

Sa'Ed M. Salhieh, Ph.D.

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Associate Professor of Industrial Engineering
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The University of Jordan
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EDUCATION

WAYNE STATE UNIVERSITY
Detroit, Michigan

July, 2001

Ph.D. - Industrial Engineering

Dissertation Title: Collaboration Planning Framework to Support
Distributed Product Development

THE UNIVERSITY OF MICHIGAN - DEARBORN
Dearborn, Michigan

August, 1998

MS. - Industrial and Systems Engineering

Thesis Title: Decomposition Methodology for Complex Product
Development

JORDAN UNIVERSITY OF SCIENCE & TECHNOLOGY
Irbid, Jordan

June, 1995

B.Sc. - Mechanical Engineering (emphasis in Production Engineering)

WORK EXPERIENCE

Full-time Appointments

Industrial Engineering Department *Aug, 08 – Present*
The University of Jordan

Industrial Engineering Department *Sep, 02 – July, 08*
The University of Jordan

Industrial Engineering Department *Sep, 11 – May, 13*
Alfaisal University
Industrial and Mechanical Engineering Dept. Chair

Industrial Engineering Department *Sep, 10 – Aug, 10*
King Saud University
Associate Professor

Industrial Engineering Department *Aug, 08 – Aug, 10*
The University of Jordan
Associate Professor

Assistant Professor

Industrial and Manufacturing Systems Engineering Dep. *Aug, 01 – Jan, 02*
The University of Michigan – Dearborn
Visiting Professor

Part-time appointments

College of Business *Aug, 09 – Feb, 10*
The University of Jordan
Part-time faculty member

Talal Abu Ghazaleh College of Business *Feb, 08 – Aug, 08*
German-Jordanian University
Part-time faculty member

Faculty of Business Studies *Feb, 06 – June, 08*
Arab Open University – Jordan Branch
Part-time faculty member

College of Business *Summer, 2005*
Petra University
Part-time faculty member

COURSES TAUGHT

Undergraduate

- New Product Development
- Production Information Systems
- Marketing Engineering
- Production Planning and Control
- Project Management
- Engineering Economy
- Systems Thinking: Principles and Practice (*Arab Open University – Faculty of Business Studies*)
- Managing Complexity: A Systems Approach (*Arab Open University Faculty of Business Studies*)

Graduate

- Computer Integrated Manufacturing
- Information Systems Analysis and Design
- New Product Management
- Operations Management (*Talal Abu Ghazaleh College of Business – MBA*)
- Supply Chain Management (*Talal Abu Ghazaleh College of Business – MBA*)

SUPERVISED THESES' TITLES

1. Identification of product modules using logical functional modeling
2. Product customization through the development of manufacturing cores
3. A Fuzzy based approach for new product concept evaluation and selection
4. Investigating consumer requirements for shampoo formulation: factors affecting shampoo formulation
5. Using fuzzy regression to estimate market share of new products
6. Applying "TOPSIS" multi-criteria decision making method in the selection of candidates in an employee recruitment and selection process
7. Product development policy design
8. New product concept evaluation: a data envelopment analysis approach

DOMAIN KNOWLEDGE / RESEARCH AREA

Product Development

- New Product Management
- Marketing Engineering
- Collaborative Engineering
- Product Design for Modularity
- Value Engineering

Systems Modeling

- Decision Modeling
- Quantitative Methods
- Mathematical and Data Modeling
- Multivariate Data Analysis
- Statistical Thinking
- System Thinking
- Information Systems Analysis & Design

RESEARCH EXPERIENCE

Rapid Prototyping Laboratory

Industrial Engineering Department
Alfaisal University
Riyadh, Saudi Arabia

March, 13 - present

Founder and Director

- A newly established laboratory with aim of providing support to local product developers

Product Design Laboratory

Industrial Engineering Department
The University of Jordan
Amman – Jordan

June, 05 – Aug, 10

Co-founder and Director

- Working on research related to product development
- Developing prototypes for the local industry

Rapid Prototyping Laboratory

Industrial & Systems Engineering Department
University of Michigan – Dearborn

Sep, 01 – Dec, 02

Research Fellow

- Worked on research related to design for modularity, feature-based design, and rapid tooling

Collaborative Manufacturing Laboratory

Industrial and Manufacturing Engineering Department
Wayne State University

Sep, 98 – Aug, 01

Research Assistant

- Developed a virtual product design and development architecture
- Developed a system for e-product development across the automotive supply chain
- Developed an E-learning class for product design and development

Rapid Prototyping Laboratory
Industrial & Systems Engineering Department
University of Michigan – Dearborn

Sep, 96 – Aug, 98

Research Assistant

- Helped in setting the laboratory for operations by installing the machines and software needed
- Conducted research dealing with process optimization for Fused Deposition Modeling process

FUNDED PROJECTS

1. **Using Advanced Manufacturing, Innovative Product Development and Decision Modeling Techniques for Developing Sustainable Supply Chains**, Alfaisal University, (2012 – present) (\$410,000)
2. **Product Design Modernization & Order Management**, Higher Education Development Program (Jordan), (2003-2006). (JD 100,000)
3. **A Methodology for Developing a Measure for Modular Products Manufacturability**, Deanship of Academic Research, The University of Jordan, (2004) (JD 3000)
4. **Virtual Product Design and Development Architecture**, Sun Microsystems, 1999-2000. (USA) (\$50,000)
5. **A Features-Based Approach for Modular Facility Layout Design**, Advanced Manufacturing Technology Development, Ford Motor Company, 1998-99, (Phase I), (USA). (\$20,000)
6. **Process Optimization for Fused Deposition Modeling Process**, Center for Engineering Education and Practice, The University of Michigan-Dearborn, 1998. (USA) (\$10,000)
7. **Decomposition Analysis for Modular Design of Mechanical Parts**, Advanced Manufacturing Technology Development and Climate Control Division, Ford Motor Company, 1997-98. (USA) (\$25,000)
8. **A Methodology for Modular Product Design**, Center for Engineering Education and Practice, The University of Michigan-Dearborn, 1997-98. (USA) (\$10,000)

PROFESSIONAL FUNCTIONS AND SERVICES

- **Associate Editor**, International Journal of Collaborative Enterprise, Inderscience Publishing.
- **Local Juror**, Stars of Science TV Show (Season 2 & 3), Qatar Foundation, 2010 and 2011.
- **Organizing Committee**, the International Association for the Exchange of Students for Technical Experience Conference, Dead Sea, Jordan, 2007.
- **Organizing Committee**, International Symposium on Manufacturing Applications, World Automation Congress (WAC 2004), Spain, 2004.
- **Reviewer** for the following Journals:
 - Computer Aided Design
 - IEEE Transactions on Engineering Management
 - International Journal of Advanced Manufacturing Technology
 - Robotics and Computer Integrated Manufacturing
 - Jordan Journal of Business Administration

PUBLICATIONS

Books

1. Kamrani, Ali and Salhieh, Sa'Ed, (2002) "**Product Design for Modularity**", 2nd Edition, Kluwer Academic Publishers.
2. Kamrani, Ali and Salhieh, Sa'Ed, (2000) "**Product Design for Modularity**", Kluwer Academic Publisher

Book Chapters

1. Smadi H., Kamrani A., and Salhieh S. (2010), "**Product Customization through the Development of Manufacturing Cores**", in "Systems Engineering Tools and Methods" Edited by Ali K. Kamrani and Maryam Azimi. CRC Press.
2. Salhieh. S. and Kamrani, A. (2008), "**Modular Design**" in "*Collaborative Engineering: Theory and Practice*", Edited by Ali Kamrani, and Emad Abouel Nasr, Springer.
3. Kamrani., A, and Salhieh., S. (2004), "**A Decomposition Methodology for Uncoupled Modular Product Design**", in "*Mass Customization: A Supply Chain Approach*" Edited by Chandra, C. and Kamrani, A. Springer.
4. Monplaisir, L and Salhieh, S (2002), "**Collaborative Product Design and Development: A case study integrating CSCW with QFD**", in "*Collaborative Engineering for Product Design and Development*" Edited by Monplaisir, L and Singh, N.

Journal Papers

1. Al-Harris, M. and Salhieh, S (under review), "**New Product Concept Selection: An integrated approach using Data Envelopment Analysis (DEA) and Conjoint Analysis (CA)**".
2. Kamrani, A., Smadi, H., Salhieh, S. (2012), "**Two-phase methodology for customized product design and manufacturing**", Journal of Manufacturing Technology Management, Vol. 23, No. 3, pp. 370 – 401.
3. Smadi, H., Kamrani, A., Salhieh, S. (2012), "**A Two-Phase Methodology for Modular Product Customization**", European J. of Industrial Engineering, Vol. 6, No. 4.
4. Salhieh, Sa'Ed (2008) "**Developing Manufacturing Response Models to Predict the Manufacturability of New Modular Products**", International Journal of Advanced Manufacturing Technology. Volume 39, Numbers 5-6, pp. 599 – 611.
5. Salhieh, Sa'Ed (2007) "**A Methodology to Redesign Heterogeneous Product Portfolios as Homogeneous Product Families**", Computer Aided Design, Volume 39, pp. 1065 – 1074.
6. Salhieh, Sa'Ed (2007) "**A Systematic Approach for the Selection of Business Processes for E-Enablement**", International Journal of Information Technology and Decision Making, Volume 6, No. 4, pp. 649-669.
7. Santarisi, Nader, and Salhieh, Sa'Ed (2005), "**An Experimental Method for Solving the Problem of Course Scheduling: Department of Industrial Engineering at the University of Jordan as a Case Study**", Journal of King Abdulaziz University: Engineering Sciences, Vol. 16, No.1, pp. 31-44.
8. Salhieh, S and Monplaisir, L (2003), "**Collaboration Planning Framework (CPF) to Support Distributed Product Development**", Journal of Intelligent Manufacturing, Vol. 14, pp 581-597.

9. Salhieh, S., Monplaisir, L., and Singh N. (2002) “**A Planning Methodology to Support Global Product Development using CSCW Tools**”, Global Journal of Flexible Management
10. Salhieh, S and Kamrani, A (1999), “**Macro Level Product Development Using Design for Modularity**”, Robotics and Computer Integrated Manufacturing Journal, Vol. 15, pp. 319-329.

Conference Papers

1. Salhieh, Sa’Ed (2007), “**A Methodology for Developing a Measure for Modular Products Manufacturability**”. Industrial Engineering Research Conference, Nashville, Tennessee, USA.
2. Kamal, Amjad, and Salhieh, Sa’Ed (2007), “**Collaborative Product Concept Evaluation and Selection Methodology: A Fuzzy Approach**”, Industrial Engineering Research Conference, Nashville, Tennessee, USA.
3. Salhieh, S., (2006), “**Selecting Product Development Teams: A New Approach**”, Industrial Engineering Research Conference, Orlando, Florida, USA.
4. Smadi, H., and Salhieh, S. (2006), “**Product Customization through the Development of Manufacturing Cores**”, Industrial Engineering Research Conference, Orlando, Florida, USA.
5. Salhieh, S (June 2004), “**A Methodology to Modularize Products Based on Customer Needs**” International Symposium on Manufacturing and Automation - World Automation Congress, Seville, Spain.
6. Monplaisir, L and Salhieh, S (August, 2001), “**Product Development Process Analysis Methodology to Facilitate Planning for Collaborative Product Development**” The 5th International Conference on Engineering Design and Automation, Las Vegas, Nevada, USA.
7. Monplaisir, L and Salhieh, S (May, 2001), “**Planning for Collaborative Product Development Systems: Task Interactions Driven Approach**” 10th Annual Industrial Engineering Research Conference, Dallas, Texas, USA.
8. Monplaisir, L and Salhieh, S (2000), “**Integrated CSCW/QFD to Support Distributed Product Development**”, The 4th International Conference on Engineering Design and Automation, Orlando, Florida, USA.
9. Kamrani, A and Salhieh, S (2000), “**Design for Modularity: Product Design for Decomposition and Integration**”, the 4th International Conference on Engineering Design and Automation, Orlando, Florida, USA.
10. Monplaisir, L and Salhieh, S (2000), “**A Systematic Approach for Developing Internet Supported Collaborative Product Development Systems**”, 9th Annual Industrial Engineering Research Conference, Cleveland, Ohio. (presentation only), USA.
11. Kamrani, A. and Salhieh, S.(1999), “**A Features-Based Approach to Integrated Product and Facility Design**”, 8th Annual Industrial Engineering Research Conference.
12. Kamrani, A., Sengupta, S., Salhieh, S., and Wang, R., (1998), “**Product Design and Rapid Prototyping Concepts: A DOE Analysis**”, 8th Annual Industrial Engineering Research Conference.
13. Kamrani, A., Sengupta, S., Salhieh, S., and Wang, R., (1998), “**Prototyping and Rapid Prototyping Concepts**”, Industrial Engineering Research Conference, Banff, Canada.
14. Kamrani, A. and Salhieh, S. (1998), “**A Methodology for Parallel Sub-System Design Using Modular Approach**”, Industrial Engineering Research Conference, Banff, Canada.

ADMINISTRATIVE EXPERIENCE

Industrial & Mechanical Engineering Dept. Alfaisal University, Saudi Arabia Chair	<i>Sep, 11 – present</i>
Center of Consultations The University of Jordan Director	<i>Feb, 10 – Aug, 10</i>
The University of Jordan Hospital The University of Jordan <i>Assistant to the Administrative Deputy Manager & Director of Training, Development, and Planning</i>	<i>Jul, 08 – Jul 09</i>
Faculty of Engineering and Technology The University of Jordan <i>Assistant Dean for Computer Affairs</i>	<i>Sep, 07 – Aug, 08</i>
Faculty of Graduate Studies The University of Jordan <i>Assistant Dean for International Program</i>	<i>Sep, 05 – Sep 06</i>

CONSULTATION PROJECTS

Jordan Light Vehicle Manufacturing (JLVM) Developed a systematic approach for integrating the supply chain of JLVM with local suppliers	2008
Amman Chamber of Industry Performed an industrial sector analysis and improvement study covering the sectors of Solar Collectors Industry, and Carpets & textiles Industry.	2008
Nuqul Group Assessing and enhancing the new product development process at Nuqul group.	2007
Abdin Industrial Establishment Prepared the technical component of the Diagnostic and Upgrading Plan for Abdin Industrial Establishment per the requirement of Jordan Upgrading and Modernization Program (JUMP).	2006
Al-Hikma Pharmaceuticals Studied the performance of the materials management system. The study evaluated the purchasing function, and developed a measure for the inventory management performance.	2005
Khalifeh Group for Advanced Industries (Kalboard) Studied the manual assembly process, and proposed methods for optimizing the process.	2004
Jordan TV CABLE & Internet Services company (JCS) <u>Part I:</u> Conducted a market study to investigate the preferred TV channels by the Jordanian TV viewers in Amman <u>Part II:</u> Studied the customer perception of the Cable TV Services at Jabal Al-Nasr.	2003

PROFESSIONAL ACCOMPLISHMENTS

New Product Development

- Analyzed “Facial Tissue” market in Jordan.
- Identified new product development themes for “facial tissues” in Jordan.
- Modernized the product design process at a large manufacturing company.
- Developed a new approach for the selection of new product development teams.
- Coached product development teams in new product development concept generation and evaluation.
- Developed novel approaches for new product concept selection and evaluation.

Marketing Engineering / Marketing Analytics

- Analyzed the market for mobile phone services in Jordan.
- Performed a new product decision analysis study using segmentation techniques and conjoint analysis for Mobile phones.
- Performed product positioning studies using perceptual mapping (for Baby Diapers market, and TV sets market in Jordan).
- Measured the “Facial Tissue” customer value using “Single Blind Testing Method” based on the Rational Customer Value Approach.
- Forecasted the sales of new technological products (ADSL service).
- Currently working on developing a Target Pricing Policy for new products.

Performance Improvements

- Conducted technical diagnostic studies for plant upgrading plans.
- Assessed the performance of the materials management system in a large pharmaceutical company.
- Assessed the manual assembly process for an educational equipment manufacturer, and proposed methods for optimizing the process.
- Developed and implemented a systematic methodology for staff planning at the University of Jordan Hospital.
- Proposed and developed a new Managerial Accounting system at the University of Jordan Hospital.

Business Development

- Oversaw the development of the strategic plan for the University of Jordan Hospital.
- Coordinated the efforts for developing employee educational plans.
- Proposed and executed a plan for establishing a new “Life Support Center” at the University of Jordan Hospital.
- Participated in the pre-feasibility study for establishing a new Private Hospital.

TRAINING COURSES

- New Product Management
- Value Engineering
- Marketing Engineering
- Managing Complexity – System Thinking

COMPUTER PROFICIENCIES

Engineering Design Software	ProEngineer - Wildfire, SolidWorks, AutoCAD,
Process Modeling & Simulation Languages	ProModel
Statistical Software	Minitab, SPSS, SYSTAT
Optimization Software	Lingo, Solver
Database Software	Ms Access, SQL
General Purpose Software	Ms Excel, Ms Word, Ms PowerPoint

ACADEMIC AWARDS

- Thomas C. Rumble University Graduate Fellowship (1998-1999) – Wayne State University

PROFESSIONAL SOCIETIES

- Institute of Industrial Engineers (IIE)
- Society of Manufacturing Engineers (SME)
- IEEE Engineering Management Society
- Jordan Engineers Association