Ralph V. Wilhelm, Jr., Ph.D. Curriculum Vitae

Professional Summary

Dr. Wilhelm has over forty years of industry experience in the automotive industry beginning his career at General Motors Research Laboratory, eventually holding positions of increasing responsibility with Delphi Delco Electronics Corporation, and currently running an automotive electronics consultancy. Dr. Wilhelm is familiar with automotive electronic component technology and the supply-line management required not only producing suitable automotive components, but supervising the R&D, advanced engineering, forward technology development, sales, and product line management process from OEM to customer. He has worked in various technical and leadership roles to develop new products and complex systems from invention to production using both internal invention/development and external partnerships to achieve world-class automotive systems worldwide. In 2001, Dr. Wilhelm founded and established an automotive electronics consultancy focused on automotive electronics suppliers doing business in North America. His firm, Wilhelm Associates (www.wilhelmassoc.com) has supported suppliers whose

"home" countries have included Japan, Taiwan, China, Korea, Canada, United States, Germany, and France as they do business in North America.

Expertise

- Advanced Mobile Multi Media Automotive Systems
- Automotive Electrical & Electronic Systems
- Automotive ADAS, Safety Systems
- Design, Manufacturing & Distribution of Automotive Components
- •• Electric Vehicle components and systems
- Expert Witness in Automotive Electronics

- Human Machine Interface issues (HMI)
 - for Automotive Electronics, displays, and Touch, Appearance, Lighting (TAL) devices
- Display Technology for Automotive Applications
- Integrated Circuits for Automotive Applications
- Navigation & Real Time Traffic Automotive applications
- ■■ Telematics
- Component and Sub-system development

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Education

| <u>Year</u> | College or University | <u>Degree</u> |
|-------------|------------------------|---|
| 1985 | University of Illinois | Executive Management Program |
| 1987 | University of Michigan | MBA, Operations & Strategy |
| 1972 | Rutgers University | Ph.D., Material Science/Ceramic Engineering |
| 1967 | Cornell University | B.S.E.E. |



Professional Experience

From: 2001
To: Present

Organization: Wilhelm Associates, LLC (www.wilhelmassoc.com)

Title: President/Founder

Summary: Consulting firm concentrating in automotive electronics, telematics, infotainment, systems

engineering, and data communications between systems and devices, product/market &

international business strategies

Developing and using methodologies for market assessment, requirements definition, product design, strategy, and implementation

•• Firm includes five part-time highly experienced Senior Associates plus other individuals as needed to support customers as needed

Diverse client base: Japanese, Taiwanese, Chinese, Korean, French, German, Canadian, & US based

Executive coaching for international and high potential employees

Expert Witness in Automotive Electronics

From: 1997 To: 2001

Organization: Delphi Delco Electronics Corporation

Title: Product Line Manager, Mobile Multi Media for North America

Summary: Reported to General Director of Mobile Multi Media

Responsible for all deliverables, from technology planning through sales, and

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product strategies and to ensure on-time delivery of products within budget

- Won \$2.2 Billion revenue of new business over 18 months, across three major
- product lines, and five separate OEM's. Customers are headquartered in Japan, Europe, and North America including GM, Ford, Toyota, and Honda.
- Actual revenue over \$320 Million in CY2000.

- Typical programs are on a commercial cycle time of 6 to 15 months, spec to start-of-
- production with automotive high quality

From: 1994 To: 1997

Organization: Delco Electronics Corporation (living and working out of Singapore)

May 2014



Ralph V. Wilhelm, Jr.,

Title: Vice President of Engineering, Delco Electronics Asia Pacific (DEAP)

Summary: Reported to President of DEAP

Responsible for all engineering design and deliverables for all Asia/Pacific

.

customers worldwide

■ Business grew by 30% to 40% per year with revenue at ~\$250 Million in 1996,

across six product lines, eight customers, and OEM facilities in six countries

• Responsible for application engineering and design centers in Asia/Pacific region.

From: 1989 To: 1994

Organization: Delco Electronics Corp.

Title: Director of Advanced Development/Systems Integration

Summary: Reported to General Director of Engineering

Responsible for all product development for \$5 Billion business, in seven departments covering integrated circuit fabrication through automotive safety and

electronic systems

■■ Budget in 1994 was over \$50 Million with ~450 people world wide

Developed new products now in production: forward looking radar, solid state YAW sensors, advanced airbag system electronics, head up displays, RDS audio for North America, IR-based night vision, and telematics

From: 1984 To: 1989

Organization: Delco Electronics Corp.

Title: Department Head, Advanced Instrumentation & Display Summary: Reported to Chief Engineer, Instrumentation & Display

From: 1978 To: 1984

Organization: General Motors Corporation - AC Spark Plug Division Title:

May 2014



Ralph V. Wilhelm, Jr.,

Supervisor and Department Head – Materials Development Summary: Reported to Chief Engineer, Advanced Development

From: 1971 To: 1978

Organization: General Motors Research Laboratories

Title: Senior Research Scientist

May 2014



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