



# AI-POWERED SEO METADATA GENERATOR

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# Agenda

This presentation will introduce an innovative AI-powered tool designed to revolutionize SEO metadata generation. We'll cover the core problem it solves, its features, underlying technology, and future potential.

- **About Naviga & Project Context:** Understanding the origins.
- **Abstract & Introduction:** What it is and why it matters.
- **Objectives:** The core goals of the system.
- **Features:** Key functionalities.
- **Technology Stack:** The tools behind the solution.
- **System Architecture:** How it all connects.
- **Implementation:** Backend and frontend details.
- **Testing & Results:** Validation and outcomes.
- **Future Enhancements & Conclusion:** What's next and key takeaways.

## About Naviga

# A Leader in Media Solutions

Naviga is a global leader in software solutions for media-rich industries. They empower publishers, broadcasters, and content creators to efficiently create, distribute, and monetize their content. Headquartered in Bloomington, Minnesota, USA, Naviga serves over 2,500 organizations across 45 countries.

Formed in 2013 from the merger of DTI and Saxotech, and later rebranded in 2019, Naviga's mission is to help clients "Venture Forward" with a digital-first focus. Their Content Engagement Platform (CEP) integrates content creation, audience engagement, advertising, subscription management, and multi-channel distribution.

Key brands include Naviga Publishing, ZINIO (digital magazine distribution), and ABACUS (subscription analytics). Naviga emphasizes agility, workflow automation, and strong customer support to help clients adapt to evolving market demands.

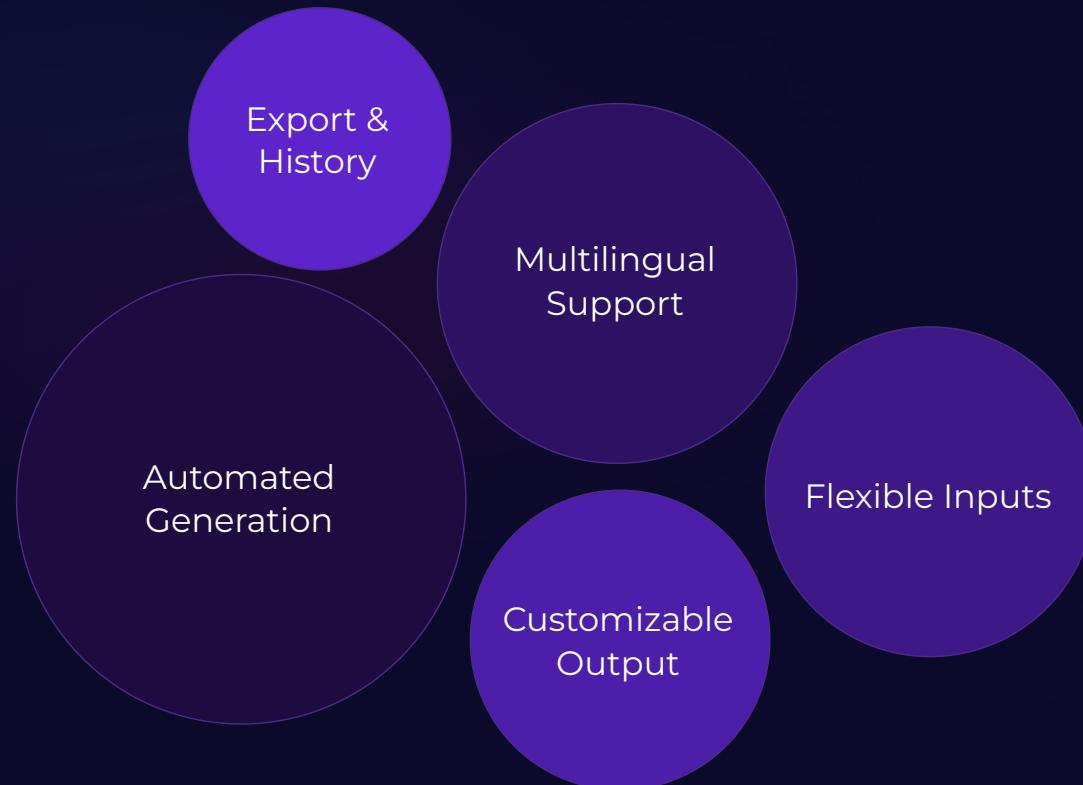
Naviga's comprehensive platform streamlines content workflows, from creation to monetization.



Introducing the Solution

# AI-Powered SEO Metadata Generator

This project addresses a critical pain point in digital marketing: the manual, time-consuming, and expertise-driven process of creating SEO metadata. Our AI-powered web application automates this, generating optimized titles and meta descriptions from various content sources.



This tool empowers digital marketers, bloggers, e-commerce platforms, and businesses to enhance search engine rankings and online visibility with unprecedented efficiency.

Made with **GAMMA**

## Core Challenges & Our Solution

# Bridging the Metadata Gap

### The Problem: Manual Metadata Creation



Manually crafting SEO metadata is a repetitive and knowledge-intensive task. It requires deep understanding of keyword strategies, user intent, and complex search algorithms. Non-experts often struggle, producing suboptimal or keyword-stuffed metadata that actively harms search rankings rather than improving them. This leads to wasted effort and missed opportunities for online visibility.

### The Solution: Automated AI Generation



Our AI-Powered SEO Metadata Generator automates this challenge entirely. By leveraging advanced Natural Language Processing (NLP), the system instantly creates concise, engaging, and search-engine-friendly titles and descriptions. This significantly reduces human effort, drastically improves the quality of output, and offers unparalleled customization to meet specific user needs and marketing goals.

## Project Objectives

# Driving Efficiency, Experience, and Integration

The primary objective is to deliver a fully automated, AI-powered SEO metadata generation system that prioritizes minimal manual effort, high accuracy, adaptability, and usability. It caters to both casual and professional users through multilingual support, modern design, and seamless workflow integration.



### Automation & Accessibility

AI-driven metadata creation from docs and URLs

### Enhanced User Experience

Responsive UI, secure auth, personalized history

### Seamless Output & Integration

Downloadable PDF/DOCX, CMS and SEO-ready exports

# Key Features at a Glance



## Secure User Authentication

JWT-based signup/login with persistent sessions and protected routes for authenticated users.



## Flexible Metadata Generation

Supports PDF/DOCX uploads or URLs, with customization for language, tone, and title length.



## AI-Powered Processing

Integrates Groq's LLaMA 3 AI model via API for high-quality SEO titles and meta descriptions.



## Output & File Management

Exports results instantly in PDF or DOCX format for direct usability and easy integration.



## Data Storage & User History

Stores authenticated user history in MongoDB Atlas, supported by a modular FastAPI backend.

# Technology Stack

## A Modern Foundation for AI-Driven SEO

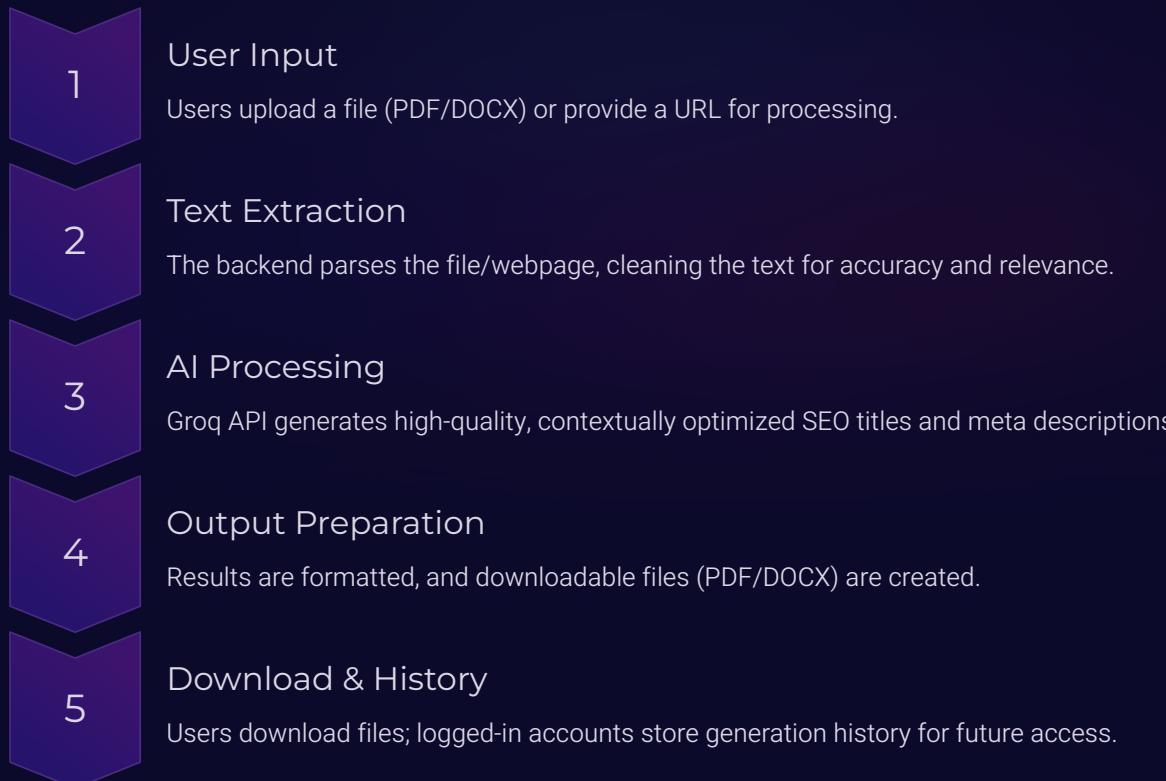
Our system is built on a robust full-stack architecture, leveraging cutting-edge technologies for optimal performance, scalability, and maintainability. This blend ensures a seamless user experience and powerful AI integration.

Frontend	React (Vite), Tailwind CSS, React Query, Zustand	High-performance SPA with responsive design, efficient data fetching, and state management.
Backend	FastAPI	Python-based web framework for building scalable APIs.
Database	MongoDB Atlas (Motor Async Driver)	Cloud-hosted NoSQL database for fast, asynchronous operations.
AI Model	Groq API (LLaMA 3)	AI-powered generation of SEO-optimized titles and meta descriptions.
File Processing	pdfminer.six, python-docx, newspaper3k	Extraction of text from PDFs, DOCX, and web pages.
File Output	fpdf, python-docx	Generation of downloadable SEO metadata files in PDF and DOCX.

## How it Works

# The Seamless Workflow

Our AI-powered system transforms raw content into ready-to-use SEO metadata within seconds. The process is designed for maximum efficiency and accuracy, from user input to final output.

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- 1 User Input  
Users upload a file (PDF/DOCX) or provide a URL for processing.
  - 2 Text Extraction  
The backend parses the file/webpage, cleaning the text for accuracy and relevance.
  - 3 AI Processing  
Groq API generates high-quality, contextually optimized SEO titles and meta descriptions.
  - 4 Output Preparation  
Results are formatted, and downloadable files (PDF/DOCX) are created.
  - 5 Download & History  
Users download files; logged-in accounts store generation history for future access.

# Validation & Outcomes

# Testing & Results

## Comprehensive Testing

Backend Testing  
Validate auth, SEO, history routes and error handling



AI Output Validation  
Check relevance, clarity, tone, length, multilingual accuracy

Frontend Testing  
Manual forms, drag-and-drop, navigation, downloads, cross-browser

Responsive & Accessibility  
Verify layouts across viewports and basic accessibility

## Key Results

AI Output Performance  
High-quality SEO metadata in seconds, accurate multilingual output

Auth & Personalization  
Secure JWT auth and reliable personalized history



Frontend Responsiveness  
Seamless UI across devices with smooth interactions

Overall Reliability  
Core features passed checks; minor UI improvements planned