Web Sustainability Guidelines

Summary Table & Checklist

2.1	Display any factors that have a negative impact on your project									
	Success Criterion									
	Identify existing or potential negative external factors affecting a project. Disclose these in a publicly available resource, identifying areas where digital sustainability can be improved. Perform this audit at the start of your project and at regular intervals.									
	GRI Medium Medium Medium Medium									
2.2	Understand user re	quirements or const	raints, resolving barr	iers to access						
	Success Criterion									
	and/or qualitative re	esearch, testing, or a	sers. Evaluate and d nalytics. Ensure you research and testing	r users and affected						
	•	vate Network (VPN) u	such as the device a use, and connection	• • •						
			dentify whether a tec riers or improve acc		numan constraint					
	Remove identified be issues, or other pair		hese can include ded	ceptive design patte	rns, accessibility					
		_	ers, an equitable role , or iterative design v		king process when					
	GRI	Medium	Medium	Medium	Medium					
	Understand the impact for non-users									
2.3	Understand the imp	act for non-users			·					
2.3	Understand the imp	pact for non-users								
2.3	Success Criterion Establish a plan of a impacted by choice jams due to deliverior supply chain pres	action for non-users as made in e-comme es. Other examples	and other affected perce, this can include include the local heat-user needs, underse mitigated.	neighbors acceptinalth impacts of infras	g parcels or traffic tructure emissions,					
2.3	Success Criterion Establish a plan of a impacted by choice jams due to deliverior supply chain pres	action for non-users es made in e-comme es. Other examples ssure. Research non	erce, this can include include the local hea i-user needs, unders	neighbors acceptinalth impacts of infras	g parcels or traffic tructure emissions,					
2.3	Success Criterion Establish a plan of a impacted by choice jams due to deliverior supply chain preconsider ways negative. GRI	action for non-users es made in e-comme es. Other examples ssure. Research non ative effects could be Medium	erce, this can include include the local hea i-user needs, unders e mitigated.	e neighbors acceptin alth impacts of infras tand how they migh Medium	g parcels or traffic tructure emissions, t be affected, and					
	Success Criterion Establish a plan of a impacted by choice jams due to deliverior supply chain preconsider ways negative. GRI	action for non-users es made in e-comme es. Other examples ssure. Research non ative effects could be Medium	erce, this can include include the local hea i-user needs, unders e mitigated. Medium	e neighbors acceptin alth impacts of infras tand how they migh Medium	g parcels or traffic tructure emissions, t be affected, and					
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	Use the participatory design approach to involve users within the iteration and design process. When conducting user testing, reach out to your community to help improve your product. Provide opportunities for users to apply their knowledge and experience to your product or service.							
	GRI	Low	Low	Low	Low			
2.5	Find ways to resolve any affected party issues prior to implementation							
	Success Criterion							
	Use a human-centered approach during ideation to consider the needs, interests, and impact on directly and indirectly affected parties.							
				uring the ideation pha onas, or climate-spe				
	GRI	Medium	Medium	Medium	Medium			
2.6	Minimize non-esser	ntial content, interac	tivity, or journeys					
	Success Criterion							
		choice, and ensuring		the time required to requirements at the				
		s are as smooth as already understand		os to build on establi	shed design			
	Enable users to cor	mplete tasks without	distractions or non-	essential features ge	etting in the way.			
	Only show users interpreted from view.	formation that is rele	vant to their experie	nce, hiding non-esse	ential information			
	Ensure that disrupti initiated by the user		nation, such as pop-	up or modal window	s, can only be			
	GRI	Medium	Medium	Medium	Medium			
2.7	Use decorative des	ign with care						
	Success Criterion							
		nhance user experie		ce. Remove unneces . Alternatively, make				
	GRI	High	High	High	High			
2.8	Ensure that navigat	ion and wayfinding a	are well-structured					
	Success Criterion							
	Provide an accessil what they need.	ole, easy-to-use nav	igation menu with se	earch features to help	o users easily find			
	guidance beyond the human-readable sit	ne navigation bar ma emaps can improve	y be unnecessary for accessibility and he	itemap for human us or smaller projects, c Ip users find their wa egacy information ar	learly structured ay through			
	Implement lightweig	ght and efficient mea	ans for users to learr	about new content	and services.			

	GRI	Medium	Low	Medium	Low		
2.9	Design to assist and	d not to distract					
	Success Criterion						
	Ensure users can eattention, focus, and		d when they receive	information, with res	spect for their		
	Prioritize features that assist rather than distract users, not unnecessarily prolonging the time they spend engaging with your content.						
	Avoid using design	strategies intended	to artificially prolong	user attention, such	as infinite scroll.		
	GRI Medium Medium Medium Medium						
2.10	Use established des	sign patterns and es	sential components				
	Success Criterion						
	Display only essent patterns to maximiz		ne time they are need	ded. Where appropri	ate, use familiar		
	GRI	Medium	Low	Medium	Low		
2.11	Avoid being manipu	lative or deceptive					
	Success Criterion						
	•	best interest. Examp	ding techniques that bles include anti-righ	-	_		
			ts and sponsorships cal value without din				
	Evaluate and remove without user conser		nused analytics and	tracking, including a	ny operating		
	example, do not mis	suse coding practice n natural redundancy	on-manipulative sear es intended to suppo y, or unhelpful or low	ort assistive technolo	gies. This can		
	GRI	Low	Low	Low	Low		
2.12	Make deliverables u	inderstandable and	reusable				
	Success Criterion						
	Create deliverables	, including documen	tation, in ways that f	acilitate later reuse.			
	Document functions that needs to use the		pecifications so that	they can be underst	ood by everyone		
	•	cess to code comm , maintain, and use	ents and have the al	bility to view source	to make it easier to		
	GRI	Medium	Medium	Medium	Medium		
2.13	Use a design syster	n for interface consi	stency				
	Success Criterion						

	Use a design system based on web standards and established patterns to share interface components and ensure a consistent user experience.						
	GRI	Medium	Low	Medium	Low		
2.14	Provide clear, inclusive content with purpose						
	Success Criterion						
			language, at an appr accessibility, native				
	consideration of vis	ual hierarchy. Use he	edia. Provide a clear eadings, bulleted list appropriate formattir	s, line spacing, and	highlights		
	Prioritize SEO from found and used.	the early design stag	ges and throughout	the lifecycle to ensu	re content can be		
	GRI	Medium	Low	Medium	Low		
2.15	Optimize images fo	r sustainability					
	Success Criterion						
	Determine the need	for images with cor	nsideration of the qu	antity, format, and si	zes required.		
	Resize, optimize, ar screen resolutions.	nd compress each in	nage. Provide image	es in appropriate size	es for different		
	Include lazy loading	to ensure images o	nly load when they a	are required.			
	Provide the option f	or images to be disa	abled or provide a lo	w-fidelity alternative			
	-	nagement and use pompression and file f	olicy to reduce the cormats.	overall impact of image	ges. Include		
	GRI	High	High	High	High		
2.16	Optimize media for	sustainability					
	Success Criterion						
	Do not include any on audio and video		s it provides positive	e value. Disable auto	-play functionality		
		ress media appropri native embedded m	iately. Provide media iedia players.	in compatible and a	appropriate		
		e media on the client c representational el	side, including the rement.	media itself, behind a	a facade - a non-		
			choice of resolutions th, format, and data		•		
			policy to evaluate an a formats. Include c				
	GRI	High	High	High	High		
2.17	Ensure animation is	proportionate and e	easy to control				
	Success Criterion						

	Use animation only when it adds value and not for decorative elements.						
	Progressively display an appropriate number of animations to avoid overburdening the user or negatively impacting device performance. This includes setting a maximum number of replays or iterations.						
	Allow users to start, stop, pause, or otherwise control animated content.						
	GRI High High High						
2.18	Use optimized and	appropriate web typ	ography				
	Success Criterion						
	Use pre-installed, w	veb-safe typefaces v	vherever possible.				
		_		mit unnecessary or u file format available			
	GRI	Medium	Medium	Medium	Medium		
2.19	Offer suitable altern	atives for every form	nat used				
	Success Criterion						
	Provide open altern	atives, such as HTM	IL, to proprietary file	formats, such as PD)F.		
	Provide a suitable f	ont stack as a fallba	ck when custom typ	efaces are used.			
		alternative text for a nding of the content		s that are non-decor	ative and support		
	Include transcripts	and/or text versions	of media files as an	alternative to playing	g the media.		
		•	• •	ideos. Provide locali t meet the same star	•		
	GRI	Medium	Medium	Medium	Medium		
2.20	Provide accessible,	user-friendly, minim	al web forms				
	Success Criterion						
	needs while satisfyi is necessary, the va	ng the organization's	s minimum requirem number of steps requ	minimum necessary ents. Clearly commu uired for completion, e shared with third p	unicate why a form and what will be		
	and reduce unnece		quests. Support the i	tial entry to conserve use of helpful tooling			
	GRI	Medium	Low	Medium	Low		
2.21	Consider the experi	ience in non-visual b	prowsers and interfac	ces			
	Success Criterion						
		ing from assistive te		ohical ways to intera agents. Consider and			
	GRI	Medium	Low	Medium	Low		

2.22	Provide useful notifications					
	Success Criterion					
	Remove non-essential notifications. Justify and reduce email, text message (SMS), and other invasive or energy-intense notifications to what is strictly necessary. Useful notifications, such as alerts for new content should be used with care and restraint, having both the users understanding and informed consent.					
	unsubscribe, log ou		ount should be availa	tings. Ensure the op able and visible. Ensi		
				prompts and messa elp to manage user		
	GRI	Medium	Low	Medium	Low	
2.23	Reduce the impact	of downloadable an	d physical documen	ts		
	Success Criterion					
	documents is esser print style sheet and	ntial, it should be des	signed to have the lo t types of content. E	nts. Where the productivest impact possible incourage saving docurage saving d	e. Include a CSS	
	Optimize and compaccessible file form		le documents. Make	e them available in a	variety of	
		ffort. If a document v a cookie-free doma		ate and save it once	on the server side	
	users to choose the	e right format and lar	nguage for their need	ne format prior to do ds where possible. A n within the browser	void embedding	
	GRI	Medium	Low	Medium	Low	
2.24	Get users and cont	ributors invested in t	he project			
	Success Criterion					
	•			product ideas, and user		
	Ensure prototyping and avoid project a		es are sufficiently re	sourced to support l	ong-term viability	
	Produce or provide	, training materials to	properly educate a	nd onboard new cor	ntributors.	
	_	d extensive testing a	•	iews to validate whe	ther released	
	GRI	High	High	High	High	
2.25	Audit and test for b	ugs or issues requiri	ng resolution			
	Success Criterion					
				and account for accevery month or quart	-	
	Implement non-regi	ression tests for all o	critical features.			

	Incorporate regression testing into each release cycle to ensure new features do not introduce bugs or otherwise conflict with existing functionality.					
	GRI	Medium	Medium	Medium	Medium	
2.26	Measure and test for	or performance				
	Success Criterion					
	impact sustainabilit	y and performance.	Consider both simul	code or infrastructur lated and real-world ooling or through res	metrics. Monitor	
	•			ctive user journey ar licies in place to ens		
	GRI	Medium	Medium	Medium	Medium	
2.27	Evaluate feature use	e, value, and impact				
	Success Criterion					
	Monitor user feedbathese insights into f	•	hurn rates in relation	n to different features	s and incorporate	
	GRI	Medium	Medium	Medium	Medium	
2.28	Verify that real-work	d users can success	sfully use your work			
	Success Criterion					
	Incorporate usability for future releases.	y testing into produc	ct cycles and routine	ly measure the impa	ct of these tests	
	GRI	Medium	Medium	Medium	Medium	
2.29	Regularly test and r	naintain compatibilit	У			
	Success Criterion					
	software versions, I	isting the supported		current and obsolete rating systems, and eleases.		
	communicate clearl	y whether an update	e is evolutionary, as i	ty for as long as pos in large updates that at fix bugs or improv	can significantly	
				ty. Testing should co I devices older than		
		ole methods such as ement and content		and prototype interfa	aces to support	
	Use a PWA over a r compatibility criteria		ation if it meets susta	ainability, interoperat	oility, and	
	GRI	High	High	High	High	
3.1	Set goals based on	performance and er	nergy impact			
	Success Criterion					

	Set clear goals with performance and environmental impact in mind, then meet them. These could include, the number of requests or elements that must be rendered.						
	Consider differences in the energy intensity or testable impact across each component. For example, unstyled text is less computationally intensive to render than CSS, which in turn is less process-heavy than JavaScript, which is less resource-heavy than WebGL or 4K video.						
	GRI	Medium	Medium	Medium	Medium		
3.2	Remove unnecessary or redundant information						
	Success Criterion						
	data files to reduce		ve loading times. Th	on-essential characters applies to HTML, (
	GRI	Low	Low	Low	Low		
3.3	Modularize bandwi	dth-heavy compone	nts				
	Success Criterion						
		ridth-heavy compone . This applies to both		dular segments that cend code.	can be loaded		
	GRI	Medium	Medium	Medium	Medium		
3.4	Remove unnecessa	ary code					
	Success Criterion						
	Identify and elimina	ate unused and dead	code, commonly wi	ithin CSS and JavaS	cript.		
	GRI	Medium	Medium	Medium	Medium		
3.5	Avoid redundancy	and duplication in co	ode				
	Success Criterion						
				e for better performated and codebase.			
		olicate the coding ef		esigning products fr e burden for develop			
				Repeat Yourself (DR)			
	GRI	Medium	Medium	Medium	Medium		
3.6	Give third parties the	ne same priority as fi	rst parties during as	sessment			
	Success Criterion						
	tracking scripts, an	d more) as early as p lighter, less comple	oossible in the ideati	s, widgets, feeds, m on or creation proce e the overall environr	ss. Use as few as		
	of third-party conte		see above). Offer suit	n pattern to prevent a table alternatives to widget.			

	Avoid using large libraries and frameworks. Integrate these only when unable to use a more performant alternative to achieve the same goal.						
	Prioritize self-hosted content over embedding content from third-party services.						
	Host icons and widgets on your own server, rather than relying on third-party services to host and deliver these or embed third-party functionality within your project.						
	Respect user preferences around the use of third-party products and services, similar to the implementation of cookie consent modals. Provide mechanisms to disable or refuse non-first-party features alongside explanations of their purpose unless it is possible to show these third-party features are critical for functionality.						
	GRI	High	High	High	High		
3.7	Ensure code follows	s good semantic pra	ctices				
	Success Criterion						
	Use accurate marki	up according to the i	relevant standard(s).				
	negatively impact for	TML elements, attribunctionality, accessitalin clarity without co	oility, or readability. F	Retain them when the	ey enhance		
	Avoid using non-sta	andard HTML eleme	nts or attributes.				
	Components if you	standard HTML eler cannot use native el design system com	ements or if you req				
	GRI Medium Medium Medium Medium						
	Defer the loading of non-critical resources						
3.8	Defer the loading of	f non-critical resourc	es				
3.8	Defer the loading of Success Criterion	f non-critical resourc	es				
3.8	Success Criterion	n-essential external a		o load asynchronous			
3.8	Success Criterion Defer loading of not Of Unstyled Conter	n-essential external and (FOUC).	assets or set these t	·	sly to avoid a Flash		
3.8	Success Criterion Defer loading of not Of Unstyled Conter Where external reso	n-essential external and (FOUC).	assets or set these t	·	sly to avoid a Flash		
3.8	Success Criterion Defer loading of not Of Unstyled Conter Where external resousing resource and GRI	n-essential external and (FOUC). Durces are required to priority hints.	assets or set these to be used upon the Medium	documents load, op	sly to avoid a Flash timize loading		
	Success Criterion Defer loading of not Of Unstyled Conter Where external resousing resource and GRI	n-essential external and (FOUC). Durces are required to priority hints. Medium	assets or set these to be used upon the Medium	documents load, op	sly to avoid a Flash timize loading		
	Success Criterion Defer loading of nor Of Unstyled Conter Where external rescusing resource and GRI Provide information Success Criterion	n-essential external and (FOUC). Durces are required to priority hints. Medium	assets or set these to o be used upon the Medium the usefulness of a p	documents load, op Medium page	sly to avoid a Flash timize loading		
	Success Criterion Defer loading of not Of Unstyled Conter Where external resousing resource and GRI Provide information Success Criterion Optimize and only in	n-essential external and (FOUC). Durces are required to priority hints. Medium to help understand	assets or set these to be used upon the Medium the usefulness of a padata and microdata	documents load, op Medium page	sly to avoid a Flash timize loading Medium		
	Success Criterion Defer loading of nor Of Unstyled Conter Where external resousing resource and GRI Provide information Success Criterion Optimize and only in the propriate	n-essential external ant (FOUC). Durces are required to priority hints. Medium To help understand	assets or set these to be used upon the Medium the usefulness of a padata and microdata gines while blocking	documents load, op Medium page . unsustainable robot	sly to avoid a Flash timize loading Medium		
	Success Criterion Defer loading of nor Of Unstyled Conter Where external resorusing resource and GRI Provide information Success Criterion Optimize and only in the provide accessibility of the provide accessibilit	n-essential external and (FOUC). Durces are required to priority hints. Medium to help understand nolude suitable metal	assets or set these to be used upon the Medium the usefulness of a padata and microdata gines while blocking	documents load, op Medium page . unsustainable robot	sly to avoid a Flash timize loading Medium		
	Success Criterion Defer loading of nor Of Unstyled Conter Where external resorusing resource and GRI Provide information Success Criterion Optimize and only in the provide accessibility navigate content. GRI GRI	n-essential external and (FOUC). Durces are required to priority hints. Medium to help understand nolude suitable metal access to search endy and usability aids,	assets or set these to be used upon the Medium the usefulness of a padata and microdata gines while blocking such as skip links ar	documents load, op Medium page	sly to avoid a Flash timize loading Medium ts and scripts.		
3.9	Success Criterion Defer loading of nor Of Unstyled Conter Where external resorusing resource and GRI Provide information Success Criterion Optimize and only in the provide accessibility navigate content. GRI GRI	n-essential external and (FOUC). Durces are required to priority hints. Medium Into help understand access to search end y and usability aids,	assets or set these to be used upon the Medium the usefulness of a padata and microdata gines while blocking such as skip links ar	documents load, op Medium page	sly to avoid a Flash timize loading Medium ts and scripts.		

	Clearly label and identify required elements to ensure easy recognition for users using assistive technologies.						
	Always allow the copying and pasting of content (including passwords) from external sources.						
	GRI	Medium	Medium	Medium	Medium		
3.11	Structure metadata	for machine readab	ility				
	Success Criterion						
	Include the required	d title element, plus a	any beneficial option	al HTML head eleme	ents.		
		meta tag references ines. Follow recogni					
	Use microdata, strustructured data form	uctured data (e.g., <u>So</u> mat exists.	chema.org), or micro	formats in content w	here a widely used		
	GRI	Medium	Medium	Medium	Medium		
3.12	Use sustainability b	eneficial user prefer	ence media queries				
	Success Criterion						
	media queries. Con prefers-contrast, pr motion preference	nmon user preference isider accounting for refers-reduced-data, queries where these can improve sustaina	additional user prefers-reduced-tra will benefit your use	erences, including masparency, and prefe	nonochrome, ers-reduced-		
	GRI	Medium	Medium	Medium	Medium		
3.13		Medium k for different device		Medium	Medium		
3.13				Medium	Medium		
3.13	Ensure layouts wor Success Criterion Allow your project tincluding smartpho platforms. This ensoptimized for displacessibility, usabil		eamlessly across a variety desktop computers d functionality can be obile devices and lass on any specific de	ariety of devices and s, smart TVs, and oth e easily accessed ar rger displays withou vice type. Implemen	d screen sizes, ner emerging nd are suitably t limiting t robust fallback		
3.13	Ensure layouts wor Success Criterion Allow your project to including smartphon platforms. This ensoptimized for displat accessibility, usabilistrategies to ensure technologies. Use progressive en	k for different device to work and adapt se nes, tablets, laptops ures that content and ay on both smaller m ity, or design feature	eamlessly across a varied desktop computers desktop computers desktop devices and laws on any specific destruct or service will not acce overall sustainab	ariety of devices and s, smart TVs, and othe easily accessed ar rger displays without vice type. Implement of fail if it encounters willity. This can involve	d screen sizes, ner emerging nd are suitably t limiting t robust fallback s unsupported e a single approach		
3.13	Ensure layouts wor Success Criterion Allow your project to including smartphon platforms. This ensoptimized for displat accessibility, usabilistrategies to ensure technologies. Use progressive en or a careful combin. Use carbon-aware by adapting the delight should include using functionality during interface to perform avoid scaling hardy.	k for different device to work and adapt se nes, tablets, laptops ures that content and ay on both smaller m ity, or design feature that the digital process	eamlessly across a varied desktop computers desktop computers desktop computers described design and large overall sustainable design, mobile-fit or maximize your use to current electricity to reduce the codeb des. Similarly, it should hardware resources the resultant increase	ariety of devices and s, smart TVs, and othe easily accessed ar rger displays without vice type. Implement of fail if it encounters design, or dynamical of carbon-free energy availability and user ase and disable non displayed by the possible to adains, where this measure in emissions. It can	d screen sizes, ner emerging and are suitably t limiting t robust fallback a unsupported a single approach nic serving. This is achieved a grid load. This essential pt the user the can be taken to also include		
3.13	Ensure layouts wor Success Criterion Allow your project to including smartphoto platforms. This ensoptimized for displat accessibility, usabilistrategies to ensure technologies. Use progressive en or a careful combin. Use carbon-aware by adapting the delishould include using functionality during interface to perform avoid scaling hardwidesigning algorithm. Support additional	k for different device to work and adapt senes, tablets, laptops ures that content and ay on both smaller m ity, or design feature that the digital produce thancement to enhanation, such as adapt design techniques to ivery of your project g situational design high-intensity period to better with reduced ware resources and the	eamlessly across a varied desktop computers desktop computers defunctionality can be oblie devices and large on any specific destruct or service will not be oblied design, mobile-fit or maximize your use to current electricity to reduce the codeb des. Similarly, it should hardware resources the resultant increase cally disable features interaction, such as visited as a such	ariety of devices and s, smart TVs, and othe easily accessed ar rger displays without vice type. Implement of fail if it encounters illity. This can involve irst design, or dynamical of carbon-free energy availability and user ase and disable non displayed be possible to adains, where this measure in emissions. It can be based on set threst voice (speech), code	d screen sizes, ner emerging and are suitably t limiting t robust fallback a unsupported a single approach nic serving. This is achieved grid load. This essential pt the user the can be taken to also include nolds. The control of		
3.13	Ensure layouts wor Success Criterion Allow your project to including smartphoto platforms. This ensoptimized for displat accessibility, usabilistrategies to ensure technologies. Use progressive en or a careful combin. Use carbon-aware by adapting the delishould include using functionality during interface to perform avoid scaling hardwidesigning algorithm. Support additional	k for different device to work and adapt senes, tablets, laptops ures that content and ay on both smaller m ity, or design feature that the digital proces thancement to enhanation, such as adapt design techniques to ivery of your project g situational design high-intensity period to better with reduced ware resources and the stat can automatic indirect methods of i	eamlessly across a varied desktop computers desktop computers defunctionality can be oblie devices and large on any specific destruct or service will not be oblied design, mobile-fit or maximize your use to current electricity to reduce the codeb des. Similarly, it should hardware resources the resultant increase cally disable features interaction, such as visited as a such	ariety of devices and s, smart TVs, and othe easily accessed ar rger displays without vice type. Implement of fail if it encounters illity. This can involve irst design, or dynamical of carbon-free energy availability and user ase and disable non displayed be possible to adains, where this measure in emissions. It can be based on set threst voice (speech), code	d screen sizes, ner emerging and are suitably t limiting t robust fallback a unsupported a single approach nic serving. This is achieved grid load. This essential pt the user the can be taken to also include nolds. The control of		

	Success Criterion						
	Improve sustainability through accessible and performant code.						
	Integrate energy-relevant APIs - such as Battery Status, Compression Streams, Page Visibility, or Vibration - where these can reduce energy consumption.						
	Call client- or server-side APIs only when necessary. Equally, ensure an API is optimized to only send data that is actually required.						
	GRI High High High						
3.15	Ensure that your co	de is secure					
	Success Criterion						
	Check scripts and a	associated code for	vulnerabilities, explo	oits, header issues, a	nd code injection.		
	GRI	Medium	Medium	Medium	Medium		
3.16	Use dependencies	appropriately and er	nsure maintenance				
	Success Criterion						
		needed by checking		s and frameworks to encies. Follow up by			
	amount of code that use vanilla code ins	t has to be downloa	ded and parsed by takes the character and parties and whether the character and whether the character and whether the character and character	necessary as this wil the browser. Conside her individual module	er whether you can		
	Regularly check de	pendencies and kee	p them up to date.				
	GRI	Low	Low	Low	Low		
3.17	Include expected a	nd beneficial files					
	Success Criterion						
				nifest, and sitemap. dards or specification			
		les such as ads.txt, oin future web standa		txt, security.txt. Also s are included.	ensure that any		
	GRI	Low	Low	Low	Low		
3.18	Avoid using deprec	ated, proprietary, or	outdated code				
	Success Criterion						
	date, widely recogn is required to meet otherwise be met. J and/or hardware, ad	ized standards. Only a documented custo lustifiable reasons co	y use deprecated, promer need and if the ould include compat ions reduction. Use	nd web standards. A coprietary, or outdate re is a justifiable ben ibility with essential polyfills only when n	ed code where this nefit that cannot legacy systems		
	GRI	Low	Low	Low	Low		
3.19	Use the most efficient	ent solution for your	service				

	Success Criterion					
	Identify the requirements and use this as a basis to help you select the most appropriate implementation for your project. A simpler technological implementation may use more human resources but could have a smaller footprint. A prebuilt solution may use more system resources and have a bigger emissions impact on render, but it could have a faster build time - meaning less carbon is emitted in development.					
	often provide the mactively maintained Favor native compo	ost performant resul , this may be better	lts. Where an existin optimized than what ms over WYSIWYG	the time, coding frog g solution is present you can reasonably editors - including vi ird-party solutions.	and is being produce yourself.	
	generation tool, the	n favor the most effi	cient tool available,	e. If you choose to us such as Static Site G re server-side proces	Generators (SSGs).	
				to maximize interop me to ensure continu		
	Pay particular atten	tion to user interface	e components with r	espect to their susta	inability impact.	
	GRI	Medium	Medium	Medium	Medium	
3.20	Use the latest stabl	e language version				
	Success Criterion					
	Use the latest build	of your chosen synt	ax language and its	coupled framework.		
	languages are optir tools to the problem	nized for the perform n can justify any time se, provided it does	nance of particular to e or effort involved in	sk. Many tools and pasks. Applying the manth their adoption, esponeing of those involved	ost appropriate ecially if there is a	
	GRI	Medium	Medium	Medium	Medium	
3.21	Take advantage of	native features and f	unctionality			
	Success Criterion					
	Use native function	s, APIs, and features	s over writing your o	wn.		
	GRI	Medium	Medium	Medium	Medium	
3.22	Reduce the numbe	r and complexity of	database queries			
	Success Criterion					
	that is stored in a d code, the database	atabase, and you recesshould only be access	quire it or it is likely tessed once and the	ed information. If yo o be requested more data stored locally fo defer filtering to later	e than once in your or subsequent	
	GRI	Low	Low	Low	Low	
4.1	Choose a sustainal	ole service provider				
	Success Criterion					

	Monitor key indicators to assess and transparently report the environmental impact of hosting and identify overconsumption. These include energy and water usage, but also hardware factors, such as CPU usage and memory usage. Similarly, track the allocation of servers and CPU cores to optimize resource efficiency. Consumers should monitor and providers should both calculate and transparently share, environmental impact metrics. Metrics should include Power Usage Effectiveness (PUE), Water Usage Effectiveness (WUE), and Carbon Usage Effectiveness (CUE).				
		to extend its lifespar ring it has the necessiers.		•	
		e or upcycle unwanto ise disposed of appr		should be recovered	and reused, where
	factors to calculate	the lowest possible the carbon intensity ectricity generation,	of available electric	ity from the regional	grid. Include the
	other evolving instr resources become	le remaining carbon uments from the volu available. The quality ganizations with suff	untary carbon marke y of market-based in	t, until additional car struments should be	rbon-free energy
		ain names is disclose tigate against these			trants consider and
	GRI	Low	Low	Low	Low
4.2	Optimize caching w	vith offline access su	pported		
	Success Criterion				
	lookups or API calls appropriate header possible to serve st	ching where possible s. Configure caching s, such as Expires on tatic versions to futural simize repeat server r	via server settings t r Cache-Control. Ca re users. Support cli	o control file-type ex che dynamic page re	piration using esponses where
		emain available and a Service Workers, We			
	GRI	Medium	High	Medium	High
4.3	Compress files who	ere it is beneficial			
	Success Criterion				
	Use server-side compression to reduce file sizes before delivery. Server-side compression settings and tools can be used to compress most commonly used file types, reducing energy consumption while minimizing load times, saving bandwidth, and improving overall performance.				
	Use media compre before uploading to	ssion tools to reduce a server.	e the file size of imag	es, videos, audio, ar	nd any other media
	GRI	Low	Low	Low	Low
4.4	Setup necessary er	ror pages and redire	ction links		
	Success Criterion				
		handling and error puseful content, and			

	Regularly audit to check for broken and outdated links. Update these as necessary and add redirects to guide users and search engines to the correct content to ensure efficient browsing and protect SEO value. Test all redirects to ensure they function as intended and avoid impactful redirect loops. Favor the most efficient redirection system for your setup (e.g., server rules over database lookups).					
	GRI	Low	Low	Low	Low	
4.5	Avoid maintaining u	ınnecessary virtualiz	ed environments or	containers		
	Success Criterion					
				alized environments ronments and remov		
	GRI	Low	Low	Low	Low	
4.6	Use automation wis	sely				
	Success Criterion					
			oyment, testing, and delivery best practic	compilation in alignes.	ment with	
	Run automated tas	ks only when necess	sary to reduce unnec	cessary resource utili	sation.	
		location. Implement		p or down based on ing to manage load		
	Restrict the activity of unwanted and unnecessary third-party crawlers, suspicious user agents, unwanted users, bots, and scrapers from accessing or downloading your content. Follow best practices, such as server access rules and security tools, while ensuring your content remains accessible to users, search engines and any helpful, welcome crawlers. Consider that scrapers may be used to inform and train large language models.					
	GRI	Low	Low	Low	Low	
4.7	Define the frequence	y of data refreshes				
	Success Criterion					
		•	uency for the cache, ta accuracy, and res	local data, and page ource efficiency.	e content based on	
	GRI	Medium	Medium	Medium	Medium	
4.8	Back up critical dat	a at routine intervals	;			
	Success Criterion					
	Ensure backups of system and user data are secure and incremental to minimize storage use, reduce backup time, and protect against data loss or breaches.					
	GRI	Low	Low	Low	Low	
4.9	Consider the impac	et and requirements	of data processing			
	Success Criterion					
	scheduling according	ng to real-time electr		ods to automate bat nsity data or shift wo performance.		

	Choose communication protocols appropriate to user needs and the type of data being transferred. Avoid insecure options such as HTTP and FTP, and prioritize secure, efficient alternatives such as HTTPS and SSH. Use modern protocols to take advantage of newer features, while maintaining backward compatibility for older devices.					
	changes that do no efficient alternative	t require full page re to traditional APIs b	freshes. Favor these	when building prode where they offer a ne, power, and procest vironmental impact.	nore energy-	
	effects of client- ve		cessing based on eff	ssary, carefully com iiciency, performance		
	GRI	Low	Low	Low	Low	
4.10	Use Content Delive	ry Networks (CDNs)	appropriately			
	Success Criterion					
	on a case-by-case	basis, where judged		s via a Content Deliv refully evaluate the e rovider.		
	Select CDN provide	ers that make comm	itments to sustainab	ility and report on th	eir progress.	
			nce, consider whethose to your target au	ner a CDN is required dience.	d at all. Instead,	
	cache partitioning a caching and interact	and cross-origin resc ction, and attempting	ource sharing (CORS) to override these ca	to a CDN. Browser b) can limit performar an introduce security e well suited to CDN	nce gains, hinder or privacy risks.	
				tween the layers of a serialization overhea		
	GRI	Low	Medium	Low	Medium	
4.11	Infrastructure decis	ions must meet busi	ness requirements			
	Success Criterion					
	Select infrastructure that meets your requirements and customer agreements without over-provisioning. Favor standalone instances over multi-zone or distributed setups when requirements allow. Provision for average loads rather than peaks to ensure efficient resource use. Use autoscaling to handle fluctuations without underutilizing infrastructure.					
	GRI	Low	Low	Low	Low	
4.12	Store data according	ng to the needs of yo	our users			
	Success Criterion					
	-	and delete redundan orage demand and e		gle-use data - often	referred to as dark	
	excess data as a fo	rm of technical debt Nake data cleanup a	. Simultaneously ob	d data where approp serve any applicable zation-wide routine t	minimum data	

	Implement a data classification and tagging policy to improve visibility, simplify management, and enable efficient removal of outdated or unused data.				
	Store data only who	en it cannot be easily	or accurately reger	nerated.	
		tion and storage by using off-site, sustain	scheduling backups nable providers.	during low-activity h	nours, rotating logs
			for easy download ir int server resources.	•	ers with regular
	GRI	Low	Low	Low	Low
5.1	Have an ethical and	d sustainable produc	t strategy		
	Success Criterion				
	sustainability stater	ments, and/or other	cies, such as a code documents that inclums. Make these pub	ıde language specifi	c to digital
		nts, features, compli sustainability sectior	ance, and anything b	peyond the scope of	these guidelines
			digital sustainability p monitored, and gove		cies, and related
	Provide training dec sustainable product		to support onboardir	ng new team membe	ers in relation to
	_		mpact storytelling, do decisions and raise		_
	Demonstrate how o	digital products and	services are powered	d using carbon-free	energy.
	GRI	High	High	High	High
5.2	Assign a sustainabi	lity advocate			
	Success Criterion				
	Assign a sustainability advocate with specific digital expertise and provide them with the resources, budget, tools, and time they need to achieve their stated goals. In some organizations, expanding this into a climate working group comprising motivated individuals can add further benefits.				
	GRI	Medium	Medium	Medium	Medium
5.3	Inform, raise aware	ness, and train for s	ustainability		
	Success Criterion				
	Inform and deliver training to all affected parties, including product teams, colleagues, and organizational decision-makers - both managers and clients - in both general and digital climate literacy, as well as your own sustainable technology policies.				
	to sustainability. Th	is can be delivered a ongoing or on-demai	re possible to develo as in-house training, nd methods that sup	courses, workshops	, events, webinars,

	Encourage participants to reduce their environmental impact. Share climate and sustainable initiatives and ideas. Provide resources on sustainable design, best practices, and concepts to assist them.					
	GRI	Medium	Medium	Medium	Medium	
5.4	Communicate the	environmental impac	t of user choices			
	Success Criterion	ı				
		ate the environmental based on the informa		user choices and allo	ow users to	
	GRI	Medium	Medium	Medium	Medium	
5.5	Estimate the enviro	onmental impact				
	Success Criterion	1				
	Conduct a full life-o	cycle analysis based	on the functional un	it defined under guic	deline 5.15.	
	Calculate the environmaking targets.	onmental impact of y	our or a competitor'	s current service to i	nform decision-	
	your pipeline. While	or estimated impact e not created by you, al to your overall solu	, the emissions gene			
	GRI	Medium	Medium	Medium	Medium	
5.6	Define clear organi	zational sustainability	y goals and metrics			
	Success Criterion	1				
	be met, including v	a clear set of sustair which performance m arties act more sustai	etrics can be measu			
	GRI	Low	Low	Low	Low	
5.7	Validate efforts usin	ng established third-p	party certifications			
	Success Criterion	1				
	Obtain one or more in alignment with the	e sustainability certific neir guidance.	cations and incorpor	rate operational polic	cies and practices	
	Maintains sustaina and practices over	bility certifications the time.	rough continuing to	meet their criteria an	d evolving policies	
	GRI	Medium	Medium	Medium	Medium	
5.8	Implement sustaina	ability onboarding gu	idelines			
	Success Criterion	1				
	sustainability polici		pted and how to im	plement them. Mana	age and maintain	
	sustainability policies and practices adopted and how to implement them. Manage and maintain these materials over time, adapting them as new policies and best practices arise. Incentivize leadership, teams, and individuals to make progress toward the goals outlined in their training. Examples include dedicating time for sustainability-related activities, recognizing					

	Anticipate and map potential negative external factors and act to minimize their overall impact.					
	GRI	High	High	High	High	
5.9	Support mandatory	disclosures and rep	orting			
	Success Criterion					
		policies and practices, and services in line				
		available impact repo nental goals at least	0, 0	s compared to previ	ous reports on	
	•	arently demonstrate vironmental standardes and reporting.				
		environmental impa ashing, data exclusi				
	GRI	Medium	Medium	Medium	Medium	
5.10	Create one or more	impact business mo	odels			
	Success Criterion					
	Complete and operationalize a theory of change process with requisite documentation to identify the impact the organization aspires to achieve, how it will generate revenue, how it will create shared or added value from these activities, and how it will measure results based on desired outcomes. In the case of projects already underway, how these are generating revenue and actively tracking and measuring progress against desired outcomes.					
	GRI	High	High	High	High	
5.11	Follow a product m	anagement and mair	ntenance Strategy			
	Success Criterion					
	Produce and maintamanagement and m	ain documentation to naintenance.	o outline how the org	ganization approache	es product	
	Establish maintenar	nce and security plar	ns for all digital prod	ucts and services.		
	Appropriately resource products over time via staffing and budgeting to support code refactoring, address technical debt, introduce new product features, test functionality, and produce product or service maintenance plans to continue supporting customers, users, and other affected parties.					
	Incorporate carbon improvement over t	and resource measume.	urement into mainter	nance programs and	show measurable	
	Identify and docum sustainability impac	ent Key Failure Indic cts.	ators (KFIs) and imp	lement resolutions to	o prevent negative	
	GRI	High	High	High	High	
5.12	Implement continuo	ous improvement pro	ocedures			
	Success Criterion					
		nd practices to enab oport these efforts ov	-	vement and resource	e practices	

	Review deliverables and update frequency to ensure project teams have enough time to conduct user research, identify technical debt, and produce high-quality output as well as share what they learned.				
	product or service. experimentation, su limited to strictly ne	Simultaneously addi	ress any potential co t, product performar tt aid decision-makir) processes to analyzonsequences of ongo nce, and emissions. Ang, encouraging user peeds.	oing Analytics are
	decommissioning o		sed functionality or lo	reation of new function reaffic content three th	•
		security and policy u shed from more exte		roduct or service life pdates.	cycle. These
				ropriate training tech manage and mainta	
	GRI	High	High	High	High
5.13	Document future up	odates and evolution	IS		
	Success Criterion				
				user experience, clear versioned documer	
	GRI	Low	Low	Low	Low
	Establish if a digital product or service is necessary				
5.14	Establish if a digital	product or service is	s necessary		
5.14	Establish if a digital Success Criterion	product or service is	s necessary		
5.14	Success Criterion	product or service ali	· · · · · · · · · · · · · · · · · · ·	U.N. (SDGs) and its a	appropriate targets
	Success Criterion Identify where the p within a sustainabili	product or service ali	gns with one of the	U.N. (SDGs) and its a	
	Success Criterion Identify where the p within a sustainabili Determine that the factors. Establish that no ex	product or service ali ity statement. product or service is	gns with one of the necessary based up		ibility, and viability
	Success Criterion Identify where the p within a sustainabili Determine that the factors. Establish that no ex understand the mar	product or service aling the statement. product or service is service is service in the service is service to the service in the service in the service any obstacles to use the service and service aline service is service in the service is service aline service alin	gns with one of the necessary based upt or service offers the nent.	pon desirability, feas	ibility, and viability uct an analysis to
	Success Criterion Identify where the pwithin a sustainability Determine that the factors. Establish that no exunderstand the market and th	product or service aling the statement. product or service is service is service in the service is service to the service in the service in the service any obstacles to use the service and service aline service is service in the service is service aline service alin	gns with one of the necessary based upt or service offers the nent.	pon desirability, feas e same value. Condu	ibility, and viability uct an analysis to
	Success Criterion Identify where the pwithin a sustainability Determine that the factors. Establish that no exunderstand the mark Remove or alleviate technical, or territor	product or service aling statement. product or service is said a product or service is said and service is said and service any obstacles to use it is service. High	gns with one of the necessary based upt or service offers the nent.	pon desirability, feas e same value. Condu vice, such as access	ibility, and viability uct an analysis to sibility, equality,
	Success Criterion Identify where the pwithin a sustainability Determine that the factors. Establish that no exunderstand the mark Remove or alleviate technical, or territor GRI	product or service aling statement. product or service is said a product or service is said and service is said and service any obstacles to use it is service. High	gns with one of the necessary based upt or service offers the nent.	pon desirability, feas e same value. Condu vice, such as access	ibility, and viability uct an analysis to sibility, equality,
	Success Criterion Identify where the pwithin a sustainability Determine that the factors. Establish that no exunderstand the man Remove or alleviate technical, or territor GRI Conduct a full life-conducts Criterion	product or service alights statement. product or service is disting digital productive for this requirement any obstacles to use the final. High Eycle assessment (LCA)	gns with one of the necessary based upt or service offers the nent. Sing a product or ser High	pon desirability, feas e same value. Condu vice, such as access	ibility, and viability uct an analysis to sibility, equality, High
5.15	Success Criterion Identify where the pwithin a sustainability Determine that the factors. Establish that no exunderstand the mark Remove or alleviate technical, or territor GRI Conduct a full life-cycle Success Criterion Conduct a life-cycle	product or service alights statement. product or service is disting digital productive for this requirement any obstacles to use the final. High Eycle assessment (LCA)	gns with one of the necessary based upt or service offers the nent. Sing a product or ser High	pon desirability, feas e same value. Condu vice, such as access High	ibility, and viability uct an analysis to sibility, equality, High
5.15	Success Criterion Identify where the pwithin a sustainability of the factors. Establish that no exunderstand the marked or alleviated technical, or territors and the marked of the factors. GRI Conduct a full life-conduct a life-cycle throughout a product of the factors.	product or service aling statement. product or service is disting digital productive for this requirement any obstacles to use itself. High sycle assessment (LCA) oct's lifetime.	gns with one of the necessary based up to recessary based up to re	pon desirability, feas e same value. Condu vice, such as access High	ibility, and viability uct an analysis to sibility, equality, High

	Create specific policies to vet potential partners along the supply chain based on sustainability principles.					
	Partner with supplied	ers to create, track a	nd measure impact	on issues that impac	t affected parties.	
		se partnerships in a a collective impact.		ace, along with infor	mation on how the	
	GRI	High	High	High	High	
5.17	Share economic be	nefits				
	Success Criterion					
	Publicly commit to	paying employees, c	contractors, and other	er affected parties a	living wage.	
	Have policies and pmeet impact goals.	practices to incentivize	ze affected parties, s	such as workers and	contractors, to	
		employees in accord, flex time, profit sha		s, including, where re	elevant, healthcare,	
	•	nsible legislation tha ed to sharing econor		ent rights, transpare	ncy, and	
	GRI	High	High	High	High	
5.18	Share decision-make	king power with affect	cted parties			
	Success Criterion					
		am's goals with key have the power and a				
	GRI	Low	Low	Low	Low	
5.19	Use Justice, Equity	, Diversity, Inclusion	(JEDI) practices			
	Success Criterion					
		ments to JEDI praction	•	es on how marginaliz	ed or otherwise	
	Establish a publicly displayed accessibility policy and demonstrate this via accessible digital products or services.					
	Provide JEDI-related training materials and schedule regular workshops related to how this topic manifests itself in digital products and services, covering topics such as algorithmic bias, digital divide, employment, mis- and disinformation.					
	Show measurable in	mprovement over tin	ne across hiring, lead	dership, and operation	ons.	
	Advocate for responsible products and service	nsible legislation relaces.	ating to JEDI practice	es, especially as they	relate to digital	
	GRI	High	High	High	High	
5.20	Promote responsible	le data practices				
	Success Criterion					

	Maintain a publicly accessible privacy policy, terms and conditions, and any other documents as required by law in the jurisdictions in which the product or service operates. Adhere to the most restrictive data protection regulations, especially when providing services outside the organization's country. Provide documents in accessible formats and use clear, user-friendly language to ensure comprehension by all users. Avoid unnecessary jargon, technical language, and legalese. Support emerging legislation and implement best practices related to data privacy, sustainability, and responsible data management.				
	Specify how data d	isposal and a user's its. Also, provide the	"right to be forgotte	specting data privacen" or opt-out will be or export data they	handled, along
	GRI	High	High	High	High
5.21	Implement appropr	iate data manageme	ent procedures		
	Success Criterion				
	expiration dates an	d scheduled produc	t audits. Publish the	content and data via archiving schedule, ned for those that ma	ensuring a
	Allow users to cont	rol, manage, and de	lete their data, subso	criptions, and accou	nts.
	GRI	Low	Low	Low	Low
5.22	Promote and imple	ment responsible em	nerging technology p	oractices	
	Success Criterion				
	Establish public-facing policies for emerging technologies. Ensure all such technologies and their datasets are ethically sourced, screened, validated, and implemented in a non-discriminatory, responsible manner.				
	Show how workers organizations busin		echnologies and pra	actices potentially dis	srupt an
	Support and comply with responsible legislation related to emerging technologies				
	Audit and account for any environmental considerations that may derive from the use of emerging technologies wishing to be promoted or implemented. This should include third-party choices, the expense in terms of waste or emissions of using the technology to create a desired result, and consequences that may arise from its deployment.				
	Ensure all automated tooling, scrapers, spiders, bots, artificial intelligence, and other forms of machine-assisted data gathering abides by requests to opt out at the host, server, or website level. Providers must declare themselves as non-human within the user-agent/HTTP header. Providers must also publish impact reports relating to their gathering activities.				
	Do not roll out post-quantum encryption for high-traffic services that do not need resilience against harvest now, decrypt later attacks, where attackers steal encrypted data, anticipating that future quantum computers will be powerful enough to break the encryption and make the data readable at a later date.				
	GRI	High	High	High	High
5.23	Include responsible	financial policies			
	Success Criterion				
	Divest from fossil fupartners.	uels and move banki	ng, sponsorship, and	d other affiliations to	more responsible

	Engage in flexible financing and responsible budgeting to accommodate long-term care and maintenance.					
	GRI	High	High	High	High	
5.24	Include organization	nal philanthropy poli	cies			
	Success Criterion					
	Establish a clear co aligned organization	rporate giving policy	and create philanth	ropic partnerships w	vith strategically	
	0 0	olunteer projects to h rofit organizations to	•	v tools and tactics, v	vhile also helping	
	GRI	High	High	High	High	
5.25	Plan for a digital pro	oduct or service's ca	re and end-of-life			
	Success Criterion					
	Provide clear, docu and other relevant of	mented end-of-life g guidance.	uidelines that includ	e data disposal, arcl	niving, file deletion,	
	GRI	Medium	Medium	Medium	Medium	
5.26	Include e-waste, rig	th to repair, and rec	ycling policies			
	Success Criterion					
	Establish specific p whenever possible.	olicies around e-was	ste recycling and rep	pair owned technolog	gy products	
	Form relationships	with local partners fo	or e-waste recycling	and repair.		
	Buy refurbished equ	uipment whenever p	ossible.			
		repair the consuma onents if possible at	• •		•	
	GRI	High	High	High	High	
5.27	Define performance	and environmental	budgets			
	Success Criterion					
		ent clear sustainabilit municate this to affe		t covers impact from	n creation to	
		budget to set a targ impact of data trans			or service to	
	Define KPIs around engineering hours, development time, or sprints while keeping the health and well-being of your workers paramount. Sustainably optimize workflows to allow all tasks to be performed with care.					
		e and measurement of denced and verifiable	·	ovements over time.	Improvement	
	Invest in resources	to build capacity and	d maintain budgets o	over time.		
	GRI	Medium	Medium	Medium	Medium	

5.28	Use open source where possible				
	Success Criterion				
		oen source policy that support open-source	•	-source tools are us	ed and any
	Show a track recor	d of collaboration an	d building communi	ties around open-so	urce principles.
	Contribute regularly based projects.	y in terms of code, h	uman-time, and/or fi	nancially, to open-so	ource community-
	GRI	Medium	Medium	Medium	Medium
5.29	Create a business	continuity and disast	er recovery plan		
	Success Criterion				
	Create, regularly review, and occasionally test a plan of action to determine readiness in case of an incident and establish procedures to quickly recover from any incident.				
	Maintain regular and transparent communication with the audience regarding issues that may affect service delivery or user data.				
	GRI	Low	Low	Low	Low