The ISHM-Development Toolkit (ISHM-DTK) is an object-oriented environment that enables creation of a model of any complex system (or system-of-systems — SoS) for the ISHM embedded capability. SoS are defined as hierarchical networks of intelligent elements (sensors, components, controllers, processes, sub-systems, systems, etc.). Integration is established by defining "Intelligent Processes" that represent models of processes that provide the means to check consistency of DIaK across the entire system. Multiple models of varying granularity and fidelity may represent a process, and they may be activated based on context. ISHM-DTK includes communications gateways to read data into the model.

ISHM-DTK allows for modular implementation of ISHM capability with almost total re-use of software. The toolkit also allows incremental implementation of ISHM capability where more and better DIaK is added as these become available or refined in the research and technology community. In order to accommodate legacy elements, such as classical sensors or components, intelligent elements may be virtually implemented in the software, or may use another software environment and/or computer in the network.

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Inquiries concerning this technology should be addressed to the Intellectual Property Manager, Stennis Space Center, (228) 688-1929. Refer to SSC-00255-1, volume and number of this NASA Tech Briefs issue, and the page number.