



## *DocSim by Modus Operandi helps SBIR Offices detect potential Fraud, Waste or Abuse from SBIR contractual conflicts*

Fraud, Waste or Abuse (FWA) is a potential problem that can drain significant resources and ultimately rob American taxpayers. Preventing FWA is public law, and efforts must be reported to Congress semi-annually. An active FWA program is not only essential for efficient and effective operations, it is also a professional responsibility and a moral imperative for every Government employee. The benefits of an active FWA program are two-fold: it saves valuable resources by identifying illegal, inefficient, and wasteful practices; it also makes funds available for other, better uses.

DocSim by Modus Operandi helps agencies detect potential FWA issues in contracting by detecting potential conflicts in Small Business Innovation Research (SBIR) contracts, where a small business submits

the same or similar work to multiple agencies, which currently would not have a time-efficient method to detect such conflict. The SBIR program supports scientific excellence and technological innovation through highly-competitive awards that encourage domestic small businesses to explore their technological potential and profit from its commercialization. DocSim provides two key values for SBIR offices: 1) an intuitive, fast method to detect potential duplicate-SBIR submissions and 2) an effective system for documenting FWA audit process in semi-annual Congressional reporting.

DocSim can be extended beyond the SBIR program to discover contract similarities across other programs and types of contracts.

## SBIR technology enabling SBIR offices to analyze potential FWA contractual conflicts

DocSim is a cloud service hosted in Amazon Web Services (AWS). A user uploads a set of submission documents, and DocSim returns similar documents based on both text and semantic similarity (same meaning with different wording). This enables a user to quickly identify the key conflict issues and perform additional analysis to determine if submission is the same or too similar to existing contracts. The user can also see contract details by selecting an information icon for each match. If selecting the match itself, the user is provided a comparison of the text and semantic similarity of the two documents and can do advanced analysis.

DocSim is a SBIR success story, with the technology first being developed on a SBIR program for Department of Defense (DoD) needs. After successful completion of that project, which compared existing knowledge with new documents, we altered the technology to support SBIR submissions and prior SBIR awards for the purpose of detecting potential contracting conflicts.

DocSim is available as a monthly, annual, or multi-year subscription to the AWS cloud service. The service is maintained such that the latest SBIRs are loaded into the system as they become available.

### Using DocSim to compare a new submission to existing SBIRs

How similar is the document of interest to the previous SBIR submissions; highest similarity score is 57%, which suggests a unique submission with little conflict

Contractor awarded on previous SBIR awards that are similar

Name	Similarity Sc...	Topic Code	Agency	Agency Trac...	Branch	Program	Phase	Year	Contractor
Multi-Robot Planetary Exploration Architectures	0.5727	T1.01	NASA	080022		STTR	2	2010	Aurora Flight...
Base Object Model Multi-Resolution Terrain Rep...	0.5029	A03-207	DOD	A032-3848	Navy	SBIR	2	2011	SimVentions...
Software Environment for Mission Design, Simul...	0.4904	S4.02	NASA	084942		SBIR	1	2009	Phoenix Inte...
A Geospatial Decision Support System Toolkit	0.4904	S5.02	NASA	144278		SBIR	1	2014	Applied Geo...
A Framework for Model Based Decision Making	0.4875	AF131-080	DOD	F131-080-06...	AF	SBIR	1	2013	Phoenix Inte...
A Data-Driven Approach to Interactive Visualizat...	0.4853	41d	DOE	0000217230		SBIR	2	2015	Power Info L...
Measuring and Assessing Maneuver Squad Lea...	0.4730	N161-060	DOD	N161-060-0...	Navy	SBIR	1	2016	Design Inter...
Integrated Visualization Environment for Scienc...	0.4684	S5.04	NASA	124435		SBIR	2	2014	Phoenix Inte...
Decision aide for affordability risk identification, ...	0.4650	A07-022	DOD	A072-022-2...	Army	SBIR	1	2008	COSTVISION
Air Space Cyber & UDOP/COP (ASC&UC)	0.4610	AF093-025	DOD	F093-025-10...	AF	SBIR	1	2010	The Design ...
Integrated Modeling, Analysis, and Verification f...	0.4599	S5.04	NASA	144604		SBIR	1	2014	Phoenix Inte...
Information and Decision Recommender	0.4538	N14A-T024	DOD	N14A-024-0...	Navy	STTR	1	2014	Securboratio...
Model Annotations and Tools for Teamwork, Exe...	0.4496	S5.04	NASA	155609		SBIR	1	2016	Stottler Hen...
Adaptive Recognition-Primed Emergency Suppo...	0.4451	SB072-006	DOD	D2-1358	DARPA	SBIR	2	2014	AlphaTRAC...
Command and Control, Modeling and Simulatio...	0.4434	MDA13-T005	DOD	B13B-005-0...	MDA	STTR	1	2014	Sonalysts, Inc.
Virtual Satellite Integration Environment	0.4414	S4.08	NASA	074559		SBIR	2	2009	Advatech Pa...
Automated Verification and Validation for Distrib...	0.4412	N161-043	DOD	N161-043-0...	Navy	SBIR	1	2016	Innovative D...
Advanced Modeling and Visualization of Effects ...	0.4406	N151-021	DOD	N151-021-0...	Navy	SBIR	1	2015	Sonalysts, Inc.
Hierarchical Situation Visualization	0.4393	SB072-016	DOD	07SB2-0293	DARPA	SBIR	2	2009	Next Centur...
Analytical tool sets with models, metrics, and m...	0.4383	N04-069	DOD	N041-069-0...	Navy	SBIR	2	2011	Lakota Tech...
Architecture-Based Reuse Innovations	0.4378		NASA	084081		SBIR	1	2009	Reifer Cons...
A Robust Real-Time Collaboration Technology f...	0.4367	S6.02	NASA	104428		SBIR	2	2012	StormCenter...
MSDT- A Central Executive to Coordinate Rapid...	0.4357	S4.02	NASA	084502		SBIR	1	2009	Design_Net ...
SOUL System Maturation	0.4335	H6.01	NASA	154890		SBIR	2	2016	Busek Comp...
Enabling Representation of Meta-Information in ...	0.4329	AF08-T002	DOD	F08A-002-0...	AF	STTR	2	2010	Charles Rive...
Providing Instruction and Practice through Gam...	0.4326	OSD08-CR6	DOD	O083-CR6-2...	Army	SBIR	1	2009	Stottler Hen...
System Architecture Recovery and Analysis (SA...	0.4326	OSD153-001	DOD	O153-001-0...	OSD	SBIR	1	2016	BlueRISC, I...
Integrated Visualization Environment for Scienc...	0.4320	S5.04	NASA	124435		SBIR	1	2013	Phoenix Inte...