innovative
applied sciences

ideas ▪ **information** ▪ **innovation**

Capabilities Overview

Innovative Applied Sciences is a high performing international resource for applied science and technology services. Innovative nurtures ideas and innovation, helping our clients to transform technology paradigms and meet strategic objectives.

Innovative Applied Sciences is a Service Disabled Veteran Owned Small Business, and a member of the Lear Siegler Services Rapid Response team, the DDL Omni SeaPort team, and the Penobscot Bay Media VETS GWAC team. Innovative maintains security clearances for facility and personnel.

Innovative provides systems and software engineering services to Defense and Commercial clients. Projects are undertaken on Fixed Price, Labor-Hour, Time & Material, and combinations of these contract methods. Innovative's personnel are available where needed, whether they are placed on-site with our clients, or work from one of the company's engineering centers.

Innovative has over 15 years of experience as a premier service provider to clients with embedded and realtime requirements. Innovative is now a Value Added Reseller (VAR), integrator, and system developer of Mercury Computer Systems products.

Systems Engineering

The Bullet

Innovative Applied Sciences designs, builds, and supports complete realtime and embedded systems to meet our clients' specific requirements. These services include enhancing and extending existing systems to meet new requirements and deliver new capabilities.

Your Requirements, Your Needs

Innovative Applied Sciences offers the full range of services that are required to meet the specific needs of each customer and the system to be developed.

Our system development process includes Technology Assessment, Vendor Selection, System and Sub-System Specification, Implementation, Test, Integration, and Life-Cycle Support.

'Innovation' does not mean ad-hoc. Innovative's system development process is disciplined and methodical, promoting the translation of innovative thinking into advanced product development.

Rapid Prototyping

Complex systems and requirements with advanced design ideas demand a real-world assessment before full scale development is undertaken.

Innovative believes strongly in prototyping as a method to test key design elements and facilitate group assessment of the emerging system.

Innovative will often develop a series of evolving prototypes that advance the implementation one step at a time. These prototypes allow Innovative and the client to adjust the specification and design, if necessary, before expensive full-scale implementation.

Delivery, Integration, Support

Innovative's services include the vital work to integrate the new system into the larger environment. The new system is delivered, the software configured, and the I/O established. On-site testing ensures full operational status.

Realtime and embedded systems often have long life-cycles that require on-going support. Support agreements offer a spectrum of support options from warranty-only responses, through multi-year support, including product roadmap and planned technology refresh cycles.

Defense Industry

The Bullet

No company takes national security more seriously than Innovative Applied Sciences. Our people have contributed to the country's defense readiness in the development of C4ISR systems and applications such as SIGINT, ELINT, Radar, Simulation and Modeling, Avionics, Sensors and data acquisition.

C^{4}ISR

- ■ Communications and Networking
- ■ SIGINT and ELINT
- ■ Simulation and Modeling
- ■ Radar Systems
- ■ Avionics and Vision Systems
- ■ Sensors and Data Acquisition

Design, Development, Integration

- ■ Analysis, design, development, test and integration of new systems, or enhancements to existing systems.
- ■ Single board solutions through complex multi-platform systems.
- ■ Solutions consider technical, functional, performance, environmental, and cost requirements.
- ■ IEEE/EIA 12207 compliant, and able to support legacy development standards such as MIL-STD-498 and 2167A.

Re-Engineering, Migrating, and Upgrading

- ■ Rehosting legacy, proprietary, aging systems to SOSCOE, Linux, VxWorks, LynxOS, and other RT/embedded platforms.
- ■ Net-Centric Warfare, Legacy Adaptors for FCS and FORCEnet.
- ■ Unidirectional and bidirectional adaptors, abstraction, and/or API wrappers to port/package legacy code into new environments.
- ■ Assembly code conversion to C/C++.
- ■ Performance tuning and optimization.

Migration and Reengineering

The Bullet

IInnovative Applied Sciences offers total migration solutions that provide the least-risk, shortest path, and the most cost effective options to reengineering and modernizing an existing, "working and performing" legacy system or application.

Migration Solutions

Innovative brings a complete set of tools, including methodologies, strategies, expertise, custom conversion tools, and the support needed to preserve existing value while delivering new capabilities.

The advantages of an Innovative migration solution are:

- Greatly reduced risk of failure.
- Faster transition to the new system.
- Optimized efficiency by intelligent reuse of existing resources and components.
- All required skills are assembled by Innovative and a well prepared team engages the project from the outset.
- The client's internal staff can focus on other priorities while Innovative cooperatively and professionally migrates the legacy system.

Why Migrate?

Many complex legacy systems are being pushed beyond the originally intended lifespan. The cost of maintaining these systems, and the risk of a catastrophic failure due to age, are increasing.

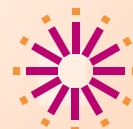**The most common problems that manifest with aging systems are:**

- Reliance on obsolete and unsupported hardware.
- Reliance on out of date operating systems and development tools.
- Custom hardware or devices that do not meet current requirements.
- Original implementation language limits future growth.
- Interoperability with other systems is severely limited.
- Large development effort is required to make relatively minor enhancements.
- Internal staff lacks in-depth experience with the aging technology, or with the emerging technologies.

Migration Strategies

Innovative develops a targeted migration solution for each project.

The custom solution incorporates one or more of the strategies listed below, each with closely aligned supporting techniques:

STRATEGY	TECHNIQUE
Replacement	Reverse engineering, reimplementation
Rehosting	Source code porting, technology porting, encapsulation
Rearchitect	New design or framework to utilize existing components
Interoperate	Technology porting, emulation, encapsulation

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