ICARUS

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Accelerate Your System Development with
AI-Enhanced Model-Based Systems Engineering

Icarus by Zaden Technologies is an AI-powered Architecture as Code (AaC) tool designed to streamline your workflow. It effortlessly converts text-based requirements and documentation into detailed SysML models using advanced Natural Language Processing (NLP). By analyzing various document formats, Icarus extracts system components, relationships, and requirements, turning them into comprehensive, ready-to-use system models.

FEATURES & ROADMAP

COLLABORATIVE MODEL ANNOTATION
AI-based model validation to catch inconsistencies and suggest improvements

SMART MODEL VALIDATION
Allows teams to collaboratively view, discuss, and annotate models within Icarus

CHATBOT FUNCTIONALITY
Understands written English phrases for creating and modifying system models

VERIFICATION & VALIDATION
Automated test generation

CAMEO & MAGICDRAW INTEGRATION
Integrates with existing modeling tools

PDF MAPPING
Automatically reads and interprets system requirements from PDF docs.

PLUS User-friendly GUI & expanded compatibility with 3rd party design tools like PTC Modeler, Cameo, and DOORS.

KEY BENEFITS BY USER GROUP

COMMERCIAL USERS

40% FASTER MODELING*
Assisted Architecture Development

SEAMLESS INTEGRATION
Integrates with Cameo, MagicDraw, and more

50% LESS REWORK*
Automated verification and validation

REAL-TIME COLLABORATION
Enables distributed engineering teams

GOVERNMENT USERS

30% FASTER ACQUSITION*
Accelerates procurement cycles

DIGITAL THREAD INTEGRITY
Ensures traceability from concept to deployment

60% LESS UPDATES*
Utilizes AI to detect requirement ambiguities

AUTOMATED STANDARDS
Ensures compliance with DoD, NIST requirements

ICARUS

138X RETURN ON INVESTMENT

*In comparison to traditional MBSE approaches

Icarus empowers systems engineers to save time, improve model accuracy, and easily share system models with stakeholders—no MBSE expertise required. It's built to integrate seamlessly into diverse environments, including air-gapped systems, making it ideal for both commercial and defense use.

PRODUCT OFFERING

Icarus equips your engineers with the tool they need to:

DEVELOP FASTER

IMPROVE ACCURACY

FOSTER INNOVATION

ZADEN TECHNOLOGIES, INC.

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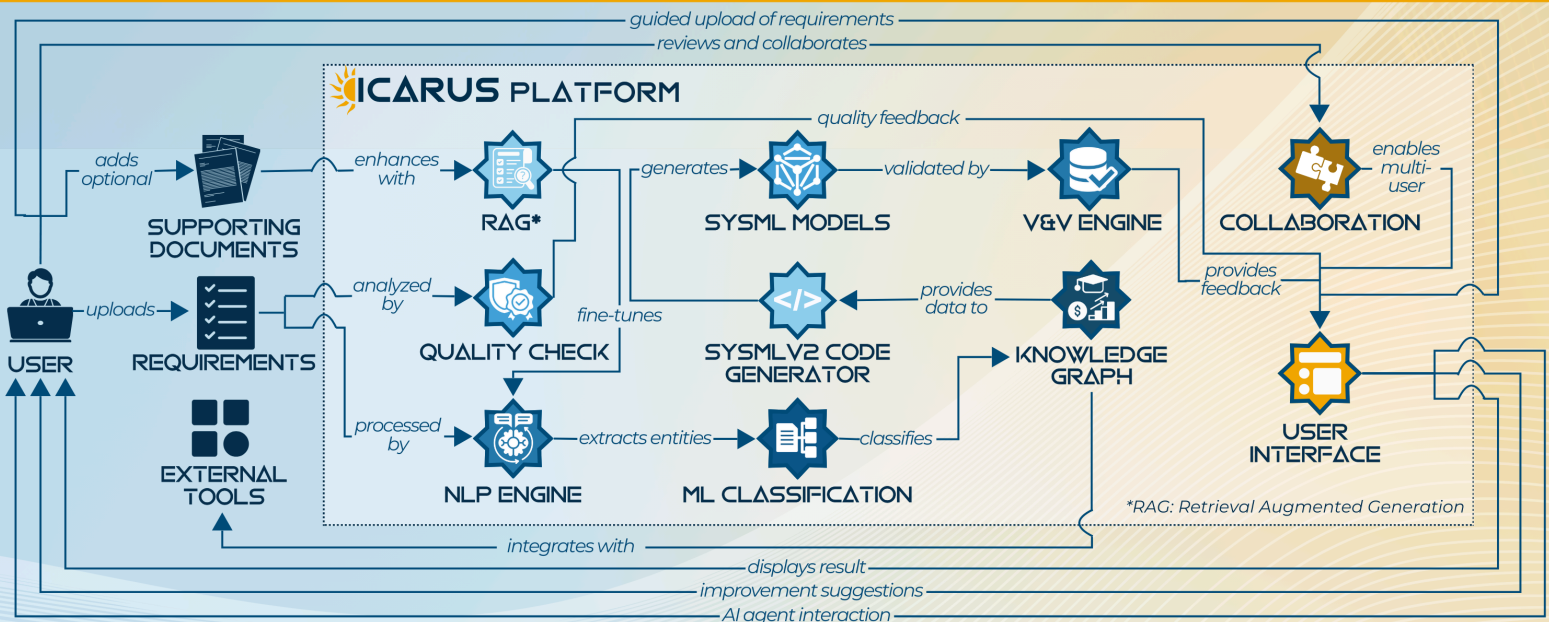Gift your system engineers with the power of AI.

Request a demo today.

bit.ly/m/zadenicarus

ICARUS PLATFORM DATA FLOW

ICARUS PLATFORM

guided upload of requirements
reviews and collaborates

USER — uploads → REQUIREMENTS
adds optional → SUPPORTING DOCUMENTS
EXTERNAL TOOLS

SUPPORTING DOCUMENTS — enhances with → RAG*
REQUIREMENTS — analyzed by → QUALITY CHECK
REQUIREMENTS — processed by → NLP ENGINE

RAG* — generates → SYSML MODELS
QUALITY CHECK — fine-tunes
SYSML MODELS — validated by → V&V ENGINE
V&V ENGINE — quality feedback

NLP ENGINE — extracts entities → ML CLASSIFICATION — classifies → KNOWLEDGE GRAPH
SYSMLV2 CODE GENERATOR — provides data to
KNOWLEDGE GRAPH — provides feedback

COLLABORATION — enables multi-user
USER INTERFACE

integrates with
displays result
improvement suggestions
AI agent interaction

*RAG: Retrieval Augmented Generation

Icarus Knowledge Base
Icarus: AI-Powered Requirements Mapping
Collaboration Hub

	Active Models	Team Members	Completed V&V Tasks
	8,282	200,521	215,542

PROJECT NAME	STATUS	TEAM LEAD	LAST UPDATED
Autonomous Vehicle System AV-2023-01	ACTIVE	Sarah Connor	2023-06-15
Smart Grid Management SG-2023-05	IN REVIEW	John Smith	2023-06-10

ICARUS
AI-Enhanced Model-Based Systems Engineering

ICARUS DETAILED ARCHITECTURE

DATA INGESTION LAYER	REQUIREMENTS *PDFs, Word Docs*	SYSTEM SPECS *Technical Docs*	LEGACY SYSTEMS *Existing Models*	MBSE TOOLS *Existing Integrations*

AI/ML PROCESSING LAYER

NLP PIPELINE		ML ANALYSIS		VALIDATION ENGINE	
Test Extraction	Requirements Analysis	Pattern Detection	Model Training	Rule Testing	Security Verify
Entity Registration	Semantic Processing	Relationship Mining	Validation Logic	Consistency Check	Compliance Check

MODEL GENERATION LAYER

SYSML GENERATOR		ARCHITECTURE-AS-CODE		MODEL VALIDATOR	
Model Templates	Requirements	SYSML V2 Code Generation	Infrastructure	Static Analysis	Test Generation
Diagram Creation	Block Definition	Version Control	Configuration	Dynamic Testing	Quality Gates

GENERATED ARTIFACTS

SYSML MODELS	SYSTEM DOCUMENTATION	VALIDATION REPORTS	TEST CASES

TRACTION

AFWERX — Phase I SBIR Awardee
SPACEWERX — Direct to Phase II SBIR Awardee
INNOVATE ALABAMA — Grant Recipient
MTSI Modern Technology Solutions, Inc. — Letter of Support
$300K+ Investor Backing

FIND ICARUS TODAY ON
Platform One (P1) Solutions Marketplace
https://p1.dso.mil/marketplace

PLATFORM ONE — MKT1 — INFINITE MARKET POTENTIAL