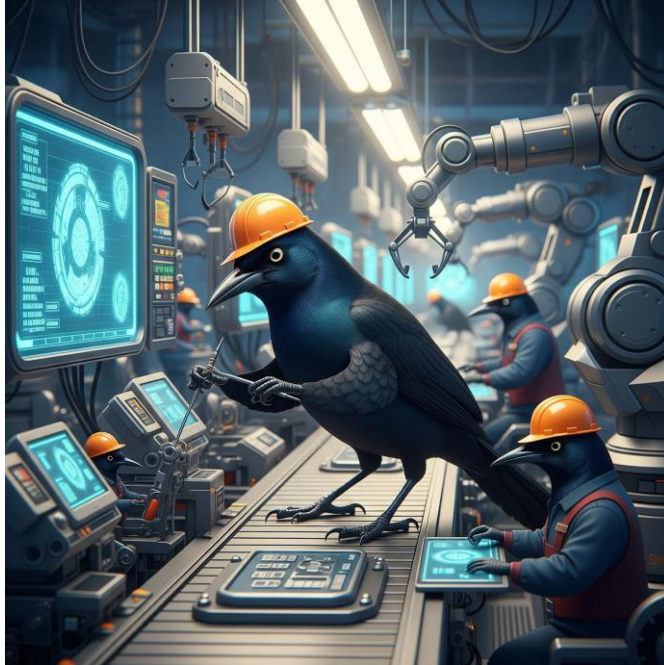
Beyond Automation

AI-Enhanced Workflows for PDF/UA Remediation
Aligned with ISO Standards

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**Access is a
Human Right**

Agenda



- Navigating human rights, compliance, and budgets
- AI and Automation
 - Know the Limits
 - Security and Integrity
 - Identify Strengths with Examples
- Building a sustainable remediation framework
 - Templates
 - High volume documents
 - Moving Beyond Standard Practice – Promoting engagement across the field

The Legal and Ethical Landscape

Standards

- ISO 14289-1:2014 (PDF/UA-1)
- ISO 14289-2:2020 (PDF/UA -2)
- ISO 32000-2:2020 (PDF 2.0)
- WCAG 2.0 – 2.2 AA
- WCAG2ICT

Laws and Guidance

- EU – European Accessibility Act, EN 301 549 (WCAG 2.2, e-commerce)
- UK – Equality Act (WCAG 2.0, public/private)
- CAN – AODA (WCAG 2.0 by 2025); ACA (WCAG 2.0, public)
- Norway – Regulations on UD and ICT (WCAG 2.0 derivative, public/private)
- Switzerland - Federal Law on the Elimination of Inequalities for Persons with Disabilities, as amended (WCAG 2.0, public/private)
- USA – ADAAA Title II, Section 508 (WCAG 2.1 for federally funded agencies by April 2025)

What We Already Know

AI-based remediation has revolutionized PDF accessibility **but** is not always able to accurately map content to ISO in six main areas.

- Role Mapping Errors
- Inaccurate Layout Tagging
- Artifact Misuse
- Language and Metadata Gaps
- Unicode and Encoding Gaps
- Tab Order vs. Structure

Security and Integrity Considerations

- **Digital Signatures:** AI-only edits can invalidate digital signatures.
 - When this occurs a post-remediation re-signing is required: time consuming, integrity gaps
 - Fix: Review AI suggested layouts before auto-tagging occurs.
- **Security Flags:** Experts must ensure that security flags permit assistive technology access and do not lock out text-to-speech functionality.
- **Embedded Scripts:** Fully automated tools may not adequately review or remove sensitive, hidden content (e.g. embedded files or scripts).
 - This is a security and privacy risk that requires a human expert.

Tooling in Practice

Capitalizing on Software Strengths



Equidox AI

Excellent Features:

- **Speed and Scalability:** Equidox AI can process a *high volume* of documents, such as financial statements or invoices, in a fraction of the time it would take a human to do so manually.
- **Cost-Effective Consistency:** The tool provides consistent results for **templated documents** at scale, which can pass automated and manual checks.

Good to Know:

- As with other AI tools, *in AI-only mode* it may struggle with Complex, Non-Templated Documents
- **Metadata:** May fail to correctly or completely fill out all required metadata fields. (Something to double-check!)
- **Contextual Nuances:** It is important to check reading order and for any misplaced tags or mis-mapped tags.

AxesTag AI (within MATLAB)

Excellent Features:

- **Strong on Tables:** AxesTag AI is specifically noted for its ability to handle complex tables with merged cells.
- **Handles Complex Layouts** with more accuracy.
- **Detects Decorative Elements:** The tool is consistent in identifying decorative elements, which can then be tagged as artifacts to be ignored by screen readers.
- **Metadata:** AxesTag AI is cited for automatically detecting and assigning metadata, which is a key requirement for ISO 14289.

Good to Know:

- The specific characteristics and complicated content/layout of the document being can affect accuracy.
- As with any AI, despite its high level of automation, studies show that it still requires human verification to ensure optimal compliance with the PDF/UA standard.

CommonLook PDF

Excellent Features

- Allows for *fast fixes* in the event of any AI layout errors.
- Reviews accessibility for a variety of Standards.
- *Table linearization* and intuitive editing.

Good to Know:

- Not meant to be an OCR software.
- Requires Adobe Pro (Add-on)
- Training is essential

CommonLook PDF at a Glance

The screenshot displays the CommonLook PDF application window. The title bar shows the file path: `C:\Users\AveryHyme\Desktop\CL Showcase\Rock_On_DC_Brochure.pdf`. The interface includes a top toolbar with options like 'Insert tag', 'Convert tag', 'Settings', and 'Windows'. Below this is a 'tags' panel on the left showing a tree view of document elements. The main content area displays a brochure for 'The Annual Tuesday, Wednesday, & Thursday "Rock On, D.C." Music Festival'. The brochure includes a title, a photo of a stage performance, and text describing the event. A table lists ticket prices for different days and passes. The right side of the interface features a 'Standards' panel and a 'Properties' panel. The bottom status bar shows the page number '1 / 1' and a zoom level of '67%'.

The Annual Tuesday, Wednesday, & Thursday "Rock On, D.C." Music Festival

Brought to you by Q99.4, A105.8 "The Armadillo", and Pet Warehouse™, the 85th Annual "Rock on, D.C." music festival has hundreds of musical acts and pet friendly activities scheduled over the course of this 3-Day event!

Headliners this year include: The Pet Shop Boys, Def Leopard, and Seal!

There is sure to be something for every member of the family to enjoy, including the four-legged members. Come out and enjoy the best music and pet fun that the Washington, D.C. metropolis has to offer!

*Please note, all pets must be on a leash or in a carrier.

Dates and Ticket Prices:

The "Rock On, D.C." Music Festival is always scheduled on the third full week in May from 7:30am-10:00pm. Ticket prices for the event are listed below.

Day	Adult	Child	Four-Pack
Tuesday	\$20	\$10	\$55
Wednesday	\$25	\$15	\$75
Thursday	\$30	\$20	\$90
3-Day Mega-Pass	\$70	\$40	\$200

Location:

On the Mall in Washington, D.C. between the Capitol Building and the Washington Monument. The "Rock On, D.C." Music Festival is Metro and handicapped accessible.

Participating Vendors:

1. Rose Speakers
2. Bob's Routine
3. Musician's Guitar Place
4. Drummer's World

All proceeds will be split equally between the District of Columbia public schools Performing Arts Department.

Adobe Acrobat Pro's "Make Accessible" Tool

Excellent Features

- Auto-tagging (baseline only)
- *OCR scanning*
- Accessibility checker (c. 2013)
- PreFlight Automation (e.g. embedding fonts)

Good to Know:

- May be limited on complex content (e.g. tables with multiple header rows)
- Accessibility Checker is helpful; currently does not map to all of PDF/UA.
- Human oversight and additional checking is crucial
- The auto-tagging feature will group similar tags, at times unnecessarily which should be reviewed in QC

Grackle PDF

Excellent Features:

- Machine learning layout detection
- Human intervention before auto-tagging
- Wizards offer fast editing
- Checks accessibility against a variety of standards
- Screen reader preview

Good to Know:

- Not an OCR software
- Training is essential
- Some features currently in beta
- Improvements being made to layout detection in complex documents

GracklePDF at a Glance

The screenshot displays the GracklePDF application window. The title bar reads "Grackle PDF - Invoice Sample - Untagged.pdf". The interface includes a top toolbar with various tools like Open File, Close File, Save File, Revisions, Run Validator, Info Wizard, Table Wizard, Image Wizard, Link Wizard, Unicode Wizard, Space Wizard, Parent Tree, Role Map, Form Fields, Heading Levels, Layout Detection, and Auto Tag. A left sidebar contains panels for Tags, Pages, Fonts, and Bookmarks, with a "Pop Out" button. The main workspace shows a sample invoice from Globex Inc. The invoice details include the company name, address, and a table of services with columns for ITEM, DESCRIPTION, QTY, RATE, and AMOUNT. The status bar at the bottom indicates "Editor View", "Data View", and "Pageless" mode, along with a zoom level of 166% and page dimensions.

Globex Inc.
123 Industry Way
Company City, ST
123456

INVOICE

BILL TO
James Smith
123 Customer Street
Customer City, ST
12345

INVOICE 0054321
DATE 2025-01-20
TERMS Net 30
DUE DATE 2025-02-1

ITEM	DESCRIPTION	QTY	RATE	AMOUNT
Service, Hour	Global consulting	1	500.00	500.00
Service, Hour	Software Development - iOS, Android, and web applications	2	10,000.00	20,000.00
Service, Hour	Backup Solutions - Secure data hosting and recovery - Hosting and server management	5	150.00	750.00
Service, Hour	Threat Detection & Prevention - Proactive cybersecurity monitoring - GDPR, HIPAA, SOC 2 solutions - Cyberattack mitigation and restoration - Secure access control solutions	25	250	6,250.00

Example Failure Instance – “Make Accessible”

- Semantic Tagging
 - ISO 14289 requires semantic tagging to correctly identify all elements.
 - Errors with complex images containing text and non-text visual content .
 - Tendency to apply flat <H1> tags when <H1> to <H3> are otherwise apparent.

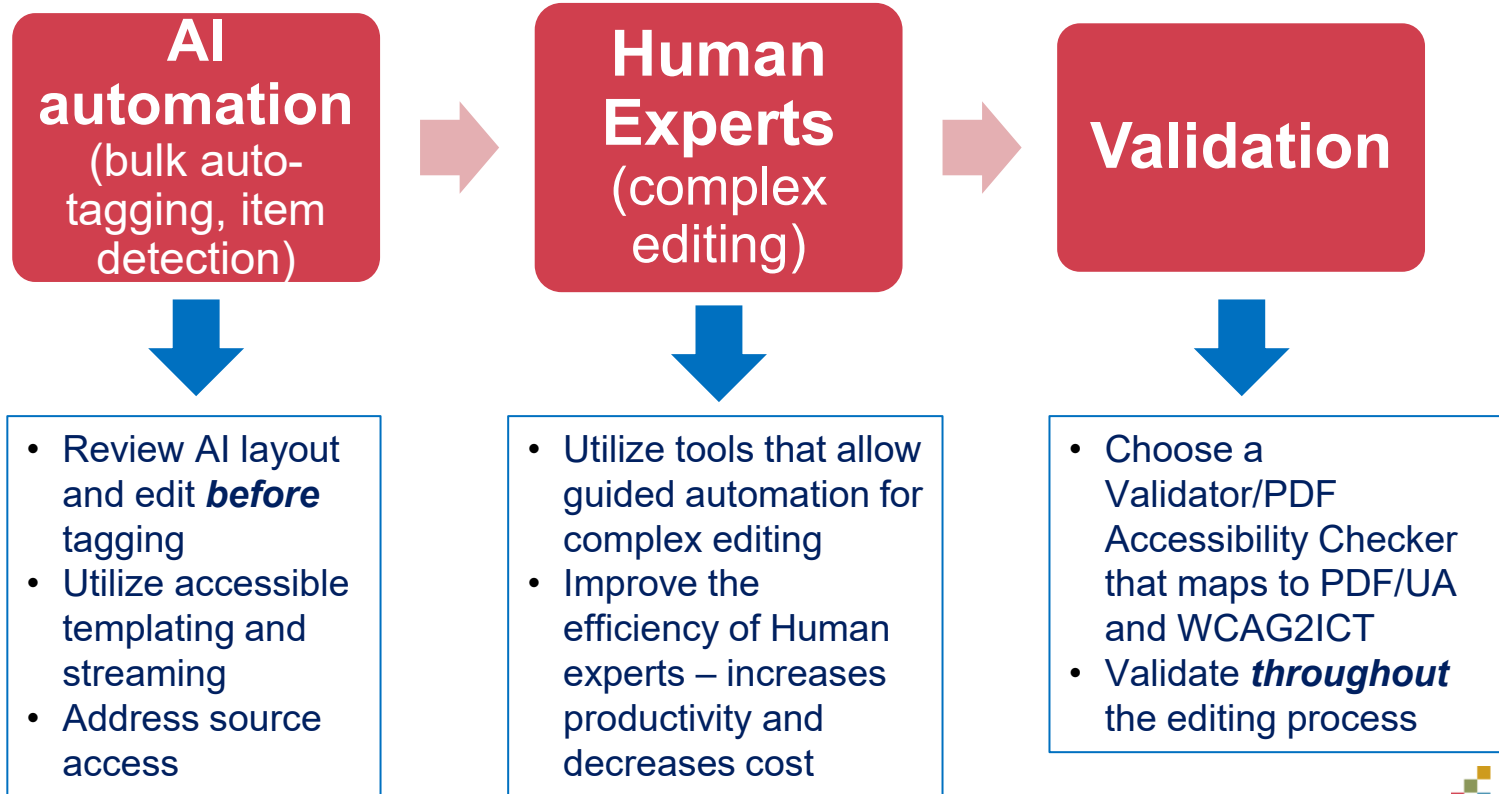
Building a Sustainable Creation and Remediation Framework



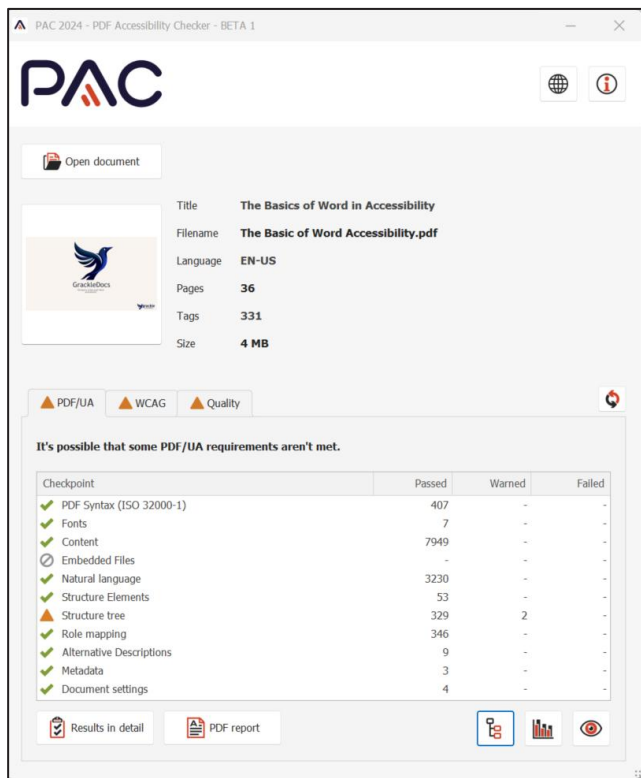
The Usual AI + Human Automation Process



Next Level AI + Human Automation



Checking Accessibility – PAC



- Identifies number and shows the location of passed, warned and failed elements:
 - Maps to PDF/UA
 - Aspects of WCAG
- Provides Accessibility Report
- Windows compatible desktop application (local machine can be positive for security)
- *Screen Reader preview*
- Free tool

Checking Accessibility - GrackleGO

Scan Results

Name: 1. GracklePDF Editor Demo file.pdf
Page Count: 1
Created On: --
Modified On: March 11, 2024 at 10:05 PM
Checker Version: 1.3.1.0

Title: --
Application: --
Producer: GrackleDocs Inc.
Language: en
Tagged: 1.3.1.0

Accessibility Grade: C Passed: 2308 Warned: 0 Failed: 86

Basic Requirements

	775	0	82
Content			
Mapping of characters to Unicode	774	0	0
Tagged content and artifacts	0	0	82
Referenced external objects	1	0	0
Artifacts inside tagged content	0	0	0
Optional Content	0	0	0
Tagged content inside artifacts	0	0	0

Embedded Files

Embedded Files	0	0	0
Fonts	12	0	0
ISO 32000 - 1	559	0	0
Natural Language	776	0	0

Logical Structure

Alternative Description	0	0	1
Alternative description for annotations	0	0	0
Alternative text for "Figure" structure elements	0	0	1
Alternative text missing for "Figure" structure element, but Actual text present			
Alternate names for form fields	0	0	0
Alternative text for "Formula" structure elements	0	0	0

GracklePDF Editor Sample

GracklePDF Validator

The GracklePDF Validator has been structured within the software to provide quick check access and navigation for targets and correct issues pertaining to compliance and usability. The master will not automatically open opening the application.

Info Wizard

Selecting "Info Wizard" will prompt a pop-up window to adjust document information including metadata, document properties and settings for opening the file.

Table Wizard

Table Wizard allows for structure overview and adjustment capabilities to ensure all standards for table requirements, coding, opening, and naming and structure are appropriate for interpretation of the end user. This wizard ensures that tables formatted as such below, with poor structuring, can be formatted appropriately.

Table Example 1

Document language and style	Number of pages	Translated 100%
German - Books, digital text files	27	✓
Spanish - Manuals, annual report summaries, letters	48	✓
Thai - Quotes, technical notes, brochures	19	✓
Cambridge - Annual reports, main navigation tables	54	✓
Denish - Textbook chapters	20	✓

Table Example 2

Category	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
% of budget	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Extrabudgetary	9.5	17.5	11.0	9.47	14.7	9.70	10.5	7.24		
Forecast loss	-0.487	-0.333	-0.807	-0.358	-0.387	-0.388	-0.388	-0.388	-0.388	-0.388

Table Example 3

Readers	Average	80 primary language	80 primary language
Male	8.17	205	485
Female	8.17	140	444
Other	8.17	400	388

- Identifies number and shows the location of passed, warned and failed elements:
 - Maps to PDF/UA
 - Aspects of WCAG
- Provides Accessibility Report
- Web-based tool with high level security
- Compatible with **Mac**, Windows, Linux, etc.
- Free tool

Addressing Access at the Source

- Strategic and Sustainable – Implement basic training for content creators.
- Reduce editing time at the source.
 - Cost of Training < Longer Remediation Times, Outsourcing, Risk of Non-Compliance
- Better address WCAG2ICT standard in the source document.
- Utilize templates when appropriate.
- Consider software that allows direct source to PDF output accessibility.
 - CommonLook Office
 - Grackle Workspace
 - What others?

High Volume Documents

- Organizations can produce millions of inaccessible, templated PDF communications, statements, paychecks, notices, bills, boarding passes, receipts, and contracts on a daily basis.
 - Sent automatically to end users who may or may not be able to access them.
 - Significant risk of human rights violation, loss of revenue, lowered reputation, etc.
- Human touch at the front end, focused on the template, with or without AI assist, to ensure full accessibility.
- Automated document streaming, integrated with the API, then ensures consistent accessibility at scale.
 - Examples: Equidox AI, Grackle Stream

Risk Register: Where Experts Step In

- Mathematical/chemical notation; STEM diagrams.
- Documents with multiple languages/scripts; right-to-left or CJK.
- Complex interactive forms; legacy XFA.
- Complex tables
- Proactive Measures:
 - **Templates:** Create archetype-specific tagging templates for recurring document types (e.g., reports, forms, catalogs) to accelerate remediation.
 - **Automation:** Automate metadata injection and enforce language defaults at the start of the workflow.
 - **Linting:** Use linting scripts to automatically detect and flag common structural anti-patterns before a document is passed to a human expert.

The Experts are Here in the Room

What would it be like if we collaborated?
How can we advance access and better
support Human Rights?

Change Management & Governance

- Standard operating procedures for AI-assisted remediation.
- Version control and audit trails for compliance evidence.
- Training rubric: onboarding matrix for junior remediators.

Top 10 Checks Before Delivery

1. Reading order coherent across all pages.
2. Headings H1–H6 semantic and sequential.
3. Lists properly structured; no paragraph lists.
4. Tables have TH and scope; no orphaned cells.
5. All figures have meaningful alt or are artifacts.
6. Form fields with Tooltips highlighted; predictable tab order.
7. Document /Lang set; page-level overrides where needed.
8. Title present; XMP matches Info; fonts embedded.
9. ToUnicode CMaps present for custom fonts.
10. Security allows AT access; signatures valid post-edit.

Summary & Next Steps

1. AI Accelerates, Experts Ensure:

- AI enhances speed and efficiency, but human experts are non-negotiable for ensuring ISO conformance and usability for assistive technology.

2. Standardize Pipelines:

- The most effective approach is to standardize a hybrid AI-human pipeline and use KPIs to measure quality and throughput.

3. Continuous Improvement:

- Continuously validate documents against PDF/UA and WCAG standards, and train your team to adapt to evolving requirements.

Questions?

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QR for LinkedIn

