

WHO

**SYSCOM:** NAVSEA

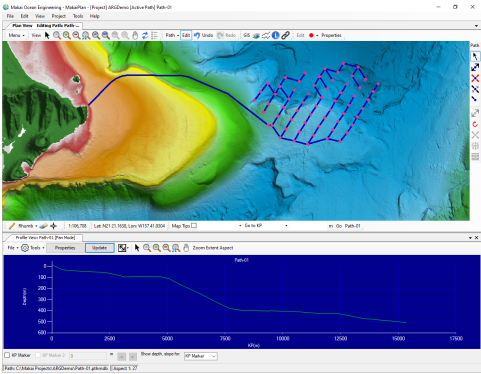
**Sponsoring Program:** PEO Undersea Warfare Systems (UWS)

**Transition Target:** Maritime Test Bed

**TPOC:** (619) 524-7990

**Other Transition Opportunities:** This tool will be used to plan future subsea cable infrastructure projects for the Navy and other federal customers.

Notes:



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WHAT

**Operational Need and Improvement:** The existing methods used to design and plan seafloor cable networks are a labor-heavy, lengthy, and a highly iterative process that takes up to several weeks. Current methods of evaluating performance and estimating project costs requires hundreds of hours of a skilled network designer's time. A demand exists to develop a software tool to increase automation in the design and optimization of these systems in order to reduce the time and costs to get to commissioning.

**Specifications Required:** The Specifications required include the ability to automatically generate the most efficient and lowest cost cable route while conforming to all installation rules of thumb for system installation.

**Technology Developed:** The Planning Tool will use the core MakaiPlan Geographic Information System (GIS) interface and tools, with the additional libraries and functions required to accurately predict the costs of subsea cabled systems in real-time. This tool will not only increase the effectiveness of cabled systems by optimizing their design and laydown for install-ability and expected lifespan, but decrease the time and cost to plan these systems.

**Warfighter Value:** This system would minimize manpower required to plan and budget installations, thus allowing for shorter time to commissioning and reduced project costs. The software can be optimized for different hardware systems depending on the application, and has the potential to become the industry standard for subsea infrastructure planning, much like Makai's subsea cable modeling software has become the industry standard planning and laying submarine cables.

WHEN

**Contract Number:** N68335-22-C-0113      **Ending on:** Dec 07, 2022

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Software prototype developed and tested on operational subsea cable test bed	Medium	Software develops cable route similar to that developed manually by a cable engineer.	5	1st QTR FY23
Software prototype developed and tested as maritime test bed digital twin	Low	Software integrated effectively into digital twin environment	6	1st QTR FY24
Prototype software demonstrated in operational digital twin environment	High	Software successfully demonstrated in the MTB digital twin environment	7	1st QTR FY25

HOW

**Projected Business Model:** Makai anticipates a business model like that used for our commercial subsea cable software suite, where licenses to use the software are sold, and a subscription model is used to upgrade and maintain the software. Makai estimates the commercial variant of this software tool will have a market size similar to that of our existing software, MakaiPlan. In addition to the 400 MakaiPlan licenses sold worldwide since its creation, Makai also receives annual maintenance revenues for those customers that opt in for this service. The maintenance allows the customers to receive routine software updates. There are currently 88 MakaiPlan licenses under active maintenance, and Makai will actively market a commercial version of the Planning Tool to this segment of the market.

**Company Objectives:** While Makai is already known worldwide for our subsea cable modeling software, this program and the tool being developed will allow Makai to maintain our position as the #1 software for subsea cable planning. The new software tool should also help bring in new customers and potential applications beyond our standard telecommunications applications.

**Potential Commercial Applications:** In addition to U.S. Navy other Federal subsea cabled applications, this tool will be used to optimize planning and design of commercial subsea telecom systems and other subsea infrastructure. In addition to telecom cables, this type of tool could benefit the growing subsea infrastructure market to optimize planning for communications, battery recharge stations, marine renewable energy systems, or other systems.