Marcelo J. Peña
Innovation Strategist

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Profile

Creative, skillful and methodical systems architect, concept developer and innovation strategist. Lead multidisciplinary teams of specialists with track record of success in designing, developing, and implementing novel systems and tools for large and complex projects. Able to train, mentor, and lead staff to conquer challenges and improve performance. Adept communicator, capable of abstracting technology and effectively disseminate knowledge across wide range of technical disciplines and clients at all levels; proficient in English and Spanish. Deeply passionate and committed towards the sustainable development of our planetary civilization through the responsible use and efficient application of frontier science and emerging technologies.

Core Knowledge & Skill Areas

- Emerging Tech-based Innovation
- R&D Strategic Knowledge Transfer
- Intellectual Property Management
- Disruptive Technologies Incubation
- Client Requirement Specifications
- Product Life Cycle Management
- Project Administration & Funding
- Consortia & Partnership Assembly
- Technopreneurship Venturing
- Concepts & Applications Design
- Complex-System Engineering
- Embedded Systems Co-design

Academic Development

Master of Science in Mechatronics Engineering *Sønderborg, DK* (2006 – 2008)
University of Southern Denmark
Major in Embedded Systems Architecture.
Thesis: *"Hardware/Software Co-design of Embedded Systems"*

Bachelor of Science in Electronics Engineering *Morelia, MX* (1997 – 2002)
Morelia Institute of Technology – Honors Graduate
Two-year specialization degree in Power Electronic Systems

Technology Summary Skills

Project Management — IBMTelelogic CM/ChangeSynergy, Serena PVCS Version Manager, Microsoft Project, IBM Rational DOORS.
Science and Technology — MathWorks Matlab/Simulink, NI LabView, NI Multisim, Cadence OrCAD PSpice A/D, IAR Embedded Workbench, IAR VisualSTATE, Xilinx SDK/EDK/XPS/ISE, Borland CodeWright, SciTools Understand, C/C++, VHDL, Verilog, Assembly.
Daily Computing — Microsoft Windows, Microsoft Office Suite, CorelDRAW Graphics Suite, Adobe Photoshop.

Training & Certifications

- IMPI – Intellectual Property Management
- European Customer Relationship Management
- Product Development Process Management
- Six Sigma yellow belt, ISO 9000, ISO 14000
- CM/Global Software Collage – Software Engineer
- CM/Global Software Collage – Software Architect
- CMM Project Management
- FMEA & FMECA Embedded Systems Oriented

Professional Experience

Proprietorship & Innovation Technostrategist – ULSNOVA Technostrategies *Morelia, MX* (10.2009 – Present)

ULSNOVA is the result of a cumulative process, spanning over more than a decade of international experience and multidisciplinary proficiency in the management of technology-based innovations throughout the strategic design of systematic programmes to develop, mature, transfer, acquire and commercialize avant-garde scientific knowledge and emerging technologies.

As firm founder and portfolio architect, responsible for the design of technology strategies to deploy sound innovation programmes. As innovation manager, accountable for the technical development up to customer requirements and legislative market standards. Expert at assessing technology maturity levels and market readiness, highly proficient at managing intellectual property and practiced at incubating technology business concepts.

- **Design of business programmes and strategies for the development, acquisition, transfer and incorporation of emerging technologies beyond the state-of-art.** Experience at structuring sound business plans based upon feasible and viable technology.

- **Aid the development of state-planning policies to deploy and promote the growth of technology-based small-medium enterprises.** Proficient at detecting policy reform opportunities to leverage the cooperation between industry and academy under government stimulus.

- **Design of incubation mechanism for innovation awareness: Technology Transfer Offices, R&D Spillovers Units, Industrial Absorption Centers and Innovation Incubation Centers.** Experience at establishing multinational cooperation consortia agreements for research, development and intellectual property distribution within government frameworks.

RCEA Accredited Technology Evaluator – CONACYT. *Mexico City, MX*   (03.2013 – 02.2016)

Elected evaluator by The National Council for Science and Technology of Mexico to render expert assessments and analyses services for the science, technology and innovation programmes established by the Mexican government. As advisor, follow up with projects development status and funding mechanisms efficiency.

Mechatronics Systems Architect – PERA Innovation Network. *Copenhagen, DK*   (07.2008 – **06.2010**)

Hired as Senior Mechatronics Engineer, rapidly earned advancement to the key position as Systems Architect for the Advanced R&D Mechtronics Solutions department in Denmark. Responsible for the strategic design and management of innovative technological solutions for European "Framework Programmes" and Pera's Clients; ensuring their soundness beyond the state-of-the-art. As Technical & Configuration Manager, performed technological trends and trade-off analyses, coordinated project-related research activities, planed and directed all mechatronic-related projects throughout the development life cycle, and oversaw compliance with engineering processes & procedures. As Project Manager handled all single-client R&D consulting work programmes. As Engineer, designed and developed the core-architecture of electronic systems, spanning from analog and digital circuitry to highly complex embedded platforms.

- **Consolidated the Advance Mechatronics Solutions department,** assessing staff skills and assigning them to projects accordingly. Acquired proper mechatronic development tools suitable to Pera's business model.

- **Designed and implemented engineering management processes and high-level system architectures for successful project delivery**, aligning requirements of the European community, Pera and its clients.

- **Concluded and transferred prosperous FP6 projects into production stage.** Built and established supply chain consortia providing prompt route to market.

- **Transformed customer's ideas into solid fundable concepts. Authored a successful number of cooperation partnership proposals under FP7 in the areas of ICT, NMP, ENERGY, HEALTH and RSME Associations**, securing €5M in funds, for Pera and its clients.

Embedded Software Engineer – DELPHI Automotive Systems. *Kokomo, USA*   (01.2003 – 07.2006)

Hired in Queretaro, MX. as embedded software engineer for automotive systems and earned advancement to increasingly responsible positions, including Configuration Manager and role as Software Lead Engineer at Delphi's headquarters in Indiana, USA. Met with clients to determine requirements and coordinate software development activities with team; design and write code for all functions and features within final product. As Configuration Manager, directed all process-related documentation and administration, setting guidelines for software development. As Engineer, wrote embedded software for Infotainment, Navigation and Rear-Seat entertainment systems per requirements of high-profile customers (GMC, Chrysler, Ford, Saab, Hyundai and KIA).

- **Participated in global assessment to achieve CMM Level III Certification and launched process in GPS Navigation department,** leading to all staff using same tools for configuration management.

- **Contributed to development and launch of 1st RSE/DVD system program for Technical Center in Mexico;** additionally contributed to transfer and development of 1st Radio Infotainment within Technical Center in China.

- **Improved existing standards for code writing in projects within Technical Centers in Mexico and China**, incorporating OSEK standards, traceability of software changes, and building block codes.

- **Created and established software defect prevention plan using Six Sigma and FMEA techniques.** Incorporated various development/administration tools, including PVCS Version Manager, CMSynergy, UnderstandingC/C++.

Radioastronomer Technician – MEXART Observatory. *Coeneo, MX*   (01.2002 – 12.2002)

Hired to design, install, and calibrate electronic instrumentation equipment as part of an international research cooperation project hosted in the Americas by the Geophysics Department at National Autonomous University of Mexico (UNAM), to monitor solar coronal mass ejection through interplanetary scintillation detection. Supervised and trained teams of up to forty technicians, also performing role of civil engineer for antenna construction activities. Designed power supplies, PCB layouts and prototypes for scintillation detection.

- **Managed construction site team to complete tasks on-time and on-budget, generating cost savings with dipoles,** through cooperation agreements with local government officials and education centers.

- **Improved construction techniques based on hydrological studies that subsequently prevented natural phenomena from reaching antenna foundation.** Developed full wave length dipole construction techniques for mass production and hardware designs to power up antenna signals.

- **Designed and prototyped switching mode and linear power supplies,** compliant with instrumentation requirements for space signal collection and processing.

- **Conducted academic research for internal seminars** on plasma physics, space electromagnetics, noise reduction in linear and switching-mode power supplies, antenna theory and Butler matrix design.

DGEST-SNEST National Technology Transfer Center

The Mexican Directorate General of Technological Higher Education (DGEST, for its acronym in Spanish) through the technical committee and institutional fund management of the national council on science and technology of Mexico (CONACYT, for its acronym in Spanish) authorized in their first ordinary session of 2011 the agreement to develop the project entitled "Feasibility study to create the national center for business linkage and knowledge transfer for the Technology Institutes". The aim of this project was to determine the maturity of the research in Mexico and it's transfer to the industry.

During the second quarter of 2011, DGEST extended an invitation to acquire the services of Ulsnova Technostrategies to design and execute the strategic programme to conduct the feasibility study and the further implementation of the transfer center. As Ulsnova's Chief Innovation Strategist, responsible for the overall programme design, flow and structure.

- **Designed the technological feasibility and economic viability study programmes for the UVTC.** Developed the general procedures and guidelines to transfer and commercialize technology according to the Mexican law of science and technology (LCyT DOF-28-01-2011). Compiled the initial portfolio of projects and technologies researched and developed by all the 263 technology institutes in Mexico in the last five years.

- **Designed a group of maturity models to conduct the assessment and valuation of emerging technologies.** Developed clear and concise intellectual property policies for inventions as well as royalties distribution within the 263 technology institutes and CENIDET Research Center. Established a strategic programme to cooperate and transfer knowledge and technology to the Mexican industry.

Technology-based Innovations Incubated under the European Framework Programme for Research and Technological Development

Research Framework Programmes are the main instrument at EU level for supporting research and development. They have two main strategic objectives: strengthening the scientific and technological base of European industry and encouraging its international competitiveness, through research that supports EU policies.

The final Framework Programme for Research and Technological Development (FP7) which lasted from 2007 until 2013 had a total budget of over € 50 billion. The money was (for the most part) spent on grants to research actors all over Europe and beyond, in order to co-finance research, technological development and demonstration projects. Grants were determined on the basis of calls for proposals and a peer review process, which were highly competitive. Thus, a key characteristic of FP7, that differentiated it from the Structural Funds, was that there were no fixed national or regional allocations.

During the intensive experience in the sixth and seventh framework programmes, as DII's Mechatronics Systems Architect and Concept Developer had the opportunity and responsability to incubate several state-of-the-art concepts and emerging technologies, establishing Scandinavian and Pan-European consortia, supply chains to market, and distribution agreements for intellectual property. The following listing highlights the incubated R&D programmes, main responsibilities and achievements.

EnergySafe — ICT & Electronics: FP6-2004-SME-COOP

Development of a New Low-Cost, Retrofittable, Wireless and Self-Powered Building Control System for Improving Energy efficiency, Employee Comfort and Fire Safety in Commercial Buildings. This project targets the European manufacturing supply chain for lighting and HVAC controls, consisting of more than 1 500 manufacturers, sub-suppliers, and installation and maintenance companies across Europe. These are mainly small to medium-sized enterprises (SMEs) employing more than 75,000 people that deliver building controls to increase the energy efficiency of lighting and heating, ventilation and air conditioning (HVAC) systems in commercial buildings, a global market valued at more than €3 billion.

- **Designed and developed product integration framework.** Generated system validation plan and verification test procedure.
- **Led embedded platform migration activities,** from Ember EM250 ZigBee SoC to TI MSP430, interfaced with CC2480 ZigBee processor over SPI.
- **Organized product dissemination events,** recruited manufacturing partners for prompt route to market and arbitrated divergence over intellectual property rights across the consortium.

† The described projects are of the public domain and they represent one-fifth of the experience portfolio. The rest of the projects cannot be disclosed due to trade secret, confidentially and/or non-compete agreements.

BrainSafe — Health & Safety: FP7-SME-2008-1

Development of a new, non-invasive absolute Intracranial Pressure (aICP) measurement device based on ultrasound Doppler technology. This project offers an innovative technology for non invasive and fast-and-easy absolute intracranial pressure (aICP) diagnostics that can save 9,400 lives and increase the chance of survival and life span for additional 136,000 patients with TBI yearly. The innovative aICP measurement device will completely eliminate all the risks associated with invasive methods of ICP diagnostics.

- **Guided programme as Technical Manager and Systems Architect.** Design and implement product life cycle compliant with European and American regulations for medical devices.
- **Led electronic design activities for aICP medical device.** Designed system architecture based on Virtex-5 FPGA interfaced with SHARC DSP Processors.
- **Managed consortium relationships and integration over multicultural diversity.** Arbitrated consortium divergence over intellectual property rights across EU and non-EU countries.

TeamSafety — ICT & Safety: FP7-SME-2008-2

The development project for an innovative 3D virtual team-training maritime safety simulation platform to meet the latest EU safety requirements for sea and seafarers' emergency response training within the various maritime industries. The proposed system avoids the use of pre-defined scenarios, instead, using an interactive game paradigm, the trainees will be able to practice situation and cue assessment, problem diagnosis, decision making and action coordination, proactive response to critical incidents. The system provides maritime training centers with the opportunity to train more efficiently seafarers from the various maritime sectors, thus enabling various stakeholders to meet the strict legislative requirements adopted by EU with regards to maritime safety.

- **Led programme as Systems Architect and ICT Concept Developer.** Authored "Capacities" proposal for EC's FP7, under research for small & medium enterprises associations.
- **Envisioned and designed virtual platform for maritime safety training and awareness.** Designed top level system architecture, specified inner-system communication protocol and formalized stakeholders requirements.
- **Designed product life cycle, project management structure and programme organization breakdown.** Conducted consortium recruitment and strategic partnering activities. Assembled supply chain and value network for international distribution and licensing agreements.

NanoAir — Health & Safety: FP7-SME-2007-1

Development of an automated instrument for real-time, on-site qualitative analysis of full-range breathable airborne particles, including nanoparticles, using XRD technology. The main objective of the Nanoair project is to develop a mobile instrument for qualitative and quantitative analysis of breathable particles. Measurements will be collected continuously in real-time, and fast data processing will facilitate the utilization of an alarm function for critical monitoring tasks and in emergency situations.

- **Led programme and consortium as Technical Manager and Systems Architect.** Designed and implemented product life cycle roadmap, programme workflow organization and top level system architecture.
- **Conducted system feasibility studies and analyzes.** Designed and prototyped high risk elements, using LabVIEW-based virtual instruments, ensuring the successful continuity of the programme to subsequent development stages.
- **Arbitrated consortium divergence over technology platforms throughout the programme.** Conducted product dissemination activities, business plan validation and supply chain partner recruitment.

MesMesh — Smart Materials: FP7-NMP-2008-2

Development project for a cheap, innovative Ultra-thin conductive ceramic mesh to monitor stress and wear on a steel surface. The aim of the project is the development of a pre-commercial prototype mould with built in continuous structural health monitoring. This will be achieved by carrying out research work appropriate for developing femto-second laser metal processing techniques to produce smooth walled and depth-controlled grooves on metal parts. In these groves a TiN/Al2O3 composite will be sintered in a few micron thick layer that will work as a wave guide for high frequency pulsing. The measurements will be processed by an FPGA or appropriate dedicated DSP module, to give the user a real time indicator of the structural health of the metal part.

- **Led research programme as Technical Manager and Systems Architect.** Conceptualized and designed a state of the art measurement system for surface fatigue and wear-off effects in friction mechanisms.
- **Conducted feasibility studies and system analyzes;** ensuring the soundness of high risk technology elements. Prototyped technological principles using Matlab, NI Multisim and LabVIEW.
- **Designed top level system architecture and programme organization breakdown.** Specified data acquisition protocol, formulated stakeholders requirements and traced research roadmap.