

Several key platforms were considered in the study. Wix ADI, Adobe Sensei, and Figma AI automate layout generation, while Fronty, 10Web, and Craftum AI specialize in producing AI-generated adaptive code. These tools rely on various AI technologies, including machine learning for recognizing patterns in successful designs, computer vision for detecting elements, and neural networks for optimizing layout generation.

Table – Manual vs. AI Approach Comparison

Criteria	Manual Method	AI Method
Development Time	High	80% faster
Adaptation Errors	Common	Minimal
Cost	High	Lower (but template-dependent)

The advantages of AI in adaptive design include personalization through user behavior-based adjustments, dynamic adaptation that ensures real-time responsiveness, and automated compliance with accessibility standards such as WCAG. However, AI also has limitations, such as a reliance on templates that can limit uniqueness, the need for human oversight to refine outputs, and difficulties in handling highly innovative or unconventional designs.

Looking ahead, the future of AI in adaptive design may involve fully dynamic adaptation that eliminates fixed breakpoints, context-aware interfaces that adjust based on the user's environment or tasks, and hybrid workflows where AI manages technical adaptation while designers focus on creativity and strategy. The conclusion was that AI significantly speeds up development and reduces costs in adaptive design but achieves the best results when combined with human expertise, ensuring both efficiency and innovation.

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THE APPLICATION OF AI IN WEB DEVELOPMENT

Artificial Intelligence (AI) is rapidly changing the way websites are designed, developed, and experienced. This research explores how modern tools such as ChatGPT, GitHub Copilot, and DeepSeek are used in web development, with a focus on their real-world effectiveness in layout creation. AI significantly

speeds up the design process. Tools like Uizard and Figma plugins allow developers to describe an interface in natural language and instantly receive a working prototype. In coding, GitHub Copilot suggests entire functions, optimizes code structure, generates unit tests, and even explains errors, greatly enhancing developer productivity. Beyond development support, AI is actively integrated into final web products. Chatbots powered by large language models like GPT-4 handle customer queries, assist with form completion, and simulate human-like interaction. AI also powers recommendation engines, suggesting content or products based on user behavior and preferences. AI tools create diverse types of content – from product descriptions and blog posts to custom images and promotional videos. Platforms like DALL·E and Midjourney generate illustrations based on simple prompts. AI-driven systems can also automatically test and choose the most effective layout or text for a specific audience. Advanced tools such as Smartlook and Hotjar, enhanced with AI, go beyond basic analytics by interpreting user actions like mouse movement and scroll depth. This helps developers make data-driven decisions to improve usability and engagement. To evaluate real AI performance, a page layout task was completed using ChatGPT, Copilot, and DeepSeek. ChatGPT delivered the highest quality and most accurate result.

Copilot and DeepSeek were less precise, with issues in layout positioning and missing elements. The growing role of AI raises questions about transparency, privacy, and bias. Developers must ensure users are aware when interacting with AI and must follow data protection regulations like GDPR. Looking ahead, platforms like Webflow and Builder.io already allow websites to be generated from plain text prompts, making web development accessible even without coding knowledge. AI is not replacing developers but empowering them. It accelerates workflows, reduces errors, and personalizes the web. When used responsibly, AI is a powerful tool for building smarter, faster, and more user-friendly digital experiences.

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