

Automotive Electronics and Industrial Automation Solutions

Innovative Technology Solutions

Company Profile



Dearborn Electronics India Pvt. Ltd.

Bangalore, India

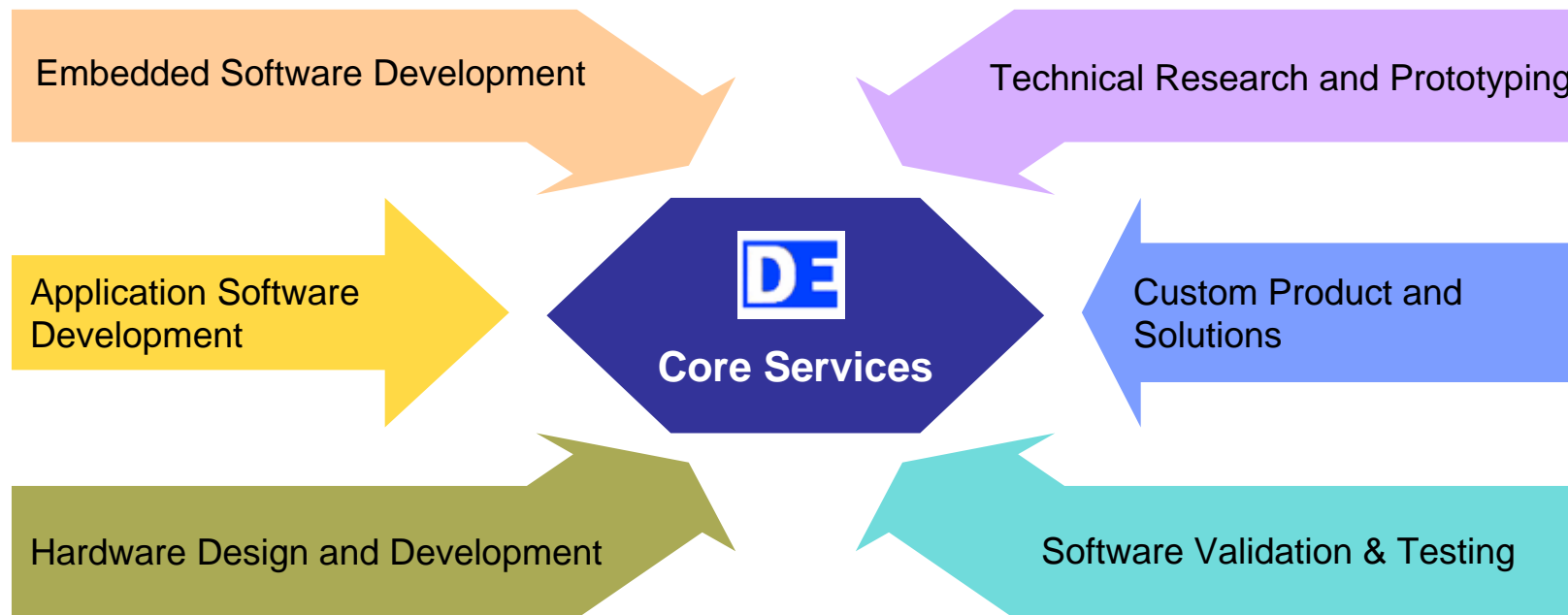
Website: www.deindia.comem

Email: sales@deindia.com

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- Incorporated at Bangalore (India) in March 2000
- Product and Solutions for Automotive Electronics, Industrial Automation systems and other areas
- Executed multiple software engineering projects around the globe
- Source for third-party solutions in India that add value to our customer base



Vision

“To be a globally recognized and respected Products and Solutions company for Automotive Electronics and Industrial Automation control and network systems”



Mission

“To achieve excellence in innovating and delivering high quality products and solutions “



Values

“Constant Respect for People and Employee Satisfaction”

- ✓ Delight Customers and Stakeholders
- ✓ Deliver on Commitments
- ✓ Continuous Improvement
- ✓ Pursuit of Excellence
- ✓ Develop a Learning Environment

We
are
trustworthy.

We
keep raising
the bar.

We
consistently
deliver.

We
succeed
together.

Highly technology focused company with Innovative mindset



Represent the industry with our association with FDT Group, OPC, ISA, SAE and CiA (CAN in Automation)



Cost effective, High Quality & Value added Hardware / Software Solutions with a highly flexible One-Site global delivery model

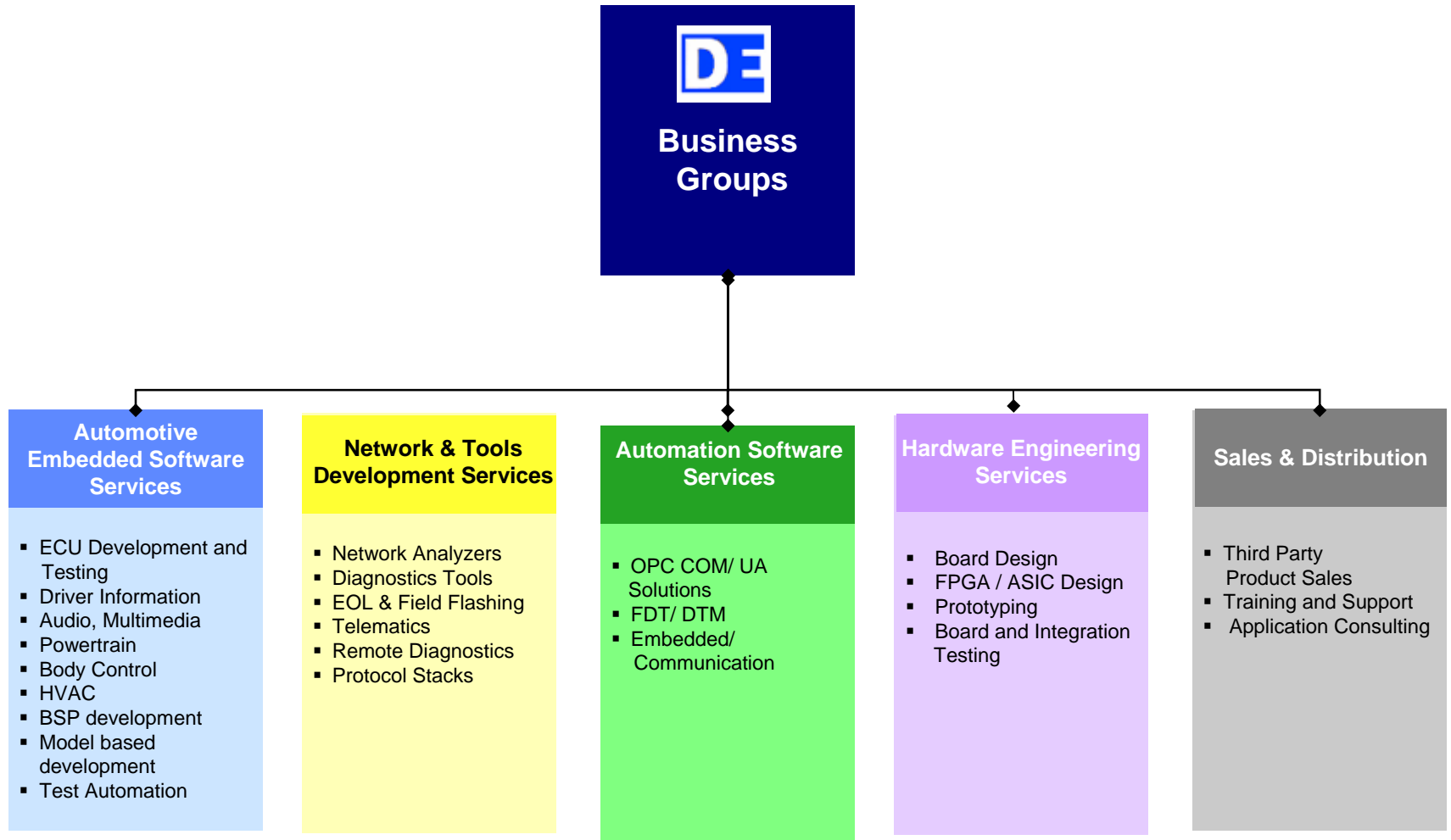


Highly skilled Hardware / software engineers with domain knowledge who understand and can speak your language

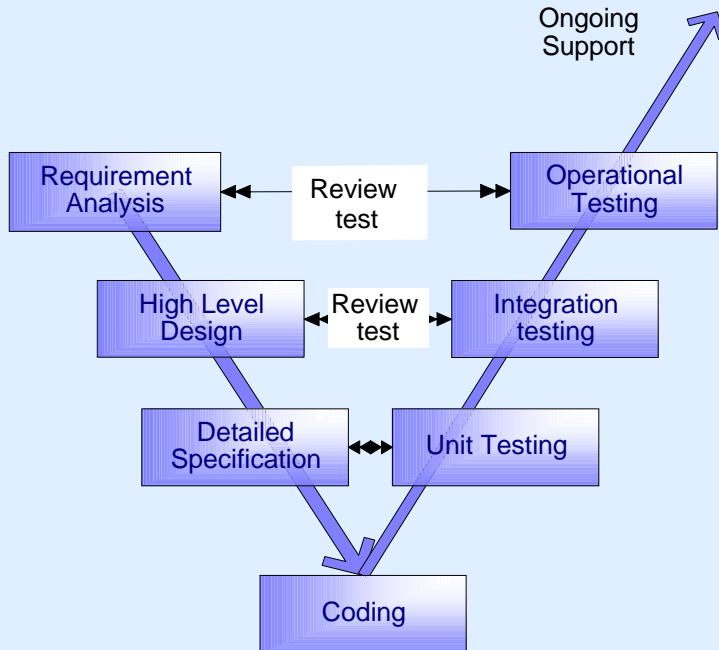


CMMI L3 Software development practice – Quality Process



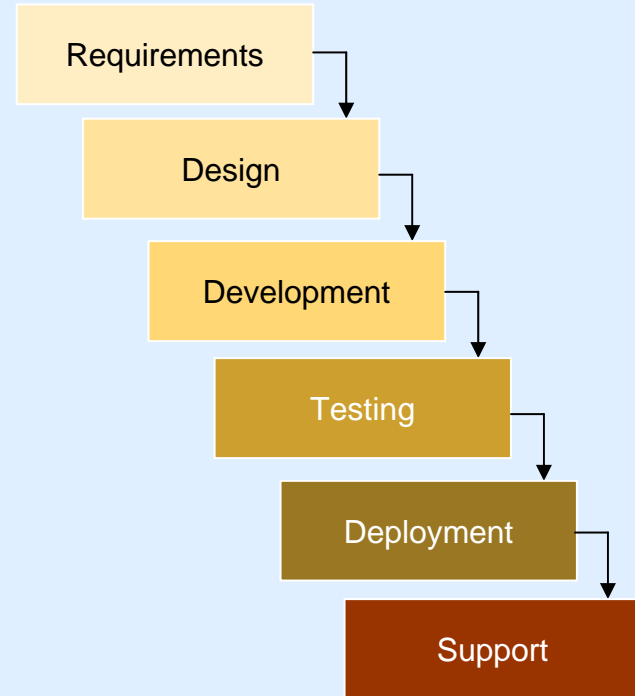


V Model



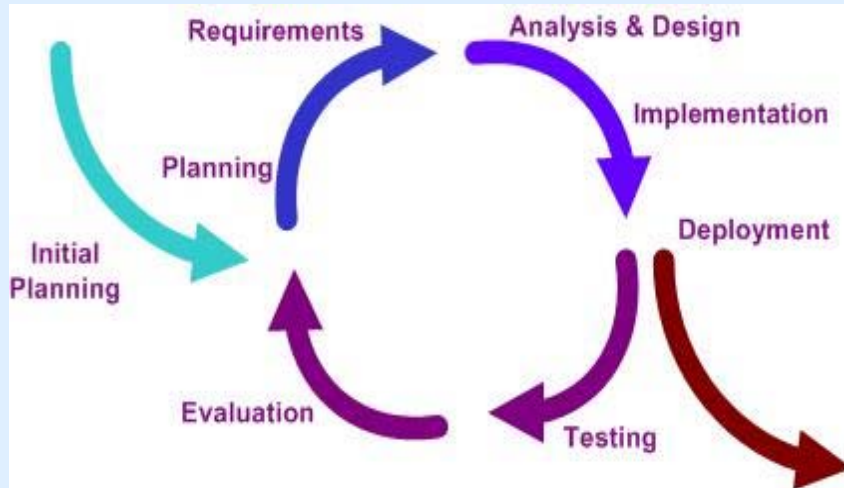
- All requirements are known up-front
- Solution and Technology are also known
- System demands high reliability where V & V is essential at all phases

Waterfall



- Requirements are very well known
- Product Definition is Stable
- Technology is understood

Incremental & Iterative Model



- Most of the requirements are known up-front but are expected to evolve over time
- A need to get basic functionality to the market early
- On projects which have lengthy development schedules
- On a project with new technology
- High Risk Projects

Agile Methodology

- Individuals and Interactions **over** processes and tools
- Working Software **over** comprehensive documentation
- Customer Collaboration **over** contract negotiation
- Responding to Change **over** following a plan

Agile Principles

- Customer satisfaction is the highest priority
 - Welcome changing requirements
 - Deliver working software frequently
 - Lightweight approach – shifts the focus from the process to interaction
 - Less document oriented
 - Value focused, than cost
- Requirements are too volatile
 - Product needs to be Developed Quickly
 - High Risk Projects
 - Product Features are outcome of research and innovation
 - New Technology

Table gives a snapshot of the software development phases and the tools used during each phase

| Phase | Phase Output | Tool Used | Purpose |
|--|--|---|---|
| Requirement | Requirement Specification | MS Word, DOORs | To document the requirement |
| Design | Architectural Design / High Level Design (HLD) | MS Word, IGrafx ,FlowCharter Microsoft Visio, Enterprise Architect, MATLAB / SIMULINK / Enterprise architecture for Modeling | <ul style="list-style-type: none"> ▪ To document the Interfaces ▪ To draw UML / Flow Diagrams ▪ To document function prototype |
| | Detailed Design (DD) | | |
| Coding | Code | CodeWright Microsoft Visual Studio Editor | To write the code |
| Testing (Unit Testing / Functional Testing) | Modules tested, Integrated with Test summary report | IAR Embedded Workbench with JTAG/Trace 32 Debugger MxVDev | <ul style="list-style-type: none"> ▪ Code compilation, Debugging, generating binary and Flashing ▪ RTRT to Automate testing on Host ▪ To test module ▪ To test the system functionality |
| | Functionally tested Binary Code with Test summary report | Rational Test RealTime (RTRT) Diagnostics Tools DG Gryphon & Hercules / Vector CANalyzer, CANoe, LabVIEW, VB | |
| Change Management / Configuration Management | Functionally tested Binary Code with Test summary report | ClearQuest, Bug tracker / Multisite Clearcase Visual Source Safe Sub version | Configuration management and Defect / Change tracking |
| Verification and Validation | Reviews | - | Manual inspection of the work products |
| | Analysis | Quality Assurance (QAC) with MISRA MATLAB / SIMULINK | Conformance to ISO and MISRA standards |

1 Fixed price Contract (Turnkey Solution)

- ✓ This execution model primarily suits customers with clearly specified requirements and well-defined project path
- ✓ Typically the Functional Specification/High Level Design phase is carried out of the client site and then the System Integration and Testing is completed at the client site

2 Time and Material

Time and material-based pricing comes in handy as technology projects that typically include integration of heterogeneous environments, exploratory attempts etc. are difficult to define

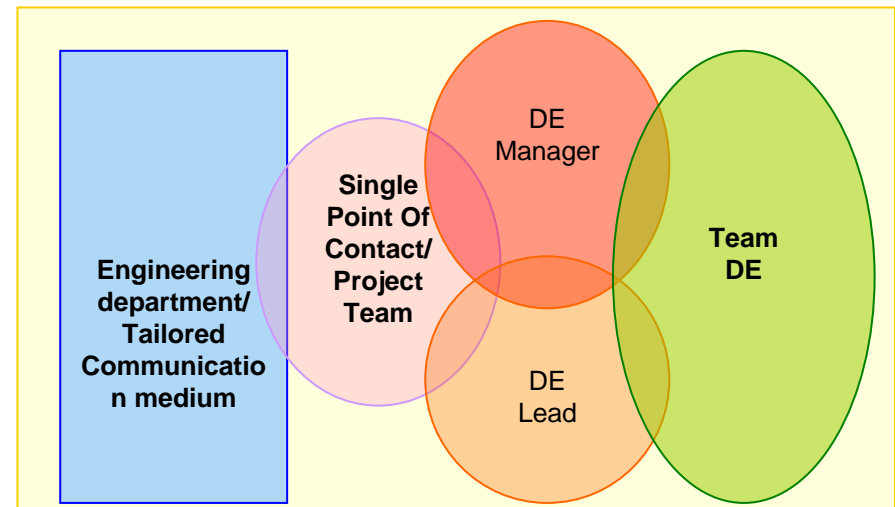
The typical options for the customer are as follows:

- ✓ On-site at client location in India /abroad
- ✓ Off-shore at DE facility in Bangalore
- ✓ Combination of both

3 Dedicated Development Centre

The objectives of this models are as follows:

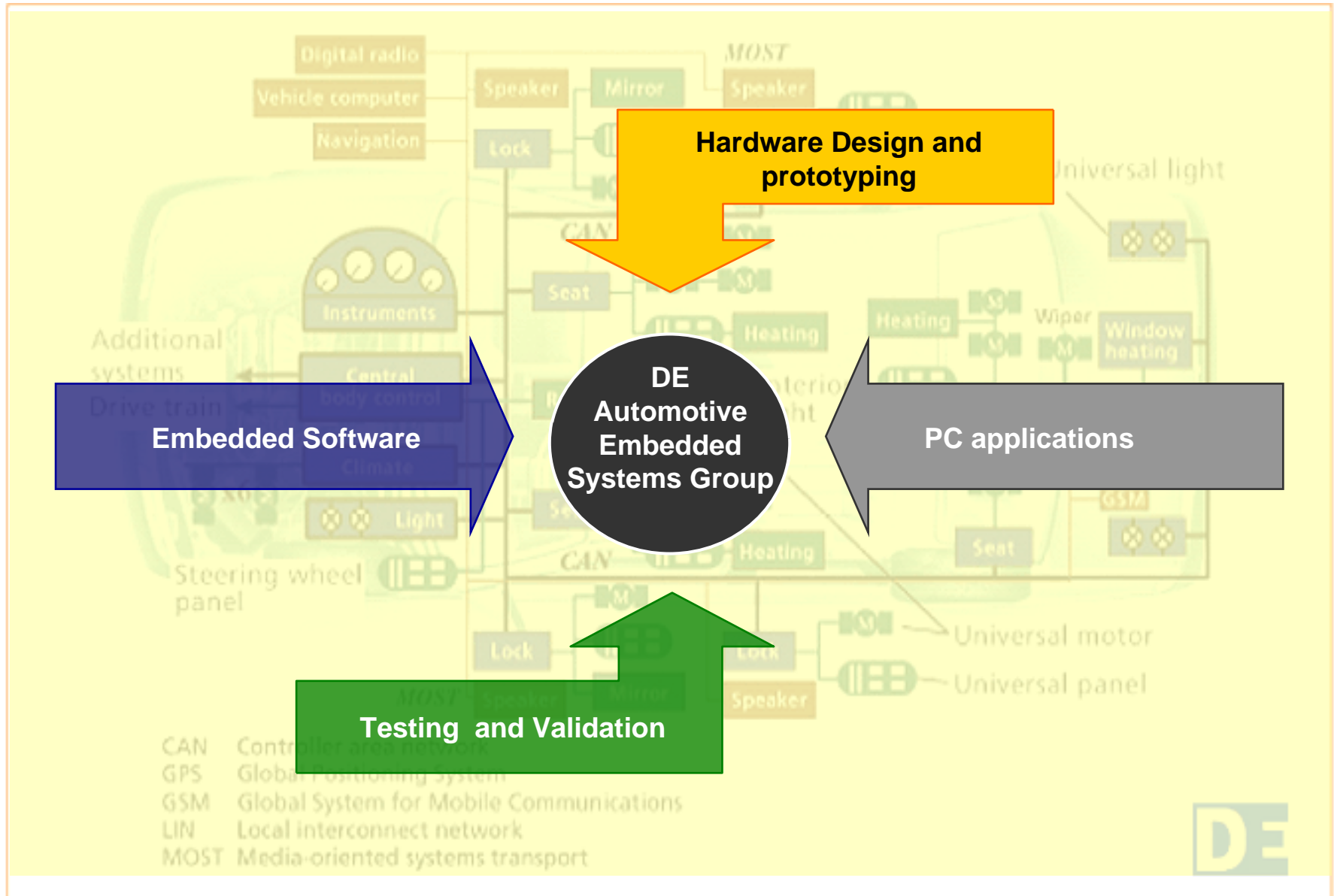
- ✓ To be a virtual extension of software development team for long-term product development
- ✓ To make possible cost effective solution for short-term and medium-term product enhancement project
- ✓ Typical Off-shore to On-Site ratio is 80:20



DE takes data security and IP protection very seriously and has the following in place to ensure :

- ✓ All data servers have access control
- ✓ Individual work areas have the people access control
- ✓ All DE employees are required to sign non-disclosure agreements at the time of joining
- ✓ DE has disaster recovery process in place with off-site data backup
- ✓ A team of highly qualified administrators manage and implement the strategies





- ✓ Network Protocol Driver Implementation
- ✓ Transport and Interaction Layers Implementation
- ✓ Network Management Implementation
- ✓ Diagnostics Layer Implementation

- ✓ Modeling & Simulation of ECU software
- ✓ Firmware development for ECU from requirements analysis to independent validation
- ✓ Rapid Prototyping of software functions using vehicle HIL (Hardware – in – the-Loop) rapid prototyping tools
- ✓ Unit testing of functional software code
- ✓ Re-engineering of software functions
- ✓ Verification and Validation of functional software, Executable Models etc, in the virtual and real environments
- ✓ AUTOSAR Basic SW component development testing & verification

- ✓ Automated Unit testing of ECU using RTRT
- ✓ Independent Functional Testing of ECU
- ✓ Simulated System testing of ECU using CAPL, CANoe, LabVIEW ...
- ✓ Protocol driver testing
- ✓ Model testing

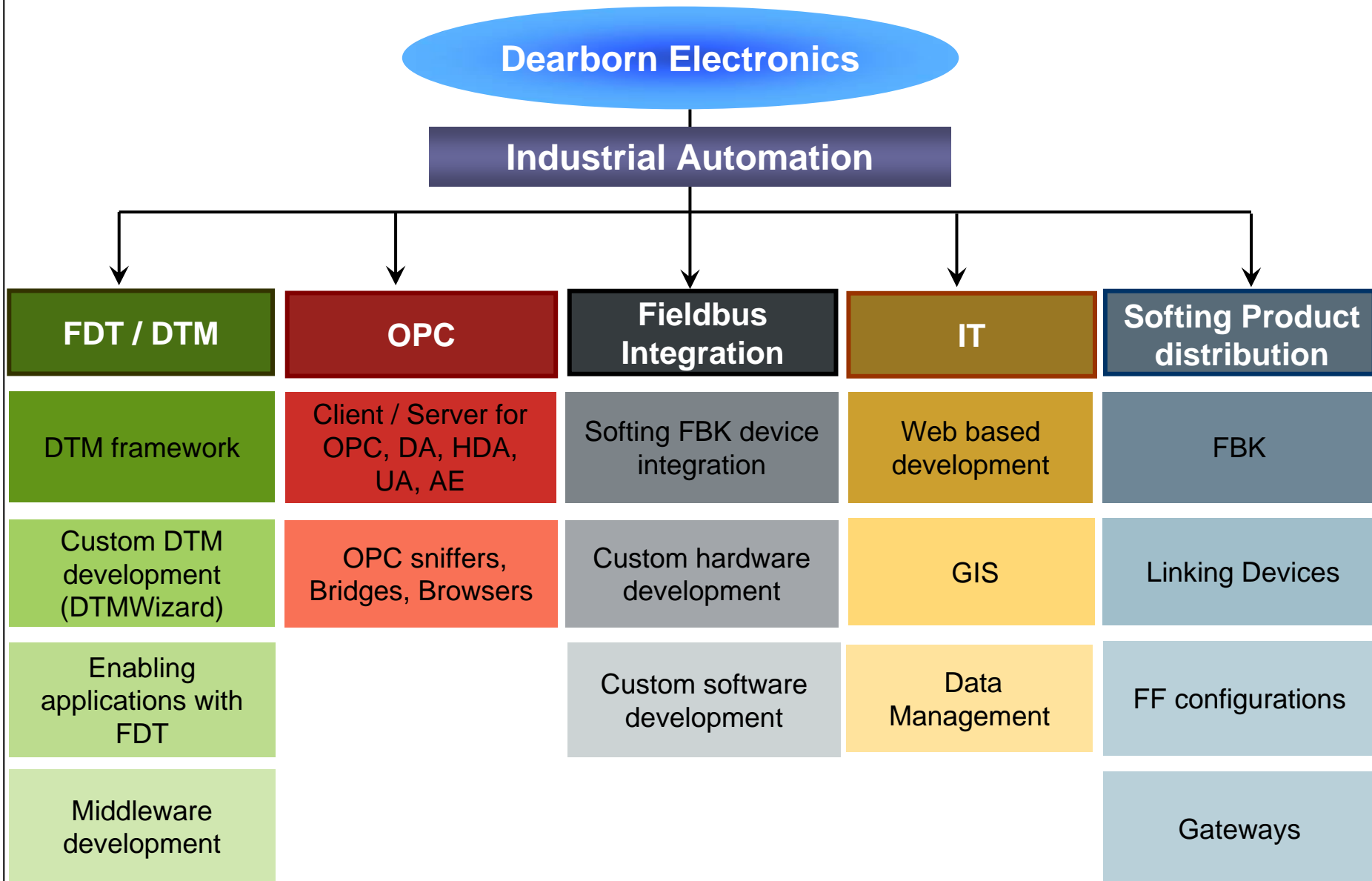
- ✓ Vehicle Diagnostics – Offboard Testers (PC, handheld) and Conformance Testers
- ✓ Telematics–Onboard applications & Gateways
- ✓ DataLoggers & Protocol Gateways
- ✓ EOL Testers & ECU Testers
- ✓ Vehicle Network Analysis and Simulation Tools
- ✓ Custom Applications / APIs development
- ✓ Reflashing Tools
- ✓ Multimedia Applications

Network Embedded Software

ECU Software

Testing & Validation

Application Software



Board Design

- Conceptualization
- Requirement specification definition
- Prototyping
- Architectural design
- System-level design
- Hardware development
- Board prototype development
- Software implementation
- Module integration and testing
- Product verification and quality conformation
- Documentation
- Product release & maintenance

DE offers its expertise and services in the following areas:

- **High speed digital design**
- **Microcontroller based design**
- **FPGA design**

FPGA Development

Key Expertise:

- Top level integration of FPGA modules test bench modules
- Expertise in C, VHDL, Verilog, FLI (Foreign Language Interface) for VHDL programming languages
- Expertise in Modelsim 6.0 and Xilinx ISE tool usage
- Expertise in verification of FPGA design (RTL), developing behavioral models, simulation level testing and generating test cases
- Product design using FPGA and CPLD devices
- Have experience in designing products with Xilinx Spartan -3, Spartan-2 series FPGA, XCR3512XL Cool Runner and XC 95XX CPLD devices
- Architectural design for FPGA devices
- Circuit design and PCB board design for FPGA / CPLD devices

DE Memberships



DE Partnerships



Automotive & Industrial Automation

OEM



Tier 1



Tier 2 / 3



- To have local site presence in UK, Germany and US by Q1 2009
- Strategic technology partnership for Rapid prototyping, System Engineering, Model based solutions and MOST Clusters
- Provide Bench & Vehicle Level Testing, System Engineering for In-vehicle network validation
- Build technical competency of DE development and testing engineering team across different automotive domains
- Expand existing product development center / offshore development centers for customers
- Setting up dedicated product development center / offshore development centers for Prospects / customers



Aim to provide value based high end expert solution to the automotive customers in the emerging technologies



The first Quon prototype with Volvo engine and transmission was demonstrated W816 in Ageo.

To enable the installation of Volvo engines and transmission in Nissan Diesel's heavy duty truck Quon, the existing TEA 2 platform has been merged with Nissan Diesel's electrical architecture and combined with some new developed software for the TEA2 platform.

Together with support from Powertrain, a 3P EE integration team has been supporting the Ageo engineers with the installations. A mix of EE engineers from the sites in Ageo, Gothenburg, Bangalore and Lyon have been working together at the Ageo site. Excellent work by the team! Thank you for all the hardwork put in! Let us continue it and improve our quality of verification and deliveries in much more organised way.

Lars F Andersson,
Vice President, Global Electrical & Electronics Engineering



OUTSTANDING performance demonstrated by you all !

The software development and validation results accomplished on this mile stone are significant achievements

given the importance of it. This would not have been possible without your commitment and hard work. Thanks to everyone for all of your contributions.

Manager - DI,
Visteon India



98% CSI (customer satisfaction index) achieved by DE team – in recognition of valuable contribution to the highest level of Quality for project undertaken.

Director of Engineering,
Lear Automotive India Pvt Ltd

- Embedded Driver and Application Development for a multitude of platforms
- PC application development – From complex analysis tools to functional validation & EOL test systems
- Dedicated validation services including independent code reviews and development of test strategies
- Re-engineering and application enhancement, maintenance and support
- Dedicated Product development Services with customer specific secure lab facilities
- Embedded Hardware Design Services
- Integrated Software and Hardware solutions
- DE has the right technical and domain capabilities to meet your expectations on quality, technology and delivery

Thank you



Seize the Opportunity with DE

Thank You !



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