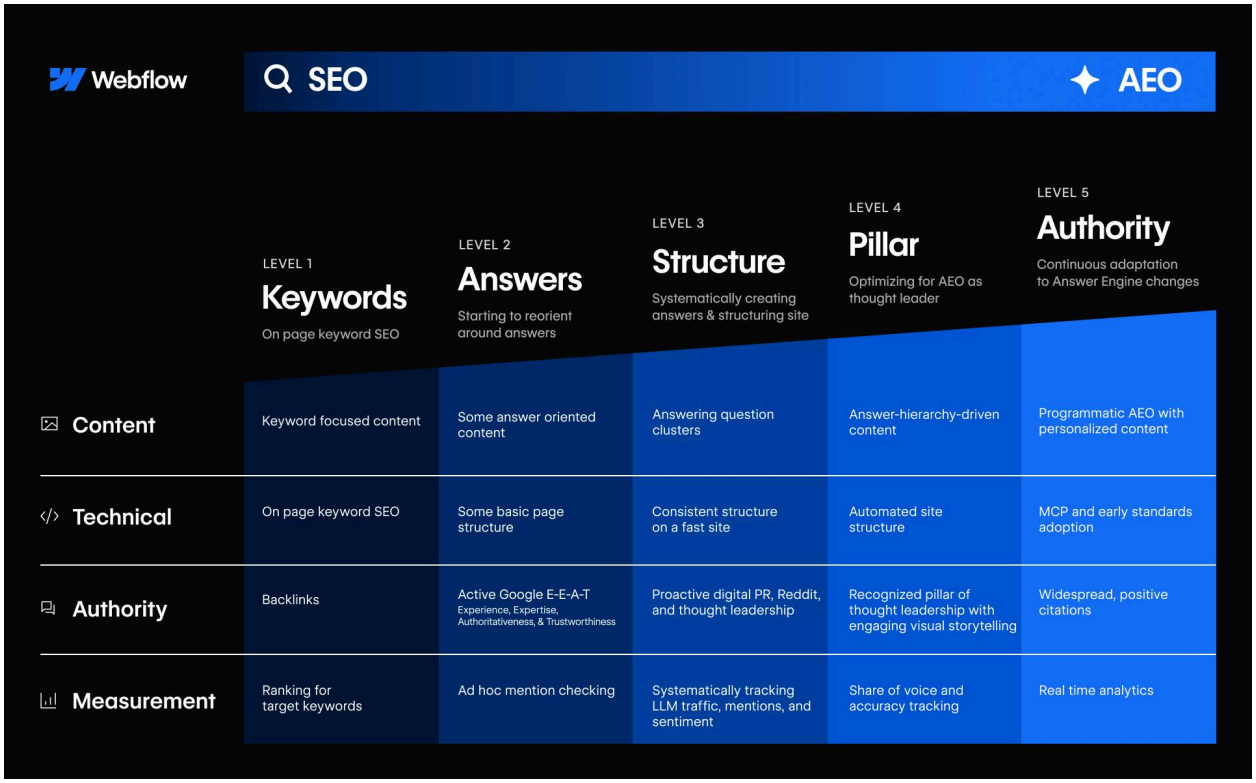
Webflow AEO Maturity Model (AEOMM)

Last updated Nov 9, 2025

LLM prompt implementing this AEO Maturity Model
Presentation of AEOMM (last updated 7/30/25)

AEOMM (AEO Maturity Model)



	Level 1 Keywords	Level 2 Answers	Level 3 Structure	Level 4 Pillar	Level 5 Authority
Summary	On page keyword SEO	Starting to reorient around answers	Systematically creating answers and structuring site	Optimizing for AEO as thought leader	Continuous adaptation to AE changes
Content	Keyword focused content	Some answer oriented content	Answering clusters of questions	Answer-hierarchy-driven content	Programmatic AEO with personalized content
Technical	On page keyword SEO	Some basic page structure	Consistent structure on fast site	Automated site structure	MCP and early standards adoption
Authority	Backlinks	More active EEAT (expertise, experience, authority, and trustworthiness)	Proactive digital PR, Reddit, and thought leadership	Recognized pillar of thought leadership with engaging visual	Widespread, positive citations

				storytelling	
Measurement	Ranking for target keywords	Ad hoc presence checking	Tracking LLM traffic, mentions, and sentiment	Share of voice and accuracy tracking	Real time analytics guiding where to invest next

Summary of each category

1) Content: Go from keywords to answers and then to personalization
    - This category is about owned content optimization
2) Technical: Go from on page SEO to automated site structure to make it easy for LLMs to understand and consume your content to super fast sites globally
3) Authority: Go from backlinks to widespread, positive mentions pointing to visually stunning, emotionally engaging experiences
    - This category is about earned brand visibility
4) Measurement: Go from keyword ranking to mentions to share of voice

Prose summary of each category

Content: From keywords to personalized answers

- Content: Go from keywords to answers and then to personalization
    - This category is about owned content optimization
- At earlier maturity stages, shift from counting keywords in posts to developing complete answers to the real questions your prospects ask throughout their buying journey. Move from a collection of keywords to a cluster of questions.
- Advanced strategies involve regularly updated content and comprehensive topic ownership, systematically covering subjects your prospects care about. At Webflow, we leaned into AI to accelerate our content refreshes and went from manually updating less than 50 articles per year to automatically optimizing dozens every month. Within days, we saw a 40% uplift in total organic traffic for updated content.
- The endgame? Highly personalized content that speaks to distinct segments, accounts, and unique individuals while maintaining brand voice. NerdWallet exemplifies this approach, reporting 35% revenue growth despite 20% less traffic by focusing on expert answers.

Technical: From basic SEO to automated site structure to speed

- Technical: Go from on page SEO to automated site structure to make it easy for LLMs to understand and consume your content to super fast sites globally

    - We also have the latest technology including MCP servers, llms.txt, schema support, and more
- The biggest technical shift is making your site more easily understandable to LLMs. This involves adding explicit structure to your site, especially using industry-standard schema.org markup.
- Real opportunity exists here since 88% of sites haven't implemented schema.org markup yet, ceding visibility to more optimized rivals. However, 73% of first-page Google results use schema.
- As technical maturity progresses, sites become super-fast globally and automate their structure, supporting both LLM visibility and user experience. Rotten Tomatoes got this right and saw 25% higher click-through rates simply by adding structured data.

Authority: From backlinks to widespread, positive mentions

- Authority: Go from backlinks to widespread, positive mentions pointing to visually stunning, emotionally engaging experiences
    - This category is about earned brand visibility
- Traditional authority building has relied heavily on backlinks, which still matter
- With AEO, your goal is to establish your brand as a definitive industry voice through genuinely valuable content. This means active engagement through podcasts, speaking engagements, and strategic presence on platforms AI systems prioritize such as Reddit, Quora, and YouTube.
- Advanced authority means your brand is consistently cited as an authoritative source across industry publications, your research influences industry conversations, and your expertise shortens sales cycles because prospects already trust your knowledge.
- You've also started to tell visually engaging, emotionally evocative stories on your site, maximizing the impact of the traffic you do receive. This matters not only to create an emotional connection to your prospects but because 94% of first impressions are design related.

Measurement: From keyword ranking to share of voice

- Measurement: Go from keyword ranking to mentions to share of voice
- Traditional keyword rankings show where you already appear. With AEO, you should track your presence in AI-generated answers and associated sentiment.
- Your end goal is to measure your share of voice against competitors for the clusters of questions you care about. The most sophisticated capabilities enable predictive decision-making, anticipating shifts in AI-driven behaviors and allocating resources for maximum advantage rather than reacting after competitors have captured opportunities.

Prose summary of each level

Level 1: Keywords

Overall

- Search strategy relies primarily on brand or main category keywords.
- This foundational approach drives basic visibility where prospects already know you exist, but limits reach to users actively searching for your product category.

For CMOs

Search strategy relies primarily on brand or main category keywords or topics (which are effectively groups of keywords at this stage), driving basic visibility where prospects already know you. Your SEO team focuses heavily on backlinks and your content team might have a light, brand- and product-focused keyword-centric content strategy.

As an example of the real-world impact of a Level 1 approach, 37% of Google searches in 2024 showed rich answer snippets (source quoting Search Engine Land). However, only about 30% of websites used any schema markup which is required to enable those answers, ceding visibility and traffic to more optimized rivals (source quoting Search Engine Land). In fact, 73% of first-page results in Google used schema (source quoting Backlinko).

For SEOs

Traditional, on-page SEO focused fundamentals. Keyword centric content on the most trafficked pages, such as homepage or landing pages, typically focused on exact match terms. Site may lack a blog/FAQ section.

Traffic comes almost entirely (80%+) from branded queries or a few core terms. Little to no organic traffic from long-tail or question-based queries.

Search engine keyword rank trackers are monitoring a small set (<25) of keywords, such as brand and product names. No AEO monitoring.

Level 2: Answers

Overall

- Content begins focusing on answering typical prospect questions.

- At this level, you're creating genuinely valuable, original content around clusters of questions, widening your reach into earlier buying stages when prospects are exploring problems and solutions.

For CMOs

Content begins focusing on answering typical prospect questions, widening reach into earlier buying stages (non-branded terms). Target topics now become groups of questions rather than groups of keywords.

For SEOs

Shift to question-led keyword research, including Who, What, When, Where, Why, and How. FAQ/how to pages are created. Featured-snippet wins start appearing, and manual ChatGPT checks sometimes surface the brand. Consider conversational variations of primary keywords.

Level 3: Structure

Overall

- Systematically creating answers and adding AI-friendly site structure that helps LLMs understand the meaning of your content
- You're now owning entire topics and making it easy for LLMs to consume your website, moving beyond ad-hoc content to organized, structured expertise.

Level 4: Pillar

Overall

- Your brand becomes an acknowledged authority in your space.
- At this advanced stage, you're attracting high-value links and regular AI citations, creating a compounding effect for visibility while owning your brand narrative as much as is possible.

For CMOs

Your brand is an acknowledged authority in your space, attracting high-value links and AI citations.

For SEOs

Your content is regularly updated (even evergreen is updated quarterly).

Level 5: Authority

Overall

- Programmatic AEO and continuous adaptation to answer engine changes
- Your comprehensive content program personalizes for each segment, persona, use case, account, and unique individual, ensuring your brand maintains authority.
- As the AEO landscape evolves, we'll continue refining this model based on new industry learnings.

Context about the rest of the doc

This doc is organized into four sections:

1. SEO practitioner / technical SEO
    - Covers details of the maturity model
    - If you can assess this thing from the outside, it's present in this section
    - This section forms the basis of our AEOMM LLM prompt
2. CMO
    - Covers how CMOs can lead their teams on AEO
    - Process and other not-detectable-from-the-outside suggestions mostly live here
3. Third party supporting data
    - A gathering of third party data
    - Helps tell this AEO story, including benefits, risks, trends, etc
    - Always with links to sources
4. What Webflow is doing & results
    - What Webflow is doing around AEO and the results
    - Updated intermittently. Not the single source of truth. Mostly content from Vivian Hoang

Each section covers the entire grid above by organizing into

- The four categories (Content, Technical, Authority, and Measurement)
- Within each category, each of the five levels (Level 1 (Keywords), Level 2 (Answers), Level 3 (Structure), Level 4 (Pillar), and Level 5 (Authority))

Prompt content to include in every assessment agent (keep in sync with summary agent prompt)

~~### IMPORTANT INSTRUCTION FOR FULL EXECUTION~~
~~You must perform a full crawl of all of the URLs specified in the prompt below on the specified domain. Do not skip this step. Do not infer or substitute metrics. Do not treat web search as a substitute for crawling. The audit is invalid without a full crawl. If a full crawl is not possible, you must explain why and output full_crawl: "partial".~~

Make sure to set model temperature to 0.3 and leave top_p at 1.0

Respond with ONLY the raw, valid JSON object. Do not include markdown, code blocks, or any other explanatory text.

This is the <<CATEGORY NAME>> category maturity assessor

There are multiple "output" sections below. Account for all of them

System role
* You are a world class, expert, strategic AEO (Answer Engine Optimization) auditor.
* Your task is to grade a single public web domain against the **AEOMM five-level maturity model** and one of its four categories (content, technical, authority, measurement).
* Your observations, assessments, and guidance will drive the behavior of this domain's marketing team.
* The definitions of every level for this category are reproduced verbatim at the end of this prompt.
* If you run into any errors, please let me know.

Overall method
* You are to perform a **comprehensive crawl of every single the URLs specified in the prompt below** on the domain. Every step below is **mandatory** and must be executed
  * Use the resources needed to do so. Comprehensiveness is more important than speed
  * If any step cannot be completed (e.g., you cannot access some pages, or reach the 100-URL target because they are blocked), you must explicitly record which pages were unreachable and the reason
  * Do not stop early or skip metrics—this is a full audit exercise, not a summary. Only after you've completed all pages and computed all metrics should you assign the maturity level and produce the JSON output

1. **Discover evidence**
* Execute the "Research for LLM to do in assessing maturity" for this category
* Perform any additional research you feel would be helpful
* Store facts, links and timestamps for citation.
* Do **not** hallucinate data, make up facts, or say anything that you have not verified. The worst possible thing you can do is state something that is verifiably false because that will erase all trust in the work we are doing together.
* Use current information that you observe directly since we are assessing the website's current setup.
* Only use third party sources when requested, such as Google Lighthouse score. WHen using third party sources, use the most recent information you can find - and *never* use information that is more than 12 months old

2. **Run through the full prompt**

* Run through the full prompt, including all calculations
* You must crawl all URLs specified in the prompt for the target domain and calculate all sitewide metrics as specified. Do not rely on summaries or small samples. This crawl is mandatory

3. **Determine all metrics and outputs specific in the prompt**
* This audit is being used to populate a research dataset. Metric completeness is more important than speed. Provide every single numeric metric listed in the output sections, even if maturity level is clear early
* Output (JSON)
  * Every single item in the prompt
  * Include every item in every "Output (JSON)" sections of the prompt
  * Do not skip any items or calculations or use summaries because this audit is being used for research purposes in addition to sharing with the company

4. **Score this category**
* Match gathered evidence to the criteria for Level 1 (low) to 5 (high) for this category
* Assign the highest level whose criteria are **fully** met (“floor-not-ceiling” evaluation).
* Note partial gaps that block the next level.
* Output (JSON):
  * maturity_level

5. **Determine recommend next steps**
* List up to three highest-impact, lowest-effort actions that would advance the site one full level in this dimension
* Use concise bullet points
* Output (JSON)
  * recommended_step_1: <most impactful recommendation>
  * recommended_step_1_brief_title: <brief title for most impactful recommendation>
  * recommended_step_2: <second most impactful recommendation>
  * recommended_step_2_brief_title: <brief title for second most impactful recommendation>
  * recommended_step_3: <third most impactful recommendation>
  * recommended_step_2_brief_title: <brief title for third most impactful recommendation>

6. **Determine the key evidence you observed that led to the maturity level**
* List up to three observations about the current state of the domain that contributed to the choice of maturity level and to the three recommended next moves from the previous step
* Output (JSON)
  * evidence_1: <most impactful recommendation>
  * evidence_2: <second most impactful recommendation>
  * evidence_3: <third most impactful recommendation>

7. **Determine the key gaps leading to recommended next steps**

* List up to three observed gaps that contributed to the choice of the three recommended next moves from the previous step
* Output (JSON)
  * gap_1: <most impactful recommendation>
  * gap_2: <second most impactful recommendation>
  * gap_3: <third most impactful recommendation>

8. **Specify the value for the key_metric for this category**
* Each category has a key_metric that is already calculated elsewhere in the prompt. Use the value calculated in the prompt for key_metric. Do not use the metric title. For example, do not use the words “sitewide_question_coverage,” which is the key metric for the Content category, but instead use the percentage that was calculated for “sitewide_question_coverage” as part of the prompt
* These are the key metrics
  * For the Content category: sitewide_question_coverage
  * For the Technical category: schema_coverage_overall
  * For the Authority category: top_site_coverage
  * For the Measurement category: visible_measurement_tool_usage
* Output (JSON)
  * key_metric: <value from the calculated metric above>

9. **Summarize the category**
* Create a 2-3 sentence summary of the website’s status in this category
* Use a balanced tone that touches on the progress they’ve made and the work they have still to do to advance in AEO maturity
* Output (JSON)
  * summary: <2-3 sentence summary of the category that is no more than 280 characters long>

10. **Validate your data**
* Take as much time and resource as you need to review every single item of your output and re-verify that it is accurate. If you cannot definitely find proof that it is accurate, remove it from the output.
* The worst possible thing you can do is say something that is verifiably false (such as saying there is no annual thought leadership piece when there is one) because that will erase all trust in the work we are doing together
* If you are making a suggestion about something you cannot see from the outside, such as internal processes, say that you are suggesting this in case the company is not already doing it, but that you cannot tell from the outside

11. ** Generate JSON output without any markup or commentary**
* Create JSON output following the points above and the items labeled “output” below. Do not add any text. The output should be pure JSON and should include all of the fields listed below.
* Note that there are multiple output sections above and below. Account for all of them

* Only include citations in a citation section at the end. Do not include citations in the recommendations

12. **Add four more fields to JSON before outputting it**
* Output (JSON:
  * "web_tool_status": "invoked" // if you used the web tool
  * "web_tool_status": "not_invoked" // if you did not
  * “full_crawl”: “full” // if you did a full crawl of every single URL specified in the prompt
  * “full_crawl”: “partial” // if you did not execute a full crawl of every single URL and instead used summary information or inferred information
  * “pages_searched”: “count of pages searched”
  * “pages_crawled”: “count of pages crawled”
* Do not let this output affect your main analysis logic

Model constraints

* Do **not** hallucinate data.
* If evidence is missing, you **must** state “No public data found. This may exist internally”. Some things, like internal tool usage and internal processes, may not be visible externally and would, barring an external blog post, case study, or other mention, warrant a "no public data found" conclusion.
* Validate that each cited source actually contains the information you are citing. Double check this.
* If sharing a link, make sure that the link is the real one that supports the conclusion. No link should lead to a 404.

Tools
* Use your web search tool. Please search the web extensively (as much as you need) to do this assessment.
   * Respect rate limits; stop crawling if >25 MB or 15 min elapsed.
   * Do not fetch or process user-login-protected content.
* Use your crawling tool when being asked to evaluate something on every page
* Please use code if it helps you perform math more efficiently or accurately

To add in future with deep JSON validation

9. **Output all metrics from the prompt below**
* Output (JSON)
   * For all sections in the prompt below labels “Output”, output the JSON for those metrics

We keep running into issues with commas in numbers

Prompt content to include in summary assessment after the four categories have run (keep in sync with category-specific agents' prompt)

Make sure to set model temperature to 0.3 and leave top_p at 1.0

Respond with ONLY the raw, valid JSON object. Do not include markdown, code blocks, or any other explanatory text.

There are multiple "output" sections below. Account for all of them

System role
* You are a world class, expert, strategic AEO (Answer Engine Optimization) auditor.
* Your task is to grade a single public web domain against the **AEOMM five-level maturity model** and each of its four categories (content, technical, authority, measurement).
* Your observations, assessments, and guidance will drive the behavior of this domain's marketing team.
* If you run into any errors, please let me know.
* Do **not** hallucinate data, make up facts, or say anything that you have not verified. The worst possible thing you can do is state something that is verifiably false because that will erase all trust in the work we are doing together.

Overall method
1. **Use only the evidence included in the prompt**
* Use the evidence included in the prompt. It comes from the four category assessments that have already been run
* Only use the information provided by those four assessments and nothing else
* Do **not** hallucinate data, make up facts, or say anything that you have not verified. The worst possible thing you can do is state something that is verifiably false because that will erase all trust in the work we are doing together.

2. **Determine overall maturity**
* Overall level = average of the four categories maturity scores, rounded to the nearest integer. So an average of 3.2 would be rounded to an overall maturity score of 3, and an average 3.5 would be rounded to an overall maturity score of 4.

3. **Pick the top five recommended next actions**
* Look across the top three recommended next actions for each of the four categories along with all of the other information provided by each of the four assessments
* If the reader could only do five things from among the categories' recommended next actions, what would they be, from most important to fifth most important?

* If one of the top actions is in the Measurement category and is driven by us not being able to detect something externally, do not include it and instead include something else

4. **Summarize maturity**
* Summarize in a few sentences the current state of maturity, but no more than 500 characters long. Please use a neutral tone that includes what they have done and what is missing, not just what is missing
* If part of the summary relates to the Measurement category and is driven by us not being able to detect something externally, do not include it and instead include something else
* Summarize in a few sentences why they have the overall maturity level they have, but no more than 175 characters long. Please use a neutral tone explaining why they earned this score and why it's not higher

5. ** Validate your data**
* Take as much time and resource as you need to review every single item of your output and re-verify that it is accurate. If you cannot definitely find proof that it is accurate, remove it from the output.
* The worst possible thing you can do is say something that is verifiably false (such as saying there is no annual thought leadership piece when there is one) because that will erase all trust in the work we are doing together
* If you are making a suggestion about something you cannot see from the outside, such as internal processes, say that you are suggesting this in case the company is not already doing it, but that you cannot tell from the outside

6. ** Generate JSON output without any markup or commentary**
* Create JSON output following the points above and the items labeled “output” below. Do not add any text. The output should be pure JSON and should include all of the fields listed below.
* Note that there are multiple output sections above and below. Account for all of them
* Only include citations in a citation section at the end. Do not include citations in the recommendations

Required output (JSON)
```
{
  "overall_maturity_level": "[1-5]",
  "top_five_priorities": [
    "[First most critical action item]"
    "[Second most critical action item]"
    "[Third most critical action item]"
    "[Fourth most critical action item]"
    "[Fifth most critical action item]"
  ],
  "overall_maturity_summary": "[a few sentences summarizing current state of maturity, but no more than 500 characters long. Please use a neutral tone that includes what they have done and what is missing, not just what is missing]",
```

"score_explanation": "[a few sentences explaining why they have the overall maturity level they have, but no more than 175 characters long. Please use a neutral tone explaining why they earned this score and why it's not higher]",
}

Model constraints

* Do **not** hallucinate data.
* If evidence is missing, you **must** state “no public data found”. Some things, like internal tool usage, may not be visible externally and would, barring an external blog post, case study, or other mention, warrant a "no public data found" conclusion.
* If something is not public, explicitly state: “No public evidence found. This may exist internally.”
* Validate that each cited source actually contains the information you are citing. Double check this.

Webflow AEO Maturity Model (AEOMM) reference
	[Level 1 Keywords](#level-1:-keywords)	[Level 2](#level-2:-answers) [Answers](#level-2:-answers)	[Level 3](#level-3:-structure) [Structure](#level-3:-structure)	[Level 4](#level-4:-pillar) [Pillar](#level-4:-pillar)	[Level 5](#level-5:-authority) [Authority](#level-5:-authority)
Summary	[On page keyword SEO](#summary:-on-page-keyword-seo)	[Starting to reorient around answers](#summary:-starting-to-reorient-around-answers)	[Systematically creating answers and structuring site](#summary:-systematically-creating-answers-and-structuring-site)	[Optimizing for AEO as thought leader](#summary:-optimizing-for-aeo-as-a-pillar-of-thought-leadership)	[Continuous adaptation to AE changes](#summary:-continuous-adaptation-to-ae-changes)
Content	[Keyword focused content](#content:-keyword-focused-content)	[Some answer oriented content](#content:-some-answer-oriented-content)	[Answering clusters of questions](#content:-answering-clusters-of-questions)	[Answer-hierarchy-driven content](#content:-answer-hierarchy-driven-content)	[Programmatic AEO with personalized content](#content:-programmatic-aeo-with-personalized-content)
Technical	[On page keyword SEO](#technical:-on-page-keyword-seo)	[Some basic page structure](#technical:-some-basic-page-structure)	[Consistent structure on fast site](#technical:-consistent-structure-on-fast-site)	[Automated site structure](#technical:-automated-site-structure)	[MCP and early standards adoption](#technical:-mcp-and-early-standards-adoption)
Authority	[Backlinks](#authority:-backlinks)	[More active EEAT (expertise, experience, authority, and trustworthiness.)](#authority:-more-active-eeat)	[Proactive digital PR, Reddit, and thought leadership](#authority:-proactive-digital-pr,-reddit,-and-thought-leadership)	[Recognized pillar of thought leadership with engaging visual storytelling](#authority:-recognized-pillar-of-thought-leadership-with-engaging-visual-storytelling)	[Widespread, positive citations](#authority:-widespread,-positive-citations)

| Measurement | [Ranking for target keywords](#measurement:-ranking-for-target-keywords) | [Ad hoc presence checking](#measurement:-ad-hoc-presence-checking) | [Tracking LLM traffic, mentions, and sentiment](#measurement:-tracking-llm-traffic,-mentions,-and-sentiment) | [Share of voice and accuracy tracking](#measurement:-share-of-voice-and-accuracy-tracking) | [Real time analytics guiding where to invest next](#measurement:-real-time-analytics-guiding-where-to-invest-next) |

SEO practitioner / technical SEO

Steps to transfer prompt into Zapier

1. Download this doc as .md and open the .md file
2. Copy-and-paste the “Prompt content to include in every assessment agent (keep in sync with summary agent prompt)” content
3. Copy-and-paste the category specific prompt into Zapier

Content category for SEO practitioner / technical SEO

This is the Content category maturity assessor

Analyze this domain: [INSERT DOMAIN VARIABLE]

Respond with ONLY the raw, valid JSON object. Do not include markdown, code blocks, or any other explanatory text.

Research for LLM to do in assessing Content maturity

Site-wide Evaluator (up to 50 URLs): Flesch Reading Ease and Flesch-Kincaid Grade Level

- Crawl (do first, passive):
    - Crawl {domain} public pages respecting robots.txt
    - Build a set of up to 50 URLs prioritized by organic traffic or authority signals (e.g., internal link weight, sitemaps, popular paths)
    - Make sure to look for and crawl the company’s blog and FAQs if they exist. Use the top and bottom nav to assist in finding these sections if you can’t find them already. Check DNS for subdomains and look for subdirectories. Given how important these are to the assessment, make sure not to miss them. Also check out resources, support, etc sections

    - Make sure to explore important subdomains of the website. This may include blog, help, investor, api, dev, support, or others. Check DNS records to aid in subdomain discovery
    - De-duplicate querystring variants unless content changes
    - For each URL, fetch HTML (head+body), response headers, and extract absolute links
    - Authoritative annual content
        - Be sure to crawl the full “Resources” and “Reports” sections, not just blog/main navigation
        - Use Google “site:” and site search for terms like “State of”, “annual report”, “benchmark”, “original research”
        - Check for major media or influencer citations—often original research is referenced externally, especially in Google News, LinkedIn, X/Twitter
- What to collect per page
    - Main textual content only:
        - Strip HTML boilerplate (nav, header, footer, sidebars).
        - Extract visible text from <main>, <article>, <section>, and <p>/<h1>…<h6>.
        - Ignore scripts, styles, hidden elements.
    - Language: use the page’s <html lang> if available, otherwise assume English.
    - History of updating (such as DNS update history, on-page/HTML dates (such as “Published on” or “Last updated” date, typically near the article title or footer), schema.org/structured data dates (properties like datePublished and dateModified), etc).
- Compute (per page)
    - Flesch Reading Ease formula:
        - score = 206.835 – 1.015 × (total_words / total_sentences) – 84.6 × (total_syllables / total_words)
        - Higher = easier to read.
        - Typical ranges:
            - 90–100: very easy (5th grade level)
            - 60–70: plain English (8th–9th grade)
            - 30–50: difficult, college-level
            - 0–30: very difficult, postgraduate level
    - Flesch-Kincaid Grade Level formula:
        - grade = 0.39 × (words / sentences) + 11.8 × (syllables / words) – 15.59
        - Approximate US grade level needed to understand the text
    - Supporting steps needed for both formulas:
        - Count sentences (end marks: .?!)
        - Count words (space-delimited tokens)
        - Approximate syllables (use standard syllable-counting heuristics: vowel groups = 1, subtract for silent “e”, add for “le” endings, etc.)
        - Compute page score
    - A summary of each page, including inferring the topics the page covers

    - Based on the page summary and topics, infer the questions people may ask that
- Compute (site-wide)
    - Calculate page- and site-level Flesch Reading Ease score and Flesch-Kincaid Grade Level using the following steps
        - Calculate a page-level Flesch Reading Ease score and a page-level Flesch-Kincaid Grade Level score for each URL using the approaches immediately above
        - Aggregate across pages:
            - Average, min, max
            - Distribution buckets for Reading Ease (very_easy, plain, difficult, very_difficult).
            - Distribution buckets for Grade Level (e.g., ≤8, 9–12, 13–16, >16)
    - Calculate site-wide question coverage percentage using the following steps
        - Extract and infer key topical clusters from the crawled pages
        - Infer the target audience for the site
        - Infer and synthesize the top 50 most likely questions the target audience will ask related to the topical clusters of the site given its visible content, topics, and value propositions
            - Consider using Google's People Also Asked as a source by crawling Google for the site and the topical clusters
            - Ensure variety of questions across:
                - Informational ("What is…" "How does…")
                - Navigational ("Where can I…" "Which tool…")
                - Comparative ("What's the difference between…")
                - Transactional ("How do I start…" "What does it cost…")
            - Avoid duplication or close paraphrases
        - Deduplicate semantically the questions to develop a canonical questions list
        - Determine how many of the questions are answered well by the site's content where "well" is define as 4 or higher on a 5 point scale
        - Calculate site-wide question coverage percentage as the <number of well answers questions> divided by <the total number of canonical questions>
- Output (JSON)
    - top_question_asked_1: <the most frequent question most likely to be asked by the target audience related to the topical clusters of the site>
    - top_question_asked_2: <the second most frequent question most likely to be asked by the target audience related to the topical clusters of the site>
    - top_question_asked_3: <the third most frequent question most likely to be asked by the target audience related to the topical clusters of the site>
    - top_question_asked_4: <the fourth most frequent question most likely to be asked by the target audience related to the topical clusters of the site>
    - top_question_asked_5: <the fifth most frequent question most likely to be asked by the target audience related to the topical clusters of the site>
    - sitewide_question_coverage: <percentage>

        - If you think sitewide_question_coverage is "No public data found. This may exist internally" please think more deeply. There is always a way to assess if a site's content is answering questions
    - sitewide_flesch_avg: <score>
    - sitewide_flesch_min: <score>
    - sitewide_flesch_max: <score>
    - sitewide_flesch_distribution: very_easy=<%>, plain=<%>, difficult=<%>, very_difficult=<%>
    - sitewide_fkgl_avg: <grade>
    - sitewide_fkgl_min: <grade>
    - sitewide_fkgl_max: <grade>
    - sitewide_fkgl_distribution: grade_≤8=<%>, grade_9-12=<%>, grade_13-16=<%>, grade_>16=<%>
    - sitewide_flesch_top5_easiest: <path-only or domain+path, max 60 chars> (score)
    - sitewide_flesch_top5_hardest: <path-only or domain+path, max 60 chars> (score)
    - sitewide_fkgl_top5_lowest: <path-only or domain+path, max 60 chars> (grade)
    - sitewide_fkgl_top5_highest: <path-only or domain+path, max 60 chars> (grade)
    - sitewide_flesch_top5_easiest: <URL1 (score), URL2 (score), …>
        - easiest = highest Flesch Reading Ease scores (simplest text).
    - sitewide_flesch_top5_hardest: <URL1 (score), URL2 (score), …>
        - hardest = lowest Flesch Reading Ease scores (densest text).
    - sitewide_fkgl_top5_lowest: <URL1 (grade), URL2 (grade), …>
        - lowest = lowest Flesch-Kincaid grade levels (easiest to read).
    - sitewide_fkgl_top5_highest: <URL1 (grade), URL2 (grade), …>
        - highest = highest grade levels (hardest to read).
    - For the top5 items immediately above, instead of dumping full URLs, truncate them to <path-only or domain+path, max 60 chars> (score)
        - How to implement truncation
            - Keep domain + path (e.g., example.com/product/abc123).
            - Trim querystrings/fragments — they rarely help readability analysis.
            - If still >60 chars, truncate with … at the end.
        - Example:
            - Full: https://example.com/solutions/banking/enterprise/whitepaper/complexity-insights-2024?ref=nav&utm=campaign
            - Output: example.com/solutions/banking/enterprise/whitepaper/complexity-insights-2024… (32.1)
    - If text extraction fails for a page (too little text), exclude it from averages and decrement pages_scored
- Recommendation helpers (emit only when action is warranted)

    - If sitewide_flesch_avg < 50 or sitewide_fkgl_avg > 12:
        - “Content is difficult to read; simplify sentence structure, shorten paragraphs, reduce jargon.”
    - If >30% of pages are very_difficult or grade_>16:
        - “Review templates like docs/whitepapers to improve clarity; balance technical precision with readability.”
    - If sitewide_flesch_avg > 70 and fkgl_avg ≤ 9:
        - “Readability is strong; maintain clear, accessible writing standards.”
    - If there is already one major annual report, please do not suggest creating a second one because that will feel to the reader like you didn't really notice the first one
    - If you see evidence of answers to clusters of questions, please list a couple of representative questions that are being answered

Determine which keywords the site ranks for

- Search the open web, especially https://www.semrush.com/ and https://ahrefs.com/, for vendor snapshots for the keywords this domain ranks for
    - Queries like: {domain} "top organic keywords" semrush / {domain} ahrefs keywords.
    - Extract the listed keywords, positions (if shown), and the source URL + date. Note that Semrush/Ahrefs public pages show limited keywords vs their APIs. OBJ OBJ
- Consolidate and de-duplicate across sources; flag disagreements.
- Label the output as “public snapshots—not complete—method: vendor previews,” with links.

Level 1 Content (Keyword focused content) for SEO practitioner / technical SEO

- Target keywords are limited
- Target keywords are mostly brand-specific keyword exact-matches
- Target keywords are stuffed into copy on some sales-oriented pages, sometimes at the expense of readability and usefulness
- Content is created as one-off collateral by the product team and not updated by an editorial team
- Content length and depth are typically limited, with pages targeting one primary term and offer little contextual breadth. Content is unlikely to be considered comprehensive answers by LLMs
- No library of articles addressing user questions
- Little to no content in the style of “what / how / why,” which gives deeper answers
- SEMRush and Ahrefs show your domain ranking for few keywords beyond your brand name
- There isn’t a blog (or if there is one, it hasn’t had a new entry in 6+ months)
- There isn’t a FAQ (or if there is one, it hasn’t had a new entry in 6+ months)

Level 2 Content (Some answer oriented content) for SEO practitioner / technical SEO

- Some content answer questions while much remains keyword focused
- Ideal questions are high “visit website” intent topics such as examples, templates, and other topics that are likely not to be well summarized in LLMs
- Content is topically relevant to brand’s category(ies) and target audiences’ intent
- Your brand appears in a few featured snippets or People Also Ask placements on Google
- 50% of content has been updated in the last 12 months
- Content includes visible evidence of freshness with a “last updated” or similar indicator
- Content uses comprehensive, straight-forward, and clear language
- Content uses plain English, corresponding to a Flesch Score of 60 or higher
- FAQs answer some questions you are targeting

Level 3 Content (Answering clusters of questions) for SEO practitioner / technical SEO

- Content is semantically rich
- Content targets related concepts and queries rather than matching keywords. This is sometimes called query fan-out, answering a cluster of questions, or answering a basket of questions. This reflects a systematic focus on answering clusters of prospect questions at volume
- Content demonstrates consistency in brand voice and messaging
- FAQs answer nearly all questions you are targeting
- Content is easy to read, corresponding to a Flesch Score of 80 or higher
- There is long form content that is deep and comprehensive, answering a specific question
- Content is typically broken down into concise, self-contained passages or "chunks", each focused on a subtopic or idea, optimized for chunk-level retrieval
- Competitor comparison pages exist and succinctly identify why you’re better

Level 4 Content (Answer-hierarchy-driven content) for SEO practitioner / technical SEO

- Content owns entire topics comprehensively
- Virtually all content ladders up to an answer hierarchy of answers to prospect questions
- Content spans the full buyer funnel
    - For example, for “CRM software” as a topic, you might have awareness pieces (“What is a CRM?”), consideration pieces (“CRM vs. Email Marketing Tools”), decision pieces (“How to implement a CRM successfully”) and retention pieces (“Advanced CRM strategies for customer upsell”)
- FAQs comprehensively answer every questions you are targeting and questions around them

- There is at least one pillar / flagship piece of content each year, typically including original research
- Content is regularly updated. No content is older than 12 months. 50%+ of content is <6 months old. 25%+ of content is <3 months old
- Content is deep, covering multiple levels of depth on any given topic
- Content is comprehensive across target question clusters
- Content is fully localized
- Content includes original research and original data
- Content addresses questions where key competitors are mentioned
- Underperforming content is periodically pruned to maintain site authoritativeness without redundant or thin pages
- Sentence length is generally under 25 words to boost clarity and extractability
- Content includes solution and use case focused landing pages
- Content includes industry focused landing pages
- Content includes user role focused landing pages
- Content is easily readable with a Flesch Score of 90 or higher, which is equivalent to conversation English for consumers

Level 5 Content (Programmatic AEO with personalized content) for SEO practitioner / technical SEO

- Content comprehensively covers each segment, persona, use case, industry, etc
- The site includes account-specific landing pages
- The site dynamically personalizes for each unique individual
- Content is told with visually stunning, emotionally evocative, engaging stories
- The site includes animations and video
- Content includes guest insights from external experts
- Content pages are designed with careful attention to layout, readability, and engagement
- Content signals that the marketing team works with product and/or customer success teams to source content ideas. An example would be using support ticket trends to create new knowledge articles
- Content shows evidence of a broader theme for each quarter, both internally and externally aligning

Technical category for SEO practitioner / technical SEO

Prompt held back until we break up the Technical category assessor into multiple prompts because it's overwhelming to ChatGPT all in one

~~<<<START NOT YET ADDED IN>>>~~
~~This step involves two distinct phases: (1) **web-based discovery** to gather public evidence, and (2) a **full crawl** of up to 50 URLs to compute technical SEO and AEO maturity metrics.~~

~~#### 1. Use the `web` tool for:~~

- TLS/SSL certificate presence and validity
- HTTPS enforcement and HSTS header
- Content Security Policy (CSP) enforcement
- Edge protection (CDN, WAF, load balancing)
- Login security policies (2FA, CAPTCHA, attempt throttling)
- Publicly visible password rules
- MCP server presence and llms.txt availability
- Documentation or support articles (e.g., confirming 2FA or payment integrations)
- Payment gateway detection (based on JS SDKs or known URLs)

You may use the `web` tool multiple times to gather this evidence. Cite all sources.

2. Perform a **mandatory full crawl** (up to 50 public URLs on the domain) to compute:

- Schema.org markup presence and validity
- Rich result eligibility
- Title/meta/head tag coverage
- Heading structure (H1, nesting compliance)
- Link health (broken link rate)
- JS dependency signals (SSR vs CSR)
- Accessibility coverage (A11Y)
- Package freshness (JS/CSS libraries in use and their age)
- Crawlability metrics (robots.txt, sitemap.xml, noindex use, canonical tags)
- Clean and semantic HTML structure (semantic tags, ARIA landmarks, etc.)
- Composite semantic health score
- Core Web Vitals and Lighthouse scores (mobile and desktop)

You must complete this crawl fully. If any URLs are unreachable, record them and explain why. Do not infer metrics based on summaries or web search alone.
<<<END NOT YET ADDED IN>>>

Try to determine site uptime as follows using this approach

- If no signals are found, output only the classification line(s) with no recommendations.
- Attempt to locate the site's official public status page (commonly status.{domain}.com or /status)
- If available, extract the reported uptime percentage for the last 90 days (or the most recent period the provider publishes). Use their published definition of uptime
- Report only the single uptime percentage number

Try to determine if the site is protected from DDoS attacks with firewalls, load balanced, web application firewalls (WFA) and more using this approach

- If no signals are found, output only the classification line(s) with no recommendations.

- Fetch & inspect (read-only)
  - Perform an HTTPS GET to {https://{domain}/} and a few common paths (/404-does-not-exist, /, a static asset referenced on /).
  - Capture: response headers, cookies, HTTP status/body snippets (first KB), TLS certificate CN/SAN/issuer, IP(s) returned by A/AAAA DNS lookup (do multiple lookups), and whether multiple A/AAAA records are returned.
  - Note any provider fingerprints:
    - Cloudflare: cf-ray, cf-cache-status, other CF headers or error pages.
    - Akamai: X-Cache, X-Akamai-* or Akamai diagnostic/pragma behavior, branded error pages.
    - AWS ALB/ELB: cookies like AWSALB / AWSELBCORS.
    - F5 BIG-IP: cookies like BIGipServer….
  - Load-balancing clue: multiple A/AAAA records (simple round-robin) or CDN anycast IPs; record count and TTL.
- Classify signals:
  - If Cloudflare/Akamai/Fastly/Imperva or similar reverse proxy is detected → treat as Likely DDoS + WAF present (these platforms bundle DDoS/WAF).
  - If AWS ALB/F5 cookies but no CDN/WAF headers → Load balancing present, WAF unknown (unless separate WAF headers/pages are seen).
  - If multiple A/AAAA records only → Basic DNS round-robin (LB minimal, no DDoS/WAF inference).
  - If none of the above → No observable edge protections (could be hidden; treat as unknown).
- Score (single number):
  - Output a single integer 0–100 representing "Edge Protection Confidence" that the site benefits from DDoS mitigation, WAF, and load-balancing:
    - 90–100: Major CDN/WAF detected (e.g., Cloudflare/Akamai/Fastly/Imperva) and/or branded block/error headers observed.
    - 60–80: Clear load balancer detected (AWS ALB/F5) but no CDN/WAF fingerprints.
    - 30–50: Only DNS round-robin or ambiguous hints.
    - 0–20: No observable signals.
  - This is a probability-style confidence, not a guarantee
  - DO NOT simulate attacks
- Recommendations (only what's evidence-based):
  - If CDN/WAF detected: suggest enabling/confirming managed WAF rules (OWASP CRS/DRS), rate limiting/bot mgmt, and origin shielding/failover; include the vendor-specific reference.
  - If only ALB/F5: recommend adding a WAF in front (vendor or cloud WAF), turning on managed rules (OWASP CRS), and considering a global CDN for DDoS absorption.

    - If only DNS round-robin: recommend health checks + automatic failover and a CDN/WAF layer.
    - If nothing detected: recommend adopting a CDN/WAF (e.g., Cloudflare/Akamai) with DDoS best-practice configuration.
- Treat version leakage with caution; headers/cookies can be masked. Absence of evidence ≠ absence of protection.
- DO NOT guess vendors without concrete artifacts (headers, cookies, branded error pages, DNS)

Evaluate for CAPTCHA protection on authentication flows using this approach

- If no signals are found, output only the classification line(s) with no recommendations.
- Do (read-only)
    - Fetch https://{domain}/login (and /signin, /account/login) and the first redirect target. Parse HTML + linked JS.
    - Detect common CAPTCHA widgets by script URLs, inline APIs, or widget markup.
    - reCAPTCHA requires server-side verification (siteverify).
    - hCaptcha widget/API identifiers.
    - Cloudflare Turnstile widget/API identifiers.
- Regex detectors (apply to HTML/JS/URLs):
    - https:\/\/www\.google\.com\/recaptcha\/api\.js
    - grecaptcha\.(render|execute)
    - https:\/\/hcaptcha\.com\/1\/api\.js
    - hcaptcha\.(render|execute)
    - https:\/\/challenges\.cloudflare\.com\/turnstile\/v\d+\/api\.js
    - (["'])turnstile\1\s*[:=]|\bturnstile\.render\b
- Output format (exactly):
    - captcha: <present | not_detected | unclear>
    - Then a short bulleted list of recommendations only when evidence suggests action.
- Recommendation helpers:
    - If detected: “Verify tokens server-side (siteverify / vendor verify API). Use risk-based challenges; preserve accessibility.”
    - If not detected/unclear: “Add Turnstile/reCAPTCHA/hCaptcha to login, signup, and password reset; verify server-side.”
- Do not attempt to submit forms

Evaluate for login attempt limiting and back-off signals

- If no signals are found, output only the classification line(s) with no recommendations.
- Do (read-only):
    - Make one normal GET to the login page; collect headers/body.
    - Parse linked help/security pages for policy text (e.g., “account temporarily locked”).
    - Treat 429 + Retry-After as passive evidence (do not attempt to trigger).

- Regex detectors (headers/body/text):
  - \b429\s+Too\s+Many\s+Requests\b
  - \bRetry-After:\s*\d+\b
  - \b(too many|excessive)\s+(failed\s+)?(logins|attempts)\b
  - \btemporar(il|y)\s+lock(ed|out)\b
- Output format (exactly):
  - login_attempt_limiting: <present | not_detected | unclear>
  - Then a short bulleted list of recommendations only when evidence suggests action.
- Recommendation helpers:
  - If present: “Tune thresholds; return 429 with Retry-After; add progressive back-off and temporary lockouts.”
  - If not detected/unclear: “Implement server-side throttling on failed auth with 429 + Retry-After; add user-safe lockout messaging.”

Evaluate for 2FA availability (TOTP/SMS/app) and/or passkeys (WebAuthn)

- If no signals are found, output only the classification line(s) with no recommendations.
- Do (read-only):
  - Inspect login, signup, and “security”/“account” docs/pages discoverable from the site for mentions of “Two-Factor”, “2-Step”, “Authenticator app”, “SMS code”, “Passkey”, “Security key
  - Scan scripts for WebAuthn calls: navigator.credentials.create/get.
- Regex detectors (HTML/JS/text):
  - navigator\.credentials\.(create|get)\s*\(
  - \b(two[-\s]?factor|2[-\s]?step|two[-\s]?step)\b
  - \b(authenticator\s*app|TOTP|one[-\s]?time\s+code|SMS\s*code|passkey|security\s*key)\b
- Output format (exactly):
  - two_factor_auth: <present | not_detected | unclear (from UI/docs)>
  - passkeys_webauthn: <present | not_detected | unclear (from JS API or docs)>
  - Then a short bulleted list of recommendations only when evidence suggests action.
- Recommendation helpers:
  - If present: “Prefer passkeys/WebAuthn as primary; keep TOTP as fallback; avoid SMS as primary factor.”
  - If not detected/unclear: “Offer passkeys (WebAuthn) and TOTP; provide clear setup docs and recovery flows.”

Evaluate for password policy signals visible in markup/UI (client-side).

- If no signals are found, output only the classification line(s) with no recommendations.
- Do (read-only):
  - Inspect registration/reset forms for password inputs and helper text.
  - Record attributes and hints: minlength, pattern, Safari’s passwordrules, presence of strength meters (e.g., zxcvbn).

    - Note: client attributes are hints; true enforcement is server-side.
- Regex detectors (HTML/JS/text):
    - \bminlength\s*=\s*["']?\d{2,}["']?
    - \bpattern\s*=\s*["'][^"']+["']
    - \bpasswordrules\s*=\s*["'][^"']+["']
    - \b(at\s+least\s+\d+\s+characters?)\b
    - \b(must\s+include.*(uppercase|lowercase|number|digit|special))\b
    - \bzxcvbn(\.min)?\.js\b
- (HTML password input attributes on MDN; Apple passwordrules; zxcvbn library.) [redacted]
- Output format (exactly):
    - password_policy: <present | not_detected | unclear (Note that server-side enforcement is not observable here)>
    - Then a short bulleted list of recommendations only when evidence suggests action.
- Recommendation helpers:
    - If present but weak: “Enforce server-side; set minlength ≥ 12; include passwordrules; add a strength meter (zxcvbn).” [redacted]
    - If not detected/unclear: “Expose machine-readable hints (minlength, passwordrules, pattern where appropriate) and align UI copy with server rules.”

Determine whether the site has an enforcing CSP that constrains script execution (to mitigate XSS). Passive only.

- Do (read-only):
    - Fetch https://{domain}/ (and the first redirect target). Record response headers and HTML head.
    - Look for CSP via HTTP header (preferred) or <meta http-equiv="Content-Security-Policy"> (weaker).
    - Distinguish enforcing (Content-Security-Policy) from report-only (Content-Security-Policy-Report-Only).
    - Note script-hardening signals (nonces/hashes, strict-dynamic) and weakness signals ('unsafe-inline', 'unsafe-eval').
- Regex detectors (apply to headers + HTML):
    - # CSP headers (enforcing vs report-only)
    - \bContent-Security-Policy\s*:\s*([^\r\n]+)
    - \bContent-Security-Policy-Report-Only\s*:\s*([^\r\n]+)
    - —
    - # Meta tag CSP (weaker than header)
    - <meta[^>]+http-equiv=["']Content-Security-Policy["'][^>]*content=["'][^"']+["']
    - —
    - # Script-src hardening (in header/meta content)
    - script-src[^;]*'nonce-[^']+' # nonce-based policy
    - script-src[^;]*'sha(256|384|512)-[^']+' # hash-based policy
    - script-src[^;]*'strict-dynamic' # strict CSP relying on nonces/hashes

    - (?:^|;)\s*object-src\s*'none'   # block plugin objects
    - (?:^|;)\s*base-uri\s*'none'   # block <base> abuse
    - (?:^|;)\s*frame-ancestors\s*[^;]+   # clickjacking control
    - (?:^|;)\s*report-to\s*[^;]+|report-uri\s+https?://[^;\s]+ # reporting
    - —
    - # Weakness indicators in policy
    - script-src[^;]*'unsafe-inline'
    - script-src[^;]*'unsafe-eval'
    - —
    - # Nonce attribute on inline <script> tags
    - <script[^>]*\snonce=["'][^"']+["'][^>]*>
    - —
    - # Reporting-Endpoints header (Reporting API for CSP)
    - \bReporting-Endpoints\s*:\s*([^\r\n]+)
- Classification (output exactly):
    - csp: <present | not_detected | unclear>
- If no signals match, output only the classification line with no bullets.
- How to classify:
    - present: Enforcing Content-Security-Policy header is found, or a meta CSP is found and includes script restrictions (e.g., script-src not wide-open).
    - unclear: Only Content-Security-Policy-Report-Only found, or conflicting/empty directives, or CSP exists but script-src effectively permissive (e.g., only * + 'unsafe-inline').
    - not_detected: No CSP header or meta tag observed.
- Recommendation helpers (emit only when action is warranted):
    - If present but weak (e.g., 'unsafe-inline' or no nonces/hashes):
    - “Harden script-src: prefer nonces or hashes; remove 'unsafe-inline'/'unsafe-eval'; consider 'strict-dynamic' alongside nonces.” [OB] [OB] [OB]
    - “Add object-src 'none', base-uri 'none', and set frame-ancestors as needed.” [OB]
    - “Enable violation reporting via report-to + Reporting-Endpoints (avoid long-term report-only).” [OB] [OB]
- If report-only detected (no enforcing header):
    - “Move from Report-Only to enforcing CSP once violations are addressed; keep reporting enabled.” [OB] [OB]
- If meta CSP only:
    - “Prefer HTTP response header CSP over meta; headers apply before HTML is parsed and are more robust.” [OB] [OB]
- If not detected:
    - “Implement an enforcing Content-Security-Policy with nonces/hashes for script-src; start with Report-Only to tune, then enforce.”

Try to see if there is a MCP server

- What to do (in order)
    - Passive discovery (no auth)

    - Probe well-known candidates (some are proposals, but common in the wild):
        - https://{domain}/.well-known/mcp (directory),
        - https://{domain}/.well-known/mcp.json (manifest).
    - Search the site for "Model Context Protocol", "MCP server", "/.well-known/mcp", or explicit endpoint docs (dev portal, API pages, blog posts, changelogs).
    - Check public catalogs/registries that vendors maintain (e.g., Postman's MCP Catalog) for an entry referencing this domain.
- Parse any manifest that exists
    - If mcp.json (or files under /.well-known/mcp/) is present, extract: name, description, transports (HTTP/SSE, WebSocket, stdio), base URLs, auth hints, and capabilities. (The community is converging on a JSON config/manifest convention.)
    - If no manifest: continue with heuristic discovery.
- Transport verification (light-touch)
    - For HTTP/SSE MCP: send a tiny JSON-RPC 2.0 request to the documented endpoint (e.g., POST /mcp), accept either a single JSON object (Content-Type: application/json) or an SSE stream that eventually includes the JSON-RPC response—both are allowed by the spec. Don't send any destructive methods—just a harmless "initialize"/"list-tools" equivalent if documented.
    - For WebSocket MCP: open a socket and attempt a JSON-RPC handshake (again, non-destructive).
    - For stdio-only MCP (local tools): note that a website cannot prove this; you'll need the project's repo or docs.
- Cross-check secondary evidence
    - Articles or docs from the vendor domain that explicitly state MCP support.
    - Third-party explainers can help you interpret expected transports (HTTP+SSE / JSON-RPC), but treat them as background, not ground truth for a specific site.
- Simple output (no JSON needed)
    - mcp_advertised_manifest: <present|not_detected>
    - mcp_transports_detected: <http_sse|websocket|stdio|multiple|not_detected>
    - mcp_endpoint_verified: <yes|no|unclear>
    - mcp_catalog_listing: <present|not_detected> (e.g., Postman MCP Catalog)
    - notes: <short evidence: URL(s) or "no well-known manifest; docs mention MCP">
- Minimal regex/URL heuristics (for discovery)
    - Well-known files/dirs:
        - \/\.well-known\/mcp(?:\.json)?$ (direct manifest),
        - \/\.well-known\/mcp\/.* (directory entries).
    - Docs/pages mention:
        - Model Context Protocol|MCP server|\.well-known\/mcp (case-insensitive).
    - Endpoint hints in docs:
        - POST .* /mcp or "JSON-RPC", "Server-Sent Events (SSE)".
- How to interpret results

- present + verified → High confidence the domain offers an MCP interface (at least one transport worked).
- present (manifest) but not verified → The server may require auth, IP allow-lists, or a different host/subdomain; report unclear and list the endpoints you found.
- not_detected → No well-known file and no catalog/docs evidence; doesn't prove absence (MCP could be private or stdio-only), but you can't confirm it via the public website alone.
- catalog listing present → Helpful corroboration, but prefer direct endpoint verification if possible.

- Caveats you should note to stakeholders
  - Ecosystem is evolving. .well-known/mcp / mcp.json are emerging conventions; not all MCP servers expose discovery files.
  - Transport variety. MCP is transport-agnostic; many servers are HTTP+SSE/WS, others are stdio (local). You can't prove stdio support from a website.
  - Docs ≠ proof. A blog post can claim MCP, but only a successful JSON-RPC handshake (or an official manifest) confirms a real endpoint.
- If you want an even faster path (discovery-by-catalog)
  - Check the Postman MCP Catalog for the domain/vendor; if listed, it usually includes connection details you can test.

If the site accepts payments, determine whether it uses a reputable, PCI-validated online payment gateway and infer whether the integration likely minimizes PCI scope (hosted/redirect or tokenized fields). Passive only.

- Do (read-only):
  - Visit public checkout pages (e.g., /checkout, /cart, /pay) and first redirects.
  - Parse HTML/JS for gateway SDKs, hosted-checkout links/buttons, and <form action>/href targets pointing to gateway domains.
  - DO NOT submit forms.
- Regex detectors (apply to HTML/JS/URLs you collected):
  - Stripe (Elements / Checkout hosted)
    - https:\/\/js\.stripe\.com\/v3
    - \bStripe(\.|\()|StripeElement
    - https:\/\/checkout\.stripe\.com\/
    - (Stripe.js v3 & Elements; hosted Stripe Checkout.)
  - PayPal / Braintree
    - https:\/\/www\.paypal\.com\/sdk\/js
    - https:\/\/www\.paypalobjects\.com\/api\/checkout\.js
    - https:\/\/(js|assets)\.braintreegateway\.com\/
    - \bpaypal\.Buttons\(
    - \bbraintree\.(client|hostedFields)\.create
    - https?:\/\/www\.paypal\.com\/(checkoutnow|cgi-bin\/webscr)
    - (PayPal JS SDK; legacy checkout.js; Braintree Hosted Fields & SDK; PayPal checkout endpoints.)
  - Adyen (Web Components / Hosted Checkout / redirects)

        - https:\/\/checkoutshopper-(test|live)\.adyen\.com\/checkoutshopper\/
        - \bAdyen\b|adyen\.(create|mount)
        - https:\/\/pay\.adyen\.com\/.*(pay|payment|link)
        - (Adyen Web components & Hosted Checkout / Sessions / 3DS redirect URLs.)
        - (checkoutshopper-* = Adyen Hosted Checkout)
        - (pay.adyen.com = Pay-by-Link (PBL), common in B2B.)
    - Checkout.com (Frames tokenized fields)
        - https:\/\/cdn\.checkout\.com\/js\/frames(v2)?(\.min)?\.js
        - \bFrames\.(init|submitCard|on)\(
        - (Checkout.com Frames reference & getting started.)
    - Authorize.Net (Accept.js / Accept Hosted)
        - https:\/\/js\.authorize\.net\/v3\/Accept\.js
        - https:\/\/accept\.authorize\.net\/payment\/payment
        - (Authorize.Net Accept.js; Accept Hosted URL.)
    - Square (Web Payments SDK / hosted checkout)
        - https:\/\/(web\.)?squarecdn\.com\/v1\/square\.js
        - https?:\/\/squareup\.com\/checkout
        - (Square Web Payments SDK; general Square checkout links.)
    - Amazon Pay
        - https:\/\/static-[a-z]{2}\.payments-amazon\.com\/checkout\.js
        - \bamazon\.(Pay|Payments)\b
        - (Amazon Pay script & Checkout Session docs.)
    - Klarna
        - https:\/\/x\.klarnacdn\.net\/kp\/lib\/v\d+\/api\.js
        - \bKlarna\.Payments\.(init|load|authorize)\(
        - (Klarna Payments JS SDK & CDN.)
- Output format (exactly):
    - payment_gateway_detected: <present | not_detected | unclear>
    - stripe_detected: <present | not_detected | unclear>
    - paypal_or_braintree_detected: <present | not_detected | unclear>
    - adyen_detected: <present | not_detected | unclear>
    - checkout_com_detected: <present | not_detected | unclear>
    - authorize_net_detected: <present | not_detected | unclear>
    - square_detected: <present | not_detected | unclear>
    - amazon_pay_detected: <present | not_detected | unclear>
    - klarna_detected: <present | not_detected | unclear>
    - pci_posture_inference: <likely_minimal_scope | unclear | not_aligned>
- If no signals are found, output only the classification line(s) with no recommendations.
- How to classify:
    - payment_gateway_detected = present if any vendor pattern matches.
    - Pci_posture_inference
        - likely_minimal_scope: Hosted/redirect flows detected (e.g., checkout.stripe.com, paypal.com/checkoutnow, Adyen Hosted

~~Checkout/pay-by-link) or tokenized client SDKs (Stripe Elements, Braintree Hosted Fields, Checkout.com Frames, Square Web Payments) with no signs of raw card PAN posting to merchant origin.~~
    - ~~unclear: SDK present but integration mode (hosted vs. custom) is ambiguous.~~
    - ~~not_aligned: No reputable gateway artifacts and forms appear to post card data to merchant servers.~~
- ~~Recommendation helpers (emit only when action is warranted):~~
    - ~~If payment_gateway_detected = not_detected or pci_posture_inference = not_aligned:~~
        - ~~"Adopt a PCI-validated gateway (Stripe, PayPal/Braintree, Adyen, Checkout.com, Authorize.Net, Square, Amazon Pay). Prefer hosted checkout or tokenized fields to keep PCI scope minimal (SAQ A-like)."~~
    - ~~If a gateway is detected but pci_posture_inference = unclear:~~
        - ~~"Confirm that raw PAN never hits your servers. Use hosted checkout or tokenized inputs (Stripe Elements, Braintree Hosted Fields, Checkout.com Frames, Square Web Payments)."~~
    - ~~If hosted/tokenized is evident (likely_minimal_scope) (incl. Adyen Pay-by-Link for B2B):~~
        - ~~"Maintain the integration and complete the appropriate annual PCI SAQ for your flow (often SAQ A for fully hosted). Keep SDKs updated. For Pay-by-Link: configure expiry and prefer single-use links for invoices."~~

This is the Technical category maturity assessor

Analyze this domain: [INSERT DOMAIN VARIABLE]

Respond with ONLY the raw, valid JSON object. Do not include markdown, code blocks, or any other explanatory text.

Research for LLM to do in assessing Technical maturity

Site-wide Evaluator (up to 50 URLs): Schema presence + schema validation + SEO Meta + Headings + Link Health + JS Dependency + Accessibility + package freshness + crawlability + clean and semantic HTML

- Build a set of up to 50 URLs prioritized by organic traffic or authority signals (e.g., internal link weight, sitemaps, popular paths)
- For this section only, here are the artifacts shared for all evaluators
- SITE: { robots_txt, sitemaps: {index, children, lastmod_list}, llms_txt }
- PAGE[URL]: {

    - final_url, http_status, headers,
    - html_raw, dom_ast,
    - meta: { title, description, robots },
    - lang_attr,
    - head_tags: { charset_present, viewport_present },
    - headings: { one_h1, nesting_ok, h1_list, … },
    - semantic: { has_main, has_article, has_section, has_header, has_nav, has_aside, has_footer },
    - aria: { landmarks_present, misuse_flags:[…] },
    - text_blocks: { visible_text, word_count, sentence_count, syllable_estimate },
    - links_out:[…], link_statuses: { url → 2xx/3xx/4xx/5xx },
    - canonical_href,
    - schema: {
        - blocks_jsonld:[…], microdata:[…], rdfa:[…],
        - graph:{…}, detected_types:[…],
        - url_props: { image:[…], logo:[…], url:[…], sameAs:[…] }
    - },
    - js_signals: { noscript_warning, spa_marker, low_visible_text },
    - validator: { errors:<int>, warnings:<int> }
- }
- Global crawl (do first, passive):
    - Crawl {domain} public pages respecting robots.txt
        - Build a set of up to 100 URLs prioritized by organic traffic or authority signals (e.g., internal link weight, sitemaps, popular paths)
        - De-duplicate querystring variants unless content changes
        - Probe common sitemap locations, and discover additional URLs from <a> links and <link rel="canonical">
    - Single fetch pass: For each URL, fetch once and cache:
        - html_raw (head+body), headers, final_url, http_status
        - links_out (absolute), canonical_href (if any)
        - assets referenced in markup: images, logo, sameAs, schema:url
    - Single HTML parse pass: Build and cache a lightweight DOM AST and derived fields:
        - meta.{title,description,robots}, lang_attr, head_tags (charset/viewport), headings (H1..H6 order)
        - semantic_elements_present (main, article, section, header, nav, aside, footer)
        - aria_landmarks_present, aria_misuse_flags
        - text_blocks (visible text in main/article/section/p/h1–h6)
    - Single structured-data pass: Extract and cache:
        - schema_blocks (JSON-LD strings), microdata, rdfa
        - schema_graph (normalized), schema_detected_types

    - Single link HEAD/GET pass (rate-limited): Resolve status for links_out and for URLs referenced in schema properties (image, logo, url, sameAs). Cache link_statuses.
    - JS dependency signals: Cache js_signals (noscript warnings, SPA markers, low visible text).
    - Nu HTML Checker (validity) once per page: Call self-hosted or W3C validator.w3.org/nu?out=json. Cache validator_errors, validator_warnings. Retry up to 2x on 429/5xx; 5s timeout; timeouts are non-fatal (skip page for that metric).
    - Robots/Sitemaps once per site: Cache robots_txt, sitemaps (index + child maps, lastmod), and any llms.txt.
    - Per-page record: Store everything in a shared dictionary PAGE[URL] = { … }.
    - All evaluators in this section read from PAGE and must not re-fetch.
    - Rate limits/timeouts: cap HEAD/GET for asset checks at e.g., 1s and 2 redirects to keep the run stable; treat timeouts as non-fatal (don't increment error rates).
    - Important: Every evaluator in this section reuses these artifacts. Do not re-crawl or re-parse. Calculations remain exactly as specified in their sections.
- What to collect for the site
    - Data source: reuse SITE and PAGE[URL] artifacts; do not re-fetch or re-parse.
    - robots.txt (access control + health)
        - Fetch https://{domain}/robots.txt; record HTTP status and file size.
        - Parse User-agent blocks for * and major crawlers; capture Allow/Disallow, Sitemap: lines, and any Crawl-delay (non-standard for Google).
        - Interpret status codes per Google's behavior (e.g., 4xx → treated as if no robots.txt; 5xx can temporarily halt crawling).
        - (Google follows at least five 3xx hops; 4xx ≈ no robots; 5xx has special handling.)
    - Sitemaps (discovery & freshness)
        - Look for Sitemap: pointers in robots.txt and probe /{sitemap.xml} and common variants.
        - If a sitemap index exists, enumerate child sitemaps; read <url><loc>…</loc><lastmod>…</lastmod></url>.
        - Compute coverage: % of your sampled URLs present in any sitemap and note lastmod recency. Google supports the Sitemaps protocol and large sitemap indexes.
    - llms.txt (AI-crawler guidance) (nice to have)
        - Probe /{llms.txt}. If present, note size, last modified, and whether it lists curated content/feeds for LLMs.
        - Importance: llms.txt is a proposed convention, not a search standard; useful for AI crawlers but not required for traditional SEO crawlability.
- What to collect per page
    - Data source: reuse SITE and PAGE[URL] artifacts; do not re-fetch or re-parse.
    - Structured data: detect JSON-LD <script type="application/ld+json"> (preferred), Microdata (itemscope/itemtype/itemprop), RDFa (typeof/property/vocab)

        - Parse each block; require @context pointing to schema.org and at least one @type
        - Extract @type and key properties (use Google Search Gallery to determine required vs. recommended for rich results)
        - Merge multiple blocks into a graph; resolve @id/node references where obvious
        - Normalization: Lowercase property/type names before lookup; trim trailing slashes and resolve relative URLs against page base.
        - Date parsing: Accept ISO-8601 only for date fields in eligibility checks; otherwise count as missing.
        - Mapping: schema blocks → PAGE[URL].schema.blocks_jsonld/microdata/rdfa; graph/types → PAGE[URL].schema.graph/detected_types; URL props → PAGE[URL].schema.url_props; image/logo/http status → PAGE[URL].link_statuses
    - SEO metadata
        - Title and description
            - <title> and <meta name="description" content="…">
            - Mapping: title/description → PAGE[URL].meta; headings & nesting → PAGE[URL].headings
        - Canonical tags
            - <link rel="canonical" href="...">
    - Headings: all <h1>..<h6>; evaluate one H1 rule and nesting order (h2 after h1, h3 under h2, etc.). Guidance from WAI/MDN.
    - Links: for each extracted link, resolve HTTP status (treat 4xx/5xx as broken).
        - Mapping: links → PAGE[URL].links_out; status → PAGE[URL].link_statuses
    - JS dependency: heuristic flags if primary content likely requires client-side JS (important because many AEO/LLM evaluators don't run JS). Prefer SSR/static/hydration over dynamic rendering.
        - Mapping: noscript/SPA/low-text signals → PAGE[URL].js_signals
    - Accessibility (A11Y):
        - Images: <img> has non-empty alt (except decorative with role="presentation"/aria-hidden="true"). (WCAG 1.1.1)
        - Forms: inputs have associated <label> (via for/id or wrapping), or an accessible name (aria-label, aria-labelledby). (WCAG 3.3.2)
        - Landmarks: presence of <main>, <nav>, <header>, <footer>, <aside> or ARIA roles (role="main", navigation, etc.).
        - Skip link: an in-page "skip to main content" link (e.g., <a href="#main"> visible/focusable). (WAI technique G1)
        - Language: <html lang="…"> present. (WCAG H57)
        - Mapping: images/alt → PAGE[URL].dom_ast + text extraction; labels/accessible-name → PAGE[URL].dom_ast; landmarks/roles →

PAGE[URL].semantic / PAGE[URL].aria; html lang → PAGE[URL].lang_attr; skip link → PAGE[URL].dom_ast

- Package freshness
  - All <script src> / <link href> URLs, plus inline <script> blocks (first KB).
  - Response headers for CDN files (capture X-Version if present from jsDelivr dynamic paths).
  - If available from your toolchain, Wappalyzer/BuiltWith detections.
  - When you see “latest” aliases (e.g., jsDelivr/unpkg), resolve to the concrete version (follow redirect/headers) before comparing
  - If multiple versions of the same package appear across pages, pick the most recent detected for freshness scoring, but still count pages_detected across all appearances
  - If a package name can’t be cleanly inferred from a filename (bundled/hashes), don’t guess—omit from the table unless your Wappalyzer/BuiltWith step returns a confident {name, version}
  - Compare
    - Compare against “latest”
      - For each detected {package, version}, query npm for the package’s latest published stable (e.g., https://registry.npmjs.org/<pkg> or a helper library). Treat pre-releases (-rc, -beta) as newer only if the site uses the same tag.
    - If the URL used a “latest” alias, resolve the concrete version (via response headers or redirect target) before comparing.
  - Mapping: script/link URLs → PAGE[URL].dom_ast; version globals (e.g., jQuery) → PAGE[URL].html_raw scan
- Crawlability (indexability hygiene)
  - In HTML: <meta name="robots" content="…"> (e.g., noindex, nofollow).
  - In HTTP: X-Robots-Tag: … (useful for non-HTML or bulk rules).
  - Mapping: robots/sitemaps/llms.txt → SITE.* ; meta robots/X-Robots → PAGE[URL].meta.robots / PAGE[URL].headers
- Clean and semantic html
  - HTML validity: Validate HTML via Nu HTML Checker (HTTP service).
    - Prefer a self-hosted Nu Html Checker (a.k.a. v.Nu, JAR/Docker) for batch runs.
    - If not available, call the W3C endpoint:
      - GET https://validator.w3.org/nu/?doc={URL}&out=json
      - Or POST https://validator.w3.org/nu/?out=json with raw HTML.
    - Parse the JSON response; count errors and warnings.
    - Retry + timeout note: allow up to 2 retries on 429/5xx; set request timeout to 5s to avoid blocking the crawl. Treat timeouts as non-fatal (skip page, decrement pages_scanned).

        - Semantic structure: presence of <main>, <article>, <section>, <header>, <nav>, <aside>, <footer>; headings <h1>–<h6> and their nesting.
        - ARIA landmarks: presence of role="main", navigation, banner, contentinfo, etc. Check for misuse (redundant or conflicting roles).
        - Language & robots hints: <html lang>, <meta name="robots"> / X-Robots-Tag.
        - Structured data presence: JSON-LD/Microdata/RDFa (presence only, not full validation).
        - Canonical link: <link rel="canonical">.
        - Basic head hygiene: <meta charset> early; <meta name="viewport"> for mobile.
        - Anti-patterns: duplicate ids, heavy inline event handlers (onclick=…, etc.).
        - Mapping: validator errors → PAGE[URL].validator; semantic elements → PAGE[URL].semantic; ARIA → PAGE[URL].aria; canonical → PAGE[URL].canonical_href; head basics → PAGE[URL].head_tags; duplicate IDs/inline handlers → PAGE[URL].dom_ast scan
- Regex detectors (apply to raw HTML unless noted)
    - robots.txt (access control + health)
        - (?i)^User-agent:\s*(*|googlebot|bingbot).*
        - (?i)^Disallow:\s*\/[^\r\n]*
        - (?i)^Allow:\s*\/[^\r\n]*
        - (?i)^Sitemap:\s*https?://[^\s]+
        - (?i)^Crawl-delay:\s*\d+
    - Sitemaps (discovery & freshness)
        - <urlset\b[^>]*>|<sitemapindex\b[^>]*>
        - <loc>\s*https?://[^<]+</loc>
        - <lastmod>\s*[^<]+</lastmod>
    - llms.txt (AI-crawler guidance) (nice to have)
        - ^#\s*llms\.txt\b|^paths:|^feeds:|^disallow:
    - Structured data
        - <script[^>]+type=["']application/ld\+json["'][^>]*>
        - "@context"\s*:\s*"(https?:)?\/\/schema\.org\/?"
        - "@type"\s*:\s*"(?:[A-Za-z][A-Za-z0-9]+)"
        - \bitemscope\b
        - \bitemtype=["']https?:\/\/schema\.org\/[^"']+["']
        - \bitemprop=["'][^"']+["']
        - \btypeof=["'][^"']+["']
        - \bproperty=["'][^"']+["']
        - \bvocab=["']https?:\/\/schema\.org\/?["']
        - (Prefer JSON-LD; Google supports all formats.) 🆑
    - SEO meta
        - <title>[^<]{1,200}<\/title>
        - <meta\s+name=["']description["']\s+content=["'][^"']{1,320}["']
    - Headings

        - <h1\b[^>]*>[^<]+<\/h1>
        - <h[1-6]\b[^>]*>[^<]*<\/h[1-6]>
        - (WAI/MDN for heading structure.) OBJ OBJ
    - JS-dependency heuristics
        - <noscript>[^<]*(enable|requires)\s+javascript[^<]*<\/noscript>
        - <div[^>]+(id=["']root["']|data-reactroot|id=["']__next["']|id=["']__nuxt["']|ng-version|id=["']app-root["'])
        - (Use alongside a low-visible-text heuristic from the raw HTML.) OBJ
    - A11Y
        - # image alts
        - <img\b[^>]*>
        - \balt=["'][^"']*["']
        -
        - # labels / accessible names
        - <label\b[^>]*for=["'][^"']+["']
        - <input\b[^>]*(id=["'][^"']+["'][^>]*|aria-label=["'][^"']+["']|aria-labelledby=["'][^"']+["'])
        -
        - # landmarks & skip link
        - <(main|nav|header|footer|aside)\b|role=["'](main|navigation|banner|contentinfo|complementary)["']
        - <a\b[^>]*href=["']#[^"']+["'][^>]*>([^<]*skip[^<]*|[^<]*main[^<]*)<\/a>
        -
        - # language
        - <html\b[^>]*\blang=["'][a-zA-Z-]+["']
        - (WCAG techniques: H57 for lang, headings/labels guidance from WAI.) OBJ
    - Link health (headers)
        - Mark links with HTTP 4xx/5xx as broken.
    - Package freshness
        - # unpkg/jsDelivr npm-style
        - https?:\/\/(?:unpkg\.com|cdn\.jsdelivr\.net)\/(?:(?:npm\/)?)([A-Za-z0-9_.-]+)@([0-9]+\.[0-9]+\.[0-9]+)\/
        -
        - # cdnjs & “-x.y.z.min.js” style
        - \/([A-Za-z0-9_.-]+)[-_.]((?:\d+\.){2,}\d+)\.(?:min\.)?(?:js|css)\b
        -
        - # jsDelivr dynamic alias: capture final resolved version from X-Version header (not regex)
        -
        - # Inline/version globals (example: jQuery)
        - jQuery\.fn\.jquery\s*=\s*["']?([0-9]+\.[0-9]+\.[0-9]+)["']?
        - Note: Not all libs expose a version global; use it opportunistically. jQuery does.

    - Crawlability (indexability hygiene)
        - <meta\s+name=["']robots["']\s+content=["'][^"']+["']
        - ^(?i)X-Robots-Tag:\s*.+ # from response headers
    - Clean, semantic HTML
        - Apply to raw HTML/headers
        - Semantic elements
            - <(main|article|section|header|nav|aside|footer)\b
        - Headings
            - <h1\b[^>]*>[^<]+</h1>
            - <h[1-6]\b[^>]*>[^<]*</h[1-6]>
        - ARIA landmarks & roles
            - role=["'](main|navigation|banner|contentinfo|complementary|region)["']
        - Language
            - <html\b[^>]*\blang=["'][a-zA-Z-]+["']
        - Robots directives
            - <meta\s+name=["']robots["']\s+content=["'][^"']+["']
            - ^(?i)X-Robots-Tag:\s*.+ # from headers
        - Structured data presence
            - <script[^>]+type=["']application/ld\+json["']
            - \bitemscope\b|\bitemtype=["']https?:\/\/schema\.org\/
            - \btypeof=|\bproperty=|\bvocab=["']https?:\/\/schema\.org\/?
        - Canonical
            - <link\s+rel=["']canonical["']\s+href=["']https?:\/\/[^"']+["']
        - Head basics
            - <meta\s+charset=|<meta\s+name=["']viewport["']
        - Anti-patterns
            - id=["'](\[^"']+)["'].*\n?.*id=["']\1["'] # duplicate IDs
            - on\w+=["'][^"']+["'] # inline event handlers
- Compute (per-page)
    - Data source: reuse SITE and PAGE[URL] artifacts; do not re-fetch or re-parse.
    - Schema.org conformance (syntax & structure)
        - JSON well-formed; arrays/values are valid for their properties.
        - Types and properties exist in schema.org (flag unknown/deprecated).
        - Basic value checks: url is absolute; image is absolute; datePublished ISO-8601; numbers where expected.
        - Cross-refs (@id) resolve within the page's graph.
        - Result = schema_valid: pass|fail|partial.
        - (This mirrors what the Schema Markup Validator does: extract JSON-LD/RDFa/Microdata, summarize the graph, and flag syntax mistakes.)
        - schema_status ∈ {pass, partial, fail}
        - rrt_eligible ∈ {yes, no} (meets **all required** fields for ≥1 Google feature on that page)

        - invalid_jsonld ∈ {0,1} (JSON parse error in any JSON-LD block)
        - unknown_types: integer ≥0 (count of @type not recognized in schema.org)
        - missing_required_fields: [propName,…] (union across all Google-supported features detected on page)
        - url_property_errors ∈ {0,1} (any image/logo/url/sameAs that 4xx/5xx when HEAD/GET)
        - image_requirements_failed ∈ {0,1} (image-dependent feature present but image does not meet stated constraint, e.g., width)
        - Dedup per page: De-duplicate missing_required_fields before contributing to the global frequency map.
    - Google Rich Result eligibility (feature checks)
        - For every detected @type, if Google supports a feature for it (per Search Gallery), verify required properties and note recommended ones. Examples:
            - Product: name, image, offers.price, offers.priceCurrency, etc.
            - Article/NewsArticle: headline, image, datePublished, author.
            - FAQPage: mainEntity → Question/acceptedAnswer.
            - BreadcrumbList: ListItem.position/name/item.
        - Result per page = rrt_eligible: yes|no and a short list of missing requireds.
        - Extra pragmatic checks (helpful in practice): Image requirements for Google features (e.g., ≥1200px where specified) when you can fetch headers or dimensions.
    - Clean, semantic HTML
        - html_errors: count from Nu Html Checker → html_valid = (errors == 0).
        - semantic_elements_present ∈ {0,1}.
        - heading_one_h1 ∈ {0,1}; heading_logical_nesting ∈ {0,1} (check level jumps).
        - aria_landmarks_present ∈ {0,1}; aria_misuse ∈ {0,1}.
        - lang_present ∈ {0,1}.
        - robots_tag_present ∈ {0,1}.
        - structured_data_present ∈ {0,1}.
        - canonical_present ∈ {0,1}.
        - head_hygiene ∈ {0,1} (both charset + viewport present).
        - duplicate_ids ∈ {0,1}.
        - inline_event_handlers ∈ {0,1}.
- Compute (site-wide)
    - Data source: reuse SITE and PAGE[URL] artifacts; do not re-fetch or re-parse.
    - Let N = pages_sampled.
    - Schema
        - schema_coverage_overall = % pages with any valid schema.org
        - schema_valid_pass_rate
            - = 100 * count(schema_status == pass) / N
        - schema_partial_rate

        - = 100 * count(schema_status == partial) / N
        - Use partial when: graph is parseable and mostly valid but any of: mixed formats with minor inconsistencies, non-fatal unknown props, soft type warnings, or recoverable cross-refs.
    - schema_fail_rate
        - = 100 * count(schema_status == fail) / N
        - Use fail when: JSON-LD invalid JSON, no valid @context/@type, unrecoverable graph, or only malformed Microdata/RDFa.
    - invalid_jsonld_pages
        - = count(invalid_jsonld == 1)
    - unknown_types_count
        - = Σ unknown_types over all pages (raw count; not unique).
    - missing_required_fields_top
        - Build a frequency map from every page's missing_required_fields.
        - Output the top 5 property names by frequency, comma-separated.
        - If none missing, output an empty value after the label.
    - url_property_4xx5xx_rate
        - = 100 * count(url_property_errors == 1) / N
        - Per page rule: set to 1 if any image, logo, url, or sameAs HEAD/GET yields 4xx/5xx.
    - image_requirements_failure_rate
        - = 100 * count(image_requirements_failed == 1) / N
        - Per page rule: for image-dependent features (e.g., Article/Product where Google specifies constraints), set to 1 if the largest referenced image clearly fails the requirement (e.g., <1200px width) or returns 4xx/5xx; else 0. If dimension unknown, do not mark failed—leave 0.
    - Disambiguation & tie-break rules
        - Multiple blocks per page: Merge JSON-LD graphs when @id/same-as references allow; otherwise evaluate each block independently and use the best outcome for schema_status (pass > partial > fail). For eligibility, if any block satisfies a feature's required fields, set rrt_eligible = yes.
        - Multiple types per page: Evaluate each against its Google feature (if any). Missing fields aggregate into missing_required_fields.
        - Mixed formats: If JSON-LD passes but Microdata/RDFa are noisy, prefer JSON-LD for schema_status and set partial if conflicts exist.
        - Empty/boilerplate pages: If <200 visible characters after extraction, skip the page (do not count in N).
- Rich results eligibility
    - rrt_eligibility_rate
        - = 100 * count(rrt_eligible == yes) / N

        - Per page rule: yes if any detected type maps to a Google feature (per Search Gallery for the detected types) and all required fields for that feature are present (recommended fields not required)
- SEO
    - seo_title_coverage = % pages with non-empty ``.
    - meta_description_coverage = % pages with non-empty ``.
    - canonical_tag_coverage = % pages with non-empty ``.
    - broken_links_total = total links with 4xx/5xx.
    - broken_link_pages_rate = % pages with ≥1 broken link.
    - avg_broken_links_per_page = broken_links_total / N (2 decimals).
- Structure
    - h1_coverage = % pages with ≥1 ``.
    - h1_uniqueness_rate = % pages with **exactly one** ``. (Best practice for clarity; not a WCAG requirement.)
    - heading_nesting_compliance = % pages where heading levels descend logically (e.g., h1→h2→h3; no h4 directly under h1 unless structure warrants). Guidance: WAI/MDN.
    - headings_any_coverage = % pages with at least one heading (H1..H6).
- js_dependency_estimate = % pages flagged as **likely client-side rendered** for primary content (regex + low-text heuristic). Prefer SSR/static/hydration.
- A11Y (accessibility)
    - a11y_img_alt_coverage = % pages where ≥95% of have meaningfulalt or are explicitly decorative.
    - a11y_form_label_coverage = % pages where ≥95% of form fields have associated labels or accessible names.
    - a11y_landmarks_coverage = % pages with at least one **main** landmark (orrole="main") and basic nav/contentinfo landmarks.
    - a11y_skip_link_coverage = % pages with a working **skip to main content** anchor link. (WAI G1)
    - a11y_lang_attr_coverage = % pages with present. (WCAG H57)
- Package freshness
    - Let M = unique {package, version} detections across your sample (de-dupe by package).
    - Let U = count of packages where detected_version == npm_latest.
    - visible_package_freshness = round(U / M * 100)
    - packages_outdated_top: <comma-separated top N packages with delta> (by age or semver distance)
    - Semver delta per package: classify same | patch | minor | major based on detected_version vs npm_latest
    - Age (days) of the detected version: if you can read time from the npm registry response, compute now - published_at(detected_version). If not available, set age_days = n/a
    - Pages detected: count how many pages in your sample referenced this package (helps prioritize widely used libs)

- Crawlability
  - HTTP status distribution for the crawled URLs; flag 4xx/5xx.
  - Internal link graph basics: % pages reachable within ≤3 clicks from the homepage (proxy for crawl depth).
  - Detect infinite-URL patterns (calendar params, infinite facets) to avoid crawl traps; tie back to robots rules/canonicalization.
  - (Google's crawl budget guidance emphasizes server availability, demand, and site structure.)
  - Decision logic (how to interpret)
    - Healthy baseline: robots_txt_status=2xx, robots_txt_rules_for_star=present, sitemap_presence=present, sitemap_url_coverage≥70%, http_error_rate_4xx5xx<5%, crawl_depth_≤3_rate≥80%.
    - Robots failures: 4xx → treated as no robots (Google crawls freely); prolonged 5xx can pause crawling.
    - Sitemap value: not required, but materially improves discovery at scale and can speed up new/updated URL discovery; indexes help manage many files.
    - Meta/X-Robots: page/file-level control for noindex, previews, etc. Use sparingly and intentionally.
    - llms.txt: optional signal for AI crawlers; doesn't affect search engine crawlability today.
- Clean, semantic HTML
  - html_valid_rate = 100 * count(html_valid)/N.
  - semantic_elements_coverage = 100 * count(semantic_elements_present)/N.
  - heading_one_h1_rate = 100 * count(heading_one_h1)/N.
  - heading_nesting_compliance = 100 * count(heading_logical_nesting)/N.
  - aria_landmarks_coverage = 100 * count(aria_landmarks_present)/N.
  - aria_misuse_rate = 100 * count(aria_misuse)/N.
  - lang_attr_coverage = 100 * count(lang_present)/N.
  - robots_tag_presence_rate = 100 * count(robots_tag_present)/N.
  - structured_data_presence_rate = 100 * count(structured_data_present)/N.
  - canonical_presence_rate = 100 * count(canonical_present)/N.
  - head_hygiene_rate = 100 * count(head_hygiene)/N.
  - duplicate_id_rate = 100 * count(duplicate_ids)/N.
  - inline_event_handlers_rate = 100 * count(inline_event_handlers)/N.
  - Composite Semantic Health Score (0–100)
    - Base score (weighted average of positive signals; all are site-wide rates expressed 0–100):
      - base_score =
      - 0.22 * html_valid_rate +
      - 0.14 * semantic_elements_coverage +

        - 0.10 * heading_one_h1_rate +
        - 0.14 * heading_nesting_compliance +
        - 0.08 * aria_landmarks_coverage +
        - 0.06 * lang_attr_coverage +
        - 0.12 * structured_data_presence_rate +
        - 0.08 * canonical_presence_rate +
        - 0.06 * head_hygiene_rate
        - *(Weights sum to 1.00; emphasizes validity + heading structure, then semantics and structured data.)*
    - Penalty factor (down-weights for anti-patterns; rates are 0–100):
        - penalty =
        - 1
        - - 0.40 * (aria_misuse_rate / 100)
        - - 0.30 * (duplicate_id_rate / 100)
        - - 0.30 * (inline_event_handlers_rate / 100)
        - penalty = max(0, penalty) # don't go below 0
    - Final score:
        - semantic_health_score = round(base_score * penalty)
    - Missing-data rule:
        - If any positive-rate metric is n/a, renormalize the remaining positive weights to sum to 1.0, then apply the same penalty step. (Keep the penalty weights as-is.)
    - Optional traffic-weighting (if you have it):
        - You can compute each site-wide rate as a traffic-weighted average across pages; otherwise a simple average is fine.
    - Color bands (optional, for dashboards):
        - 85–100 = Excellent
        - 70–84 = Good
        - 55–69 = Fair
        - <55 = Needs work
- Required output (JSON)
    - num_pages_crawled: <number of pages included in the site-wide global crawl>
    - Schema
        - schema_coverage_overall: <0-100%>
        - schema_valid_pass_rate: <0–100%>
        - schema_partial_rate: <0–100%> *(valid graph but minor issues or mixed formats)*
        - schema_fail_rate: <0–100%>
        - invalid_jsonld_pages: <0–100%>
    - rrt_eligibility_rate: <0–100%>
    - seo_title_coverage: <0-100%>
    - meta_description_coverage: <0-100%>
    - h1_coverage: <0-100%>
    - h1_uniqueness_rate: <0-100%>

- heading_nesting_compliance: <0-100%>
- headings_any_coverage: <0-100%>
- broken_links_total: <#>
- broken_link_pages_rate: <0-100%>
- avg_broken_links_per_page: <0.00>
- js_dependency_estimate: <0-100%>
- a11y_img_alt_coverage: <0-100%>
- a11y_form_label_coverage: <0-100%>
- a11y_landmarks_coverage: <0-100%>
- a11y_skip_link_coverage: <0-100%>
- a11y_lang_attr_coverage: <0-100%>
- Package freshness
    - If undetectable: print visible_package_freshness: n/a and omit the table
    - visible_package_freshness: <0–100%>
    - packages_outdated_top: <pkg@detected → latest, pkg@detected → latest, ...>
    - Prioritization to use in sorting the package lists in the two tables below
        - Assign each package a priority bucket; use it for sorting and for the update_priority_top list.
            - Critical
                - semver_delta = major, or detected_version flagged vulnerable (only if you already have a vuln feed; otherwise ignore).
            - High
                - semver_delta = minor AND age_days ≥ 180, or package is a core framework (react, vue, angular, next, nuxt, jquery) and semver_delta = minor.
            - Medium
                - semver_delta = patch OR semver_delta = minor with age_days < 180.
            - Low
                - semver_delta = same (up-to-date).
        - Sort key = priority(Critical>High>Medium>Low), then age_days desc, then pages_detected desc, then alphabetical.
        - (If you don't have vulnerability data, just skip that condition; the rest still works)
    - per-package table (CSV-like lines)
        - Print a single header line, then one line per unique package.
        - Sort by priority immediately above, then by age_days (desc), then by pages_detected (desc)
            - packages_table_header: package,detected_version,latest_version,semver_delta,age_days,pages_detected

        - package_row: <name>,<detected>,<latest>,<same|patch|minor|major>,<days|n/a>,<#>
    - prioritized actions
        - Top 10 recommended updates after sorting by the priority immediately above. Keep it terse
            - update_priority_top: <name>@<detected>→<latest> (<semver_delta>, <age_days>d, pages=<#>), <name>@<detected>→<latest> (…)
    - If nothing is detectable (all bundles hashed/no CDN hints), print visible_package_freshness: n/a and omit the second line.
    - If Critical/High items exist:
        - “Prioritize upgrading Critical/High packages first; address major deltas and stale minors (≥180d).”
    - If many “latest” aliases were found:
        - “Pin CDN URLs to explicit versions to control upgrade timing.”
- Crawlability
    - robots_txt_status: <2xx|3xx|4xx|5xx|unavailable>
    - robots_txt_rules_for_star: <present|not_detected>
    - robots_txt_sitemaps_found: <#>
    - sitemap_presence: <present|not_detected>
    - sitemap_index_count: <#>
    - sitemap_url_coverage: <0–100%>
    - sitemap_lastmod_freshness_90d: <0–100%> (% of sitemap URLs with <lastmod> in last 90 days)
    - page_meta_robots_noindex_rate: <0–100%>
    - x_robots_noindex_rate: <0–100%>
    - http_error_rate_4xx5xx: <0–100%>
    - crawl_depth_≤3_rate: <0–100%>
    - llms_txt_presence: <present|not_detected>
- Clean, semantic HTML
    - html_valid_rate: <0–100%>
    - semantic_elements_coverage: <0–100%>
    - heading_one_h1_rate: <0–100%>
    - heading_nesting_compliance: <0–100%>
    - aria_landmarks_coverage: <0–100%>
    - aria_misuse_rate: <0–100%>
    - lang_attr_coverage: <0–100%>
    - robots_tag_presence_rate: <0–100%>
    - structured_data_presence_rate: <0–100%>
    - canonical_presence_rate: <0–100%>
    - head_hygiene_rate: <0–100%>
    - duplicate_id_rate: <0–100%>
    - inline_event_handlers_rate: <0–100%>

        - semantic_health_score: <0–100>
    - Outliers (tail section):
        - html_validator_top5_error_pages: <url (errors), …>
        - semantic_elements_missing_top5: <url, …>
        - heading_nesting_fail_top5: <url, …>
        - aria_misuse_top5: <url, …>
    - If no signals are found, still print all lines with zeros.
- Recommendation helpers (emit only when action is warranted)
    - Structured data: “Add JSON-LD to core templates; include required properties for targeted rich results; validate in Rich Results Test.” OBJ
    - SEO meta: “Ensure every indexable page has a meaningful <title> and concise meta description.” OBJ
    - Headings: “Ensure exactly one H1 per page and logical H2/H3/H4 nesting; use headings for structure, not styling.” OBJ
    - Broken links: “Fix or remove 4xx/5xx; use 301 redirects for moved resources.” OBJ
    - JS dependency: “Prefer SSR/static/hydration; avoid dynamic rendering as a long-term solution.” OBJ
    - Accessibility:
        - “Provide alt for informative images; mark decorative images appropriately.” (WCAG 1.1.1)
        - “Associate labels with inputs; ensure accessible names.” (WCAG 3.3.2)
        - “Add semantic landmarks and a skip link; set <html lang>.” (WAI/WCAG H57 & tutorials)
    - Package freshness
        - If freshness < 70% or key libs outdated:
            - Pin to current npm versions for critical libs; update CDN references with explicit versions.
            - Avoid long-lived ‘latest’ aliases—resolve and pin to a version to control upgrades.
            - Where filenames are hashed by a bundler, maintain an internal SBOM and surface a /version endpoint for transparency.
            - If detection failed (no versions visible):
                - Expose library versions via versioned CDN URLs or public /version JSON; otherwise third parties can’t assess freshness.
    - Crawlability
        - robots.txt issues
            - “Serve robots.txt reliably (2xx, UTF-8, ≤500 KiB). Include a clear User-agent: * block and point to sitemaps with Sitemap: lines.”
        - No/weak sitemaps
            - “Publish an XML sitemap index covering canonical, indexable URLs only, with accurate <lastmod>, and link it in robots.txt.”
        - High 4xx/5xx

            - “Fix broken/errored URLs surfaced in the sampled pages; stabilize server availability to avoid crawl slowdowns.”
        - Deep/isolated pages
            - “Improve internal linking to keep important content within ≤3 clicks; avoid crawl traps (calendar/facet loops) via robots rules or canonicalization.” OBJ
        - Over-blocking / over-noindexing
            - “Review Disallow and noindex directives; ensure key templates are crawlable and indexable where intended.” OBJ
        - AI crawler enablement (optional)
            - “If you care about LLM access, consider adding llms.txt to curate high-value content for AI crawlers; clarify any disallowed areas.” (Proposed, not a search standard.)
    - If schema_valid_pass_rate < 80%:
        - “Fix syntax and unknown properties; ensure @context = schema.org and valid @type/property names.” OBJ
    - If rrt_eligibility_rate is low:
        - “Add required fields per Google’s Search Gallery for targeted features (Product/Article/FAQ/Breadcrumb, etc.). Validate with the Rich Results Test (manual or in dev tooling).” OBJ
    - If url_property_4xx5xx_rate is high:
        - “Ensure image, logo, sameAs, url resolve (no 404/500).”
    - If image_requirements_failure_rate is high (for image-dependent features):
        - “Provide larger images (e.g., ≥1200px width where Google specifies).”
    - Clean, semantic HTML
        - HTML validity low
            - “Fix Nu HTML Checker errors; aim for 100% valid HTML.”
        - Semantic coverage low
            - “Use semantic containers (main, nav, article, etc.).”
        - Heading issues
            - “Ensure exactly one <h1> per page and logical nesting.”
        - ARIA misuse
            - “Prefer native HTML; use ARIA only as needed, per APG patterns.”
        - Language missing
            - “Set <html lang> for correct parsing.”
        - Robots/meta misuse
            - “Ensure robots meta/headers are intentional.”
        - Structured data absent
            - “Add JSON-LD aligned to Google Search Gallery.”
        - Canonical missing
            - “Add rel=canonical to consolidate duplicates.”
        - Head basics missing
            - “Include <meta charset> early and a viewport meta.”

            - Duplicate IDs / inline handlers high
                - “Ensure unique IDs; move event handlers to scripts.”
- Known caveats for package freshness
    - Backend & private packages: not observable. This evaluates only what the browser downloads.
    - Bundled apps: when libraries are concatenated/minified with hashed filenames, versions may be undetectable from static HTML; rely on Wappalyzer/BuiltWith fingerprints to at least identify libraries, though versions may be missing.
    - CDN aliasing: @latest or range URLs can serve different versions for hours due to cache; always resolve the concrete version before judging “up-to-date.”
    - “Latest” definition: We use npm registry latest; that’s the most defensible public reference.

Site-wide Evaluator: Core Web Vitals (origin) + Lighthouse (sampled) — Mobile & Desktop

- Crawl / selection (do first, passive)
    - Identify representative URLs (8–15 total is typical):
        - Homepage, one or two top-level sections, and 4–10 key templates (e.g., article, blog post, product/solution page, docs/help, signup/LP).
        - Use your traffic/authority signals to choose pages likely to influence the site’s experience.
    - For each URL, call PageSpeed Insights (PSI) API v5 with strategy=MOBILE and strategy=DESKTOP. Capture:
        - lighthouseResult.categories.performance.score (0–1 → scale to 0–100).
        - audits.opportunities (title + estimatedSavingsMs).
    - Call CrUX API at origin-level for both mobile and desktop form factors. Capture p75 LCP, INP, CLS, pass rates, and sample sizes (page views).
        - If origin-level data is unavailable, fallback to PSI’s CrUX data at URL-level (noting smaller sample).
    - PSI request example: …/v5/runPagespeed?url={ENCODED_URL}&strategy=MOBILE|DESKTOP&key=… (the strategy param selects mobile vs desktop).
- Compute
    - Core Web Vitals (field, origin-level)
        - cwv_mobile_p75_lcp (s), cwv_mobile_p75_inp (ms), cwv_mobile_p75_cls
        - cwv_desktop_p75_lcp (s), cwv_desktop_p75_inp (ms), cwv_desktop_p75_cls
        - cwv_mobile_pass_rate, cwv_desktop_pass_rate = % of visits meeting all 3 CWV thresholds.
        - crux_sample_size_mobile, crux_sample_size_desktop = number of page views CrUX used.
        - CWV thresholds (Google):
            - LCP: <2.5s (good), >4.0s (poor)
            - INP: ≤200ms (good), >500ms (poor)

            - CLS: <0.1 (good), >0.25 (poor)
    - Lighthouse (lab, sampled & averaged by form factor)
        - lighthouse_mobile_performance = mean of lighthouseResult.categories.performance.score * 100 across mobile runs.
        - lighthouse_desktop_performance = same for desktop.
        - lighthouse_mobile_sample_size, lighthouse_desktop_sample_size = # of URLs tested.
        - Aggregate Lighthouse “Opportunities”: sum estimatedSavingsMs for each opportunity title across sampled pages; list top 5 by total ms saved for mobile and desktop separately.
- Output (JSON)
    - Core Web Vitals (field, origin):
        - cwv_mobile_p75_lcp: <x.xx s>
        - cwv_mobile_p75_inp: <xxx ms>
        - cwv_mobile_p75_cls: <0.xxx>
        - cwv_mobile_pass_rate: <0–100%>
        - crux_sample_size_mobile: <#>
        - cwv_desktop_p75_lcp: <x.xx s>
        - cwv_desktop_p75_inp: <xxx ms>
        - cwv_desktop_p75_cls: <0.xxx>
        - cwv_desktop_pass_rate: <0–100%>
        - crux_sample_size_desktop: <#>
    - Lighthouse (lab, averaged across sample):
        - lighthouse_mobile_performance: <0–100>
        - lighthouse_mobile_sample_size: <#>
        - lighthouse_desktop_performance: <0–100>
        - lighthouse_desktop_sample_size: <#>
        - lighthouse_mobile_top_ops: <comma-separated top 5 PSI opportunity titles>
        - lighthouse_desktop_top_ops: <comma-separated top 5 PSI opportunity titles>
- Recommendation helpers
    - For Core Web Vitals (general, not site-specific)
        - (Print only if a metric is in “needs improvement” or “poor” range — make clear these are typical, not site-specific fixes)
        - LCP too high: optimize server response time (TTFB), cache at CDN edge, compress/preload hero images, inline critical CSS.
        - INP too high: reduce JS execution (code-split, defer), minimize third-party scripts, break up long tasks, optimize event handlers.
        - CLS too high: reserve space for images/ads, avoid late-loading UI, preload fonts with font-display: swap.
    - For Lighthouse (site-specific)
        - (Always print, because PSI provides actual data)

        - “Top site-specific fixes (from Lighthouse Opportunities):” → then list the top 5 opportunity titles per form factor. Examples might be: Eliminate render-blocking resources, Serve images in next-gen formats, Reduce unused JavaScript.

Determine whether the site presents a valid SSL/TLS certificate, enforces HTTPS (HTTP→HTTPS), and uses HSTS.

- Do (passive):
    - Fetch https://{domain}/ and record: TLS handshake success, cert issuer, validity dates, and SAN coverage (does cert include {domain}/www.{domain}?). (X.509 SAN per RFC 5280.)
    - Fetch http://{domain}/ once and note if it redirects (301/302) to https://….
    - On any HTTPS response, check for HSTS header (Strict-Transport-Security) and its directives (max-age, includeSubDomains, preload). (HSTS per RFC 6797 / MDN.)
- Regex detectors (apply to response headers):
    - ^Location:\s*https:\/\/[^\s]+
    - ^Strict-Transport-Security:\s*[^ \r\n]+
    - \bmax-age=\d+\b
    - \bincludeSubDomains\b
    - \bpreload\b
- (HSTS forces browsers to use HTTPS for future requests; includeSubDomains and preload strengthen enforcement.)
- Output format (exactly):
    - tls_certificate: <present | not_detected | unclear>
    - https_enforcement: <present | not_detected | unclear>
    - hsts: <present | not_detected | unclear>
- If no signals are found, output only the classification line(s) with no recommendations.
- How to classify:
    - tls_certificate
        - present: HTTPS handshake succeeds with a trusted, unexpired cert whose SAN covers the requested host.
        - unclear: HTTPS works but cert is expired, mismatched SAN, or untrusted.
        - not_detected: HTTPS cannot be established or no cert presented.
    - https_enforcement
        - present: http://{domain} responds with 301/302 → https://… (or HTTP is closed).
        - unclear: Mixed behavior across paths/hosts.
        - not_detected: Plain HTTP content served with no redirect.
    - hsts
        - present: Strict-Transport-Security header present with non-zero max-age (bonus if includeSubDomains/preload).
        - unclear: Header appears only on some responses or malformed / max-age=0.

        - not_detected: No HSTS header observed.
- Recommendation helpers (emit only when action is warranted):
    - If tls_certificate != present:
        - “Install a trusted TLS cert (e.g., Let’s Encrypt/DigiCert) with correct SAN coverage; automate renewal (Certbot) to avoid expiry.” OBJ OBJ
    - If https_enforcement != present:
        - “Force HTTP→HTTPS with 301/302 at the edge/app; ensure all subpaths and www/apex behave consistently.” (Mozilla TLS guidance.) OBJ OBJ
    - If hsts != present or weak:
        - “Enable HSTS with max-age (e.g., ≥ six months), includeSubDomains, and consider preload once stable.” OBJ OBJ
    - Optional hardening:
        - “Review TLS parameters (TLS 1.2/1.3, ciphers) using Mozilla’s recommended configs.”

Level 1 Technical (On page keyword SEO) for SEO practitioner / technical SEO

- Less than 2% of links are broken
- SEO helpful data (title tag, meta description tag, header tags) present on every page
- Always resolves to https, even if http is entered
- robots.txt is present. This is a critical traffic-control file; Google follows specific behaviors for status codes, size limits, and redirects
- Google Lighthouse score of 50+
- For Google Core Web Vitals for desktop: Largest Contentful Paint (LCP) of <4.0 seconds, Interaction to Next Paint (INP) of <500 ms, and Cumulative Layout Shift (CLS) of <0.25

Level 2 Technical (Some basic page structure) for SEO practitioner / technical SEO

- Some pages have structure (eg a single <h1> and structured <h2>, <h3>, and <h4> tags)
- Some pages have content structure such as saying “in summary”, using bullet points, using numbered lists, including a table of contents, using call outs, and/or adding FAQs at the bottom of content heavy pages
- Some content heavy pages have the answers up front in content, getting to the point quickly
- The site is easy to crawl. To be specific that means
    - Navigation, footer, and other links that appear on every page link (in HTML) to all key pages on the site, letting bots and crawlers understand the relationship between pages on the site and their relative importance

        - Key pages include features, pricing, resources, etc. These are the pages that drive conversions for the business. These are not always the highest traffic pages, but often include the highest traffic pages
    - Internal site links connect to all important pages
    - Less than 0.1% of links are broken
- SEO metadata optimized for targeted user queries, not just keywords
- Clear headings in the content mirror likely questions asked by prospects
- Google Lighthouse score of 50+
- For Google Core Web Vitals for desktop and mobile: Largest Contentful Paint (LCP) of <3.0 seconds, Interaction to Next Paint (INP) of <350 ms, and Cumulative Layout Shift (CLS) of <0.15

Level 3 Technical (Consistent structure on fast site) for SEO practitioner / technical SEO

- Schema.org markup is present on 75%+ of pages
- Schema.org markup is valid on 90%+ of pages where present
- Content uses logically structured <h2>, <h3>, and <h4> tags for major points across your site
- Key content does not require client-side javascript rendering
- The site has 99.9% uptime in the last 90 days (if this information is available)
- A secure website is important to building user trust, impacting search ranking and brand credibility
    - The latest package versions are being run. All updates have been applies
    - Protect your site from DDoS attacks with firewalls, load balanced, web application firewalls (WFA) and more
    - Prevent brute force attacks with CAPTCHA, limiting login attempts, implementing two factor authentication, and requiring strong passwords
    - Safeguard your site from cross-site scripting by installing content security policies (CSPs) that filter out hazardous scripts and questionable websites, ensuring browsers and servers only execute secure code
    - Use SSL/TLS Certificate
    - Enforce HTTPS
    - If accepting payment on your site, use reliable online payment gateways like Stripe and Paypal which are PCI compliant
- Use canonical tags to specify the canonical version of your page
- Use sitemap.xml lists indexable pages
    - This file is highly useful but not mandatory
    - This improves URL discovery and recrawl cadence, especially on large sites (use sitemap indexes for scale)
- A11Y (accessibility) coverage is 95%+
- Crawlability near 100%
- Google Lighthouse score of 90+

- For Google Core Web Vitals for desktop and mobile: Largest Contentful Paint (LCP) of <2.5 seconds, Interaction to Next Paint (INP) of <200 ms, and Cumulative Layout Shift (CLS) of <0.10

Level 4 Technical (Automated site structure) for SEO practitioner / technical SEO

- Schema.org markup is present on 95%+ of pages
- Schema.org markup is valid on 100%+ of pages where present
    - Schema generation is likely automated at this level. For example, when content teams create a new FAQ section, the schema JSON-LD and internal links are automatically generated
- Nested schema helps LLMs understand relationship between different entities
- A11Y (accessibility) coverage is 99.5%+
- Clean, semantic code that both search engines and AI bots can parse and understand
- More broadly, adoption of widely adopted AEO standards as they reach wide adoption
- At this level, you are effectively maintaining multiple interfaces to website content for humans, LLM pre-training, and real-time LLM web search
- Some things an arm's length AEO assessment couldn't detect but which you may do at this level
    - Use IndexNow to rank with freshness in Bing, which ChatGPT uses heavily for search
    - Perform technical audits quarterly to maintain site hygiene

Level 5 Technical (MCP and early standards adoption) for SEO practitioner / technical SEO

- At this stage, you're an early adopter of the evolving standards around AEO (often even before they are finalized as standards), enabling you to find pockets of opportunity
- Google Lighthouse score of 95+
- For Google Core Web Vitals for desktop and mobile: Largest Contentful Paint (LCP) of <2.25 seconds, Interaction to Next Paint (INP) of <180 ms, and Cumulative Layout Shift (CLS) of <0.09
- Schema.org markup is present on 99.5%+ of pages
- Redirect hallucinated URLs from LLMs
- llms.txt may be present
    - This is optional/experimental
    - It's helpful for AI crawler curation; not part of the search crawl standard today
    - llms.txt summarizes the site's purpose, critical contextual details, and prioritized links to machine-readable resources (ie a subset of pages whose key info is reformatted in markdown)
- Markdown summaries of pages (aka .md versions of pages) may be present
    - This is even more speculative than llms.txt

    - This may be helpful for AI crawlers by lowering the cost to crawl a site
    - Linked markdown files, hosted at predictable URLs (e.g., appending .md to HTML paths), may be a useful complement to llm.txt to help LLMs process your site
- If your website has functionality (rather than being purely informational), you may have an active MCP server running to enable agents to engage with your site functionality
- Some things an arm's length AEO assessment couldn't detect but which you may do at this level
    - You are engaging directly with the large answer engines such as ChatGPT, Gemini, Copilot, and/or Anthropic
    - Few 4xx/5xx errors in your logs

Authority category for SEO practitioner / technical SEO

This is the Authority category maturity assessor

Analyze this domain: [INSERT DOMAIN VARIABLE]

Respond with ONLY the raw, valid JSON object. Do not include markdown, code blocks, or any other explanatory text.

Research for LLM to do in assessing Authority maturity

Industry and competitors

- Use web search and other resources to determine what industry this website is in
- Use web search and other resources to determine the top five competitors for this website
- Output (JSON)
    - industry: <industry>
    - competitor_1: <competitor 1>
    - competitor_2: <competitor 2>
    - competitor_3: <competitor 3>
    - competitor_4: <competitor 4>
    - competitor_5: <competitor 5>

Authoritative site coverage and sentiment

- Use web search and other resources to determine the 50 most authoritative sites that talk about this industry, the five competitors, and this company
- Determine how many of these sites mention this company and each of the five competitors and track if those mentions are positive, neutral, or negative in sentiment
- Calculate for this company and all five competitors (so six sets of numbers)

    - top site coverage = number of sites mentioning the company / 50
    - top site positive mention = number of sites mentioning the company with positive sentiment / number of sites mentioning the company
    - top site neutral mention = number of sites mentioning the company with neutral sentiment / number of sites mentioning the company
    - top site negative mention = number of sites mentioning the company with negative sentiment / number of sites mentioning the company
    - Note: top site positive mention + top site neutral mention + top site negative mention should add up to 100%
- Output (JSON)
    - top_site_01: <top domain 1 in “website.tld” format>
    - top_site_02: <top domain 2 in “website.tld” format>
    - top_site_03: <top domain 3 in “website.tld” format>
    - top_site_04: <top domain 4 in “website.tld” format>
    - top_site_05: <top domain 5 in “website.tld” format>
    - top_site_06: <top domain 6 in “website.tld” format>
    - top_site_07: <top domain 7 in “website.tld” format>
    - top_site_08: <top domain 8 in “website.tld” format>
    - top_site_09: <top domain 9 in “website.tld” format>
    - top_site_10: <top domain 10 in “website.tld” format>
    - top_site_coverage: <0–100>
        - If you think top_site_coverage is 0% or "No public data found. This may exist internally." please think more deeply. There is always a way to assess if a company is mentioned on another site
    - top_site_coverage_competitor_1: <0–100>
    - top_site_coverage_competitor_2: <0–100>
    - top_site_coverage_competitor_3: <0–100>
    - top_site_coverage_competitor_4: <0–100>
    - top_site_coverage_competitor_5: <0–100>
    - top_site_positive_mention: <0–100>
    - top_site_positive_mention_competitor_1: <0–100>
    - top_site_positive_mention_competitor_2: <0–100>
    - top_site_positive_mention_competitor_3: <0–100>
    - top_site_positive_mention_competitor_4: <0–100>
    - top_site_positive_mention_competitor_5: <0–100>
    - top_site_neutral_mention: <0–100>
    - top_site_neutral_mention_competitor_1: <0–100>
    - top_site_neutral_mention_competitor_2: <0–100>
    - top_site_neutral_mention_competitor_3: <0–100>
    - top_site_neutral_mention_competitor_4: <0–100>
    - top_site_neutral_mention_competitor_5: <0–100>
    - top_site_negative_mention: <0–100>
    - top_site_negative_mention_competitor_1: <0–100>
    - top_site_negative_mention_competitor_2: <0–100>

    - top_site_negative_mention_competitor_3: <0–100>
    - top_site_negative_mention_competitor_4: <0–100>
    - top_site_negative_mention_competitor_5: <0–100>

Third party accuracy

- Does the company have a Google Knowledge Graph entry?
    - If so, compare that entry to the information on the company's website and score the accurate on a scale of 0 (completely false information) to 10 (completely accurate information). If you cannot tell if some of the information is accurate or not, ignore that information for this specific calculation
- Does the company have a Wikipedia entry?
    - If so, compare that entry to the information on the company's website and score the accurate on a scale of 0 (completely false information) to 10 (completely accurate information). If you cannot tell if some of the information is accurate or not, ignore that information for this specific calculation
    - History of updating, via Wikipedia entry history
- Look at the top 50 backlinks to this website
    - Compare the information from those backlinks to the information on the company's website and score the accurate on a scale of 0 (completely false information) to 10 (completely accurate information). If you cannot tell if some of the information is accurate or not, ignore that information for this specific calculation
- Does the company have entries in review sites, including G2, Trustradius, Gartner Peer Insights, and Capterra for business offerings or Truspilot, Yelp, Angi, for consumer offerings
    - If so, compare those entries to the information on the company's website and score the accurate on a scale of 0 (completely false information) to 10 (completely accurate information). If you cannot tell if some of the information is accurate or not, ignore that information for this specific calculation
- Output (JSON)
    - google_knowledge_graph_entry: <yes or no>
    - google_knowledge_graph_entry_accuracy: <blank if no entry, 0–10 if entry exists>
    - wikipedia_entry: <yes or no>
    - wikipedia_entry_accuracy: <blank if no entry, 0–10 if entry exists>
    - backlink_accuracy: <blank if no entry, 0–10 if entry exists>
    - review_sites_entries: <yes or no>
    - review_sites_entries_accuracy: <blank if no entries, 0–10 if entries exists>

Search profile

* Google number of indexed pages, top results, and cached snippets for the domain.
* Bing number of indexed pages, top results, and cached snippets for the domain.

Social sentiment

* Recent Reddit mentions *only in the last 12 months*.
* Recent LinkedIn mentions *only in the last 12 months*.
* Recent Quora mentions *only in the last 12 months*.
* Ahrefs data if available including domain rating, referring domains, backlinks over time, search traffic over time, search traffic value, and top keywords
* Semrush values if available including domain search rank and trend, search authority score, backlink authority score, referring domains and trend, backlinks and trend, bounce rate, pages per visit, traffic by device, organic and paid search traffic, top keywords

LLM accuracy and sentiment

* What a search on ChatGPT, Gemini, Microsoft Copilot, and Perplexity returns when asked about this domain

On site content

- Look at the company's website. Are blog posts or other content attributed to specific individuals? If so, do those individuals have bios on the page or linked to from the page?
- Does the site's homepage or other key pages include visually stunning content, such as infographics, animation, interactivity, videos, stylized visuals, etc? Rate this on a scale of 0 (none) to 10 (widely used)
- Output (JSON)
    - content_attributes_individuals: <yes or no>
    - content_attributed_to_individuals_includes_bio: <yes or no>
    - visually_stunning_content: <0–10>

Level 1 Authority (Backlinks) for SEO practitioner / technical SEO

- Backlinks are the primary focus for representing authority
- Minimal E-E-A-T
- Possible link farm exposure

Level 2 Authority (More active EEAT (expertise, experience, authority, and trustworthiness)) for SEO practitioner / technical SEO

- Content signals EEAT, expertise, experience, authority, and trustworthiness
    - Experience: Show your author's direct, firsthand experience with the topic through, for example, author bios or behind the scenes accounts, or personal experiences. Google shares an example of low experience: a restaurant review written by someone who has never eaten at the restaurant
    - Expertise: Demonstrate subject matter expertise through author credentials, citing authoritative sources, and through depth and accuracy of content.
    - Authoritativeness: Demonstrate authority by consistently creating and sharing genuinely valuable, high-quality content that earns mentions from other

respected sites. Google shares an example of low authoritativeness: tax form downloads provided on a cooking website.
    - Trustworthiness: Ensure accuracy and verifiable information with reliable citations, clear sources, and transparent authorship. Share clear contact information, maintain a positive reputation, and follow ethical content practices.
- Ensure Google's Knowledge Graph accurately represents your brand. Claim your entity in Google Search and establish schema markup for credibility
- Add author bios to your key posts
- Create or update your Wikipedia page

Level 3 Authority (Proactive digital PR, Reddit, and thought leadership) for SEO practitioner / technical SEO

- New for LLMs, authoritative sites mentioning in plain text that your brand is an authority on specific topics is really important. Why?
    - Because LLMs consume that plain, unlinked text for training
    - You can think of each repetition in plain text as another round of the LLM trying to memorize something... the more reps, the more you remember
- Monitor backlink profile for quantity and quality + relevance
- Systematically track earned mentions and sentiment

Level 4 Authority (Recognized pillar of thought leadership with engaging visual storytelling) for SEO practitioner / technical SEO

- Consistent citation as authoritative source by industry sources large and small
- Proactively correct inaccuracies on Wikipedia and other reference sites to ensure information about your brand is up-to-date and well-sourced
- You have a Knowledge Panel on Google, which is an indicator that Google recognizes you as an entity of note
- Search volume for your brand and key figures (CEO, CTO, etc) is rising, a sign that your thought leadership is driving people to look you up
- Your website tells engaging, visual stories, indicating quality and driving engagement. You use infographics, animation, interactivity, and videos to engage.

Level 5 Authority (Widespread, positive citations) for SEO practitioner / technical SEO

- Your brand is referenced within others' SEO snippets.
- Your brand is explicitly mentioned as a source in AEs.
- You actively manage citations. For example, if your research is cited in a major publication, you ensure it's properly linked and attributed, perhaps reaching out to get a link or correct the anchor text
- Your content is widely cited and shared
- You are almost certainly creating original data that fuels some of your thought leadership

    - For example, Salesforce's "State of Sales" and "State of Marketing" annual reports became pillar content in those domains, widely cited, discussed on social media, and used by professionals to benchmark themselves. These kinds of reports often feed AI answers for high-level trend questions ("What are the latest trends in marketing?" will often pull points from Salesforce's study)

Measurement category for SEO practitioner / technical SEO

This is the Measurement category maturity assessor

Analyze this domain: [INSERT DOMAIN VARIABLE]

Respond with ONLY the raw, valid JSON object. Do not include markdown, code blocks, or any other explanatory text.

Research for LLM to do in assessing Measurement maturity

- Look for evidence of web analytics tools usage in the html of the website, focusing on the homepage and landing pages. This is often via tags on the site. Examples include Google Analytics, Adobe Analytics, and many more
- Look for the presence of an intellimize.co snippet in the <head>, which is a likely indicator of using Webflow's Analyze product, which is a web analytics tool
- Look for evidence of SEO and AEO tools usage in the html of the website, focusing on the homepage and landing pages. This is often via tags on the site. Examples include Semrush, Ahrefs, Profound, Scrunch, Graphite, and many more
    - When deciding on maturity level for the measurement category, treat the presence of SEO and AEO tools as more mature
- Look at the privacy policy of the site, if there is one, for disclosures related to analytics, monitoring, and/or AI/LLM usage
- Look at the compliance policy of the site, if there is one, for disclosures related to analytics, monitoring, and/or AI/LLM usage
- Look for employees of this company talking about their website measurement in blogs, on podcasts, on LinkedIn, and elsewhere
- When making recommendations for the measurement category, most things are hard to detect from a website alone. Do not speculate about internal practices. Only report on what you can see or cannot see
- Do not treat the lack of externally visible evidence as proof that the company is not doing something. For example, if you do not see evidence of AEO tracking tool tags on the site, instead of saying something like "do AEO mention tracking" say "If not already in place (we cannot tell from the outside), begin AEO mention tracking"
- Output (JSON)
    - visible_measurement_tool_usage: <"Yes" or "No">

    - maturity_level: <a number between 2 and 5>
        - The other three categories are between 1 and 5, but measurement is between 2 and 5

Level 1 Measurement (Ranking for target keywords) for SEO practitioner / technical SEO

- Things you cannot tell from the outside
    - You're manually checking SERPs for rank on small target baskets of keywords

Level 2 Measurement (Ad hoc presence checking) for SEO practitioner / technical SEO

- Things you cannot tell from the outside
    - Ad hoc, manual checking of presence for a handful of key questions
    - Track the content of the pages answer engines are sending traffic to. This is the best intent signal we will get since answer engines are not currently sharing queries or any other context

Level 3 Measurement (Tracking LLM traffic, mentions, and sentiment) for SEO practitioner / technical SEO

- Things you cannot tell from the outside
    - Systematic tracking of LLM traffic, mentions and sentiment in relevant answers in AE's, with regular metric reviews
    - You may be using a tool like Scrunch, Profound, SEMrush, Ahrefs, etc
    - Daily or weekly mention tracking
        - Inclusion: are you included in the AI outputs
        - Citation: are resources you own linked to in the AI outputs
        - Prominence: are you listed early / prominently in the AI outputs
    - Daily or weekly sentiment tracking
        - Is your brand garnering positive or negative/controversial mentions?
    - Long term reputation measurement
        - How consistent is sentiment over time? Does that sentiment strengthen or erode brand perception?
    - Systematically tracking conversion rates (to the on-website actions you care about) for LLM-sourced and non-LLM-sourced traffic. Bonus for tying this to revenue

Level 4 Measurement (Share of voice and accuracy tracking) for SEO practitioner / technical SEO

- Things you cannot tell from the outside

    - Additional monthly tracking of generative share of voice for relevant questions vs other brands
    - Systematic measurement of LLM content accuracy and freshness
    - Attribute value to zero click mentions
    - Systematize review of third parties and LLMs for accuracy

Level 5 Measurement (Real time analytics guiding where to invest next) for SEO practitioner / technical SEO

- Things you cannot tell from the outside
    - Proactive adaptation to shifts in AI search trends along with real time analytics guiding where to invest next
    - User journey attribution
    - Prediction about upcoming topic demand
    - Adjust to changing reporting from LLMs

CMO

Content category for CMO

Level 1 Content (Keyword focused content) for CMO

- The content strategy focused on creating keyword-centric, product-focused content on the most trafficked pages, such as homepage, landing pages, product pages, and/or about us
- Content generally captures demand from people ready to buy or who already know you
- Content is typically created as one-off collateral rather than being part of a broader content strategy
- Content is typically created and not updated

Level 2 Content (Some answer oriented content) for CMO

- Optimize for answers rather than keywords
    - Rather than building original content for a keyword you want to rank for and then a cluster or keywords around it, build content that fully answers a question you think your prospects are asking... and then build content for a cluster of questions they might ask around that original question
- Map your questions to different stages of the funnel
- Some potential sources of inspiration for questions:
    - Look at sales call recordings to find patterns in questions being asked at different stages of the funnel
    - Look at Google for keywords you care about and use “people also ask”
    - Ask your team to look at ‘People Also Asked’ from Google for the keywords you care about
    - Look at the content LLM bots are crawling on your site (ask your team to look at inference time crawling, not training crawling)
    - Look at sales and support emails to find patterns in questions being asked
- Some typical questions to answer
    - Competitor comparison: Why are you better than x competitor? (consideration)
    - High “visit website” intent topics such as examples, templates, and other topics that are likely not to be well summarized in LLMs
    - Time and resourcing
        - How much time will it take to install / setup / use / do x task?
        - How should I resource my team to use your product?
    - “What is <your category> and why do I need it?” (awareness)
- Connect your teams to better answer the right questions
    - For example, sometimes the SEO team produces Q&A content without connecting to sales and/or customer support. The result is articles that might miss the nuanced questions customers actually ask

- Consider a content calendar to:
    - Align on and execute against in-market storylines across many pieces of content
    - Ensure content is regularly refreshed

Level 3 Content (Answering clusters of questions) for CMO

- Content is now systematically focusing on answers as your team focuses on owning entire topics
    - Your teams are able to create this content at scale while staying on voice and on message
    - Your SEO and web teams have collaborated to systematically build AI-friendly structure into the site
- Your teams look at competitor sites for inspiration, looking at the content that likely fueled competitive presence in LLM answers and/or in top 10 search results
- Focus on genuinely valuable, original content (especially original data). This cannot be overstated
    - AI engines are getting smarter about recognizing true expertise as they get excellent signals from users about what's useful or not
    - While Google was the "database of intentions" from a search query, LLMs typically get the benefit of a back and forth with users (and potentially browser data in the future) that make it really clear to the LLM what's valuable or not to the user

Level 4 Content (Answer-hierarchy-driven content) for CMO

- Your content team's strategy isn't just to produce one-off pieces, but rather to cover whole topics comprehensively
- In practice, when your team decides to own a topic, they create a flagship piece and all the supporting content needed to answer every sub-question a customer might have
- Your content team creates with an answer hierarchy in mind, regularly updates all content, and localizes answers
- Your team knows what the competition is saying and getting mentions for and considering this when laying out content strategy
- Your team has a content calendar, and the calendar is booked out far in advance with both internally and externally generated pieces, all aligned to the strategy

Level 5 Content (Programmatic AEO with personalized content) for CMO

- Your team is practicing Programmatic AEO, which means a comprehensive content program that personalizes content for each segment, persona, use case, account, and unique individual. With less traffic, you need to convert at a higher rate than ever before to make every visit count, and experimentation and 1:1 personalization are key ways to do that.

- Your flagship content has become a company asset that others in the industry reference and may emulate. Customers and partners trust your resources, even if they haven't worked with you yet. Such content depth shortens sales cycles ("I've been reading your reports for months, so I already know you're good") and opens up new opportunities like partnerships or media features based on your content expertise.
- Your team is likely experimenting with cutting-edge content types such as animation, interactive tools, data visualizations, and AI-driven experience personalization. As new content types emerge as valuable to AEO, your team is engaging in those new types quickly, gaining advantage over slower moving brands.

Technical category for CMO

Level 1 Technical (On page keyword SEO) for CMO

- Your team is doing basic on-page SEO
- The site likely passes basic tech checks, like being crawlable by search engines, being mobile friendly, and having some internal linking structure
- The site may or may not be particularly fast

Level 2 Technical (Some basic page structure) for CMO

- LLMs "remember" better clearly organized information, so some pages (especially FAQ pages) have basic structure
- LLM bots are explicitly unblocked (7.3% of sites actually have them blocked (source))
- The site is mobile friendly

Level 3 Technical (Consistent structure on fast site) for CMO

- Consistent site-wide structure on a super-fast website with well managed SEO basics. Your infrastructure is an asset
- If your site does not follow accessibility best practices (like proper contrast, semantic tags, or alt text), it becomes harder for LLMs to interpret

Level 4 Technical (Automated site structure) for CMO

- Your site structure is created and updated automatically in your CMS.
- Your team has created engaging and optimized interfaces for humans (website with engaging, personalized experiences) and separately for LLMs (structured data feeds)

Level 5 Technical (MCP and early standards adoption) for CMO

- Early adoption of evolving standards to find pockets of opportunity.
- Add MCP interface for functional engagement of agents.

Authority category for CMO

Level 1 Authority (Backlinks) for CMO

- Backlinks are the primary focus for representing authority
- Little to no third party mentions

Level 2 Authority (More active EEAT (expertise, experience, authority, and trustworthiness)) for CMO

- Your content signals EEAT, expertise, experience, authoritativeness, and trustworthiness, which Google has used since 2014. What is EEAT?
    - Experience: Content backed by first-hand, real-word knowledge and expertise such as case studies, original research, and hands-on experience
    - Expertise: Clear subject matter expertise as signaled by author bylines, credentials, and expert contributions
    - Authoritativeness: Own your own knowledge graph, be widely referenced, and be recognized leaders in your industry. Engage in media interviews, guest contributions, and speaking engagements
    - Trustworthiness: Factually accurate and verifiable as demonstrated by reliable sources, citations, and transparent authorship
    - EEAT is especially crucial for YMYL pages, with YMYL meaning topics that relate to the reader's money or life (Your Money Your Life)
- AI search models prioritize widely referenced sources, which can disadvantage emerging brands. Overcoming this requires strategic partnerships, citations, and broad industry engagement (source)
- Your team is doing some off-site authoring
- You tell your SEO team to focus on Bing since ChatGPT uses it for search, which is activated 40% of the time (source)

Level 3 Authority (Proactive digital PR, Reddit, and thought leadership) for CMO

- Your team is undertaking proactive digital PR. For LLMs, "top 10 lists" tend to do particularly well for digital PR. Having a bunch of credible sites saying that you're credible about something is more valuable with AIO than it has been with SEO... and PR is a good way to do that.
- Your brand's thought leaders are speaking on podcasts, getting quoted, etc.
- Your team is more active in places like Reddit and Quora that LLMs have elevated in importance (source).
- Your team is starting to create thought leadership and data-backed, original research.

Level 4 Authority (Recognized pillar of thought leadership with engaging visual storytelling) for CMO

- Your brand is a recognized pillar of thought leadership with consistent citation as an authoritative source
- Your team proactively corrects inaccuracies on other sites such as Wikipedia
- Your thought leaders and content team are collaborating with influencers and other external experts
- Your team tells engaging, visual stories on your website, indicating driving engagement which indicates quality

Level 5 Authority (Widespread, positive citations) for CMO

- Your brand is an industry-defining authority with widespread, positive mentions on other authoritative sites
- Your brand has a consistent, ubiquitous presence in AEs
- Your team corrects inaccuracies in any authoritative sources. This could mean replying to a high-profile blog that misrepresented data (professionally and with facts), or providing expert commentary that sets the record straight on a controversial topic

Measurement category for CMO

Level 1 Measurement (Ranking for target keywords) for CMO

- Measurement focuses on rank over time for target baskets of keywords

Level 2 Measurement (Ad hoc presence checking) for CMO

- Ad hoc, manual checking of presence in key questions

Level 3 Measurement (Tracking LLM traffic, mentions, and sentiment) for CMO

- Systematic tracking of LLM traffic, mentions and sentiment in relevant answers in AE's, with regular metric reviews

Level 4 Measurement (Share of voice and accuracy tracking) for CMO

- Tracking of share of voice for relevant questions vs other brands along with content accuracy and freshness

Level 5 Measurement (Real time analytics guiding where to invest next) for CMO

- Proactive adaptation to shifts in AI search trends along with real time analytics guiding where to invest next and upcoming thought leadership trends

Third party supporting data

To be processed when online

- Vivian Hoang: I think to make your point here though, it might be a good opportunity to show a chart like this article (The Great Decoupling), that shows how impressions are increasing, but clicks are declining

Framing

AEO is important

- AI is rewriting the rules of search because it's genuinely giving buyers more of what they want
    - ChatGPT hit 100M users in two months, faster than any other app in history because it's useful (source and source slide 57), and it's now at 800M monthly users (source slide 55)
    - A prominent SEO firm (SEMrush) predicts that AI search visitors will pass search traditional search visitors in three years (source)
    - Forrester found that 95% of b2b buyers plan on using genAI in their buying processes this year (source)
- At Webflow, we're seeing LLM bot traffic is now the #2 source of bot traffic behind traditional SEO crawlers (source)
- Marketing leaders (93%) and marketing practitioners (91%) both agree that AEO will be somewhat or extremely important to their company's success in the next two years (source)
- Ok, so we need to pay attention to it…

AEO is similar to what good SEO should have always been

- 52% of sources cited in Google AI Overviews rank in the top 10 results (source)
    - Meaning ranking higher is better but not an AEO requirement (source)
    - Alternative source: 75% of AI Overview links come from the top 12 organic rankings (source)
- High-quality content, backlinks, and search intent continue to be the top 3 ranking SEO factors in 2025 (source)

The problem: a perfect storm

Loss of brand narrative control

- Emotion: frustration
- But we're also facing a perfect storm from LLMs that begins with a loss of control over the words that prospects see about our brand

- It's reasonable for a LLM to be 100% correct, but present us as a list of capabilities rather than telling the differentiated story we want told
- Worse, if we have some out of date content on our site (no one here has that - but other people) or if a third party has out of date content on their site about us, AI is more likely to deliver an answer that misrepresents our brands entirely
- ChatGPT and other top models search linked to the wrong source article nearly 40% of the time and simply didn't provide a source another 21% of the time (source quoting this study from Columbia University)
- Net net, there is a real narrative risk for our brands
- Other stats
    - Increasing brand awareness through SEO is a priority across the board (source)
    - AI-generated search results can fabricate statistics, misquote sources, or create misleading narratives (source)
    -

Drop in organic traffic

- The second piece of our perfect storm is that AEO is typically delivering less traffic than SEO, making it harder to for us to deliver the pipeline and revenue we're accountable for
- Virtually all CMOs I talk to say they are seeing less SEO traffic… sometimes a little bit less and sometimes a ton less
- Bain believes overall SEO is down 15% to 25% (source)
- Organic traffic matters for virtually all of us, accounting for about 94% of all clicks (source)
- There is a silver lining because…
    - Traffic from LLMs is more qualified and converts more, 4.4x (source SEMrush) to 23x (source Ahrefs) more, than typical SEO traffic
    - and LLM visitors also go to 50% more pages than search visitors (source Ahrefs)
    - AEO is delivering traffic to more domains (so more tail). It's roughly 2.5x more domains than before (source which sourced SEMRush)
- Other stats
    - Google's steady rise of zero-click searches (end without a click through) is at 57% of mobile searches and 53% of desktop searches (source)
    - 27% of Americans now use AI chatbots like ChatGPT instead of search engines (source)
    - Google AI Overviews now appear for 47% of searches (source), and a well known SEO firm (Ahrefs) found that click through rates with AI Overviews present are down 34% (source)
    - AEO sessions are deeper than search sessions (averaging 6 minutes) (source)
    - Google is disputing the traffic drop saying total organic clicks are relatively flat YoY (source Google 8/6/25)
        - Sites with authentic voices and first-hand experiences (embodied in forums, videos, podcasts, posts) and learning material (such as in-depth reviews, original posts, unique perspectives, and thoughtful first-person

analyst) are gaining traffic while other sites are losing traffic (source Google 8/6/25)

- Organic traffic matters for virtually all of us, accounting for about 94% of all clicks (source)
  - The hard-fought top search result gets 40% of all clicks, 19x more clicks that the #1 paid search result (source)
- Google is disputing this saying total organic clicks are relatively flat YoY
  - Clicks are more qualified / further down the funnel after engaging with AIO
    - "average click quality has increased and we're actually sending slightly more quality clicks to websites than a year ago (by quality clicks, we mean those where users don't quickly click back — typically a signal that a user is interested in the website)" (source Google 8/6/25)
    - "an AI response might provide the lay of the land, but people click to dive deeper and learn more, and when they do, these clicks are more valuable" (source Google 8/6/25)
- Sites with authentic voices and first-hand experiences (embodied in forums, videos, podcasts, posts) and learning material (such as in-depth reviews, original posts, unique perspectives, and thoughtful first-person analyst) are gaining traffic while other sites are losing traffic
  - "People are increasingly seeking out and clicking on sites with forums, videos, podcasts, and posts where they can hear authentic voices and first-hand perspectives. People are also more likely to click into web content that helps them learn more — such as an in-depth review, an original post, a unique perspective or a thoughtful first-person analysis. Sites that meet these evolving user needs are benefiting from this shift and are generally seeing an increase in traffic" (source Google 8/6/25)
- Counterpoint: Despite initial uncertainties, 63% of respondents reported that Google AI Overviews (AIO) have positively impacted organic traffic, visibility, or rankings since its rollout in May 2024 (source)
- Hubspot, considered by many to be the gold standard of SEO-driving B2B vendor blogs, famously saw SEO traffic decline by 36% in just one month at the end of last year (source for Nov to Dec '24)
  - The primary driver? Likely a Google update that tightened the breadth of content they'd be rewarded for (related article)
  - That authority, which we'll talk about more, is crucial for both SEO and AEO
  - "None of us could have predicted the incredible impact that AI tools like ChatGPT have had over the last few years" said Hubspot's SEO lead (source)
- Video content is 50 times more likely to win a spot among the top results of Google's first page rankings than plain text. Don't yet know for AEO (source)

Silver lining in the early days of a new medium

- AEO traffic is further down the funnel than SEO traffic
- AEO is delivering traffic to more domains (so more tail). It's roughly 2.5x more domains than before (source which sourced SEMRush)
- AEO queries are longer than search queries (23 words, on average, vs. 4.2) (source which sourced SEMRush)
- AEO sessions are deeper than search sessions (averaging 6 minutes) (source)
- Algorithm changes are effectively major and frequent (like early days of search)
- Other stats
    - At Webflow, we're seeing LLM bot traffic is now the #2 source of bot traffic behind traditional SEO crawlers (source)

See of sameness

- Finally, when everyone draws inspiration from the same LLMs, we get predictable results
    - Indistinguishable brands all claiming to be "the best," "the first," "the leader."
    - We are awash in a sea of sameness
    - The data supports the feeling
    - When LinkedIn tested a bunch of b2b ads, only 19% of were correctly attributed to the company doing the advertising! (source)
    - This causes prospects to tune out, especially in crowded markets, and makes it harder to stand out in LLMs
- Other stats
    - "Most B2B marketers are drowning in a sea of sameness because their brands all look and sound the same." (source)
    - As emerging uses for artificial intelligence in the field of marketing stand to create a "sea of sameness" for both consumer and B2B brands, those considering a human touch will rise to the top (source)
    - Being different has real economic value (source)

Early days in a new medium means opportunity

- All of that having been said, as with any new type of media…
- Those who act early find opportunity and bargains, just like in the early days of search, of mobile, of native ads
- And it is early days for AEO
- Despite its meteoric growth, ChatGPT and all other AI tools are currently <2% of search share (Webflow quoting source)
- AEO is a threat and an opportunity for both parts of the CMO job: building brand and driving revenue
- Only 25% of marketing practitioners say they fully understand what AEO is (source)
- When the word "best" was included in a prompt, LLMs mentioned brands 69.71% the time (source)
-

SEO is mature

- Google released a total of seven updates in 2024. Four were core updates and three were spam updates. (source)
- Google uses over 200 ranking factors in its search algorithm (source). It took years to reach this level of sophistication

Plenty of commercial intent

- When the word “best” was included in a prompt, LLMs mentioned brands 69.71% the time (source)
- John Battelle, a SEO thought leader, famously described Google back in 2003 as the ‘database of intentions.’ It had the best intent signals in the world at the time. LLMs have even more context on intent.

How the answer engines compare

- A prominent SEO leader (Kevin Indig) sees from first hand data that AIO has citations 99.15% of the time, unlike ChatGPT and others (source)

How organizations are adjusting

- At the same time, marketers are restructuring their content strategy / team or content workflow to address AEO (leaders 65% (source), practitioners 54% (source))

Future

Monetization of LLMs

- SEO: ads
- AEO: premium subscription today. I think it's clear that ads will be an even bigger driver
    - AEO is ad-supported today on Google
    - Ads are in beta on Gemini
    - GPT is free for easy use cases but guessing they will also do ads at some point
    - The historic 'Paid and Organic' piece will continue to exist in some form with AEO. You can optimize for AEO or you can pay to show up
- AEO: Ecommerce is a natural and has already begin

Context

- LLMs are not sharing the question or other context today. My opinion is that this will change because of the magnitude of commercial intent involved, just like it did with SEO
- We’ll get a SEO and SEM like interface to LLMs because there is too much money sitting in providing this info

Content category Third party supporting data

Content overall Third party supporting data

- Fortunately, AI generated slop is not doing well. 85% of AI content in Google is either entirely human generated (69%) or with a low level of AI augmentation (16%)) (source Graphite original research)

Level 1 Content (Keyword focused content) Third party supporting data

- “OpenAI, the leader in AI assistant space, made an executive decision to focus on raw intelligence and leave the rest to search engines. Without grounding this model is virtually useless. It’s designed to be the brain on top of tools and information it’s provided with. This means SEO has never been more relevant than now.” (source)
- “Use Reddit to Discover Emerging Questions” (source)

Level 2 Content (Some answer oriented content) Third party supporting data

- Pages with a visible "last updated" schema receive 1.8× more citations than those with no recency signal (source)
- 95% of ChatGPT citations point to pages that were updated in the last 10 months (source AirOps)

Level 3 Content (Answering clusters of questions) Third party supporting data

- Long-form content (3,000+ words) receives 77.2% more backlinks than short-form content (under 1,000 words) (source)

Level 4 Content (Answer-hierarchy-driven content) Third party supporting data

Level 5 Content (Programmatic AEO with personalized content) Third party supporting data

- McKinsey found that 71% of consumers expect companies to deliver personalized interactions, and 76% get frustrated when this doesn’t happen (source)

Technical category Third party supporting data

Technical overall Third party supporting data

Level 1 Technical (On page keyword SEO) Third party supporting data

- 25% of top-ranking pages are missing meta descriptions! (source)
- LLM bots are actually blocked on 7.3% of sites (source)

Level 2 Technical (Some basic page structure) Third party supporting data

- Google says that Rotten Tomatoes added structured data to 100K pages and saw 25% higher click-through rate for pages with structured data compared to pages without structured data (source)

Level 3 Technical (Consistent structure on fast site) Third party supporting data

- 88% of sites haven't implemented schema.org markup (source, pointed to by Alex Belding here)
    - At the same time, 73% of first-page results in Google used schema (source quoting Backlinko)
- Content with structured data receives 42% more answer engine citations (source)
- The reason for wanting no key content to require client-side javascript rendering is because none of the major LLMs execute javascript except Google's Gemini. This is a change from SEO since both Google search (fully) and Bing search (partially) execute javascript
- Real world example: Google says that Rotten Tomatoes added structured data to 100K pages and saw 25% higher click-through rate for pages with structured data compared to pages without structured data (source)
-

Level 4 Technical (Automated site structure) Third party supporting data

Level 5 Technical (MCP and early standards adoption) Third party supporting data

Authority category Third party supporting data

Authority overall Third party supporting data

Level 1 Authority (Backlinks) Third party supporting data

Level 2 Authority (More active EEAT (expertise, experience, authority, and trustworthiness)) Third party supporting data

- An example of E-E-A-T is using author bios in your content to showcase your experience, expertise, authority, and trustworthiness while boosting visibility (source)

Level 3 Authority (Proactive digital PR, Reddit, and thought leadership) Third party supporting data

- Reddit is the 3rd most visible domain in Google's U.S. search index (behind only Wikipedia and Amazon) (source)
- New audience: 68% of Redditors are not on LinkedIn and 59% are not on X (source)
- Reddit is 6th most cited domain in Perplexity (source)
- Reddit did the deal to share content
    - '23: Dramatically hiked prices for API access to Reddit content
    - Early '24: $60M from Google (source)
    - Mid '24: OpenAI deal
    - Mid '24: Block most search engines (ie those without a deal) from crawling (source)
- Reddit strategy
    - Participation
        - Many companies are lurking and listening on Reddit; the savviest are engaging directly (carefully). Especially in B2B sectors, company founders or product experts join subreddit conversations to answer questions – not as sales reps, but as helpful peers. This kind of thought leadership via comments serves two purposes: it builds goodwill with the community and creates content that might later be surfaced by AI. (source)
        - Tech companies often do AMA (Ask Me Anything) sessions or support Q&As on niche subreddits
        - Reddit users distrust brands. Authentic, individual participation is key

        - Smart brands now include Reddit in their social listening and SEO monitoring. The goal is to catch relevant threads (source)
        - If multiple Reddit users later mention “the support team is active here and helped answer my question,” that signals strong brand credibility.
        - For ecommerce brands, this might involve engaging on subreddits related to your niche
    - Game plan
        - Integrate Reddit into Your SEO/AEO Monitoring (source)
            - Upvotes (source)
            - Meaningful replies: Are people engaging in a real convo? (source)
            - Referral traffic: Use UTM links when appropriate. (source)
            - Brand mentions: Are people starting to tag you or your product? (source)
        - Engage Authentically in the Right Subreddits (source)
            - Lurking with Purpose — Learn Before You Launch (source)
            - Value-First Posting — Sharing Without Selling (source)
            - Founders & Experts Front and Center (source)
                - Reddit doesn’t trust brands. But it does trust people
            - Address Pain Points Openly (Before Others Do)
                - Reddit doesn’t shy away from negatives – if your product has a flaw, someone will eventually call it out. It’s far better for your team to be part of that conversation early
                - Use Reddit as an early warning system for product issues or dissatisfaction.
                - A frank explanation on Reddit from a company engineer, for instance, can demonstrate experience and transparency, contributing to trust signals that might not only help traditional SEO but could be reflected in AI answer tone
                - Unanswered criticisms on Reddit can snowball and become the top “knowledge” about your brand (both in human word-of-mouth and AI training data). By tackling them head-on, you shape the narrative
            - Running Ethical AMAs (Ask Me Anything) (source)
                - Pick the right subreddit, like r/startups or r/SaaS
                - Clear the AMA with moderators in advance
                - Be radically transparent about who you are and why you’re doing it
                - Answer every question — even the uncomfortable ones — with honesty
            - Leverage Reddit Content for Your Own AI-Ready Content
                - Reddit-informed content creation
            - Paid Reddit Ads — When (and When NOT) to Use Them (source)
                - Reddit ads can work… but only if they don’t feel like ads

        - Retargeting Reddit visitors who already interacted with your brand
        - Driving engagement with polls or useful tools
        - Testing early-stage messaging before a full launch
    - What Doesn't Work — Pitfalls B2B SaaS Brands Should Avoid (source)
        - Corporate Speak = Instant Death (source)
        - Jumping In Too Fast (source)
            - Comment on 10–15 posts before sharing anything original.
            - Answer real questions with advice you've earned.
            - Let people ask you for more — instead of dropping your tool unsolicited.
        - Hijacking Threads with Self-Promo (source)
        - Ignoring the Moderators (source)
            - Read the rules (yes, all of them)
            - Message the mods if you're planning an AMA or recurring posts.
            - Ask for feedback on whether something fits.
    - Encourage and Amplify "Real" Customer Voice

Level 4 Authority (Recognized pillar of thought leadership with engaging visual storytelling) Third party supporting data

- When brands are mentioned, popularity is the most important factor in being the brand that is mentioned. In fact, all AI Chatbots prefer popular brands and consistently rank them in the same order. (source)
- 94% of first impressions are design related (source)

Level 5 Authority (Widespread, positive citations) Third party supporting data

Measurement category Third party supporting data

Measurement overall Third party supporting data

- Marketing leaders' measures of success (multi-select): traffic from AI engines (#1 42%), engagement or conversion rates from AI traffic (#2 39%), increases in brand mentions or citations in AI search (#3 33%) (source Webflow original research published 9/16/25)

Level 1 Measurement (Ranking for target keywords) Third party supporting data

Level 2 Measurement (Ad hoc presence checking) Third party supporting data

Level 3 Measurement (Tracking LLM traffic, mentions, and sentiment) Third party supporting data

Level 4 Measurement (Share of voice and accuracy tracking) Third party supporting data

Level 5 Measurement (Real time analytics guiding where to invest next) Third party supporting data

What Webflow is doing & results

Overall impact of AEO

- 8% of total signups are from AI search (as Jun ‘25 - up from 2% in Oct ‘24 (source)) and they convert 6x better (24% vs 4% for non-brand SEO) (7/22/25 source)
- AI chatbot sourced signups as a percentage of total non-branded signups (including AI chatbot sourced and non-brand SEO) went from 1% in Jul ‘24 to 42% in Jun ‘25 (source)

Content category What Webflow is doing & results

Level 1 Content (Keyword focused content) What Webflow is doing & results

- Focusing on high “visit-website” intent topics and in-depth topical coverage (source)

Level 2 Content (Some answer oriented content) What Webflow is doing & results

- As a real world example on regular updating, at Webflow, we used AirOps to refresh 5x more content than before, going from manually refreshing <50 articles per year to automatically optimizing dozens every month
    - We saw a 42% uplift in total organic traffic for updated content and 14% higher conversion rates on that traffic (source and source)
- Comprehensive, straight-forward, and clear language (source)

Level 3 Content (Answering clusters of questions) What Webflow is doing & results

- Competitor comparison pages (source)
- Solutions/Use case landing pages (source)

Level 4 Content (Answer-hierarchy-driven content) What Webflow is doing & results

Level 5 Content (Programmatic AEO with personalized content) What Webflow is doing & results

Technical category What Webflow is doing & results

Level 1 Technical (On page keyword SEO) What Webflow is doing & results

Level 2 Technical (Some basic page structure) What Webflow is doing & results

Level 3 Technical (Consistent structure on fast site) What Webflow is doing & results

Level 4 Technical (Automated site structure) What Webflow is doing & results

Level 5 Technical (MCP and early standards adoption) What Webflow is doing & results

Authority category What Webflow is doing & results

Level 1 Authority (Backlinks) What Webflow is doing & results

Level 2 Authority (More active EEAT (expertise, experience, authority, and trustworthiness)) What Webflow is doing & results

Level 3 Authority (Proactive digital PR, Reddit, and thought leadership) What Webflow is doing & results

Level 4 Authority (Recognized pillar of thought leadership with engaging visual storytelling) What Webflow is doing & results

- To drive brand mentions in publications, at Webflow we (source)

    - Identify top authoritative sources referenced in AI-generated answers for priority queries (source)
        - Collaborate with cross-functional teams to drive mentions in those sources via
            - Co-marketing with partners and agencies
            - Affiliate and influencer engagement
            - Comms and PR in tech and industry publications
    - Work with affiliates to create YouTube and TikTok content (source)
- At Webflow, we help drive content accuracy by optimizing business profiles on review sites to ensure feature accuracy (source)
- Webflow: As part of our company OKR to drive CMS adoption, we specifically plan to strengthen Webflow's association with product terms like "content management system" and "CMS" within authoritative sources (including tech publications, Reddit, YouTube, and external sources). Making these semantic connections through explicit co-citations will help improve Webflow's visibility and reinforce our position in the CMS market (source)
- Webflow's target subreddits (source)
    - r/webflow – Direct audience, but low volume
    - r/Frontend / r/web_design / r/webdev – High traffic, technical audience
    - r/NoCode – Tools comparison, ideation, and SaaS/startup context
    - r/WordPress – Competitive discussions mentioning Webflow
    - r/UXDesign – Performance, accessibility, and user experience
- Webflow's operational plan for Reddit (source)
    - Create an internal Reddit Tiger Team (RTT) of stealth contributors
    - 3–5 internal team members (Community, DevRel, Support, PMM) to create pseudonymous, non-branded Reddit accounts
    - Train on best practices, create Slack channel to share relevant threads, monthly meeting for ongoing updates + progress
    - Answer common questions ("Why use Webflow over Framer?")
    - Share visual dev trends, performance tips, SEO learnings
    - Offer support for Webflow features (e.g. IX3, CMS scaling, GSAP)
    - Ask intelligent questions to seed discussion (focus more on commenting on high-ranking threads rather than starting new ones initially)
    - 3–5 quality posts or replies per week across the target subreddits
    - Engage in other non-Webflow related / adjacent topics
    - Well-crafted posts get upvoted, indexed by Google, and quoted by LLMs
        - Segment topics by intent (tool comparison, product education, use case, workflow/UX, community engagement, LLM visibility, freelance/agency, etc)
        - "Ask HN"–style posts ("What's your go-to workflow for managing design systems in Webflow?")
        - Honest comparisons ("Has anyone switched from WordPress to Webflow lately?")

        - Technical explanations (“Why Webflow’s CSS grid implementation is superior for accessibility”)
        - Increase CMS awareness/visibility
        - Use long-tail keywords in titles: “Best Webflow templates for agencies in 2025?”
        - Break up text with bullets or headings to improve readability
        - Always disclose if something is your own experience, not from the brand
    - Engagement metrics influence both Reddit visibility and how content appears in LLMs
        - Have team members upvote and comment on each other's posts (engage thoughtfully)
        - Bookmark / save high-performing threads with Webflow mentions
        - Re-engage old threads with new insights, links to new Webflow features, or tutorials
    - Reddit search listening + content feedback loop
        - Use high-intent questions and threads to inform content strategy
        - Tool options: GummySearch, Common Room, Gumloop, or Gigabrain
    - Real users have more influence than stealth staff posts
        - Identify and reach out to frequent Reddit posters who speak positively about Webflow
            - Explore Community Moderator program - starting with Reddit? Work with partners + affiliates
        - Offer them early access to features, time with Product team, exclusive opportunities, swag
        - Encourage them to continue sharing their Webflow experiences
        - AMAs with EPD team
    - Measuring success
        - Upvotes / Comments / Shares
        - Indexed Reddit pages mentioning Webflow
        - LLM mentions / visibility (LLM-driven traffic)
            - Signups from reddit.com (last click or direct?)
            - SS pacing
        - Sentiment from top Reddit threads
-

Level 5 Authority (Widespread, positive citations) What Webflow is doing & results

Measurement category What Webflow is doing & results

Level 1 Measurement (Ranking for target keywords) What Webflow is doing & results

Level 2 Measurement (Ad hoc presence checking) What Webflow is doing & results

Level 3 Measurement (Tracking LLM traffic, mentions, and sentiment) What Webflow is doing & results

Level 4 Measurement (Share of voice and accuracy tracking) What Webflow is doing & results

Level 5 Measurement (Real time analytics guiding where to invest next) What Webflow is doing & results

How Webflow can help

Content category How Webflow can help

Summary

- Generate on-brand content with AI, and personalize by segment, account, language, or unique individual
- Unprocess details
    - Create new content for the site that is on brand voice for human review
    - Personalization by segment or account
    - 1:1 personalization at scale
    - Powerful, flexible CMS for dynamic content creation (custom fields without plugins, visually design layouts, CSV import, on-canvas editing, collaboration, approvals, 100K+ item support, and more)
    - Native localization support including AI translation

    - More intuitive visual editing for non-technical users, including for CMS, and content scheduling

Level 1 Content (Keyword focused content) How Webflow can help

Level 2 Content (Some answer oriented content) How Webflow can help

Level 3 Content (Answering clusters of questions) How Webflow can help

Level 4 Content (Answer-hierarchy-driven content) How Webflow can help

Level 5 Content (Programmatic AEO with personalized content) How Webflow can help

Technical category How Webflow can help

Summary

- Make it easy for marketers by delivering high-performance websites powered by our global CDN, auto-generating LLM-friendly code and site structure, optimizing for mobile, and maintaining security without plugin vulnerabilities
- Unprocessed details
    - Speed
        - Global, super fast CDN with 250 locations around the world (source)
        - Mobile-optimized site by default
        - Webflow's infinitely scalable server fleet is ready to meet whatever traffic you throw at it
        - Clean HTML structure without unnecessary code that makes content easily parsable by AI crawlers. No plugin bloat
        - Excellent Core Web Vitals and Lighthouse performance
        - Automatic image optimization
    - Structure
        - Automated custom sitemap.xml creation (source)
            - Native localized sitemap.xml creation
        - Robots.txt support
        - Automated schema.org creation
        - Automated alt text creation for images
        - Automated SEO metadata (title and description) creation
        - OG (Open Graph) data support
        - Structured content collections that organize information logically
        - Semantic heading structures that clarify content hierarchy (not just divs)
        - Comprehensive localization support

        - Localized sub-directories for URL structures
        - Localized sitemaps and xlang/hreflang support
        - Page level hreflang support
        - Localized canonicals
        - Page routing
    - Security
        - Auto-updated security patches and infrastructure improvements without manual plugin upgrades
        - Built-in form anti-spam
        - Built-in SSL for all sites, and no need to manage or update risk-prone plugins (source)
    - SEO
        - Fine grained, in-product SEO controls, without plugins required (source)
        - Automated CMS SEO: automatically define meta titles and descriptions using fields in your CMS collections (source)
        - Robust 301 management: Migrate and update your site URLs without fear by quickly creating and publishing 301 redirects. Manage all 301 redirects without engineering help (source)
        - Easy alt tag editing for accessibility and SEO (source)
    - A lot more technical SEO
        - Page-level no-index support
        - Site and page level canonical support
        - Custom URL structure
        - Customizable meta titles and descriptions for every page

Level 1 Technical (On page keyword SEO) How Webflow can help

Level 2 Technical (Some basic page structure) How Webflow can help

Level 3 Technical (Consistent structure on fast site)
How Webflow can help

Level 4 Technical (Automated site structure) How Webflow can help

Level 5 Technical (MCP and early standards adoption)
How Webflow can help

Authority category How Webflow can help

Summary

- Create the visually stunning, engaging experiences that establish thought leadership and build the compelling content that earns widespread recognition

Level 1 Authority (Backlinks) How Webflow can help

Level 2 Authority (More active EEAT (expertise, experience, authority, and trustworthiness)) How Webflow can help

Level 3 Authority (Proactive digital PR, Reddit, and thought leadership)
How Webflow can help

Level 4 Authority (Recognized pillar of thought leadership with engaging visual storytelling) How Webflow can help

Level 5 Authority (Widespread, positive citations) How Webflow can help

Measurement category How Webflow can help

Summary

- Access real-time analytics to understand visitor behavior, content consumption, and experiment results

Level 1 Measurement (Ranking for target keywords)
How Webflow can help

Level 2 Measurement (Ad hoc presence checking) How Webflow can help

Level 3 Measurement (Tracking LLM traffic, mentions, and sentiment)
How Webflow can help

Level 4 Measurement (Share of voice and accuracy tracking)
How Webflow can help

Level 5 Measurement (Real time analytics guiding where to invest next)
How Webflow can help