EMBEDDED SOFTWARE & SYSTEMS DEVELOPMENT

HCL ENGINEERING AND R&D SERVICES

Innovation Simplified

HCL is a leader in developing embedded software and systems for various industries and domains. We have expertise in safety-critical embedded systems with more than 2000 person years of cumulative experience in developing small footprint and critical embedded systems for Consumer Electronics, Medical Devices, Automotive Electronics and Aircraft / Telecommunication Components. We have anchored development and sustenance of multiple product lines of leading companies in engineering space. We use our DSP expertise and IPs to develop fast embedded middleware, rich applications and interactive GUI for consumer electronics, computer peripherals and telecom products. Our embedded systems group comprises of a large talent pool of engineers and equipped with competencies in a range of programming tools, microprocessors and real-time operating systems.

Integrated Engineering Services

Applications

Middleware

Platforms/
Hardware

- Consumer Electronics
- Automotive
- Medical Devices
- Computers & Peripherals
- Manufacturing Equipment
- Industrial System
- Telecom & Networking equipment

- Multimedia including Audio,Video, Imaging and Speech components, USB Firewire, UART etc.
- Telecom & Networking, Protocol Development and Wireless
- Automotive, Networks, Telematics
- DTMF decoders, DPLL, Equalizers, VAD, Comfort Noise

BSP, Device Drivers, Firmware, Diagnostics, Boot Loaders

Expertise in RTOS :

Linux, OSE, QNX,VxWorks, WinCE,Windows Mobile, pSOS, Windows NT- RT, Nucles, RT Kernel, DSPBIOS, EPOC, ITRON, ThreadX, OSEK

Processor Expertise :

Intel x86, ARM 7 DMI, Freescale, Renesas, Intel Network Processors, Xscale, Architecture devices, Intel microcontrollers, ARM 7 DMI, Freescale, Renesas, Qualcomm, Texas Instruments

Product Engineering Service Matrix

User Interface Design

Embedded GUIs & MMI

Web Applications

Custom UI Design

Programming Languages :

C

Assembly

Object Oriented Design

VC++

VB

Java

PLC Ladder Diagram

HTML

C++

ADA

Communication Protocols

CAN / VAN

USB

Wireless

IEEE 1394

Bluetooth

RTOS :

Vx Works

OSEK

QNX

RT Linux

Linux

WinCE

pSOS

Windows NT

Montavista Linux

Linux Embedded qt GUI tool

QNX 6.2 with Photon GUI

GNU tools (Compiler, Make, Debugger)

Embedded Linux

pSOS

HCL multitasking kernel

ThreadX - RT

Nucleus

RT Kernel

Diagnostics & BSP:

Hardware Initialization

POST (Power On Self Test)

Diagnostics Development (development, production, field)

Boot Loaders

Drivers :

CAN

SPI

SCI

UART

I2C

A / D

D / A

PWM

a.USB

Touch Panel

LCD

IrDA

WiFi,

Bluetooth

NFC

USB

Mass Storage

Embedded Product Lifecycle Services

New Product Development

- Feasibility
- Architecture, modeling and design
- Test planning and design
- Development
- Release management

New Product Adaptation

- Re-development & Re-engineering
- New technology adaptation
- Performance and reliability improvement
- Multiple-platform porting services

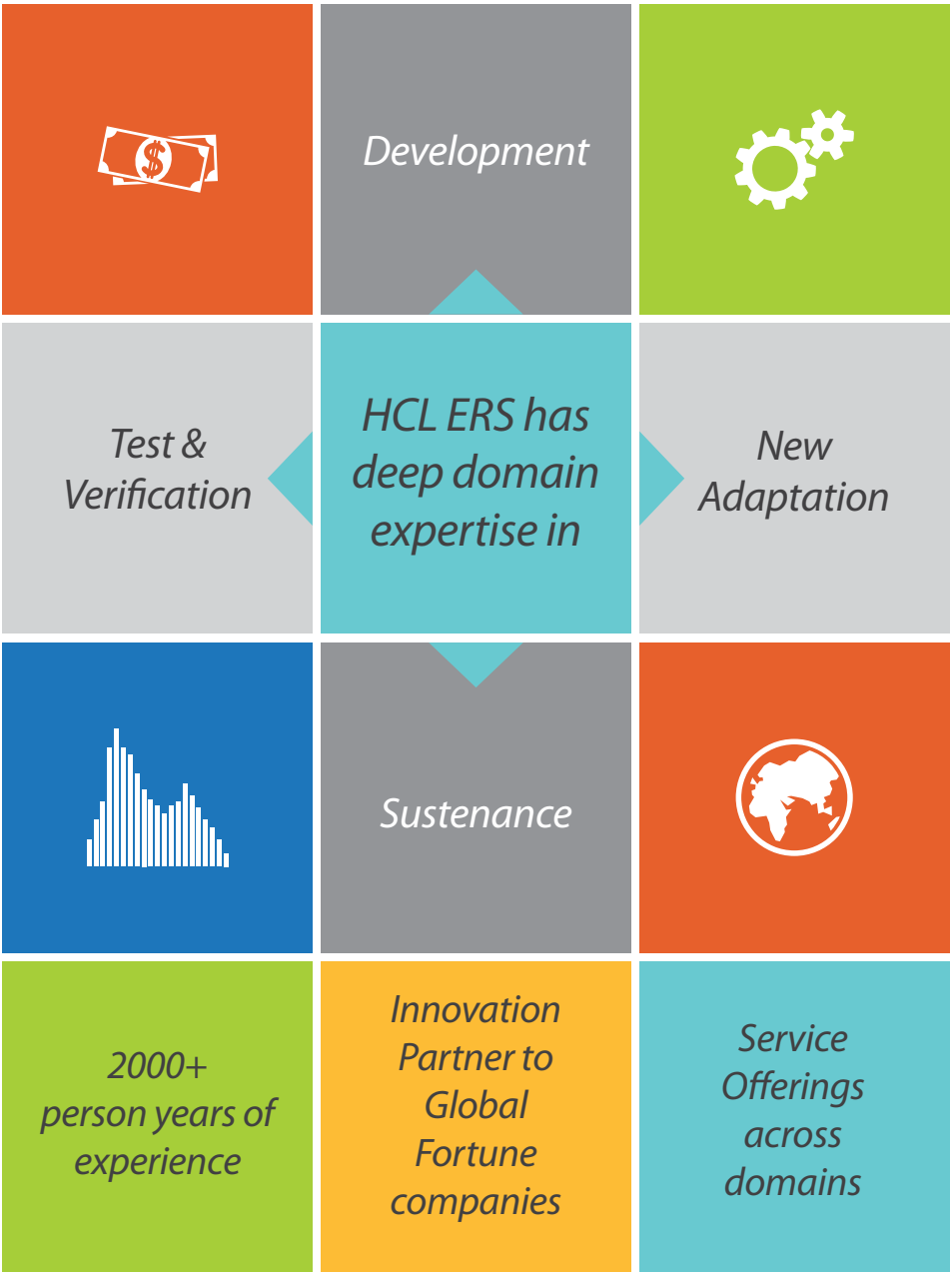
Product Sustenance

- Life-cycle enhancements
- Defect tracking and fixing
- Feature enhancements
- Regression testing
- Maintenance release

Test & Verification

- Test plan design
- Test automation and scripting
- Compatibility, interoperability
- Compliance testing
- Regression testing

Embedded Software & Systems Development at HCL



Experiences Engineered for our customers (Case Studies)

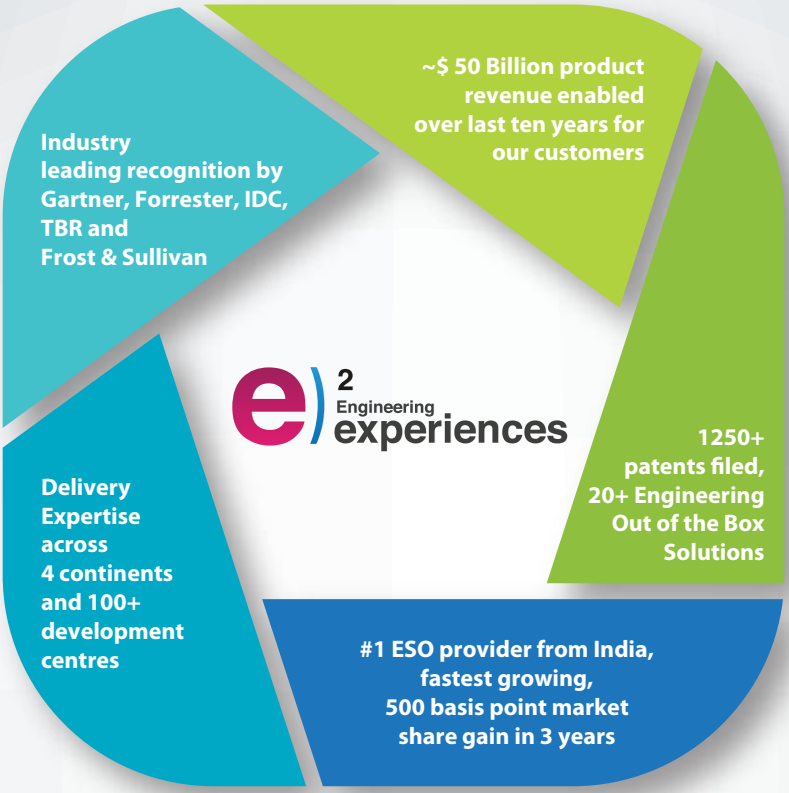
1. For a US based Auto Tier-1 Major, Embedded software development, testing, in-vehicle communications and diagnostics for electric car sub systems. Activities performed included vision algorithm design, performance tuning and customization.

2. For a US-based Automotive OEM, HCL designed and maintained APIs for the embedded Java apps that would run on their next generation head unit. Remote diagnostics specifications for the HMI framework were designed and maintained. We were also involved in the understanding and analysis of their service delivery platform.

3. For a leading chip manufacturer, Supporting Customers for Porting, Bug-fixing and Enhancements of Intel Multi Application Framework for Set-Top Box and Home gateways. Redefine Build process to increase efficiency and automate wherever possible.

4. For a leading Software Vendor, Porting of Fedora packages on Customer Platform. Porting of Debian packages on Customer's Platform. End customers able to put 3rd party applications on Fedora/Debian.

Look here



Hello, I'm from HCL's Engineering and R&D Services. We enable technology led organizations to go to market with innovative products and solutions. We partner with our customers in building world class products and creating associated solution delivery ecosystems to help bring market leadership. We develop engineering products, solutions and platforms across Aerospace and Defense, Automotive, Consumer Electronics, Software, Online, Industrial Manufacturing, Medical Devices, Networking and Telecom, Office Automation, Semiconductor and Servers & Storage for our customers.

For more details contact: ers.info@hcl.com
Follow us on twitter: http://twitter.com/hclers and our blog http://www.hcltech.com/blogs/engineering-and-rd-services
Visit our website: http://www.hcltech.com/engineering-services/

HCL