



## Capstone Project Stage A

### **Ads-Maker**

**An AI-Powered Platform for Personalized Digital Advertisement Creation**



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# **1. Abstract**

Ads-Maker is an intelligent AI-powered platform that simplifies the creation of digital advertisements for businesses that also need Hebrew-language ads. The system automates both marketing text generation and graphic design, allowing businesses to produce high-quality, personalized advertisements, even without technical expertise.

The platform is structured hierarchically, comprising a business owner, campaigns, and agents (marketing collaborators). This structure enables efficient collaboration, personalization, and brand consistency. Advertisements are generated based on campaign data and refined by agents to suit the target audience and advertising platform.

With Ads-Maker, businesses can reduce advertising costs, improve the quality of their marketing content, and reach their audience with tailored messages, all through a fully automated process.

## **Keywords:**

Affiliate Marketing, Automated Advertisement, AI Content Generation, Dynamic Templates, Canva API, Referral Program, Personalized Marketing, GPT-4, Campaign Automation, Visual Design, Marketing Technology, REST API Integration, Hebrew Language Support.

## 2. Introduction

In today's digital marketing landscape, businesses rely on a variety of independent tools to create and manage advertising content. These include visual design platforms like **Canva**, AI based text generators such as **ChatGPT**, and paid advertising platforms like **Google Ads** and **Facebook Ads**. However, producing a single effective ad typically requires switching between multiple disconnected tools, leading to inconsistencies in branding, loss of efficiency, and limited personalization.

Currently, there is no comprehensive solution that unifies all stages of ad creation into a single, intuitive interface, allowing users to publish ads in Hebrew quickly and easily, while seamlessly integrating with existing platforms. Most of the available tools offer partial functionality:

- **Canva** simplifies graphic design but lacks direct integration with automated video or copywriting tools.
- **Adobe Creative Suite** provides professional-grade tools but requires advanced skills and manual effort.
- **ChatGPT** and similar AI text generators can produce compelling ad copy, yet they are not inherently connected to design or publishing platforms.
- **Google Ads** and **Facebook Ads** offer robust distribution networks, but the creative process must still occur externally.

This fragmentation highlights a critical challenge in modern advertising: the absence of an integrated, automated platform that connects strategy, creativity, and execution under one roof.

The **Ads-Maker** system will be designed to address this gap. It will aim to streamline the process of creating personalized digital advertisements particularly in the context of referral based ("friend brings friend") **campaigns** by allowing users to input essential campaign data (what to promote, to whom, and on which channel) and receive fully composed, high quality ads. These ads will be crafted through a smart combination of AI generated content, dynamic visual templates, and automated performance tracking.

In addition, agents (affiliates or marketing collaborators) will be able to distribute the generated advertisements directly through their preferred channels, such as social media, messaging apps, or email, using automated tools provided by the system. This approach not only extends the campaign's reach, but also ensures that each ad is delivered with a personal touch aligned with the agent's communication style.

Key features of the proposed platform include:

- An intuitive user interface for campaign input.
- Seamless API integration with tools like Canva, Claude/GPT, and ad platforms.
- Automated ad generation that fuses content and visuals.
- Real-time performance tracking and continuous optimization.

Target users of this system include:

- **Small businesses**, who will be able to produce professional-level ads without needing design or marketing expertise.
- **Marketers and advertisers**, who will benefit from a faster, smarter creative workflow.
- **Advertising agencies**, who can offer scalable, cost effective services.
- **Ad platforms** like Google and Facebook, which will receive more personalized and data-rich ad content.
- **Affiliate marketers**, who will receive ready-to-use promotional materials automatically tailored to their audience and branding.

This enables affiliates to:

- Promote products more effectively without creating their own marketing assets.
- Use multiple ad variations optimized for different target audiences and platforms.

- Track performance through unique identifiers for clicks, impressions, and conversions.
- Scale campaigns quickly with minimal manual effort, while maintaining brand consistency.

As a web application intended for broad public use, Ads-Maker will be accessible to a wide range of users from small business owners to independent marketers making it a truly scalable solution. This broad user base will generate a high volume of feedback, enabling powerful iterative improvements that are hard to achieve in more narrowly targeted systems. This wide accessibility and volume of real world input provide a strategic advantage not found in existing platforms, where user engagement is often limited or segmented.

By combining tools, automation, and feedback loops into one cohesive solution, Ads-Maker will offer a novel approach to digital advertising empowering advertisers of all sizes to generate more authentic, effective, and scalable content.

This vision aligns with recent insights by Gao et al. (2023), who highlight the strategic importance of integrating targeting, personalization, content creation, and optimization into unified AI driven advertising systems [2].

In addition, Ads-Maker is designed as a continuously learning system.

By collecting user feedback and tracking the real-world performance of each ad version, the platform automatically improves its templates, tone recommendations, and content generation logic.

This ensures that future advertisements are more engaging, relevant, and effective based on accumulated experience.

### 3. Background and Related Work

#### 3.1 Literature Tools Review

In recent years, the marketing technology landscape has seen a surge in AI-based tools supporting various aspects of campaign creation and management. Hundreds of platforms currently offer services for content writing, ad design, and marketing automation. However, for the purposes of building the Ads-Maker platform, we have curated a shortlist of leading tools that are best aligned with our system's vision. These tools have been grouped into three categories corresponding to the three key stages of the ad creation pipeline: (1) Content Creation, (2) Ad Generation, and (3) Marketing & Distribution.

In the initial stage of the project, a comprehensive market research was conducted, which included a review of popular tools used for content creation, ad design, and campaign distribution. The purpose of this research was to identify the key criteria for comparing the tools - such as API availability, Hebrew language support, pricing models, ease of integration, and automation capabilities.

שם הכלל	קטגוריה	הארה בפה	יש API?	כתובת	טבלה	המקלה / מדריך	חומר בעברית
Canva	עיצוב גרפי	כל שיבוב של פלאי תבונת יוצרים ודריכים	כן	<a href="https://www.canva.com/developers/">https://www.canva.com/developers/</a>	ירום עם מכתב חתימת CH	כל רשותם של כלים ותוכנות אחרים	פלי שמשת
ChatGPT (OpenAI)	写作工具	ציירת תוכן שוטף אוטומטי	כן	<a href="https://platform.openai.com/docs">https://platform.openai.com/docs</a>	פלי שמשת	סידור סטודיו שוטף אוטומטי להאנון	כן
Google Forms	אוסף נתונים	סנסוס אוטומטי מודול שוטף אוטומטי	כן	<a href="https://developers.google.com/apps">https://developers.google.com/apps</a>	ירום	איסוף מידע וריאו בטל נספחים ומסויימים	כן
Typeform	אוסף נתונים	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://developers.typeform.com/">https://developers.typeform.com/</a>	ירום	פפומס איאוטופיקט מודול שוטף אוטומטי	כן
Pexels / Unsplash	תמונות	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://www.pexels.com/api/">https://www.pexels.com/api/</a>	ירום	פפומס איאוטופיקט מודול שוטף אוטומטי	כן
Google Fonts API	טיפוגרפיה	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://github.com/interactiveAd">https://github.com/interactiveAd</a>	ירום	פפומס איאוטופיקט מודול שוטף אוטומטי	כן
IAB Ad Management A	ריכוז ורינוט	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://github.com/google">https://github.com/google</a>	פלי שמשת	שיטות ואפשרויות לשלוח מודול שוטף אוטומטי	לא
Google Ads API	ריכוז ורינוט	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://developers.facebook.com/">https://developers.facebook.com/</a>	ירום	מג'יק פלטפורמה לשלוח מודול שוטף אוטומטי	לא
Meta Ads API	ריכוז ורינוט	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://developers.facebook.com/doc/hugging-face/">https://developers.facebook.com/doc/hugging-face/</a>	ירום	מג'יק פלטפורמה לשלוח מודול שוטף אוטומטי	לא
Hugging Face	ריכוז ורינוט	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://huggingface.co/docs/exp">https://huggingface.co/docs/exp</a>	ירום	מג'יק פלטפורמה לשלוח מודול שוטף אוטומטי	לא
Adobe Express / Creative	עיצוב גרפי	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://adobe.adobe.com/experiments/">https://adobe.adobe.com/experiments/</a>	ירום	מג'יק פלטפורמה לשלוח מודול שוטף אוטומטי	לא
Zapier	איסוף נתונים	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://zapier.com/platform">https://zapier.com/platform</a>	ירום	מג'יק פלטפורמה לשלוח מודול שוטף אוטומטי	לא
Notion API	ריכוז ורינוט	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://developers.notion.com/">https://developers.notion.com/</a>	ירום	מג'יק פלטפורמה לשלוח מודול שוטף אוטומטי	לא
Airtable	ריכוז ורינוט	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://airtable.com/api">https://airtable.com/api</a>	ירום	מג'יק פלטפורמה לשלוח מודול שוטף אוטומטי	לא
LottiFiles	איסוף נתונים	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://lottofiles.com/developers">https://lottofiles.com/developers</a>	ירום	מג'יק פלטפורמה לשלוח מודול שוטף אוטומטי	כן
Remove.bg	עיבוד תמונות	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://www.remove.bg/api">https://www.remove.bg/api</a>	פלי שמשת	רשות אוטומטית שוטף אוטומטי	כן
Bannerbear	עיצוב גרפי	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://www.bannerbear.com/doc">https://www.bannerbear.com/doc</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן
Runway ML	AI	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://docs.runwayml.com/">https://docs.runwayml.com/</a>	פלי שמשת	רשות אוטומטית שוטף אוטומטי	כן
Designini	עיצוב גרפי	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://www.designini.com/api">https://www.designini.com/api</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן
Figma API	עיצוב גרפי	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://www.figma.com/developer">https://www.figma.com/developer</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן
Create (VistaCreate)	עיצוב גרפי	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://www.create.vista.com/api">https://www.create.vista.com/api</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן
Remove.bg	עיבוד תמונות	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://removebg.com/api">https://removebg.com/api</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן
TinyPNG	עיבוד תמונות	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://tinypng.com/developers">https://tinypng.com/developers</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן
Contentful	CMS	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://www.contentful.com/dev">https://www.contentful.com/dev</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן
Mailchimp API	שליחת אימייל	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://mailchimp.com/developer">https://mailchimp.com/developer</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן
ActiveCampaign	שליחת אימייל	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://www.activecampaign.com/doc">https://www.activecampaign.com/doc</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן
Rephrase.ai	תרגום	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://www.rephrase.ai/">https://www.rephrase.ai/</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן
Synthesia	תרגום	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://synthesia.io/">https://synthesia.io/</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן
PhotoRoom	עיבוד תמונות	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://www.photoroom.com/api/">https://www.photoroom.com/api/</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן
Winter.com	עיבוד תמונות	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://winter.com">https://winter.com</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן
Hyperwerk (Enterprise)	API Testing	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://hyperwerk.com/api/">https://hyperwerk.com/api/</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן
TextCortex	עורך	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://textcortex.com">https://textcortex.com</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן
Claude (Anthropic)	עורך	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://www.anthropic.com">https://www.anthropic.com</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן
Gamma (Gamma.app)	עורך	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://gamma.app">https://gamma.app</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן
DynaPictures	עיצוב גרפי	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://dynamipictures.com">https://dynamipictures.com</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן
Google Gemini API	עיצוב גרפי	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://ai.google.dev">https://ai.google.dev</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן
AdCreative.ai (Custom)	עיצוב גרפי	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://www.adcreative.ai">https://www.adcreative.ai</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן
Creatopy	עיצוב גרפי	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://www.creatopy.com">https://www.creatopy.com</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן
Shutterstock	עיבוד תמונות	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://www.shutterstock.com">https://www.shutterstock.com</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן
Google Ads	טיפוגרפיה	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://ads.google.com">https://ads.google.com</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן
Meta Ads (Facebook & TikTok Ads)	טיפוגרפיה	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://www.facebook.com/business/">https://www.facebook.com/business/</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן
Mailchimp	שליחת אימייל	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://mailchimp.com">https://mailchimp.com</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן
Sendinblue (Brevo)	שליחת אימייל	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://www.brevo.com">https://www.brevo.com</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן
ActiveCampaign	שליחת אימייל	סנסוס אוטומטי שוטף אוטומטי	כן	<a href="https://www.activecampaign.com">https://www.activecampaign.com</a>	ירום	רשות אוטומטית שוטף אוטומטי	כן

It is important to note that the selected tools had to meet two main criteria: first, they must provide an external API for direct integration with our platform, and second, they must support working in Hebrew.

### 3.1.1 Content Creation Tools

Creating effective and personalized advertising content begins with high quality textual content, including elements such as headlines, product descriptions, social media posts, and promotional messaging. While content creation can also include multimedia formats such as video and audio, the scope of this project focuses exclusively on text and images. For this stage, we identified tools that specialize in generating marketing-oriented textual content and operate with proprietary, independent APIs.

All tools listed below are capable of operating in Hebrew, making them suitable for content generation in the local market. This capability is essential for ensuring relevance and accessibility, and should not be altered.

#### Text-Based Tools

- **Writer.com** – A professional AI writing platform built for enterprise-level content creation. Powered by its proprietary language model, Palmyra, Writer.com specializes in producing brand-consistent marketing emails, blog posts, technical documentation, and promotional copy aligned with corporate tone and terminology. The platform is trusted by over 250 enterprise clients, including major global brands, and offers tools for style guide enforcement, approved terminology, and automated quality control. Input types include free text, dropdown selections, file uploads (PDF, Word, Excel), and images, while output formats range from blog posts and newsletters to social media content, executive summaries, and structured documents. Through its AI Studio, Writer provides API access for seamless integration into CRMs, CMS platforms, and internal workflows, enabling large-scale content automation. The free plan includes up to 15,000 AI-generated words per month and up to 250,000 words of content review, while the Starter plan (\$29–\$39 per user/month) adds access to 100+ built-in agents, custom AI agents, style controls, and Knowledge Graph integration. For large organizations, an Enterprise plan is available with custom pricing, advanced governance tools, strategic support, and deployment services. Registration is required, and API usage is billed separately.<https://writer.com>

## Input:

### Help us tailor your Writer experience

What is your role in Media?

Marketing	Sales + Enablement
Technology	Finance
Legal	HR
Customer Support	Other (please specify)

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### Help us tailor your Writer experience

What best describes your position?

Manager	VP/Director
Business owner	C-level
Individual contributor	Other (please describe)
How big is your company?	
1-100 people	100-500 people
500-1000 people	1,000-5,000 people
5,000-10,000 people	10,000+ people

What's the name of your company?

BrightMoth

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## WRITER

### Help us tailor your Writer experience

What industry do you work in?

Financial services	Life sciences	Healthcare systems
Health insurance	Retail & consumer packaged goods	Technology
Media	Professional services	Other

## HOME

[Customize](#)

### Ask Writer

Write a short, persuasive Facebook ad for a summer math course for high school students who want to strengthen their algebra skills. Writing style: energetic and supportive!



[Browse prompt library](#)

## Output:

W 🌟 Ready to Crush Algebra This Summer? 🌟

Hey Math Wizards!

Are you ready to level up your algebra skills and ace your next school year? Join our Summer Math Intensive for high school students! 💪

🌟 Why Choose Our Course?

- **Expert Instructors:** Learn from passionate math teachers who make algebra fun and easy to understand.
- **Interactive Classes:** Engage in hands-on activities and group discussions to deepen your understanding.
- **Personalized Support:** Get one-on-one help to tackle your toughest math challenges.
- **Confidence Boost:** Walk into the new school year feeling confident and prepared.

📅 Dates: June 15 - July 30 🕒 Time: 10 AM - 12 PM (Mondays to Fridays)📍 Location: Online (Zoom)

Don't miss this chance to transform your math game! 🎉

Enroll Now and Get a 10% Early Bird Discount!

👉 Click Here to Register

Let's make this summer count! 🙌

#MathMastery #SummerLearning #AlgebraAce #HighSchoolMath #ConfidenceBoost #OnlineCourses

[Send to doc](#) | [Print](#) | [Share](#)

12:53pm

## In Hebrew:

### Input:

The screenshot shows the 'Ask Writer' app's main interface. At the top, there's a banner with the text: 'תcin מודעה קצרה ואטרקטיבית לאינסטגרם עבור סדנת כתיבה יוצרת אונליין לבני נוער שאוחבים לספר סיפורים וחולמים לפרסום סיפוריהם'. Below the banner are several icons representing different writing tasks: General web research, Recaps builder, Large file summary, Chart analysis, Meeting notes summary & action, Image analy, and Blog builder. A message at the bottom of this section says: 'By continuing to use this app, you agree to the use of cookies. More information'.

### Output:

A response card from the 'Ask Writer' app. It starts with a message: 'תcin מודעה קצרה ואטרקטיבית לאינסטגרם עבור סדנת כתיבה יוצרת אונליין לבני נוער שאוחבים לספר סיפורים וחולמים לפרסום סיפורם. קצר משליהם עד סוף היום. סגן כתבה: קיל ומעורר השראה'. Below this is a large text area with a purple header: 'הנה מודעה קצרה ואטרקטיבית לסדרת כתיבה יוצרת אונליין לבני נוער:  
! כתוב את הסיפור שלך !'  
The text continues: 'אתה אהוב לספר סיפורים? חולם לפרסום סיפור קצר משליך עד סוף היום? אנחנו כאן בשבילך!' and 'הצטרכו לסדרת כתיבה יוצרת אונליין שלנו ותגלו את הפטנציאל היצירתייכם. עם מדריכים מנוסים וחברה מרוגשת, תתקדם מהר מאוד ותמצאו את הקול הכתיבתי שלכם'. It includes a schedule: 'תאריך: 15 ביולי - 31 באוגוסט', 'זמן: 17:00-19:00, שלושה פעמים בשבוע', and 'פלטפורמה: זום'. A section titled 'מה תקבלו:' lists benefits: 'טייפים וטוריים לסדרת כתיבה יוצרת', 'משמעות מומחה ותמייה', and 'הזרמנות לפרסום הסיפור שלכם'. It ends with a note: 'אל תפספסו את הזדמנות! הרשימו עכשיו ותתחלו את המסע היצירתי שלכם.' and a link: 'הקשרו להרשמה: [הכנסו קישור]' followed by '#כתביצירתיות #סיפוריםקצרים #פרסום #בניעור #2023קיי'.

The screenshot shows the 'Ask anything' input field of the 'Ask Writer' app. It includes a message at the bottom: 'By continuing to use this app, you agree to the use of cookies. More information'.

- **Hyperwrite (Enterprise API)** – A productivity-focused writing assistant that offers real-time text generation and smart suggestions, powered by a proprietary generative engine. It is optimized for marketing and business use cases, such as email drafting, landing page copy, and product descriptions.  
Input: Users provide a prompt or sentence fragment, and can define tone, context, or style. Enterprise users may also submit structured input or use templates via API.  
Output: Hyperwrite generates real-time suggestions, complete sentences, or full sections of text that align with the provided context. It can autocomplete emails, summarize content, or generate new marketing material.  
With approximately 200,000 monthly active users, Hyperwrite is a rapidly expanding platform. It offers an Enterprise API upon request, primarily for large-scale integrations.

Plans:

Free— Includes limited daily generations and access to the basic autocomplete feature. Users can try core tools like rewriting and suggestions, but do not have access to long-form generation, personal memory, or API functionality.

Premium (\$19.99/month) – Unlocks advanced writing tools, unlimited autocomplete, rewrite features, and more context memory.

Ultra (\$44.99/month) – Adds access to long-form generation, personal memory features, and enhanced customization.

API access is available upon approval.

<https://www.hyperwriteai.com>

**Input:**

Facebook Ad for Algebra Summer Course

Flexible AutoWrite

Use AI to help you write anything or accomplish nearly any task!

Task

Write a short, persuasive Facebook ad for a summer math course for high school students who want to strengthen their algebra skills. Writing style: energetic and supportive.

## Output:

---

Summer Algebra Boost for High Schoolers

I kept this ad conversational and encouraging, avoiding any language that might make students feel inadequate. The tone is energetic but supportive, using positive language that focuses on solutions rather than problems. I included specific benefits and a clear call-to-action, which are essential for Facebook ads. The emoji usage is minimal but strategic, helping the ad stand out in a Facebook feed without looking unprofessional.

H Please accomplish the following writing task:

Write a short, persuasive Facebook ad for a summer math course for high school students who want to strengthen their algebra skills. Writing style: energetic and supportive.

🌐 I'll write a Facebook ad that's positive and motivating, focused on growth and achievement rather than struggles.

Copy ↗

🔗 Level Up Your Algebra Game This Summer!

Ready to become an algebra ace? Get ahead of the curve with MathMasters' Summer Algebra Academy. Whether you're aiming for that A+ or prepping for SATs, we'll help you build unshakeable math skills.

Our 6-week program features:

- Small group sessions with top math instructors
- Interactive problem-solving that actually makes sense
- Advanced techniques to tackle any algebra challenge

Join other motivated students who are investing in their future. Build confidence, speed, and precision that'll serve you through high school and beyond.

Early bird spots going fast - Save 20% when you enroll by June 1st!

👉 Click to power up your math skills this summer

[Learn More] [Sign Up Now]

I focused on empowerment and achievement rather than remediation. The tone is upbeat and forward-looking, using language that appeals to ambitious students who want to excel. The ad is concise but packs in clear benefits and a strong call-to-action, which is crucial for Facebook ad performance. I kept the emoji usage minimal but strategic to help the ad pop in a Facebook feed without looking unprofessional.

🕒 📺 🎯 🎯

Type your response here...

---

## In Hebrew:

### Input:

---

Ask HyperWrite ▾

תפוץ מודעה קצרה ואנרגטית לאנגלטנרים עברו סדנה בכתובייה יצירה אונליין לבני נוער שאותם לסתור ספרותם. הוהלים לפרטם צפר עזרו משלוחם צעף הקיין. סגנון כתובתו קליל ומשורר השראה.



Tools

[View all tools](#)



Create Document



Rewrite Content



Flexible AutoWrite



Scholar AI

Recents

[View all](#)

\_CREATE ENGAGING INST...  
Just now

## Output:

The screenshot shows the TextCortex AI writing assistant interface. At the top, there's a header "Create Engaging Instagram Story". Below it is a template card with the following text:  
תכין מודעה קצרה ואטרקטיבית לאינסטגרם עבור סדנת כתיבה יוצרת אונליין לבני נוער שאוהבים בספרים ו חולמים לפרסם.  
סיפור קצר משלכם עד סוף השנה!  
סגן כתיבה: קליל ומעורר השראה.

The template card includes a "Copy" button and a blue circular icon. Below the card, there are three small icons: a magnifying glass, a person icon, and a gear icon. At the bottom of the template card, there's a note: "זה הזמן להפוך את המילים שלכם לעולם חדש. ההרשמה פתוחה – אל תפספסו!" followed by a red heart icon.

At the bottom of the screen, there's a large input field with the placeholder "Type your response here..." and a small "Send" icon on the right.

- **TextCortex** – A versatile AI writing assistant tailored for marketing, eCommerce, and academic use cases. It supports content creation in over 25 languages and offers browser extensions, a web app, and API access for developers and enterprises.  
Input: Users can input prompts, keywords, URLs, or full texts for rewriting. They can also define tone, target language, writing style, and length. API users submit structured JSON payloads with custom parameters.  
Output: TextCortex generates emails, blog posts, product descriptions, social media captions, summaries, or rewrites optimized for SEO, clarity, or

engagement.

The platform includes the Zeno Chatbot, multilingual support, sentence expansion tools, and idea generation.

Plans:

Free – Allows up to 10 content generations per day, access to the basic Zeno chatbot, and support for rewriting and expansion tools in multiple languages.

Advanced features like longer outputs, memory, and API usage are not included.

Starter (€6.99/month) – Increases token limits, allows longer generations, and unlocks rewriting tools.

Unlimited (€119.99/year) – Full access to all tools, Zeno memory, and business-focused capabilities. Enterprise API access is available upon request.

<https://textcortex.com>

**Input:**

The screenshot shows the TextCortex Zeno AI interface. At the top, there's a purple header bar with a circular icon and the text "Get TextCortex Unlimited for \$29.99/mo (normally \$119.99/mo) with our Education Program. Billed quarterly." followed by a "Apply now" button. Below the header is a dark background with the Zeno logo (a stylized flower or brain icon) and the text "Zeno | Knowledge In Answers". A central text input box contains the instruction: "Write a short, persuasive Facebook ad for a summer math course for high school students who want to strengthen their algebra skills. Writing style: energetic and supportive." Below the input box are navigation icons for user profile, knowledge base, and tools, along with a search bar placeholder "Type / for Search • @ for agents • # for Templates". On the right side of the input box are three small circular icons with arrows. At the bottom left, there's a section titled "How Zeno helps you in Studying" with three cards: "Mindfulness and Student Stress" (with a person icon), "Draft an Essay" (with a pen icon), and "Proofread & Rewrite" (with a checkmark icon). At the very bottom, there's a link "Create your own template →".

## Output:

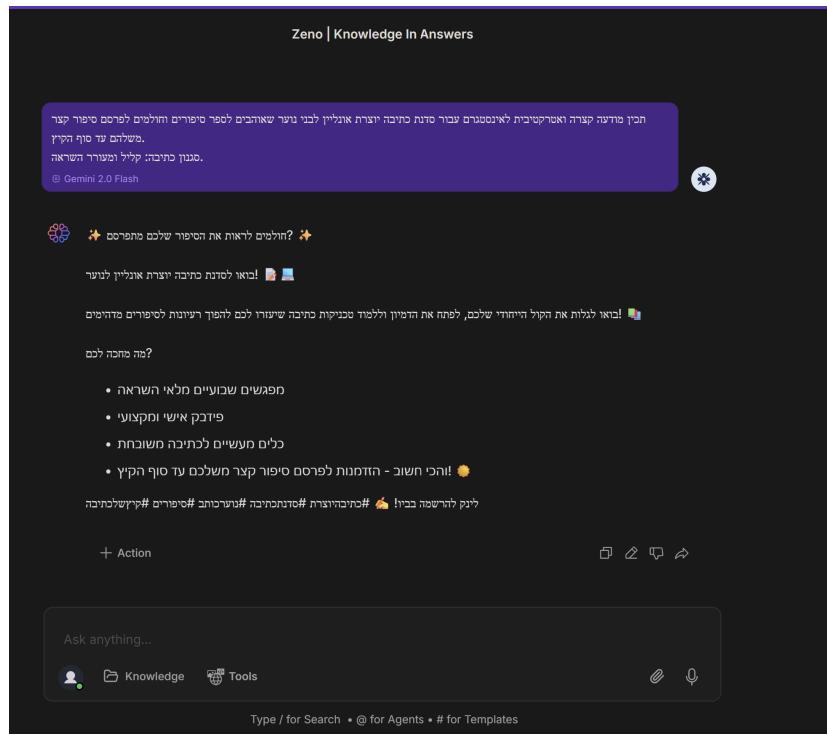
The screenshot shows a dark-themed website for 'Zeno | Knowledge In Answers'. At the top, there's a purple banner with the Zeno logo and text: 'Get TextCortex Unlimited for \$29.99/mo (normally \$119.99/mo) with our Education Program. Billed quarterly.' with a 'Apply now' button. Below the banner, the page title is 'Zeno | Knowledge In Answers'. A purple callout box contains the text: 'Write a short, persuasive Facebook ad for a summer math course for high school students who want to strengthen their algebra skills. Writing style: energetic and supportive.' To the right of the box is a small circular icon with 'HM'. The main content area features a heading 'N 🔥 Level Up Your Algebra Game This Summer! 🔥' followed by text: 'Struggling with algebra? Don't let it hold you back! Our summer course is designed to help you conquer those tricky concepts and build a rock-solid foundation for the school year.' Below this, there's a section titled 'Here's what you'll get:' with three bullet points: '• Fun, engaging lessons that actually make sense! 😊', '• Expert instructors who are passionate about helping you succeed. 🌟', and '• A supportive environment where you can ask questions and learn at your own pace. 🤗'. A sub-section titled 'Stop dreading algebra and start mastering it!' follows. At the bottom of the main content, there's a link 'Click here to learn more and register today! Spaces are limited! [Link to Registration Page]' and a hashtag '#Algebra #SummerLearning #MathSkills #HighSchool #CollegePrep #ConfidenceBoost #YouGotThis! 💪'. The footer of the page includes a search bar 'Ask anything...', navigation links 'Knowledge' and 'Tools', and icons for a profile, a file, and a microphone.

## In Hebrew:

### Input:

The screenshot shows the Zeno website in Hebrew. The top features the Zeno logo and the tagline 'Zeno | Knowledge In Answers'. Below the header, there's a message in Hebrew: 'כבר מודעה קזירה ואסרךטיבית לאינטגרם עבר סדנת כתיבה יוצרת איגלון לבני נער שאוהבים בספר סיפורים וולמים לפרטם סיפור קזר משללים עד סוף הדקון. סגן כתיבה: קליל ומשורר השראה.' The main content area includes a search bar 'Type / for Search • @ for Agents • # for Templates', navigation links 'Knowledge' and 'Tools', and a purple upload icon. A section titled 'How Zeno helps you in Studying' lists three tools: 'Mindfulness and Student Stress' (with a brief description), 'Draft an Essay' (with a brief description), and 'Proofread & Rewrite' (with a brief description). At the bottom, there's a link 'Create your own template →'.

## Output:



- **ChatGPT (OpenAI)** – One of the most widely adopted large language models, known for its advanced conversational abilities and broad content generation capabilities. It is used for tasks such as writing, summarization, translation, coding assistance, and customer interaction.  
Input: Users submit natural language prompts, which can include questions, incomplete text, instructions, or structured input. Through the API, input is provided in JSON format with parameters like model, temperature, and max tokens.  
Output: The system returns context-aware completions: paragraphs, summaries, code, translations, and more, powered by the GPT-4.1 model.  
Used by over 400 million weekly active users globally.

Plans:

Free (GPT-3.5) – Provides access via the ChatGPT web interface with basic

capabilities. Users can engage in general-purpose chat, content generation, and Q&A, but do not receive access to GPT-4, memory, or advanced tools.

ChatGPT Plus (\$20/month) – Grants access to GPT-4-turbo, longer context window (128K tokens), faster responses, better reasoning, and memory tools.

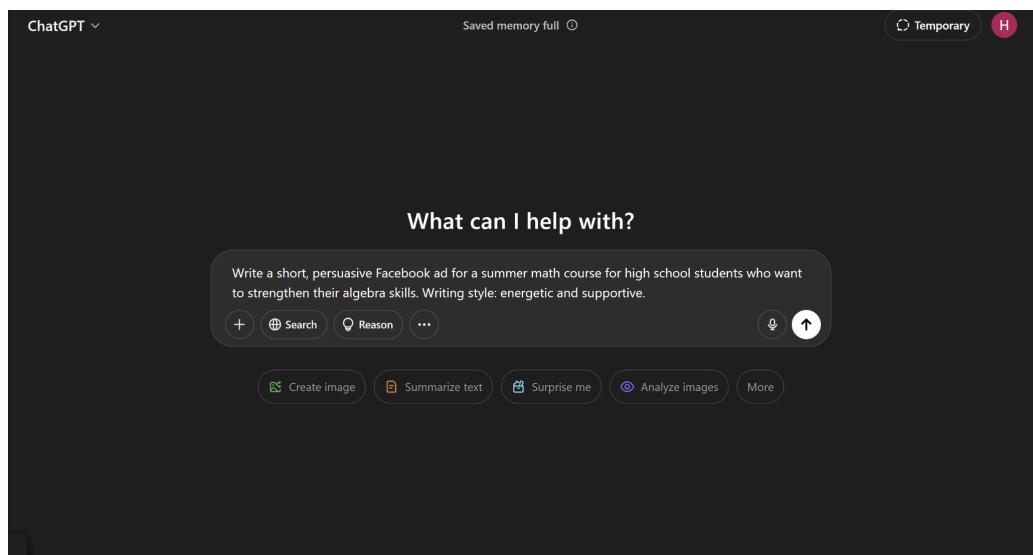
API access – Requires separate billing, priced per 1K tokens:

GPT-3.5: \$0.0015–\$0.002

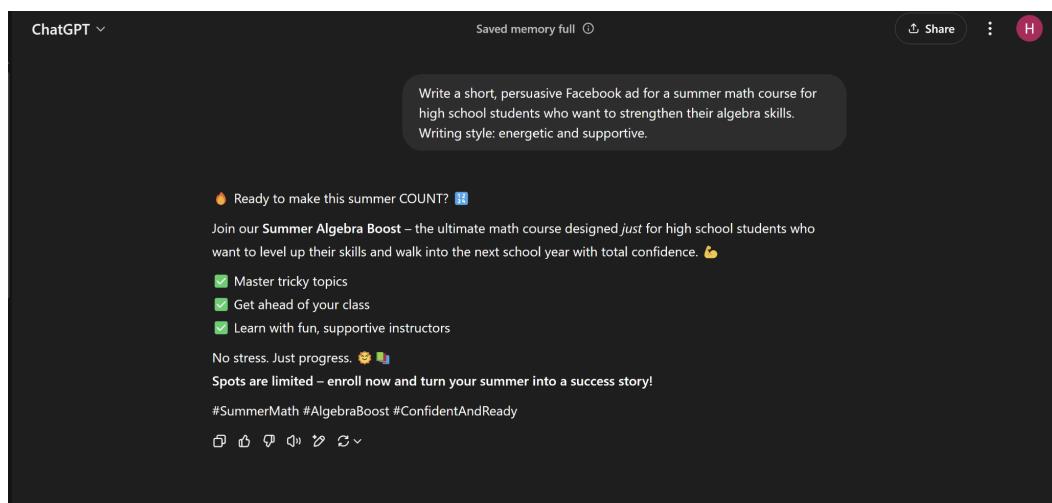
GPT-4-turbo: \$0.01 (prompt) / \$0.03 (completion)

<https://openai.com/chatgpt>

### Input:

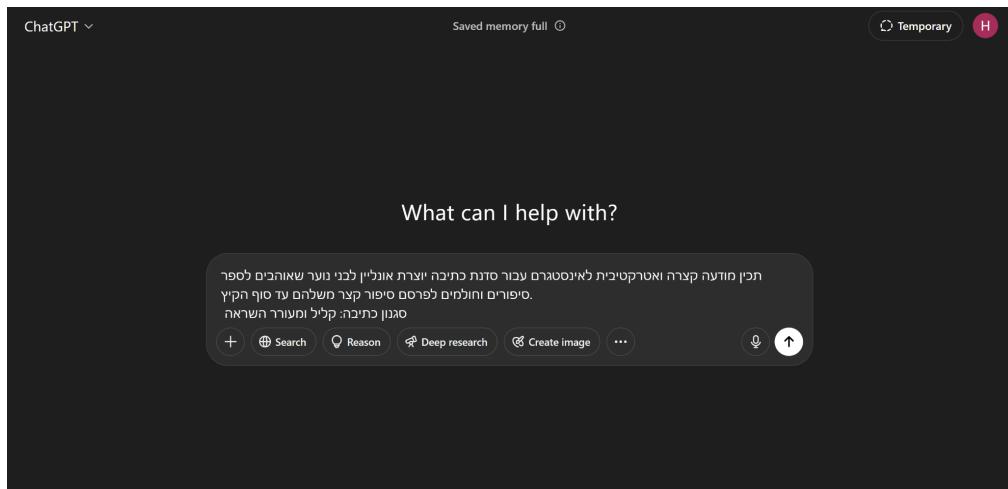


### Output:

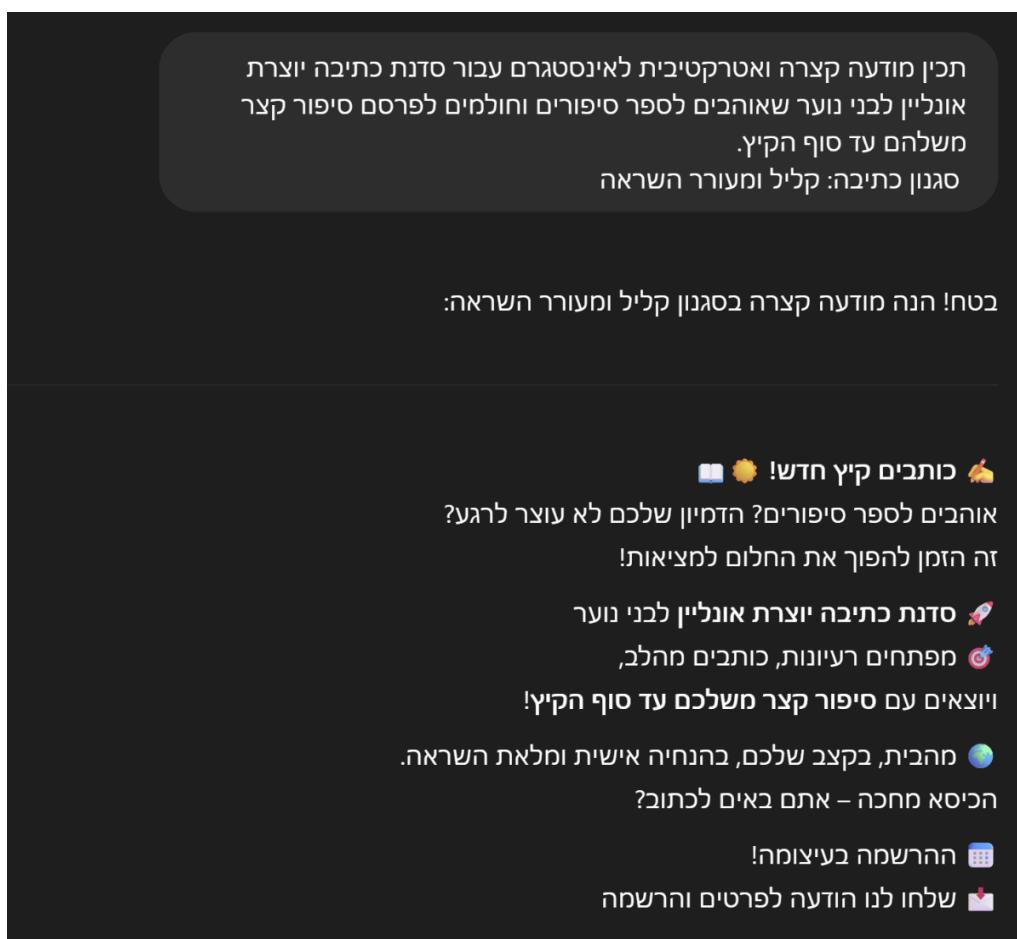


## In Hebrew:

### Input:



### Output:



- **Claude (Anthropic)** – A conversational AI assistant developed by Anthropic, Claude is designed for safe, interpretable, and human-aligned text generation. It is widely used for content ideation, rewriting, summarization, tone adjustment, and creative writing. Built on Anthropic's Claude model family, the assistant emphasizes ethical behavior and transparent reasoning. Inputs can include free-form prompts, structured instructions, or uploaded documents, and outputs range from rewritten drafts and summaries to stylistic edits and idea expansions. As of early 2024, Claude has approximately 18.9 million monthly active users (MAUs) and continues to grow rapidly. Claude is available via web, iOS, Android, and API access.

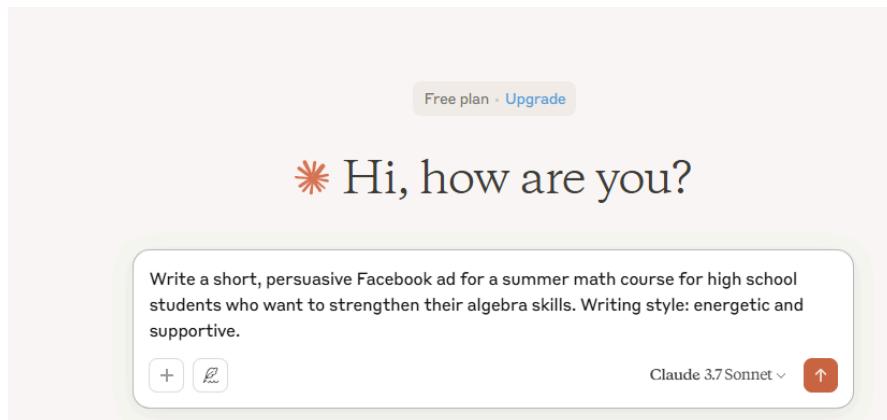
The free plan offers access to the Claude 3.5 Sonnet model, supports up to around 40 short messages per day, and allows uploading and analyzing various file types (PDF, Word, HTML, and code), including support for image input and document based generation.

The pro plan, priced at 20 dollars per month, includes access to more powerful models like Claude 3.5 Opus, increases the usage limit to around 200 messages per day, and unlocks early access to new features, priority performance during peak hours, priority email support, and access to the Claude API.

Registration is required, and all API usage is subject to Anthropic's terms of service.

<https://www.anthropic.com>

**Input:**



## **Output:**

### **Level Up Your Algebra This Summer!**

Are algebra equations leaving you puzzled? Transform math from frustrating to fun with our Summer Algebra Boost!

In just 3 weeks, you'll master the concepts that challenge you most AND build confidence that lasts through next school year. Our experienced teachers make complex topics click with real-world examples and personalized attention.

Don't waste summer stressing about next year's math classes. Join students who improved their grades by an average of 1.5 letter grades after our program!

- Small groups for maximum support
- Interactive problem-solving sessions
- Test-taking strategies that work

Limited spots available - secure yours today! Click below to learn more and register.

## **In Hebrew:**

### **Input:**

Free plan · [Upgrade](#)

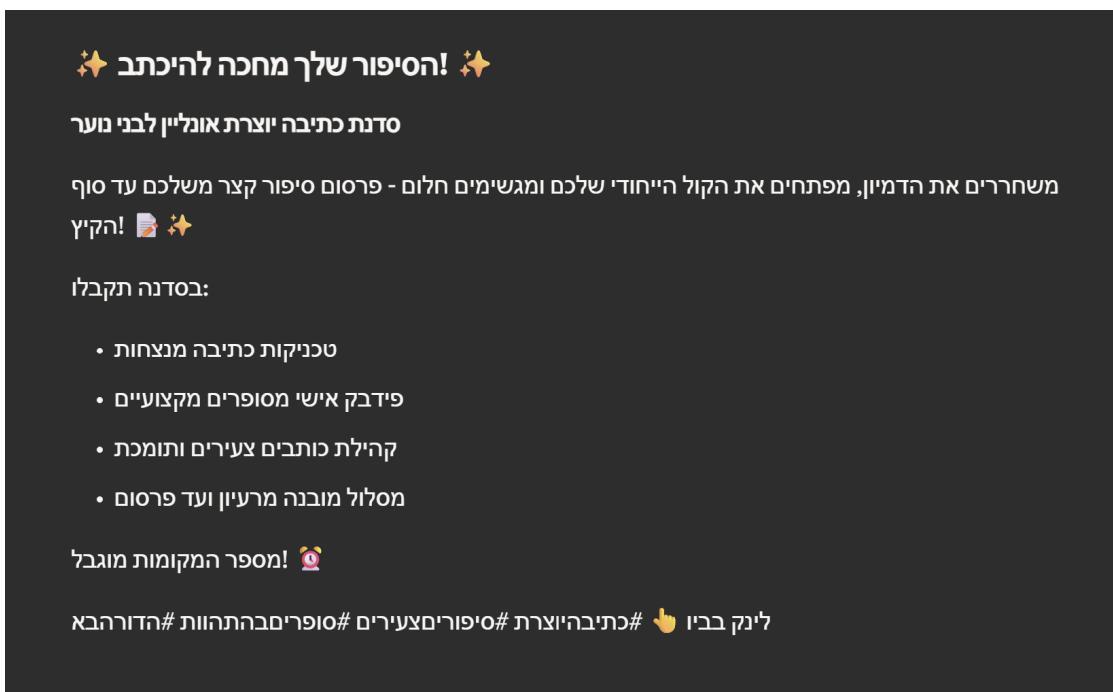
### What's new, Hila?

תcin moduta ketsrah v'aterekhbit laintegram ubor s'dat c'tiba yizra'at onli'in lebni v'sur sha'ahvim  
l'sefar siyurim v'holimim l'fersum siyur k'zr m'shalham ud sof ha'kiy. Segun c'tiba: k'li'l v'mashor ha'shara

[+](#)  Claude 3.7 Sonnet 

[Code](#) [Learn](#) [Write](#) [Life stuff](#) [Claude's choice](#)

## Output:



- **Gamma (Gamma.app) –**

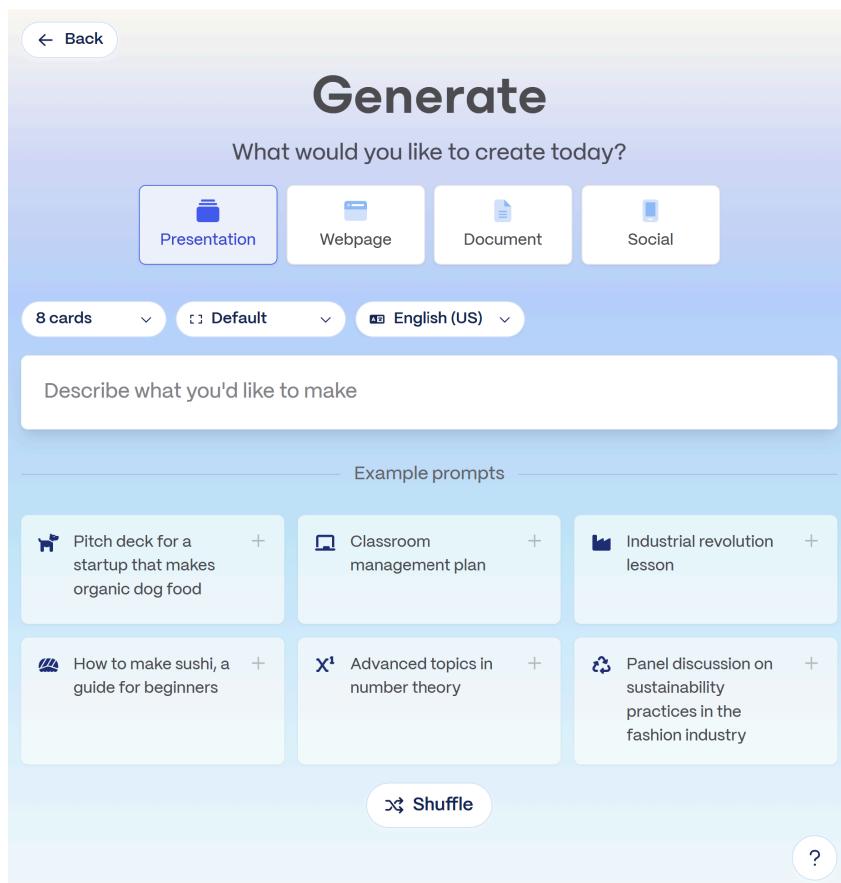
Gamma is an AI-powered platform designed for creating visually appealing presentations, documents, and web content with minimal manual effort. Unlike traditional slide-based tools, Gamma uses flexible card layouts that combine text, images, videos, and charts in a cohesive narrative structure. The platform leverages generative AI models to draft, refine, and visualize content based on simple user prompts, enabling the production of complete presentation decks, landing pages, reports, and storytelling visuals.

**Input:** Users provide natural language prompts, upload files (PDFs, Word documents), or define high-level goals ("Create a sales pitch deck for a skincare brand"). Gamma's AI generates structured, design-ready content aligned with the specified intent. Advanced users can modify themes, layouts, and color schemes manually. **Output:** Gamma delivers polished visual documents optimized for web and mobile consumption. Outputs include interactive decks, responsive pages, marketing one-pagers, internal reports, and educational materials. Content is editable and sharable through links or embeds.

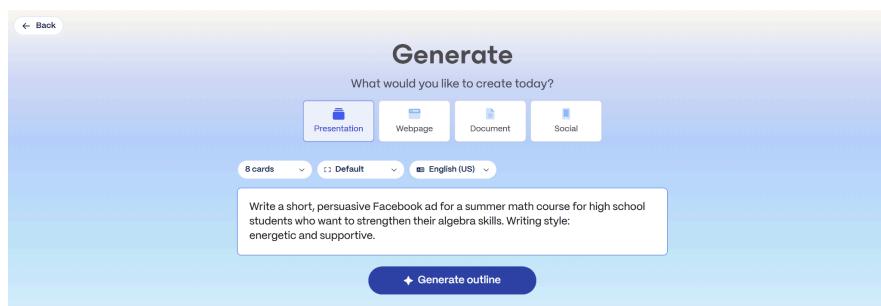
Gamma provides API access for enterprise users, allowing programmatic generation of presentations and integration with CRM, CMS, and marketing automation systems. Pricing starts with a free plan offering limited daily generations and exports; Pro plans (\$8–\$15/month) add higher generation limits, branding customization, and collaboration tools. Enterprise solutions offer API access, dedicated support, and advanced governance options.

<https://gamma.app>

### Input:



### Output:



Outline

- 1 Get Ahead This Summer with Algebra Boost!
  - Math enthusiasts for high schoolers
  - Visual students studying summer visits
- 2 Why Strengthen Your Algebra Skills Now?
  - Algebra is the foundation for upper-level math and science
  - College admissions value strong math skills
- 3 Real Results You'll Be Proud Of
  - 95% of past students improved at least one letter grade
  - Average SAT math scores up by 40 points after course
- 4 Supportive Learning, Step By Step
  - Privately experienced facilitators focused on each student
  - Small group sessions for individualized help
- 5 Flexible and Fun Summer Sessions
  - Morning and afternoon sessions fit busy summer schedules
  - Engaging activities and real-life problem solving
- 6 Hear From Our Happy Students
  - "Dear math class when I was older it really makes sense" - Sophie, 9th grade
  - 4.9/5 average parent rating on Facebook reviews
- 7 Limited Spots—Don't Miss Out!
  - Enrollment closes June 1st or when full
  - Early registration discount available
- 8 Join Us—Sign Up Today!
  - Call-to-action: "Unleash your math potential this summer!"
  - Link to registration page and contact info

+ Add card

8 cards total      Type ⌂ for card breaks      262/28800

400 credits      8 cards total      + Generate      ?



## Get Ahead This Summer with Algebra Boost!

Transform your algebra skills while enjoying summer! Our proven course helps high schoolers build confidence and excel in math.

by Hila Maman  
Last edited less than a minute ago

**Why Strengthen Your Algebra Skills Now?**

College Success  
Impress admissions officers with strong math credentials

Advanced Classes  
Prepare for calculus, physics, and STEM courses

Essential Foundation  
Master the building blocks for all higher math



**Real Results You'll Be Proud Of**

<b>95%</b>	<b>60+</b>	<b>89%</b>
Grade Improvement	SAT Points	Confidence Boost
Students improve at least one letter grade	Average increase in math section scores	Students report higher math confidence

**Supportive Learning, Step By Step**

Personalized Assessment  
Identify your specific algebra challenges

Targeted Instruction  
Focus on exactly what you need

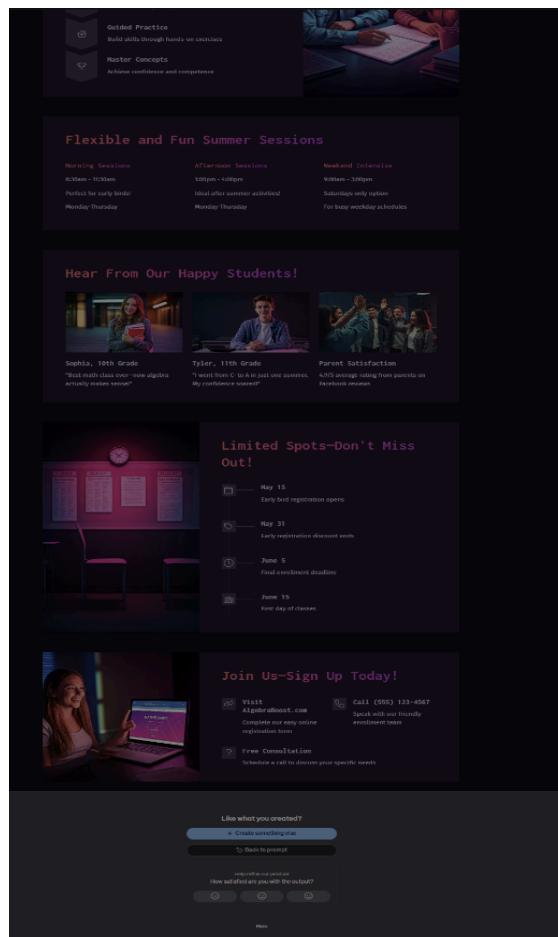
Guided Practice  
Build skills through hands-on exercises

Master Concepts  
Achieve confidence and competence



**Flexible and Fun Summer Sessions**

Morning Sessions	Afternoon Sessions	Weekend Intensive
8:30am - 11:30am	1:00pm - 4:00pm	9:00am - 3:00pm
Perfect for early birds!	Ideal after summer activities!	Saturdays only option
Monday-Thursday	Monday-Thursday	For busy weekday schedules



## In Hebrew:

**Input:**

**Generate**

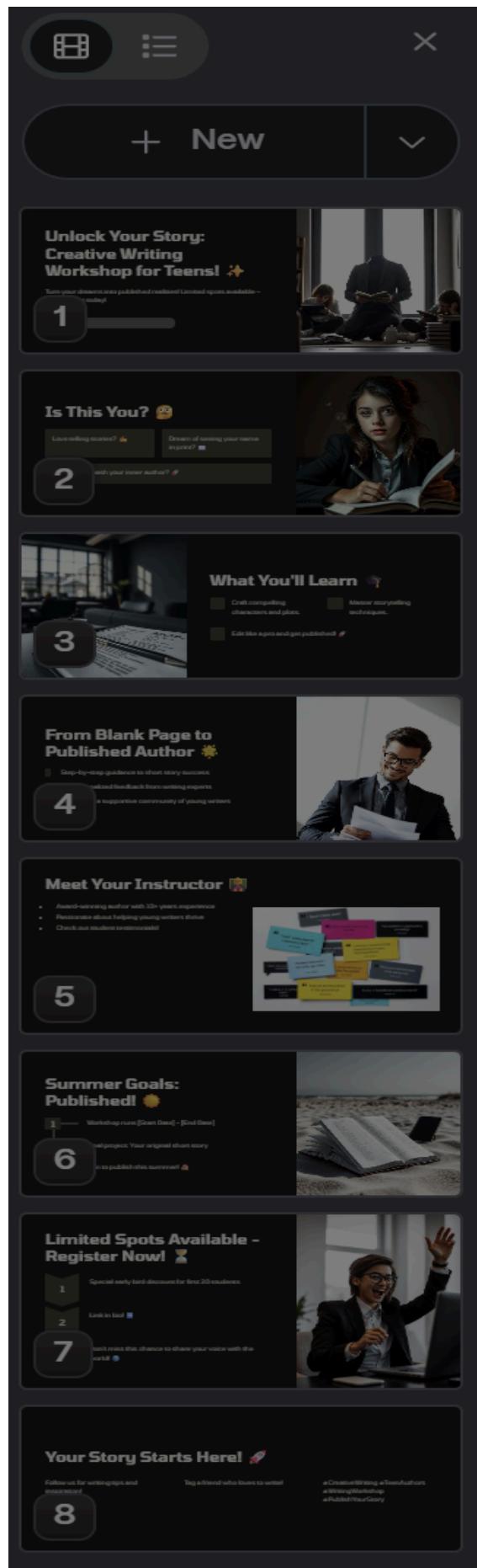
Prompt **8 cards** Default English (US)

תcin moducha kitzrah vatarkevibiyah la-instagram ubor sdana ctiyah yozrat anglini libni nowr.  
shawohvim l-sfar siforim vholim l-parsom sifor katzar mshalem ud sof hakiz.  
ogenon ctiyah: kliil vemuor ha-shraha.

↻

Outline

## Output:



These tools provide a strong foundation for Ads-Maker's content generation module, enabling automated production of marketing texts tailored to various tones, objectives, and campaign formats. Murár and Kubovics (2023) support the strategic value of integrating such tools, highlighting how AI content platforms enhance marketing communication by improving speed, personalization, and cost efficiency, and in their extended analysis, they compare general purpose platforms with task specific tools in terms of usability and cost effectiveness [5]. Gao et al. (2023) also emphasize the importance of natural language processing and generative AI in creating persuasive and personalized advertising content [2].

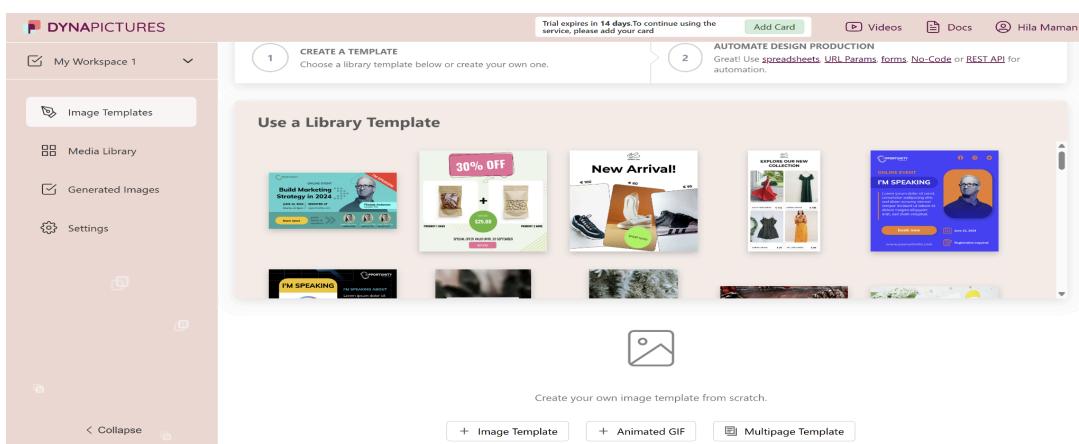
## Image and Visual-Based Tools

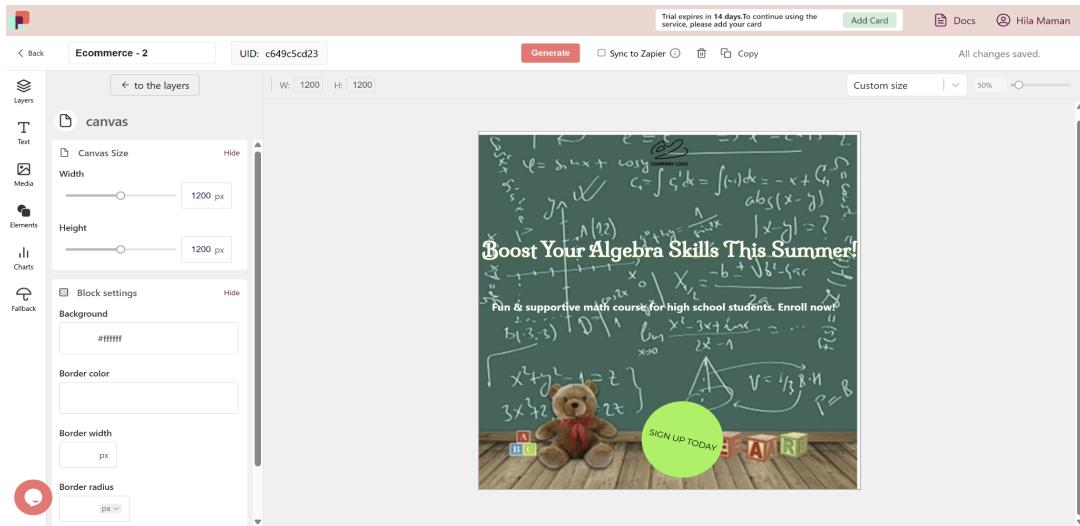
- **DynaPictures**

A platform for generating personalized marketing visuals by combining design templates with dynamic data. It is especially well-suited for use in email campaigns, social media posts, and automated marketing workflows. The platform provides a robust API for seamless integration with external systems.

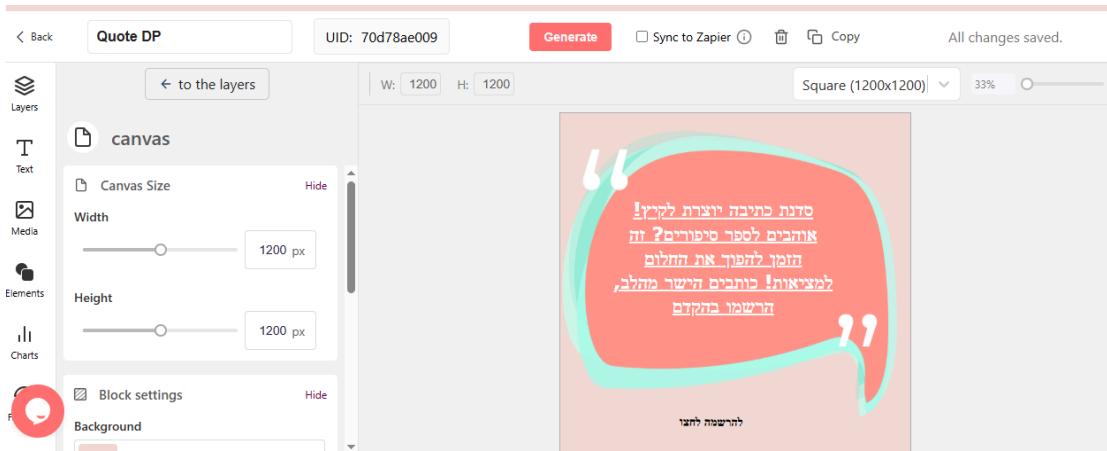
DynaPictures is used by marketers, freelancers, and e-commerce teams to automate image creation based on templates and real-time data. The system supports dynamic image generation via URL parameters, forms, no-code tools, and spreadsheet integrations. API access is available across all paid plans, beginning at €39/month for the Lite tier, which includes 1,000 images, 20GB of data, and three months of image retention. The Pro plan (€99/month) and custom enterprise plans offer expanded capacity. A 14-day free trial is available with no credit card

required.<https://dynapictures.com>





## In Hebrew:



- **Bannerbear**

An automated image generation tool designed for social media, e-commerce, and other visual marketing needs. Enables automated generation of marketing visuals by combining templates with dynamic text and image data. Particularly effective for bulk ad generation across platforms like Instagram, Facebook, and LinkedIn. Bannerbear is used by over 590 paying customers, including small businesses, startups, and digital agencies aiming to scale their content production efficiently. The platform operates using a flexible template system.

and a serverless infrastructure, allowing users to generate images and videos through dynamic API calls. Bannerbear offers a RESTful API that integrates easily with tools such as Zapier, Airtable, and Make, supporting seamless automation within various workflows. Pricing starts at \$49/month for the Automate plan (1,000 credits), with advanced plans Scale (\$149/month) and Enterprise (\$299/month) providing higher usage capacities. A free trial with 30 API credits is available without the need for a credit card.

<https://www.bannerbear.com>

### Input:

The screenshot shows the Bannerbear MINI Playground interface. At the top, there's a yellow header bar with the text "MINI Playground". Below it, the main area has a title "Hotelio Square". There are several input fields for different elements of the banner:

- photo:** An "Image URL" field containing <https://i.postimg.cc/PqW8j2kc/V>.
- country:** A "Text" field with the value "Boost Your Algebra Skills This Su" and a "Color" field with the value "#FFFFFF".
- offer:** A "Text" field with the value "Fun & supportive math course fo" and a "Color" field with the value "#FFD700".

At the bottom, there's a blue button labeled "Send API Request".

### Output:

The screenshot shows the Bannerbear API response. On the left, the "REQUEST" tab is active, showing the JSON data sent to the API. On the right, the "RESPONSE" tab is active, showing the generated banner image and its corresponding JSON data.

**REQUEST (JSON Data):**

```
{
  "created_at": "2025-04-22T17:37:14.503Z",
  "status": "completed",
  "self": "https://api.bannerbear.com/v2/images/9BvRDJ724z",
  "uid": "9BvRDJ724zW5n0NgQlAKN0d03",
  "image_url": "https://images.bannerbear.com/direct/w8pLj",
  "image_url_png": "https://images.bannerbear.com/direct/w8pLj",
  "image_url_jpg": "https://images.bannerbear.com/direct/w8pLj",
  "template": "N1gMxz5vL9vwbeQ4ko",
  "template_version": null,
  "modifications": [
    {
      "name": "photo",
      "image_url": "https://i.postimg.cc/PqW8j2kc/WhatsApp-Media-1681444444-001.jpg"
    },
    {
      "name": "circle_4 Duplicate",
      "color": null
    },
    {
      "name": "circle_4",
      "color": null
    },
    {
      "name": "rectangle_7",
      "color": null
    }
  ]
}
```

**RESPONSE (Generated Image):**

The generated banner features a chalkboard background with mathematical equations and graphs. It includes the "Hotelio" logo and the text "Boost Your Algebra Skills This Summer!". A call-to-action button at the bottom says "Fun & supportive math courses for high school students. Enroll now!"

- **Google Gemini API**

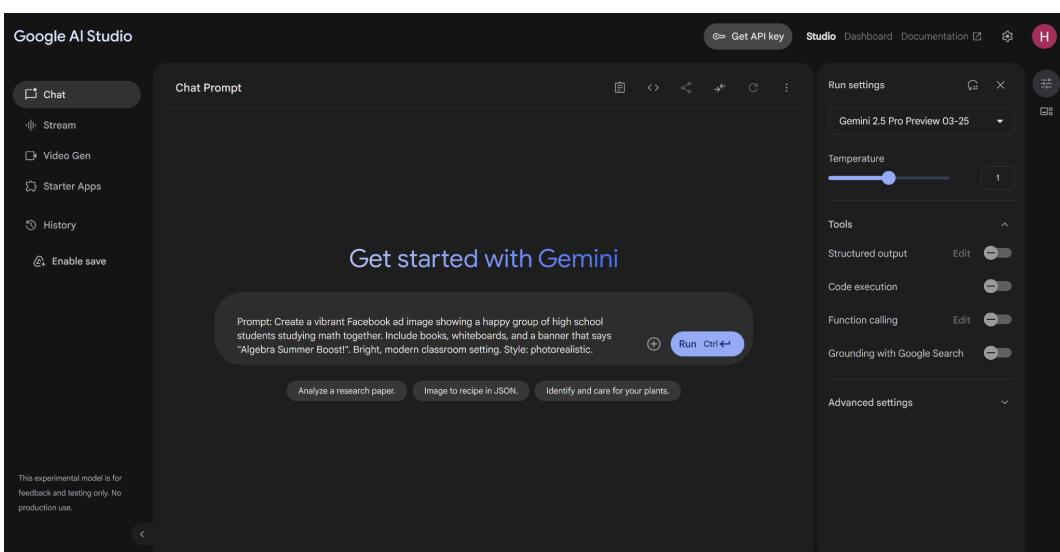
A cloud-based image generation service that enables the creation of high-quality visual content using advanced generative models such as Gemini 2.0 Flash Experimental and Imagen 3. The platform supports text-to-image functionality, allowing users to generate realistic and detailed images directly from textual prompts.

The API is designed for seamless integration into creative workflows, marketing tools, and product environments that require scalable visual asset generation. It supports multimodal input and is optimized for performance in both latency-sensitive and high-volume use cases.

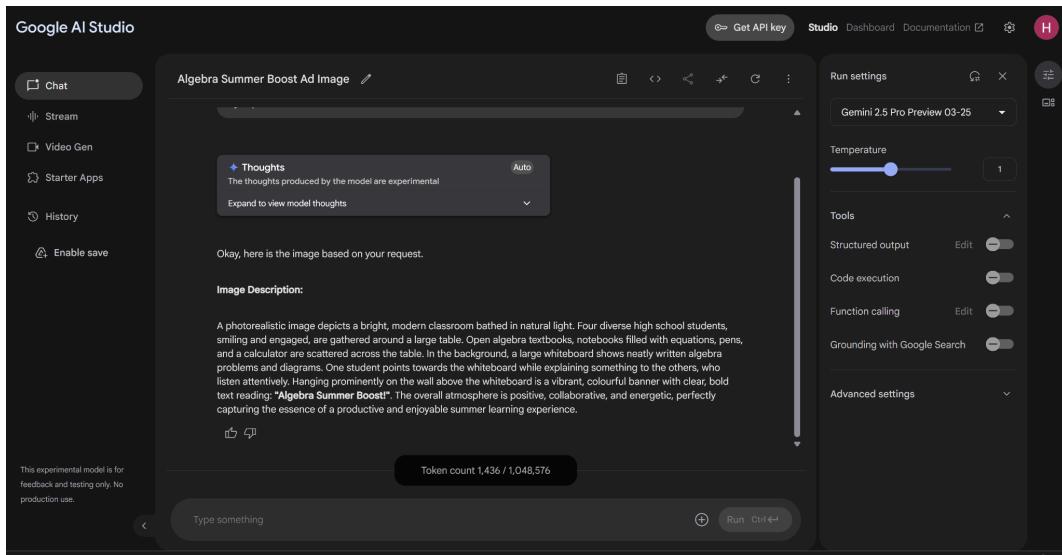
Access to the Gemini API is provided through Google AI Studio and Vertex AI. Using the service requires a Google Cloud account and the generation of an API key. Pricing is based on usage and includes the following: \$0.03 per image (Imagen 3), \$0.10 per 1,000 tokens of text input, and \$0.40 per 1,000 tokens of generated text output. A limited free tier is available for initial testing and development. Full access requires enabling billing through Google Cloud.

<https://ai.google.dev/gemini-api/docs/image-generation>

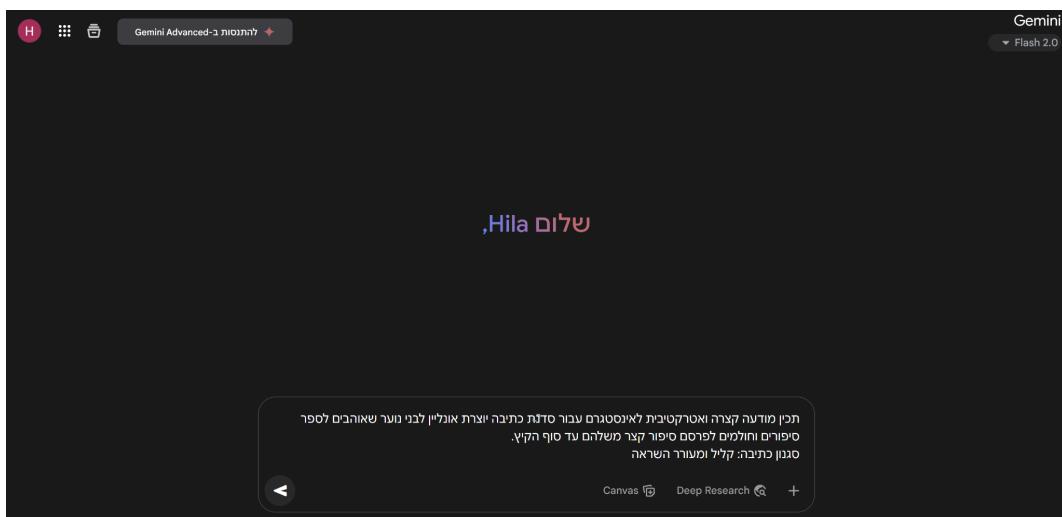
**Input:**



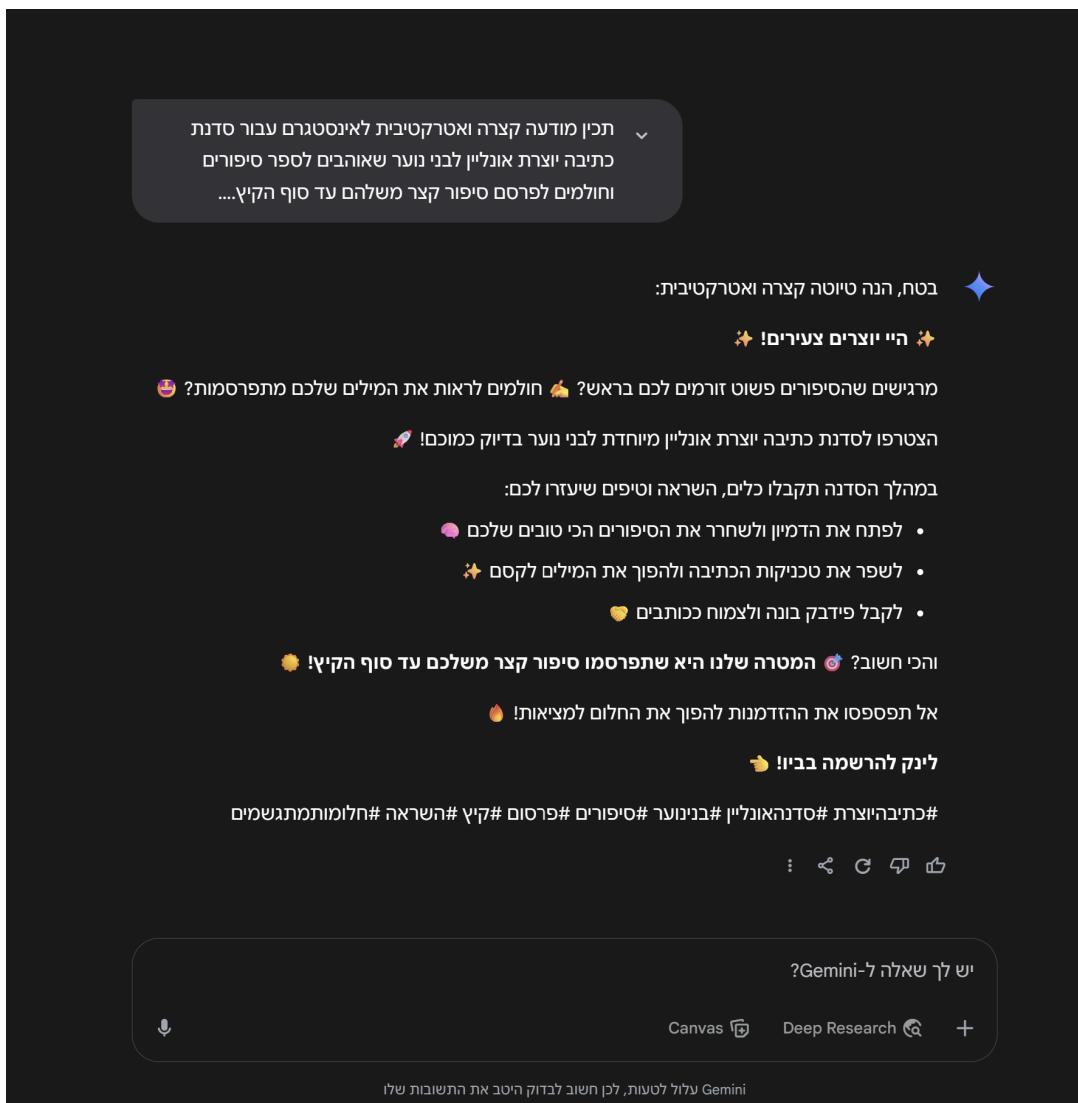
## Output:



## Input:



## Output:



### 3.1.2 Ad Generation Tools

The next stage involves converting the generated content into compelling visual advertisements. This includes the design of banners, social media creatives, and promotional graphics that align with the brand's aesthetic and platform requirements. Below are leading tools that support automated design and programmatic creative production.

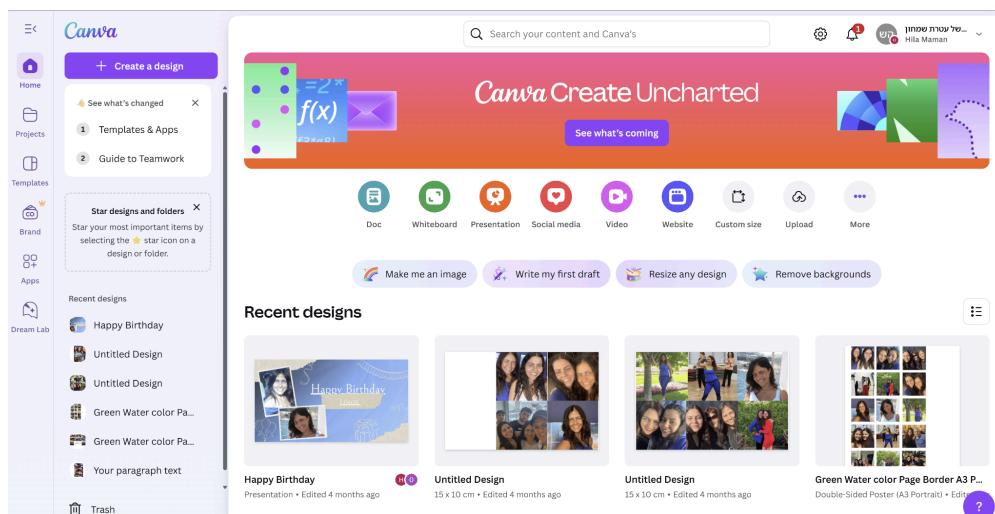
- **Canva –**

A versatile design platform offering a rich API that allows developers to create, edit, and manage design files. It provides access to primitives like shapes, images, fonts, and color schemes, making it ideal for dynamic

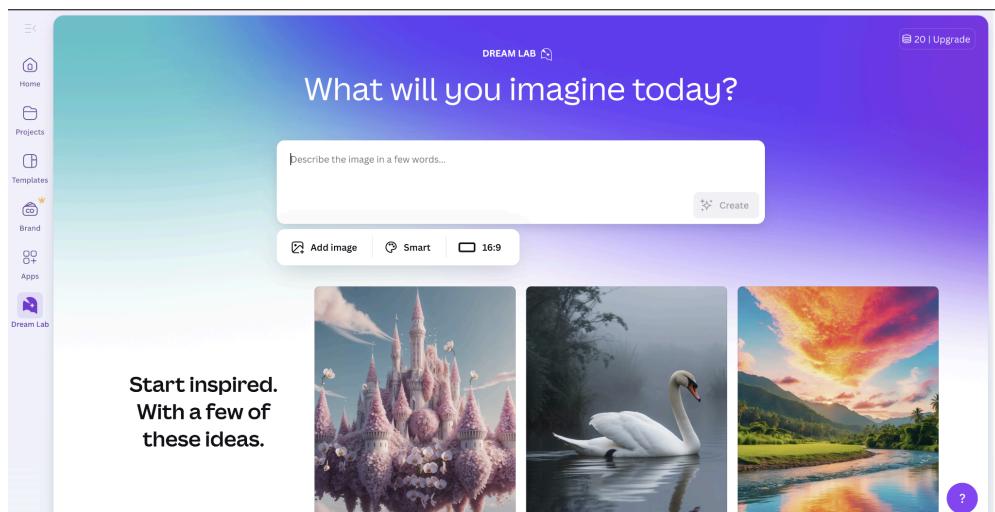
template creation. Sometimes, it may be more efficient to select a well-matching existing image rather than generate one from scratch, especially when speed and visual consistency are priorities.

Canva serves over 190 million users worldwide, ranging from individuals and educators to design teams and enterprises. The platform integrates AI-powered features for background removal, layout suggestions, and automated design enhancement. Developers can access Canva's capabilities via two options: the Canva Apps SDK (for embedding apps within Canva) and the Canva Connect APIs (RESTful APIs for external integration). Pricing includes a free plan, a Pro plan at \$15/month, and a Teams plan starting at \$10/month per person. API access is governed by Canva's developer terms, and registration is required.

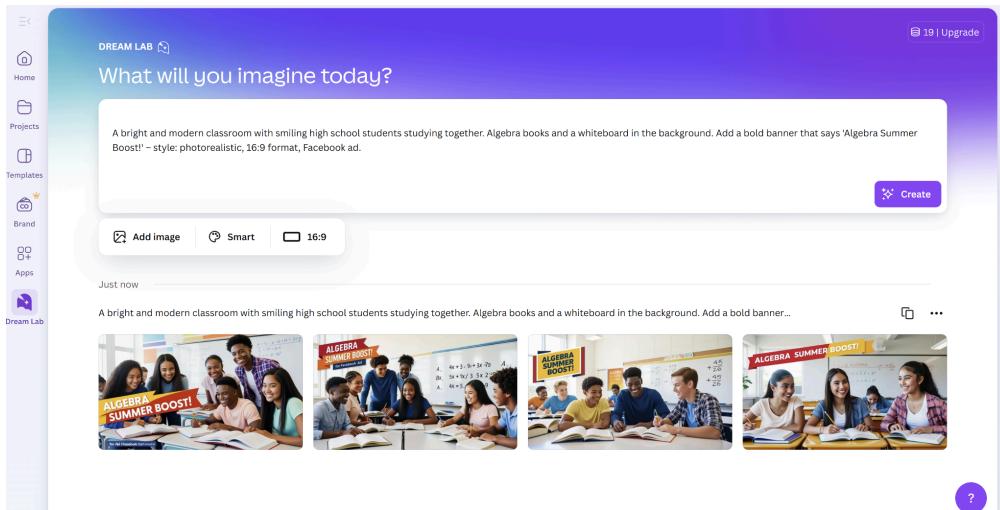
<https://www.canva.com/developers>



**Input:**

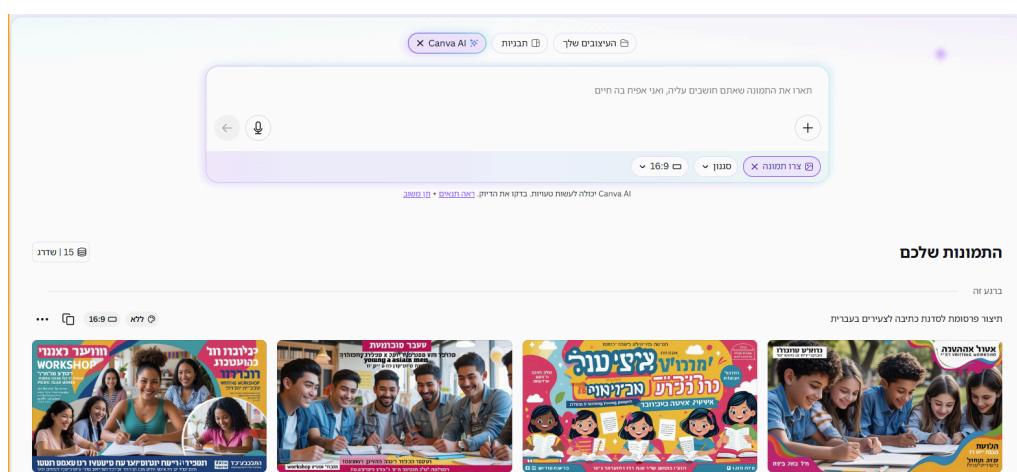


## Output:



## In Hebrew:

The system provides partial support for Hebrew, as demonstrated in the following output.



- **AdCreative.ai (Custom API version)** – Offers automated generation of ad creatives based on campaign goals, audience type, and brand guidelines. While the standard product connects to OpenAI, their custom enterprise API allows model customization, enabling organizations to generate ads that align with their unique brand voice and conversion strategies. The platform is used by marketing agencies, startups, and professional advertisers looking to improve ad performance through AI-optimized creative content. AdCreative.ai uses proprietary models including a creative scoring system that predicts ad effectiveness with high accuracy. The enterprise version offers a dedicated API for full integration into existing marketing workflows. Plans begin at \$29/month, with tiered pricing for startups and professional users. A three-day free trial includes 100 credits and support for up to five brands.<https://www.adcreative.ai>
- **Bannerbear** –An automated image generation tool designed for social media, e-commerce, and other visual marketing needs. Enables automated generation of marketing visuals by combining templates with dynamic text and image data. Particularly effective for bulk ad generation across platforms like Instagram, Facebook, and LinkedIn.

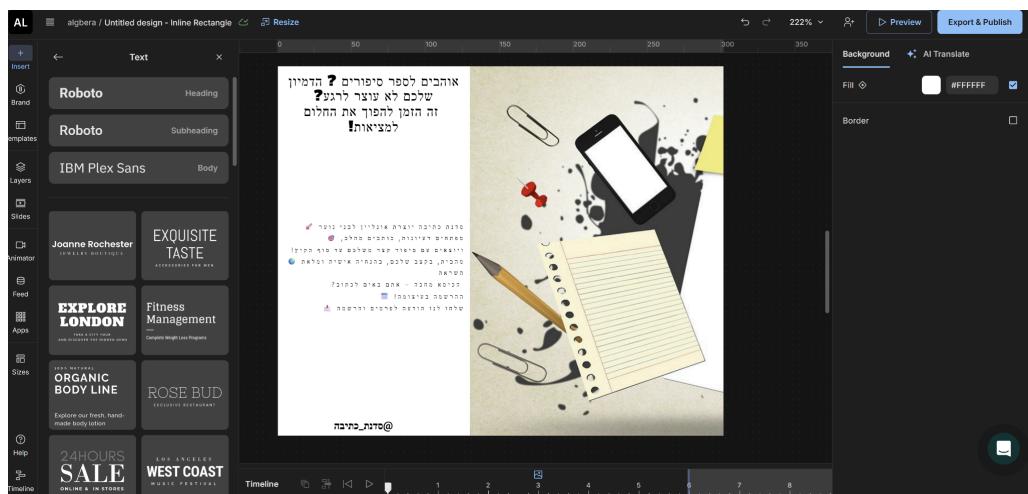
Bannerbear is used by over 590 paying customers, including small businesses, startups, and digital agencies aiming to scale their content production efficiently. The platform operates using a flexible template system and a serverless infrastructure, allowing users to generate images and videos through dynamic API calls. Bannerbear offers a RESTful API that integrates easily with tools such as Zapier, Airtable, and Make, supporting seamless automation within various workflows. Pricing starts at \$49/month for the Automate plan (1,000 credits), with advanced plans Scale (\$149/month) and Enterprise (\$299/month) providing higher usage capacities. A free trial with 30 API credits is available without the need for a credit card.

<https://www.bannerbear.com>

- **Creatopy** – A design automation platform for creating dynamic display ads and HTML5 creatives. It supports scaling creative assets across channels and formats, with built-in animation, smart resizing, and brand asset management libraries.

The platform is used by small businesses, agencies, and enterprises to streamline the design and production of advertising materials. Creatopy integrates AI-assisted tools such as image generation, automatic resizing, and multilingual content adaptation to optimize ad creation processes.

A public API is available for Enterprise plan users, enabling integration with external systems for managing designs, exporting creatives, and automating workflows. Pricing starts at \$36/month per editor (Pro), with a Plus team plan at \$245/month and custom Enterprise pricing. A 7-day free trial is available and does not require a credit card. <https://www.creatopy.com>



- **Shuttlerock**

Shuttlerock is a creative automation platform specializing in the production of mobile-optimized video advertisements for digital campaigns. It provides marketing teams and agencies with ready-to-use templates, dynamic animation tools, and workflows tailored for high-volume ad creation across platforms such as Facebook, Instagram, YouTube, and TikTok.

The platform is designed to support large-scale creative localization, ensuring brand consistency across diverse markets and languages. Shuttlerock operates under a managed service model, with access provided through dedicated onboarding and creative support. API capabilities are available for enterprise clients upon request, enabling integration into existing campaign management systems. Pricing is determined through direct consultation with the Shuttlerock sales team.

<https://www.shuttlerock.com>

Smith and Hutson (2024) demonstrated how individuals with no formal design or marketing background can create complete digital campaigns using generative AI tools such as Canva, ChatGPT, and Hootsuite [6]. These tools are suited for Ads-Maker's visual generation module, helping translate written content into brand aligned visuals while ensuring flexibility across formats and media types.

### **3.1.3 Marketing & Distribution Tools**

The final stage involves delivering the created advertisements to audiences through appropriate channels and analyzing campaign performance. Tools in this category enable audience segmentation, campaign deployment, and performance tracking.

- **Google Ads**

Google Ads is Google's advertising platform for managing campaigns across Search, YouTube, Display Network, and remarketing. It is widely used by small businesses, tech companies, educational institutions, and large organizations across sectors like retail, tourism, healthcare, and education.

The system leverages advanced machine learning algorithms such as Smart Bidding and Performance Max, and now includes generative AI models like Gemini to help create personalized ad content at scale.

The Google Ads API provides full control over campaign creation, keyword management, budgets, and performance tracking, with integration support for external tools like CRMs and marketing automation systems. API access is free, but running campaigns involves costs based on bidding models.

According to recent user surveys (2025), most businesses pay \$0.11–\$0.50 per click (61% of respondents) and \$0.51–\$10.00 per 1,000 impressions on average (56% of respondents), though prices can go much higher in competitive sectors such as law or insurance. In such fields, CPCs may reach \$10–\$50, and premium placements may push CPMs up to \$1,000.

To use the API, you need an active Google Ads account, a Google Cloud project with API credentials (OAuth2), and compliance with privacy standards like GDPR. High-volume or commercial-scale use may require quota allocation and approval from Google.

<https://developers.google.com/google-ads/api>

- **Meta Ads (Facebook & Instagram)**

Meta Ads provides tools for audience segmentation, ad placement, creative customization, and budget control across Facebook, Instagram, and Messenger. It is widely used by brands, agencies, nonprofits, and small businesses in retail, finance, fashion, and entertainment.

The platform uses machine learning models for audience optimization and performance prediction. The Marketing API enables automated campaign creation, real-time analytics, and ad management. API use requires a verified Meta Business account and adherence to data policies (GDPR). Pricing is based on bidding (CPC/CPM), with CPCs typically ranging from \$0.20 to \$1.50 depending on audience and ad type.

<https://developers.facebook.com/docs/marketing-api>

- **TikTok Ads**

A fast-growing platform focused on short-form video advertising, particularly effective among Gen Z and Millennials. Used by DTC brands, mobile app developers, and lifestyle influencers across sectors like fashion, food, and entertainment.

TikTok's Marketing API supports programmatic ad creation, audience targeting, creative testing, and analytics. It integrates machine learning for smart delivery and trend-based optimization. Access requires a TikTok Business Center account and API approval. Most CPC rates range between \$0.10–\$1.00; CPM typically starts at \$1.00 and can exceed \$10 for high-demand segments.

<https://business-api.tiktok.com/portal/docs>

- **Mailchimp**

A popular all-in-one marketing platform used by over 12 million users, including small businesses, freelancers, e-commerce stores, and nonprofits. Offers tools for email marketing, landing pages, retargeting ads, A/B testing, and performance analytics.

Its RESTful API allows seamless integration with CRMs, CMSs, and data pipelines. The platform uses AI for send-time optimization and content recommendations. Free tier available for up to 500 contacts; paid plans start at \$13/month. API use requires account registration and compliance with Mailchimp's Developer Terms.

<https://mailchimp.com/developer>

- **Sendinblue (Brevo)**

A GDPR-compliant marketing suite offering email, SMS, WhatsApp campaigns, landing pages, and automation. Used by SMEs, agencies, and European businesses in e-commerce, education, and logistics.

Its API supports contact segmentation, transactional messaging, and campaign tracking. AI is used for personalization and workflow optimization. Free plan includes 300 emails/day; paid plans begin at €19/month. API access requires account setup and API key generation from the dashboard.

<https://developers.sendinblue.com>

- **ActiveCampaign**

Combines email marketing, CRM, and automation tools into a single platform used by 180,000+ businesses across SaaS, education, B2B, and health sectors. Enables automated journeys via email, SMS, and on-site behavior tracking.

The API allows full control over contact data, campaign management, tagging, and custom event tracking. AI is used for predictive actions and content scoring. Plans start at \$29/month. API requires an ActiveCampaign account and token-based authentication.

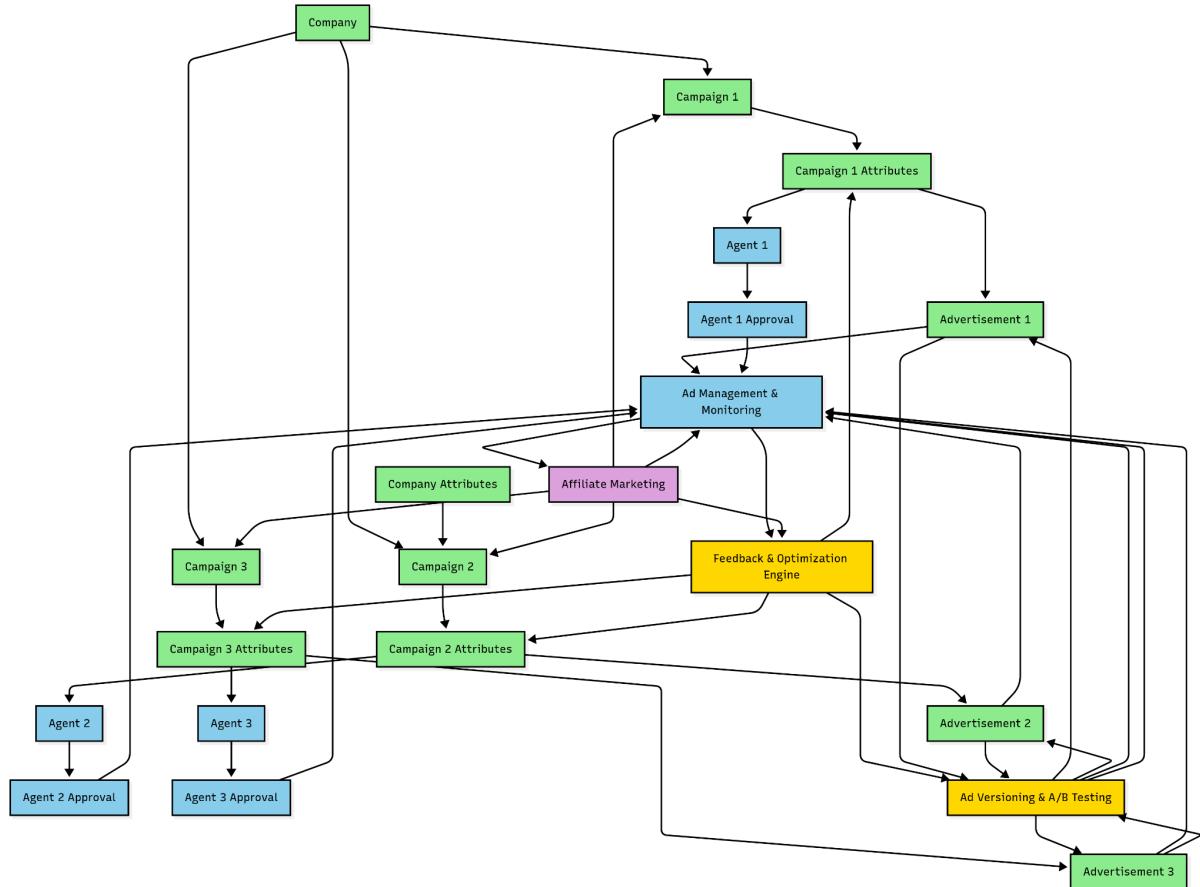
<https://developers.activecampaign.com>

These platforms support Ads-Maker's distribution and analytics modules, helping deliver ads efficiently and refine them based on audience behavior and campaign results. As shown in a real world campaign presented by Smith and Hutson (2024), the use of analytics and scheduling tools like Hootsuite and Sprout Social enabled immediate performance tracking and optimization within AI-generated campaigns [6]. Gao et al. (2023) reinforce the value of integrating targeting, personalization, content creation, and optimization into a unified system, while also highlighting the ethical challenges surrounding data privacy and algorithmic bias [2].

This curated list provides a broader overview of tools best suited for integration into the Ads-Maker platform. Each candidate was selected based on its relevance to a specific module in the system and its potential to contribute to a seamless, end-to-end advertising workflow.

Recent academic studies highlight the crucial role of integrating AI-driven content creation, personalization, and optimization into a single advertising platform. Gao et al. (2023) emphasize the importance of combining these elements to improve targeting and ensure ethical practices in modern advertising. Ford et al. (2023) present a clear framework of best practices for implementing AI-powered advertising, offering valuable insights that support our approach. Huh et al. (2023) discuss how language models like ChatGPT can revolutionize advertising workflows, making it easier for businesses to create high-quality content. Suraña-Sánchez and Aramendia-Muneta (2024) focus on the impact of AI on customer engagement, pointing out key areas for future development to strengthen connections with audiences. Likewise, Jain (2024) reviews how AI influences consumer behavior and suggests strategies for turning these insights into actionable campaigns. These studies collectively strengthen the vision behind the Ads-Maker system: to bring together content generation, visual design, and performance tracking in one cohesive tool. This alignment with the latest research ensures that our system is built on proven strategies, empowering businesses to create more effective, data-driven, and personalized advertising experiences.

## 4. System Functionality Overview



### 4.1 Hierarchical Structure: Company – Campaign – Agent

Ads-Maker is structured around a clear hierarchical model that defines the characteristics of each advertisement, ensuring both brand consistency and personalized communication.

#### **Company level:**

Defines the core identity of the business entity. This includes the logo, brand colors, visual design language, and other brand assets. These attributes are stored centrally and applied automatically to all campaigns and agents associated with the company.

#### **Campaign level:**

Each campaign represents a specific product or service. For every campaign, the company can upload representative materials (sample ads, service descriptions,

visual references) to help the system contextualize and tailor the messaging and design of related advertisements.

#### **Agent level:**

Agents are individual users authorized to request ads under a company's campaign. Each agent can define their own communication style such as humorous, emotional, professional, casual, to suit their audience. This allows the system to generate authentic, personalized content that aligns with the agent's social and cultural context.

The system automatically applies:

Company-level attributes to all associated campaigns and agents.

The agent's style is applied by default to all ads initiated by the agent, but it can be adjusted individually for each campaign or target audience.

This structure ensures alignment with the business's brand identity while enabling flexible, personalized communication by individual agents.

## **4.2 Personalized Advertisement Creation with Agent Style**

Ads-Maker enables the automatic creation of personalized advertisements for each agent, based on the campaign details and the agent's predefined communication style. The system includes a collection of pre-designed advertisement templates, tailored to common campaign types, audience segments, and branding styles. These templates serve as the foundation for the advertisement and are then dynamically customized according to the input data.

Each advertisement includes the agent's full name and/or a personalized logo featuring their name, ensuring clear and authentic identification of the individual behind the campaign.

The generated advertisement is returned to the agent for review. The agent may approve it as-is or request changes before it is published. Once approved, the agent is free to distribute the advertisement through any platform of their choice, including social media, messaging apps, email, or websites.

In addition, the agent can adapt the advertisement's tone and style to better match the target audience, ensuring high relevance and stronger engagement.

### **4.3 Submitting Advertisement Modification Requests**

Ads-Maker allows agents to submit requests for modifications to the generated advertisements. These may include:

Graphic Adjustments: Updating images, colors, fonts, or layout using system-approved elements and templates.

Textual Adjustments: Refining tone, language, or the core message to better reflect the agent's intentions or audience expectations.

All modification requests are logged in the system and are subject to a streamlined approval workflow aligned with predefined campaign rules.

### **4.4 Advertisement Management and Monitoring System**

Ads-Maker features a robust management and monitoring module to support quality control, data-driven optimization, and transparent tracking.

Version Tracking and Documentation:

Every advertisement is recorded with metadata including creation time, version history, the campaign it belongs to, and the identity of the requesting agent. This ensures traceability and accountability.

Feedback Collection and Learning:

The system collects user responses and engagement data from published advertisements to assess their effectiveness. Metrics such as clicks, reactions, and comments are used to improve future ad generation and optimize content strategies.

Performance Attribution:

Ads-Maker maintains detailed records of which ads were created for each campaign and tracks the contribution of each ad in terms of reach or conversions. This allows campaign managers and agents to evaluate which approaches deliver the best results.

### **4.5 Continuous Learning and Version Improvement**

Ads-Maker includes a dedicated feedback-driven optimization loop:

- **Data Collection:** Every advertisement version is tracked with metadata, including engagement metrics such as clicks, reactions, and conversions.
- **Feedback Integration:** User reviews and survey data are analyzed to understand ad clarity, persuasiveness, and design appeal.

- **Automated Version Improvement:** Insights from collected data are used to automatically suggest improved ad versions, refine templates, and optimize tone selection for different audiences.
- **Adaptive Templates:** High-performing layouts and messaging styles are reinforced, while underperforming designs are gradually phased out.

This closed-loop process ensures that each campaign benefits from the accumulated experience of all previous campaigns, creating a self-improving advertising platform.

## 5. Practical Comparison of Generated Outputs

A series of practical tests were conducted using leading AI-based content creation and design platforms, including ChatGPT, Claude, Hyperwrite, TextCortex, Canva, DynaPictures, Bannerbear, and Gamma. The results demonstrated notable differences in usability, output quality, and content adaptability. ChatGPT and TextCortex consistently produced high-quality marketing texts suitable for ad copy and promotional messaging, requiring only minor post-editing in Hebrew. Claude exhibited a structured and brand-safe style, although with occasional minor language limitations. Hyperwrite was efficient for generating short-form English content but required more intervention for extended Hebrew outputs.

On the design side, Canva delivered highly professional visual creatives with minimal manual effort, making it ideal for end-users without formal design skills.

DynaPictures and Bannerbear proved effective for automating the production of personalized graphics at scale, although some adjustments were needed to align Hebrew text within templates properly. A live demonstration of Gamma showed its ability to rapidly convert a marketing prompt into a fully polished, interactive visual presentation, combining narrative, images, and design elements in a mobile-friendly, shareable format.

In addition, practical evaluations of marketing and distribution platforms such as Google Ads, Meta Ads, and Mailchimp confirmed their strong capabilities in campaign management, audience segmentation, and performance optimization,

making them essential for integrating seamless ad deployment and tracking features into the Ads-Maker system.

Following a practical comparison of AI-powered tools, a focused selection will be made to balance output quality, scalability, and integration convenience.

For content generation, ChatGPT will be selected for its flexibility and ability to produce high quality marketing copy in both Hebrew and English. In addition, ChatGPT will be able to analyze existing advertisements and generate similar variations tailored to different target audiences or platforms.

Alongside ChatGPT, Claude will be incorporated as an alternative AI text generator, providing safe and brand-consistent messaging, rewriting capabilities, and support for ideation and refinement of marketing materials.

In the area of graphic design, Canva will be chosen for its user-friendly interface and capacity to produce professional-grade visuals with minimal effort. Canva will also support the creation of design variations based on existing ads using either predefined or customized templates.

On the distribution front, Google Ads and Meta Ads will be selected for their advanced audience targeting, campaign automation, and seamless integration with external systems.

Together, these tools will form the operational backbone of the Ads-Maker system, enabling a streamlined, efficient, and user-friendly workflow from creation to deployment.

In addition to tool-based comparisons, a practical case study was conducted to evaluate the real-world effectiveness of AI-generated advertisements using the Ads-Maker system. Two distinct business domains were selected: Shiatsu therapy and laser hair removal clinics.

The study involved structured campaign data collection via questionnaires, automatic generation of multiple ad variants per domain, AI-based scoring of each version, and survey-based validation with real users.

Results confirmed that personalized ad variants , particularly those combining rational data with emotional appeal , significantly outperformed generic ads in terms of attention, conversion, and recall.

Key findings included:

- Dynamic content achieved 2.7× higher engagement than static visuals.
- Authentic, data-supported claims yielded greater brand trust.
- Segment-specific phrasing (“pain-free”, “tailored”, “tradition”) improved effectiveness across age groups.

This case study highlights the value of targeted testing and intelligent AI-driven generation, providing practical validation for Ads-Maker’s personalization strategy.

These practical experiments also serve as the foundation for Ads-Maker’s continuous improvement cycle.

Performance data and user preferences collected during the evaluation phase are incorporated into the system’s optimization engine, ensuring that future ad versions automatically adapt to real-world effectiveness and audience response.

## **6. User Roles and Functional Responsibilities in the Ads-Maker System**

Ads-Maker supports four central user roles, each contributing uniquely to the automated, personalized advertising process: Business Owner, Agent (Affiliate), Customer, and System Administrator. The system is designed to operate iteratively, enabling feedback-driven improvement and content personalization across campaigns.

### **Business Owner**

Represents the core business entity responsible for defining services and branding.

Main responsibilities:

Provide a clear verbal description of each service or product offered, including its unique value proposition and its benefits.

Define the general branding identity: logo, color palette, typography, and tone of

voice.

Create and manage multiple campaigns, each tied to a specific service, including relevant images or past promotions.

Configure high-level content and design preferences, which act as defaults for agents under the brand.

Ensure consistent messaging across all campaign outputs.

Review performance metrics and feedback to refine campaign strategies over time.

## **Agent (Affiliate)**

An individual who adapts and distributes campaigns within their personal or professional networks.

Main responsibilities:

- Select which company campaigns to promote.
- Create complete advertisements: generate both text and image components based on the campaign base and their own communication style.
- Define a personalized outreach tone (humorous, emotional, casual, or persuasive) aligned with their social environment.
- React to customer feedback and participate in an iterative process of improvement updating style or structure as needed.
- Distribute the finalized advertisements through social media, messaging apps, or direct outreach.
- Approve or request changes to AI-generated suggestions before publication.
- Each ad includes visible attribution (agent's name and/or logo) to ensure authenticity.

## **Customer**

The target audience of the advertisement, for whom the content is personalized.

Main responsibilities:

- Interact with a ready-made advertisement with minimal effort required on their part.

- Receive the ad via a channel suited to their context (WhatsApp, Facebook, email).
- Fill out a short form that captures their interest, needs, or contact details.
- Trigger a response flow from the business representative, such as a follow-up call or personalized offer.

## **System Administrator**

Ensures the system functions smoothly, securely, and evolves based on usage data and performance analytics.

Main responsibilities:

- Manage user permissions and role assignments for businesses, agents, and customers.
- Maintain a repository of advertisement templates (textual and visual), sourced from tools like Canva or built in-house.
- Supervise content moderation, ensuring no ad includes inappropriate, misleading, or illegal material.
- Monitor campaign performance and update template libraries based on success metrics.
- Adapt and optimize the system toward ad styles that prove most effective, enhancing overall conversion and engagement rates.
- By continuously refining templates and campaign logic, the system gains a competitive edge through accumulated success patterns.

## **7. Expected Achievements**

In the Ads-Maker project, we aim to accomplish three key achievements that will demonstrate the system's ability to generate high-quality, fully personalized advertisements in an efficient and scalable manner.

## **7.1. Seamless Generation of Personalized Advertisements Based on Campaign Data**

The first goal is to prove that the system can autonomously generate personalized digital ads based on structured input, without requiring manual design or copywriting.

To achieve this, we will:

- Design an intuitive campaign form interface that allows users (business owners or agents) to input key campaign data: product/service, audience type, target platform, tone of voice, and call-to-action preferences.
- Use GPT-based models (ChatGPT, Claude, or similar) to generate marketing copy in the appropriate tone and structure.
- Automatically match the generated text to a dynamic visual template using tools like Canva, DynaPictures, or Bannerbear via their APIs.
- Embed the agent's personal style (humorous tone, signature name or logo) directly into the ad, ensuring individual branding consistency.

The output will be a ready-to-publish advertisement with both visual and textual coherence, reflecting both the brand and the agent's unique communication style.

## **7.2. Automation of the Review, Versioning, and Feedback Loop**

Our second achievement is to enable continuous ad improvement based on a structured feedback loop and system-logged version history.

We will implement the following features:

- Store each generated advertisement with version control, timestamp, and initiator metadata (company, campaign, and agent).
- Allow agents to request revisions either textual or visual through a guided feedback interface.
- Introduce a rating and comment system so that customers or internal reviewers can provide quality feedback on the ad's clarity, persuasiveness, and aesthetic.
- Use this feedback to refine the AI generation logic (fine-tuning style, suggesting improved templates, adjusting tone suggestions).

This process will ensure that the system evolves in real-time, enabling higher relevance and engagement in future campaigns.

### **7.3. Data-Driven Ad Performance Tracking and Optimization**

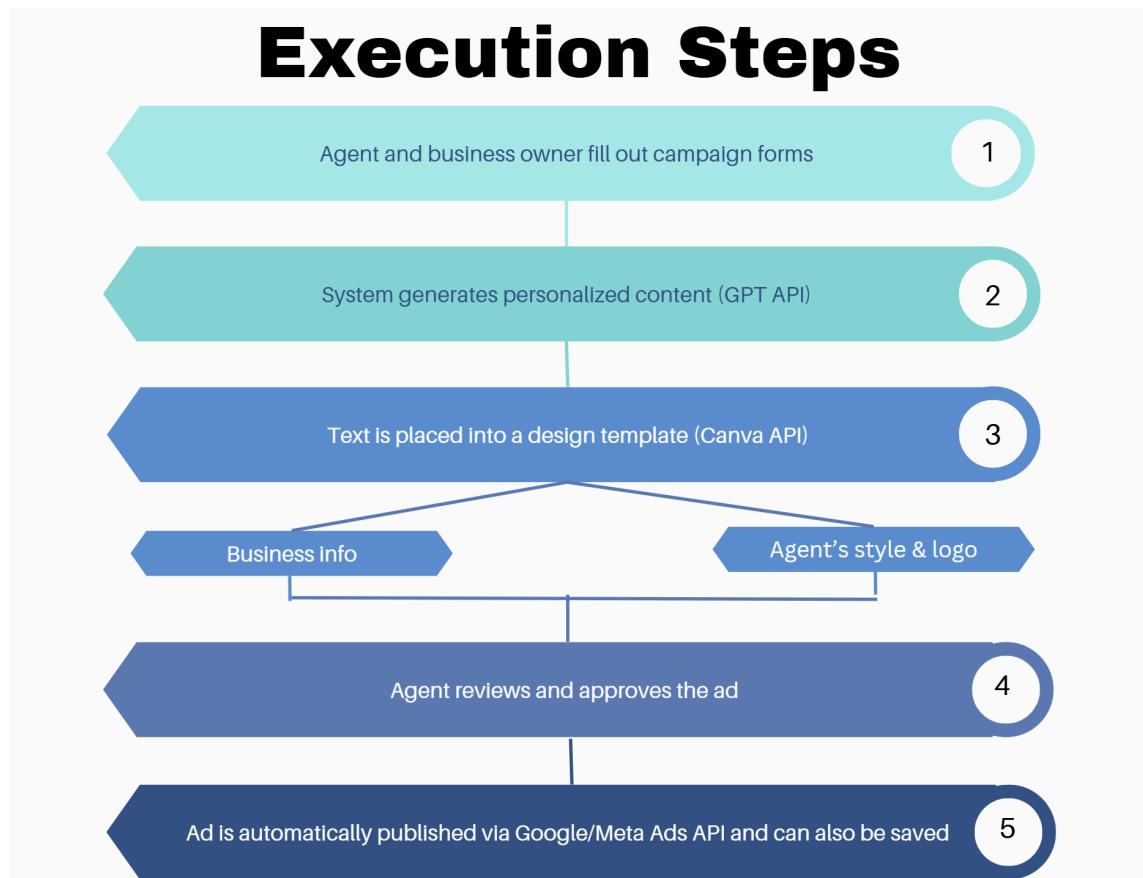
The final goal is to demonstrate the ability to connect advertisement generation with live campaign results in order to continuously improve ad effectiveness.

This will be accomplished through:

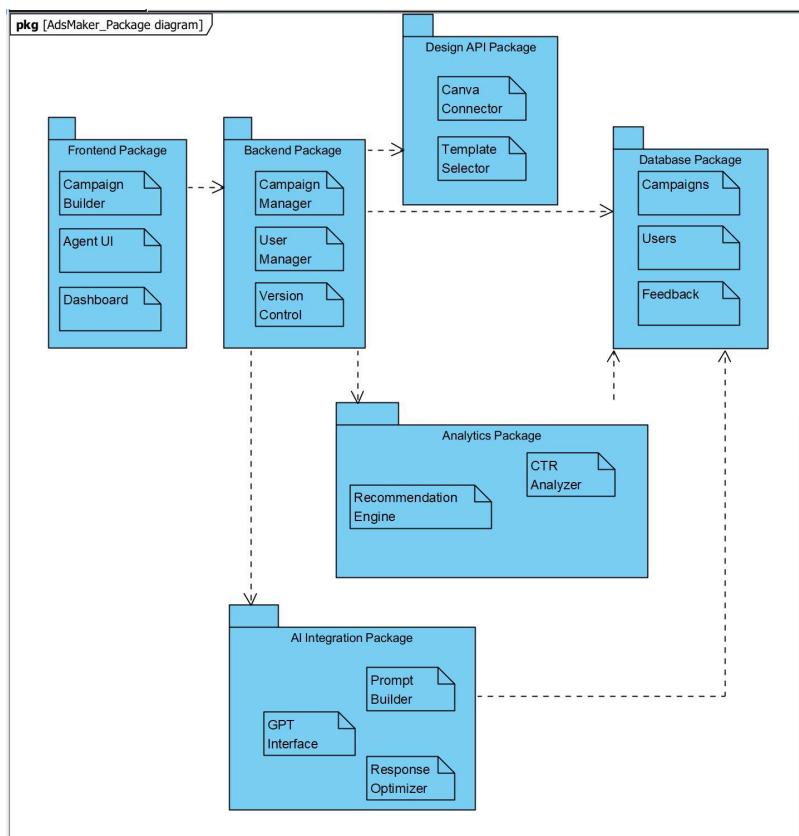
- Integration with marketing platforms such as Google Ads, Meta Ads, and Mailchimp via their APIs to pull campaign performance data (such as click-through rate, conversion rate, bounce rate).
- Linking each ad variant to its corresponding campaign results using internal identifiers.
- Applying AI-powered analytics to recommend optimal ad characteristics (“Use short CTA on mobile platforms,” “Use Agent A’s humorous tone for Gen Z segments”).
- Presenting real-time performance dashboards to businesses and agents, enabling data-backed decision-making.

The combination of personalized generation, versioning, and optimization will position Ads-Maker as a smart, adaptive advertising system capable of scaling with user needs and real-world outcomes.

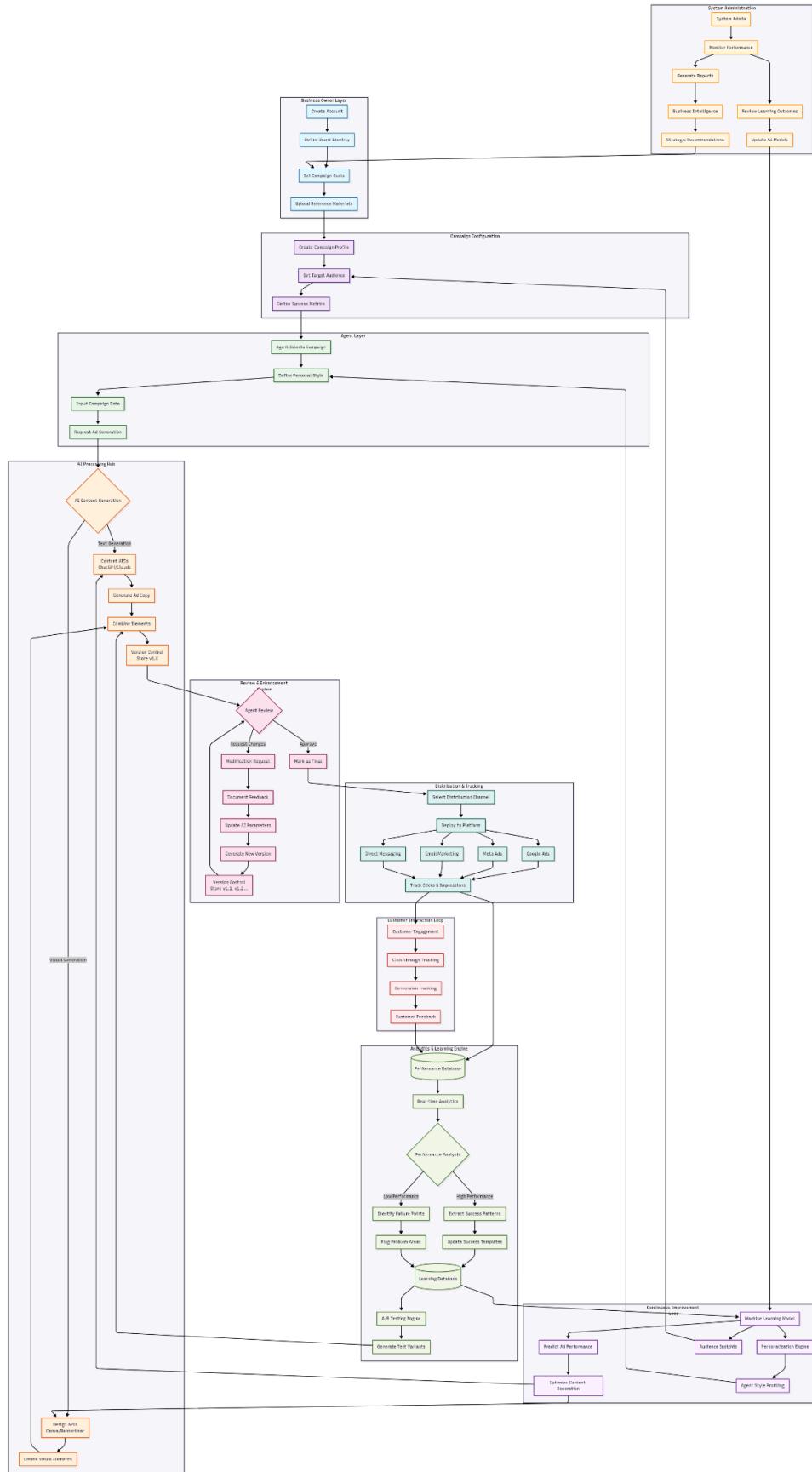
## 8.System Workflows and Diagrams



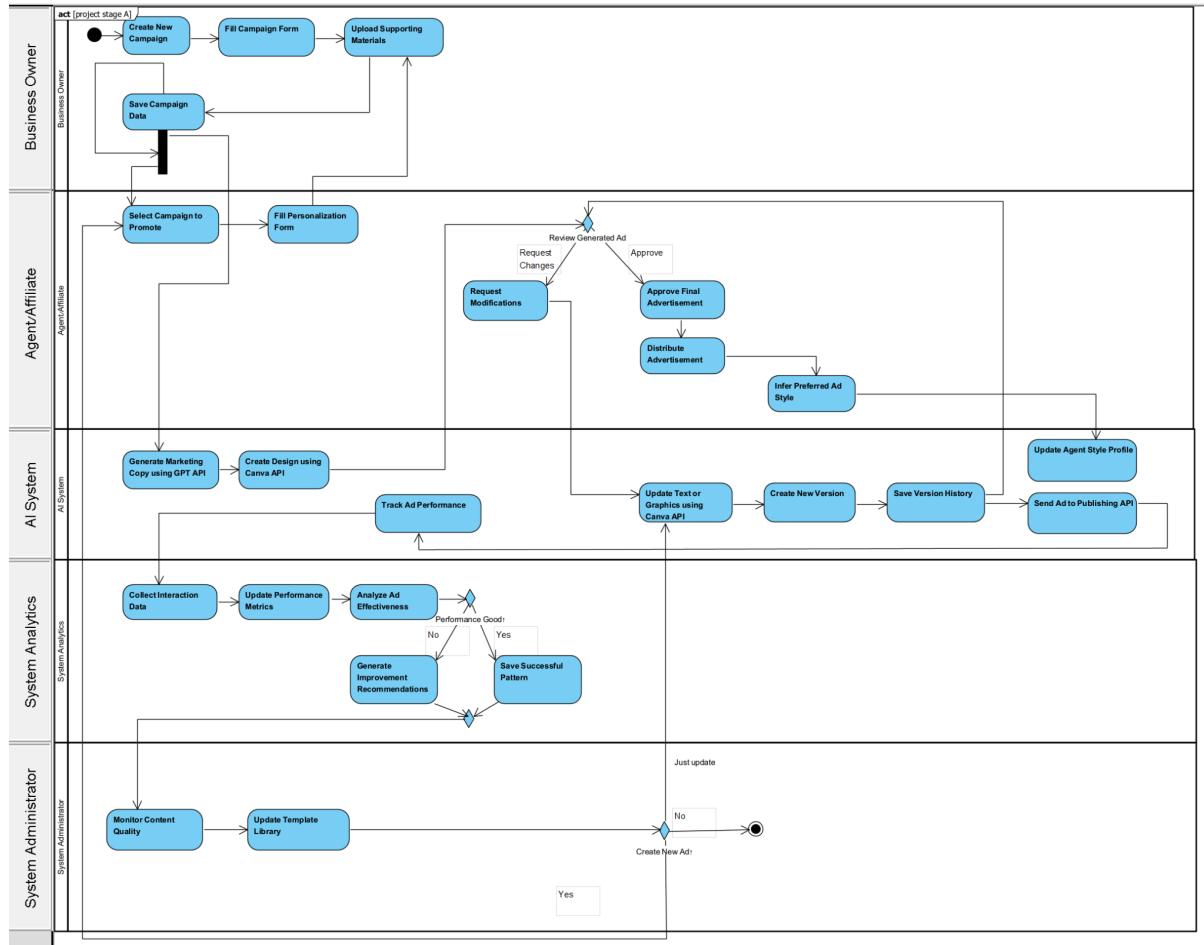
**Figure 1 Execution Steps**



**Figure 2 Package Diagram**



**Figure 3 System Workflow Diagram**



**Figure 3 Activity diagram**

## 9.GUI:

**מערכת ניהול פרסום**

לוח בקרה בעל עסק  
הادر פרסום וניהל פרטיו עסק

**פרטי הפרסומת ומיתוג**

שם הפרסומת  
הכנס שם פרסום

פלטפורמת היעד  
פיסיכון

תיאור הפרסומת  
האר את מטרות הפרסומות שלך

העלה חומר תמיינך , שמרו גתני פרסום

**פרטי מוצר/שירות**

קסאיירית מוצר  
למשל, SaaS, סכום אלקטרוני, ייעוץ

סכום תשלום  
₪1000 - ₪0

חן פרטי מוצר/שירות

**חשב הצלחת הפרסומת**

סקירת ביצועי פרסום  
סק משוב על יעילות הפרסומות

מעקב ביצועים טוכן

אנליטיקה בזמון אמת ומשוב יטופקו לאחר שהפרסומת שלך תעלה לאויה.

# מערכת ניהול פרסום

☰ מנהל מערכת

⊕ אגוליטיקת מערכת

⊕ מנגנון AI

⊕ סוכן/שותף

⊕ בעל עסק

לוח בקרה סוכן/שותף

במרפאות, התאמות תומך וחלקיים

בחירה פרסום וקידום

פרסומת זמינה: השקמת סטארט-אפ טכנולוגיות

וחוץ Saas והייעוד לעסקים קטנים

צפה בפרטים

בחר פרסום לקידום

הגדרות התאמה אישית

סגנון תקשורת

מקצועי

קהל יעד

למשל: בעלי עסקים קטנים, גיל 25-45

⊗ הגדר סגנון תקשורת אישית

⊗ חזן פרטן קהל יעד

תהליך סקירה ואישור

⊗ בקש שינויים

⊗ אשר

פרסומת שנוצרה

תוכן שנוצר על ידי AI ומכאן לסקירה

## מערכת ניהול פרסום

מנהל מערכת  אנגלטיקת מערכת  מערכת AI  סוכן/שותף  בעל עסק

לוח בקרה מערכת AI  
יצירת תוכן AI ואופטימיזציה

צמיג יצירה תוכן

מסמך  
צור עותק שיווקי  
באמצעות GPT

עיצוב  
צור עיצוב  
באמצעות Canva API

שלב תוכן  
עם סגנון אישי

+  
הוסף מידע סוכן  
שם וכתובת

בקורת גרסאות ובדיקות

גרסה נוכחית: 3.2  
עדכן לآخرונה לפני שעתיים

עדכן טקסט או גרפייה  שומר היסטוריית גרסאות

גרסה 2.1  
עיצוב מקורי

גרסה 2.2  
עותק מעודכן

גרסה 2.3  
נכחית (פעיל)

אופטימיזציית תוכן

סטטוס אופטימיזציה  
מגהון נתוני ביצועים לשיפורים

עדכן ספירתה הבנייתית  עדכן אחר איות התוכן  עדכן אלגוריתמי יצירה תוכן

## מערכת ניהול פרסום

☰ מנהל מערכת

ן אналיטיקת מערכת

ן מערכות AI

ן סוכן/שותף

ן בעל עסק

לוח בקרה אналיטיקת מערכת  
ינטראקטיבי וניתוח יעילות

מדי ביצועים

↗  
**12,500**  
תגובות

⟳  
**340**  
קליקים

🕒  
**28**  
המרות

📊  
**2.72%**  
אחוז קליקים

ן עדכן מדי ביצועים

ן אוסף נתונים אינטראקטיבי

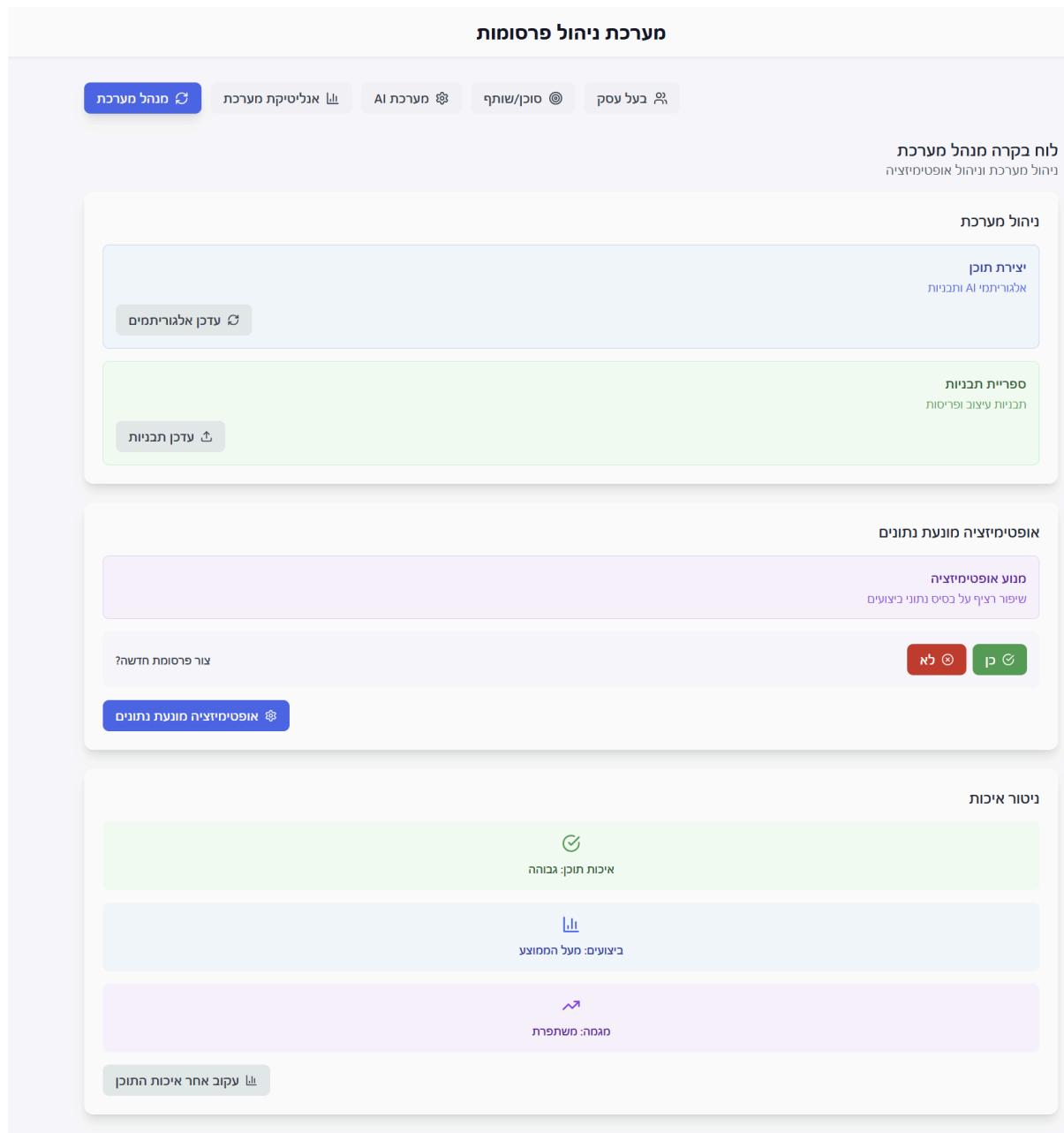
ניתוח יעילות

☑  
ביצועים: טוביים

הפרסום עומדת ביעדי היצירויות. אחוז הקליקים גבוה מההটואז בעשייה.

ן שמור דפים מואלץ

ן צור המלצות לשיפור



## 10. Engineering Process

### 10.1 Process

The development process of the Ads-Maker system is based on practical needs and foreseeable constraints. From the outset, our intention is to design a tool that will simplify and speed up the creation of personalized advertisements, especially for small businesses working with affiliate agents. We are planning to integrate external

AI and design tools within a structured workflow that supports content generation, visual adaptation, and feedback-based improvement. Our rationale is to create a seamless bridge between business goals and creative messaging without requiring professional skills. In this section, we describe the planned stages of development, the reasoning behind our design choices, and the main constraints we expect to face.

### **10.1.1 Development Stages**

The development of the Ads-Maker system integrates artificial intelligence, ready-made graphic templates, and dynamic personalization of advertisements according to each agent's communication style. The system also enables end customers to request modifications to visual elements. Advertisement content is generated automatically based on structured input collected through questionnaires. The effectiveness of each ad version is later evaluated by real users through survey based feedback.

#### **Main development stages:**

##### **Requirements Gathering and Needs Definition**

A needs analysis was conducted based on the marketing workflows of small businesses and affiliate agents, alongside a literature review and a broad comparison of available tools. This led to the definition of a platform capable of automatically generating personalized advertisements.

##### **Tool Selection and Technological Stack**

Two core tools were selected:

GPT (OpenAI): for generating personalized marketing texts in Hebrew.

Canva API: for creating dynamic graphic templates tailored to the campaign and the agent.

These tools were chosen due to their high availability, support for open APIs, and their ability to generate multiple ad variations efficiently.

##### **Graphical User Interface (GUI) and Workflow Diagrams**

A web-based interface was designed, with dedicated views for business owners, agents, and system administrators, as detailed in Chapter 9 (GUI). The interface supports campaign data input, ad generation, modification requests, and

performance tracking. Workflow diagrams were created to illustrate the hierarchical structure of the system.

### **10.1.2 Development Approach**

The chosen development approach is based on integrating powerful external tools (GPT and Canva) via open APIs to provide a simple, user-friendly, and fully automated process for end users. This decision was driven by the understanding that the system's target users, especially small business owners and affiliate agents often lack technical or design expertise. Therefore, the system must allow them to create high-quality advertisements without requiring prior experience in technology or marketing tools.

Additionally, the use of widely known and reliable tools such as GPT and Canva ensures technological stability and high availability throughout the development process.

A central component of the system is the **Feedback & Optimization Engine**, which continuously learns from the performance of all generated ads.

This module analyzes engagement metrics, integrates user feedback, and automatically updates the AI generation logic and design templates to produce improved future versions.

### **10.1.3 Challenges**

#### **Full Hebrew Support**

The system was designed from the ground up to fully support the Hebrew language, both in content generation and in the user interface. This includes right-to-left (RTL) formatting, localized prompts, and adapting outputs from models that are primarily trained in English.

#### **Integrating Multiple APIs**

A core challenge is the seamless integration of multiple third-party APIs, each with its own structure, authentication, and formatting requirements, including GPT for text generation, Canva for graphic design, and advertising platforms like Google Ads. A robust integration layer was developed to translate, validate, and coordinate communication between these services while maintaining consistency and timing.

## **Generating Variations and Selecting the Best-Performing Ad**

The system generates multiple ad variations for each campaign, experimenting with different tones, messages, and visual designs. A significant challenge is tracking the performance of each version, including impressions, clicks, and engagement, and automatically identifying the most effective one. This requires analytics integration, A/B testing logic, and continuous feedback loops to optimize future ad generation.

## **Designing a User-Friendly Interface**

The platform is built for users with little to no technical background, such as small business owners. Therefore, it was essential to design an intuitive, guided interface that simplifies complex processes like content customization and API interaction, without compromising on flexibility or output quality.

### **10.1.4 Requirements**

During the requirements gathering phase, direct observations were conducted of the real world workflows of small business owners and affiliate agents. The objective was to identify actual needs and challenges they face in creating digital advertisements, without external interference or influence. These observations made it possible to pinpoint friction points, technological gaps, and opportunities for automation and improved user experience. The insights gained from these observations served as a foundation for defining the system's functional and non-functional requirements.

As part of the planning phase, both functional and non-functional requirements were defined based on user needs and technical constraints. These requirements are intended to ensure that the system is usable, accessible, and scalable, while supporting the overall goals outlined in the development approach.

#### **Functional Requirements:**

- The system should enable users to input structured campaign data (product, target audience, tone).
- The system should generate complete, ready-to-publish advertisements, including text and visuals.

- The system should match textual content with dynamic design templates using third-party APIs.
- The system should allow agents to define personal communication styles (humorous, professional).
- The system should support versioning and allow users to submit modification requests for generated ads.
- The system should allow sharing of approved ads across various platforms such as WhatsApp, Facebook, and Instagram.
- The system should collect engagement metrics (views, clicks) for each ad version.
- The system should include a feedback interface for both agents and customers.
- The system should allow business owners to configure branding preferences (colors, logos, tone).
- The system should provide role-based access and permissions for different types of users.

### **Non-Functional Requirements:**

- **Accessibility:** The interface should be fully functional in both Hebrew and English.
- **Usability:** Interface elements should be clear, icon-based, and mobile responsive.
- **Performance:** Advertisement generation should take no more than 3 seconds under normal conditions.
- **Availability:** The system should be accessible 24/7 with high uptime.
- **Security:** All user data should be securely stored and comply with privacy standards (GDPR).
- **Interoperability:** The system should integrate smoothly with external tools (Canva, ChatGPT, Meta Ads).
- **Maintainability:** System components should be modular to allow future feature expansion.

- **Scalability:** The system should support large volumes of users and ad generation processes simultaneously.

## 10.2 Product

### 10.2.1 Tools and Models Used

- **GPT (ChatGPT / GPT-4-turbo)**  
Used to generate high-quality marketing content in both Hebrew and English, customized for each campaign and target audience.
- **Canva API**  
Used to create automated graphic advertisements based on predefined templates that support Hebrew-language content.
- **Integration Layer**  
The system merges generated text with selected design templates automatically, based on the structured campaign input.

### 10.2.2 Data Structure Overview

Company – Brand attributes (colors, logo, values)

Campaign – Product/service details, target audience, messaging, distribution platforms.

Agent – Personal style, name/logo, tone preferences.

Advertisement – Text, image, unique ID, date, engagement metrics.

### 10.2.3 User Interface

As detailed in Chapter 9 (GUI), a complete and structured graphical user interface (GUI) was created for all system roles. It includes:

- **Business Owner Dashboard**  
For managing campaigns, brand assets, and performance analytics.
- **Agent Workspace**  
Allows agents to generate, review, personalize, and distribute advertisements based on predefined campaign inputs.

- Administrator Console

For managing users, monitoring system activity, approving or rejecting content, and overseeing ad versioning.

The interface was designed to be intuitive and accessible, even for users with no technical background. It reflects the system's hierarchical structure and supports dynamic interaction with AI-generated content and external APIs.

Visual mockups of the interface are presented in Chapter 9.

#### **10.2.4 Integration Architecture and Technology Stack**

To ensure smooth communication between system components and external tools, the Ads-Maker platform will include a dedicated integration layer built with modern web technologies. The frontend will be developed using React.js, providing a dynamic and responsive user interface that supports campaign data input, ad previews, and customization options. The backend, implemented in Node.js with Express, will be responsible for the system's logic, handling user requests, and managing API interactions. MongoDB will serve as the database, storing campaign data, user preferences, ad versions, revision history, and performance feedback.

The integration layer, developed as part of the backend, will connect to external services through RESTful APIs—primarily the OpenAI API (for marketing text generation) and the Canva Connect API (for automated graphic ad design). The Canva integration will utilize key features such as Design Import and Autofill, allowing Ads-Maker to dynamically populate branded templates with system-generated text and images. This enables fully programmatic creation of professional, high-quality designs.

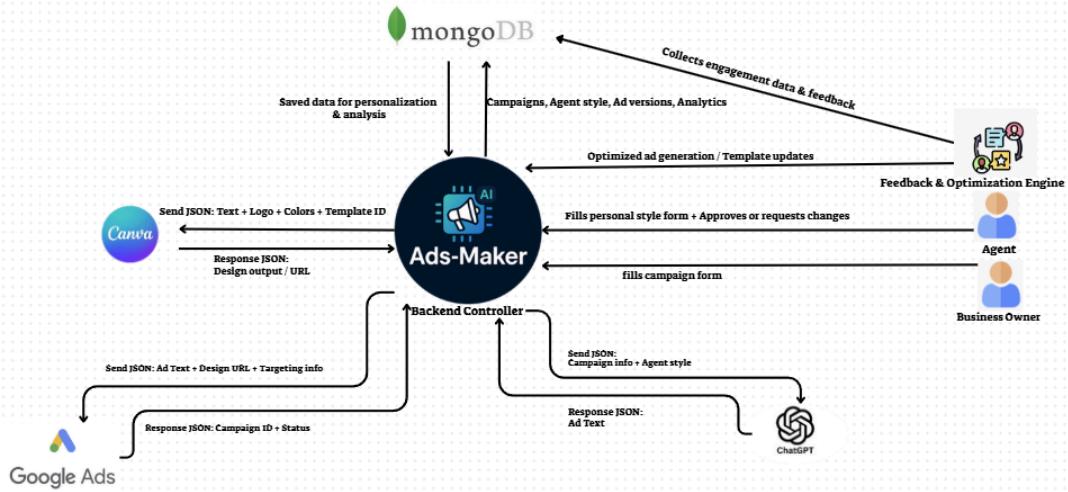
For content generation, the system will adopt OpenAI's GPT-4.1 mini model as its standard and exclusive engine. This model offers the optimal balance between linguistic quality, generation speed, and cost-averaging approximately \$0.00024 per ad - making it well-suited for producing personalized and persuasive marketing copy in both English and Hebrew. Pricing is calculated based on the number of tokens processed, at \$0.40 per million input tokens and \$1.60 per million output tokens. Since a typical ad

involves only a few dozen tokens in both input (campaign data) and output (generated text), the total cost per ad remains extremely low, enabling cost-efficient scalability even under high usage.

While the Canva Connect API is free to use, access to premium templates, AI-powered tools, and branded design assets requires a Canva Pro or Canva Teams subscription. In the current system implementation, a Canva Pro subscription will be maintained at the system level, at an annual cost of approximately \$120 per user. This is considered a cost-effective solution given the broad access it provides to professional templates, advanced design features, and automation capabilities essential for high-quality ad creation.

Authentication tokens and API keys will be securely stored using environment variables, and the backend will include control mechanisms such as asynchronous job handling, input validation, and usage monitoring, ensuring system robustness, security, and compliance with API requirements.

The system will be developed using Visual Studio Code as the primary development environment. This architecture will allow the platform to dynamically create, adapt, and manage advertisements through modular and secure interactions while maintaining simplicity in maintenance and future extensibility. By unifying content creation and graphic design into a single streamlined workflow, this technological structure supports Ads-Maker's core mission: to deliver a fully automated, user-friendly, and personalized digital advertising experience.



**Figure 4 System Architecture Diagram**

### 10.2.5 Interaction With Business Owners During Development

During the development process, we will maintain direct communication with business owners from the system's target audience. We will present them with sample advertisements generated by Ads-Maker, request feedback on the quality of the text, design, and brand alignment, and evaluate the overall user experience together with them. The purpose of this interaction is to ensure that the system addresses real-world needs, while continuously improving based on their input. This collaboration will help us refine the data input processes, customization options, and design features, and tailor the platform to meet field expectations.

### 10.2.6 Hebrew Language & RTL Support

A key feature of the Ads-Maker system is its full support for the Hebrew language and right-to-left (RTL) text layout.

This support is implemented at multiple layers of the product:

- **AI Text Generation:** The system leverages GPT-based models fine-tuned for Hebrew, enabling natural, grammatically correct, and persuasive ad copy in

Hebrew.

- Template Alignment: Canva-based templates and dynamic visuals are automatically adapted for RTL, ensuring proper alignment of text, logos, and calls-to-action.
- User Interface Localization: All system forms, dashboards, and generated previews are fully functional in Hebrew, including RTL-compatible input fields and rendering.
- Ad Distribution Compatibility: Generated Hebrew ads are verified for correct display across social media platforms and email marketing tools that support RTL content.

This capability differentiates Ads-Maker from most global ad creation tools, which primarily support left-to-right languages, and is essential for targeting the local market effectively.

## 11. Testing Plan

This section will present the structured testing approach that will be used to evaluate the effectiveness of advertisements generated by the Ads-Maker system.

Test Phase	What Will Be Tested?	How Will It Be Tested?	Expected Outcome
System Functionality Test	All system modules (API, data storage, web display) work properly and load smoothly across	Perform functional tests on the web interface: crash tests, loading, responsiveness, and cross-browser compatibility	System works properly in all major browsers, loads quickly, operates smoothly, and displays data

	different browsers and screen sizes		correctly without errors
Advertisement Output Validation	Creation of different advertisement types: text and images (including Instagram-optimized formats)	Run the system with campaign inputs to create each type of advertisement and check the output	The system successfully creates various ad types (Instagram images, text posts) in a correct and error-free manner
Business Owner Questionnaire	Collect focused campaign data	Structured questionnaire with specific questions	Complete and accurate data on target audience, messaging, and campaign goals
AI-Generated Variants Creation	Automatic creation of multiple ad variants	Run the system with questionnaire inputs to generate 5 distinct ad variants	5 distinct and differentiated ad variants for each business
System Scoring of Variants	Score ad versions on five criteria: attention, conversion, relevance, clarity, and	Automated scoring system (0–100) for each variant	Clear numerical ranking for each variant, enabling comparison between them

	distinctiveness.		
Manual Visual Review	Check design and branding quality	Review by project team	Ensure the design matches the campaign and brand
User Survey	Measure real user reactions	Expose participants to each variant, using a structured feedback form	User feedback on memorability, preference, purchase intent, and emotional response
Data Analysis	Collect behavioral data (such as clicks, view time)	Log data in a structured database	Identify which ad variants are most effective based on behavioral patterns and preferences
A/B Testing – Variant Performance Evaluation	Comparative effectiveness of multiple AI-generated ad variants for the same campaign	Expose users to different ad versions (A/B testing), collect responses, and track behavioral	Identify which ad variants perform best in terms of engagement, conversions, and user preference.

		data (clicks, engagement time)	
Feedback Integration & Continuous Improvement	Incorporation of survey results, engagement data, and A/B test findings into the ad generation logic.	Analyze system logs after test campaigns and verify that improved versions or template recommendations are generated automatically.	The system demonstrates the ability to learn from feedback and create more effective ad versions over time.

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