



Company presentation

UReg – 06.09.2010

Lewel Group Ltd.

- **Established 2009 in Hongkong**

- **Business idea is to combine Asian price level with European product development know-how**

- **Lewel Group Ltd's original services 2009**
 - Mechanic tools and part sourcing from Asia
 - Mechanics product projects management and execution
 - Quality control

- **Company Strategy**
 - Gather the needs of Western companies and funnel the sourcing to strategical partners in Asia
 - Expand the activities to be turn key project provider

Lewel Group Finland Oy

- **Headquarter in Hongkong (Lewel Group Ltd.)**
- **Lewel Group Ltd acquired Sweco Industry product development business unit from Finland 1st April 2010**
 - 72 professional designers
 - Comprehensive laboratory environments
 - Location in Oulu and Kuopio
 - Main focus in HW and Mechanics R&D and productization projects
- **Short term goal to fulfill customer demands in Europe**
 - Wireless technology customers
 - Integrated system customers
 - Medical and healthcare customers

Lewel Offer in Brief

- **Wide experience** from technologies and product design
- **Long experience** from challenging R&D projects and services
- **Ability** to find and implement new solutions / technologies
- **Competence** for telecom, industrial and medical devices and equipment design
- **Close co-operation** with technology and material vendors
- **Knowledge of productization:** production ramp-up, yield improvements, quality follow-up and type approval procedures and requirements



Customers in Europe and Asia

LEWEL GROUP FINLAND OY

- Product development in Oulu and Kuopio
- HW and SW testing laboratories
- Mechanical testing environment

PRODUCT MANUFACTURING IN ASIA

- Proto-part delivers
- Pre-production
- Mass production

LEWEL GROUP LTD

- Head Quarter in Hongkong
- Product development resources in China
- Asia-Europe logistic services
- Manufacturing co-operation
- Marketing in Europe and Asia



Lewel Group's Strengths:

1. **Ability to provide** cost-efficient and high quality products on time
2. **Local** design and manufacturing control in Europe and Asia
3. **Global** project responsibility
4. **Strong references**
5. **Wide experience** from technologies and product design combined with modern design tools and testing laboratories
6. **Long experience** from challenging R&D projects and services
7. **Productization and Production Services:** type approving, production ramp-up, yield improvements, quality follow-up, production and suppliers management, product deliveries



Business Areas

Telecom Solutions

- Handheld terminal devices and accessories
- Network products
- Wireless network systems



Integrated Systems

- Energy solutions
- Security and information systems

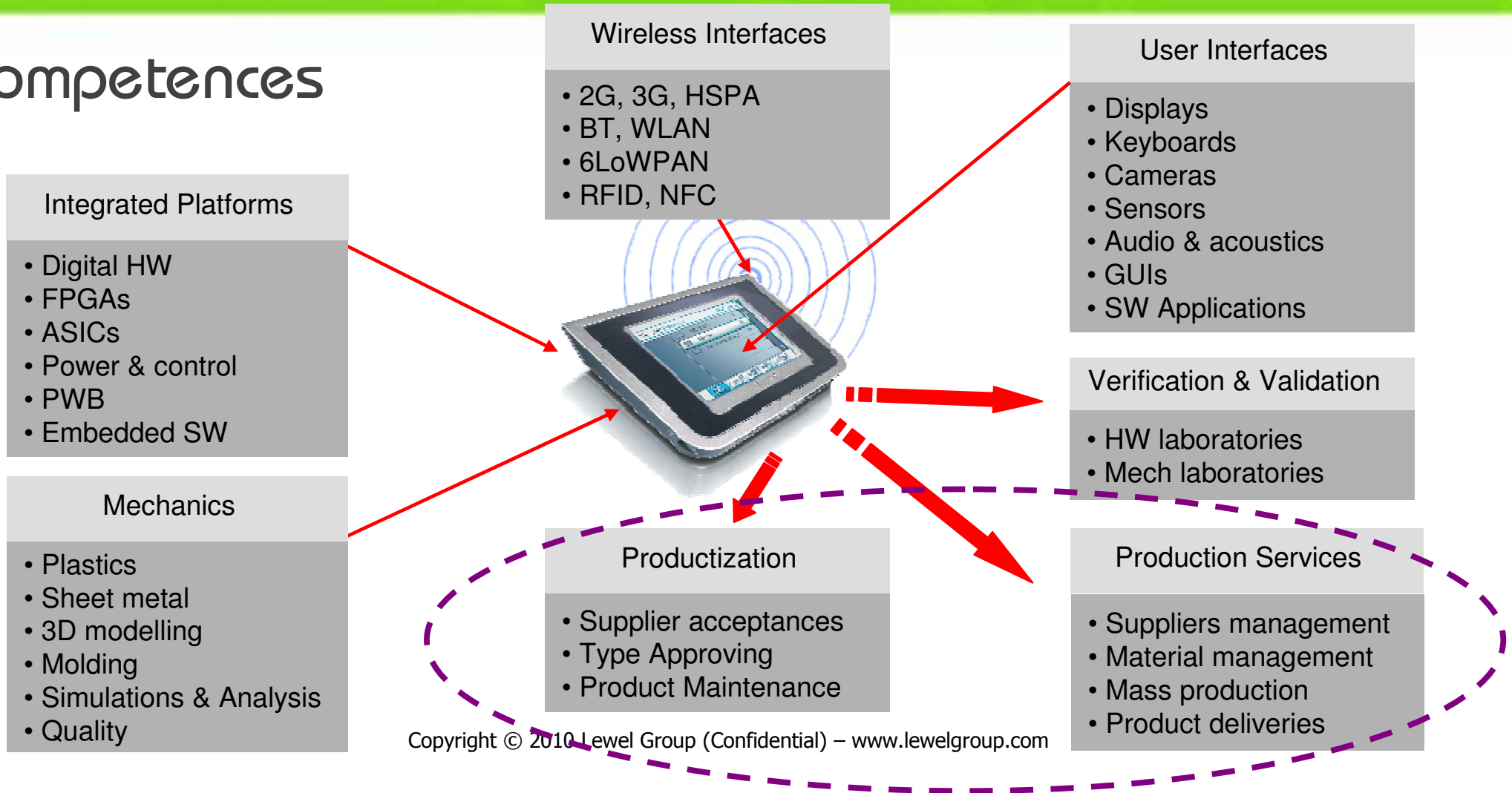


Medical Devices

- Healthcare and wellness products
- Medical instrumentation solutions



Competences



Why Lewel Group?

- **Competent, flexible and reliable R&D Partner**
 - Customer-oriented thinking
- **Our mission;** to create products that fulfill the following key issues:
 - Reliable
 - Best quality
 - Type approved
- **High-tech level** competence and experience from product concepting to end-of-life
- **Experienced** in challenging and international product development projects.
- **“Total solution” provider**
 - Turn key service
 - Cost-efficient manufacturing services from Asia
 - Close co-operation with design partners and technology and material vendors

References...

Complete projects:

- Several fixed-price mobile phone R&D projects (HW, Mech, SW)
- Medical devices and integrated systems R&D projects
- Control systems for industrial and customer applications
- Several BTS modules (system extension, transmission, power)
- BTS Cabinets (indoor, outdoor, battery backup, site support) (proprietary cabinet structure and/or 19" racks)
- Technology development platforms for telecom applications

R&D services

- Product Definition & Solutions –projects
- Specialist services (PWB, EMC, RF, Thermal, FEM)
- S60 and Linux/Qt designing
- Verification and validation services

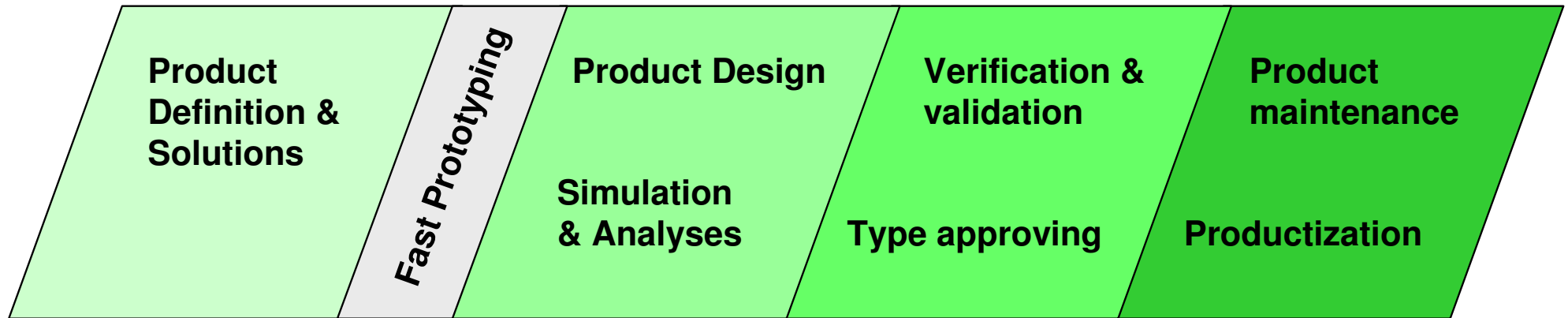
Business Models

- **In-house projects made by Lewel personnel**
 - Total R&D projects incl. HW, SW, IC and mechanics sub-teams
 - Sub-projects and teams as part of customers R&D project

- **Independent R&D service concepts**
 - Lewel contact person
 - Pool of designers with different competencies

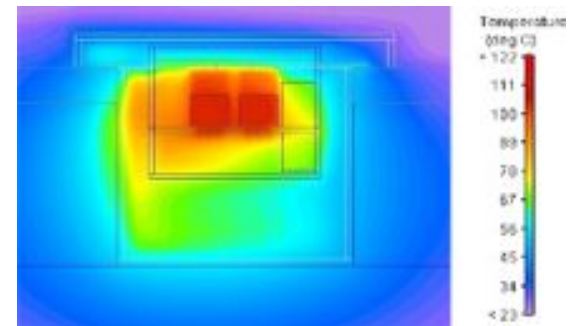
- **Hourly-based design and testing**
 - In-house and/or on-site

Product Development Flow



R&D Services

- Product Definition & Solutions
- Fast Prototyping
- Simulations & Analyses
- Integrated Platforms
- Mechanics Tooling and Prototyping
- Verification & Validation
- Mechanics Quality
- Productization & Supplier Acceptances
- Type Approving
- Production Services
- Product Maintenance
- Cost Reduction



Product Definition & Solutions

- Product creation, product definition and solution seeking to reach the target can only be one with accurate and well done pre-design and planning.
- In these global markets there are many separate components, diverse programs and partly functioning modules ready, but the challenge is to put all together to reach complete cost effective total solution which has all the wanted functionalities and manufacturability.

The project always starts by seeking answers to the following questions:

1. Is the project technically feasible ?
2. What is the cost ?
3. Timetable ?
4. Risk analysis?
5. Design of the final product?
6. How to proceed ?



Fast Prototyping

- "PRE-PROTO",
 - After Product Definition and Solutions –phase
 - For product system level operation tests
 - Based on standard components, modules or chipsets, or customized programmable hardware platforms (like FPGAs)
- Lewel Group can provide a tailor made platform/prototype design on which system development will be carried out.

Our expertise in the areas are:

- Architecture and system specification
- Vendor and technology selection
- HW platform design
- Multilayer-PWBs (*PWB Service*)
- OS-porting and drivers development
- Multi-FPGA implementations for more modeling capacity
- Algorithms implementation and verification
- Standard protocol engines for IO-interfaces
- Extensive testing facilities (*Verification and Validation Services*)

Integrated Platforms

- New technologies and materials clarifications
- Schematic and layout design
- SI design and simulations
- EMC design and simulations
- Thermal design and simulations
- OS-porting and drivers development
- Multi-FPGA design, implementation and verification
- Materials sourcing and ordering
- Build support with MFR and failure analysis
- HW testing:
 - Circuits DC testing
 - Boundary Scanning
 - Electronics testing
 - Thermal testing

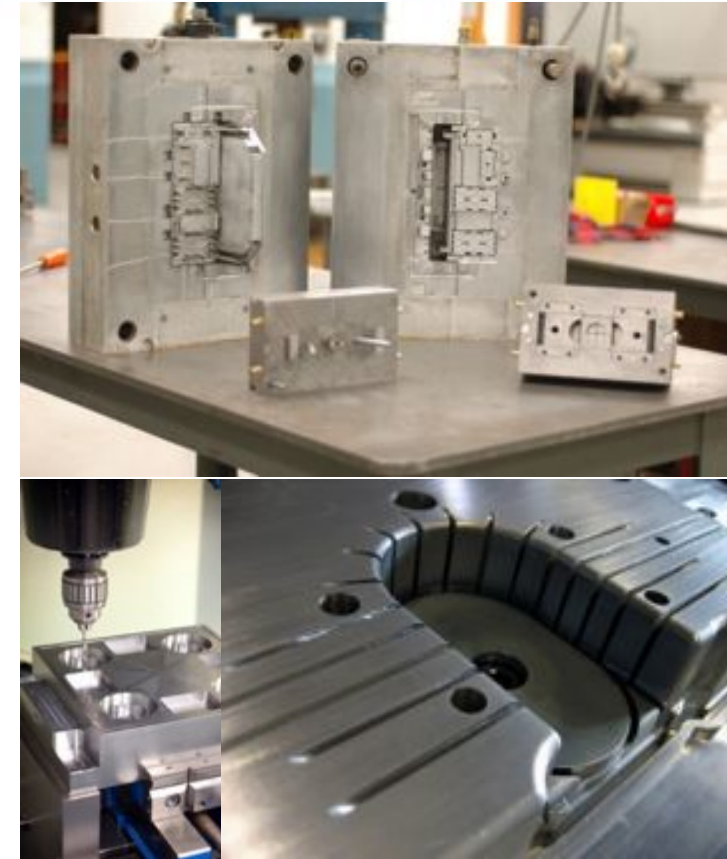


Mechanics Tooling & Prototypes

The long term experienced personnel with knowledge different mechanics technologies and managing over wide scale of manufacturing possibilities in Asia

Supported tooling & prototypes manufacturing services:

- Rapid manufacturing (different technologies)
- First plastic prototypes
- Product- and industrial design
- Rapid molds for prototypes
- Die casting parts
- 2/3 –component products
- Design samples
- Single machined parts



Mechanics Quality Services

Mechanics offer design services from product and materials concepting to parts production line acceptance

■ Manufacturing data analysis

- Measurement Report analysis
- Process Capability analysis (Cp and Cpk, Pp and Ppk)

■ Quality improvement / assurance methods

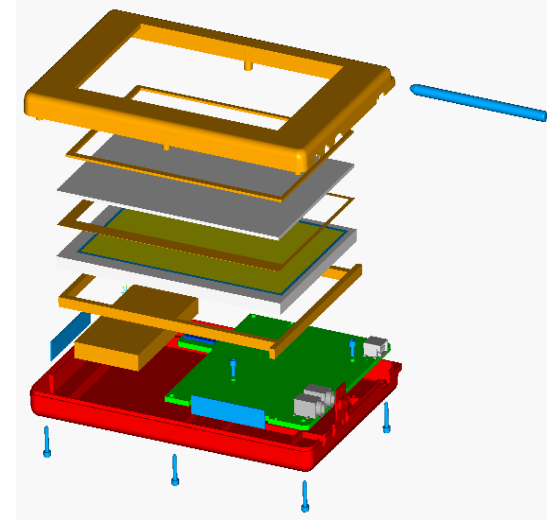
- FMEA
- DOE (Design of Experiments)
- Statistical Tolerance Analysis
- DFX including DFM, DFMA, DFE

■ Quality tools

- Minitab
- Varyx (Tolerance analysis tool)
- Tolerance analysis tool (MS Excel)

■ Quality competences

- Six sigma Black Belt
- Six sigma Green Belt



Verification & Validation Services

- Testing services for R&D
- Based on standards or limited test specifications/plans
- Testing fields
 - Baseband electronics (analog, digital)
 - Audio & acoustics
 - UIHW electronics (Cameras, displays, illumination)
 - RF Co-existence
 - RF Performance (parameter + CPK) (2G, 3G, BT, WLAN)
 - EMC & ESD
 - Mechanics and coatings durability
 - Accelerated environmental testing
 - Typical size of DUT up to 19" unit



Productization & Supplier Acceptances

Lewel Group provides productization operations such as build support, line verifications, production ramp-ups, factory trials and production maintenance activities, both for HW and mechanics.

Productization

- product and tooling sourcing activities
- tooling and production line verification, globally
- factory trials and production ramp-up services, globally
- yield improvements

Supplier Acceptances

- Supplier acceptances will be done during builds
- Production ramp-up and line verification
- Tools and parts approvals (Mechanics)
- Mechanics quality (CPK, Gage R&R, tolerance analysis, Six Sigma)
- HW quality (MFR analysis)

Type Approving

Lewel Group type approving (TA) issues are noticed during R&D phase. Standard and directives requirements are the basis of design work.

Type approving phase work starts during R&D phase with type approving related documentation clarification and planning work.

Lewel Group type approving planning includes the following issues:

- Test management (like costs, prototyped delivery, follow-up)
- Type approving requirement specification
- Type approving documents
- Test plans
- Type approving partner sourcing
- Test reports
- Certification documents



Production Services

Lewel Group provides production services such as suppliers and material management and parts / products logistics and deliveries.

Supported production services:

- low and high volume production tools
- low and high volume plastic products
- ultrasonic welding
- 2/3 –component products
- surface finishing
- assembly

Supported technologies:

- SLA, SLS, FDM, R.I.M
- vacuum casting
- silicone molds
- polyurethane prototypes
- injection molds and molding
- aluminium and steel mold
- IML and IMD
- painting
- metallization (metal coating)
- high speed machining



Product Maintenance

Lewel Group takes care of all product maintenance needs over the product lifetime

- Design documentation control
- Traceability
- Customer feedback
- Materials and components availability
- Cost-reductions
- End-Of-Life processes

Maintenance process and methods are discussed and agreed with customer and Lewel Group during R&D phase



Cost Reduction

Lewel Group offers cost reduction feasibility study services. Lewel Group's wide and extensive experience with different products and production technologies benefit us in making realistic cost reduction estimates.

We study:

- product structure and function
- manufacturing methods and supply chain
- check maintenance records and customer service feedback
- parse the bill of materials.

As a result customer get:

- a reliable estimate for product and production cost savings potential.

