# MASSACHUSETTS INSTITUTE OF TECHNOLOGY School of Engineering Faculty Personnel Record

Date: October, 2016 Name: Deborah J. (Seifert)

Nightingale

Department: Aerospace and Aeronautical Engineering and Engineering Systems Division

1. Date of Birth: September 10, 1949

2. Citizenship: US

3. Education:

<u>School</u>	<u>Degree</u>	<u>Date</u>
University of Dayton	BS	1970
Ohio State University	MS	1974
Ohio State University	Ph.D.	1979

# 4. Title of Thesis for Most Advanced Degree:

Combined Discrete Network/Continuous Control Model of Man Machine Systems

# 5. Principal Fields of Interest:

Enterprise integration and transformation; lean enterprises, enterprise architecting; large-scale systems

# 6. Non-MIT Experience:

<u>Employer</u>	<u>Position</u>	Beginning	Ending
Nightingale Associates	Principal	2014	Present
AlliedSignal Aerospace	Director, Business Aviation Programs	1995	1996
Engines Division	Director, Strategic Planning & Business Development	1993	1995
	Director, Operations Support Engineering Group	1992	1993
	Manager, Industrial Engineering	1988	1993
	Sr. Project Manager, Material Services	1985	1988
	Manager, Manufacturing Systems Engineering	1984	1985
	Manager, Facilities Planning	1980	1984
	Project Leader, Operational Planning	1979	1980
Wright Patterson AFB Human Engineering Lab	Senior Researcher	1971	1979
University of Dayton Research Institute	Systems Analyst	1968	1971

# 7. History of MIT Appointments:

Rank	<u>Beginning</u>	<u>Ending</u>
Senior Lecturer	Oct. 1997	June 1999
Professor of Practice	July 1999	June 2014
Director, Lean Advancement	Jan. 2002	June 2013
Initiative (LAI)		
Director, Sociotechnical Systems	Oct. 2010	June 2014
Research Center (SSRC)		
Research Affiliate	July 2014	Present

# 8. Consulting Record:

<u>Firm</u>	<u>Beginning</u>	<u>Ending</u>
Corporate Renaissance	Feb. 1997	Oct. 1997
Prudential Corp.	March 1997	July 1997
Commonwealth Industries	Sept. 2001	Dec. 2001
SAP Corp.	Nov. 2002	Jan. 2003
Scottish Aerospace Society	Apr. 2003	May 2003
Oracle Corp.	Nov. 2003	Nov. 2005
BAE Systems (Oxford Univ.)	Nov. 2004	Feb. 2005
Textron Corp.	Sept. 2005	Jan 2006
Siemens	April 2010	April 2010
VHA VISN1	August 2013	Dec 2013
Corrosion y Proteccion	October2014	Present
Dept of the Navy	Sept. 2016	Present

# <u>Leaders for Global Operations/Systems Design & Management Internships:</u>

Note: Each of these internships involved multiple site visits and extensive interaction with senior executives.

Alcoa	June 1998	May 1999
Sikorsky	Sept. 1999	Feb. 2001
	June 2008	June 2009
	June 2010	June 2011
	Jan 2014	June 2015
NASA	Sept. 2000	Jan. 2002

Boeing	June 2000	June 2004
	June 2009	June 2011
Raytheon	June 2000	June 2011
ABB	June 2000	June 2005
Ford	Sept. 2001	Feb 2005
Pratt & Whitney	Sept. 2001	June 2004
Hamilton Sundstrand	June 2002	June 2003
	June 2006	June 2007
	June 2013	June 2014
	Jan 2014	June2015
Kodak	June 2002	May 2003
Northrop Grumman	Sept. 2002	June 2004
Dell	June 2003	June 2004
	June 2006	June 2008
Harley Davidson	June 2003	June 2004
Honeywell	April 2005	June 2007
	June 2008	June 2009
Intel	May 2005	May 2011
Cisco	June, 2006	June 2007
Amazon	June 2006	June 2008
Broad Institute	June 2006	June 2007
Schlumberger	June 2007	June 2008
Flextronics	June 2007	June 2008
Spirit Aerosystems	June 2008	June 2009
Novartis	June 2009	June 2010
Bank of America	June 2010	June 2011
Amgen	June 2011	June 2013
Beth Israel Hospital	June 2012	June 2013
Caterpillar	June 2012	June 2013
Singapore Aerospace	June 2012	June 2013
Lincoln Laboratory	June 2012	June 2013
Quest	June 2013	June 2014

# 9. Department and Institute Committees, Other Assigned Duties:

<u>Activity</u>	<u>Beginning</u>	<u>Ending</u>
Undergraduate Advisor Aero/Astro Advisory Committee	Sept. 1998 June 1999	June 2015 Aug. 1999
(for Student Jobs)	,	0

ESD Symposium Conference Committee	Mar. 2000	May 2002
Eng. Systems Undergraduate Minor	Feb. 2000	Jan. 2002
Faculty Advisor, e-Aerospace student	Sept. 2000	June 2001
Group		
SDM Core Curriculum Committee		
(Chair)	Jan. 2002	June 2002
Engineering Co-Director, Lean	Jan. 2002	Jan 2013
Aerospace Initiative		
Mech Eng./ESD Faculty Search	Dec. 2002	Sept. 2003
Aero/Astro Dept. Head Search	Jan. 2003	Apr. 2003
Committee		
Mech. Eng. /ESD Faculty Search	Nov. 2003	Aug 2004
(Chair)		
ESD Education Committee	Jan 2004	June 2008
MIT Honors & Awards Committee	Jan 2005	Mar. 2005
ESD Health Care Committee	Mar 2005	March 2006
ESD Industry Committee	June 2005	Jan. 2006
Aero/Astro Undergrad Industry		
Intern Advisor	Jan 2006	June 2007
Aero/Astro Dept. Head Search Comm.	Oct. 2007	Jan. 2008
ESD Faculty Search Committee	Dec 2007	May 2008
Aero/Astro LGO Faculty Advisor	Jan 2009	June 2014
SDM Director Search	Sept 2010	Jan. 2011
Aero/Astro Engineering Mgt.		
Undergrad Option	Sep 2010	Jun 2014
Director, Sociotechnical Systems	Oct. 2010	June 2014
Research Center (SSRC)		
Dean of Engineering Council	Oct. 2010	June 2014
ESD Council	Sep 2012	June 2014

# 10. Professional service:

<u>Activity</u>	<u>Beginning</u>	<u>Ending</u>
Publications Policy Board, Institute	April 1986	Mar. 1989
Of Industrial Engineers (IIE)		
Arizona State Univ. CIM Center	Feb. 1990	Mar. 1992
Executive Review Board		
NAE Fourth Decade Committee	Dec. 1993	Dec. 1995
Manufacturing Advisory Council, IIE	April 1993	Mar. 1995

Advisory Board, Management of Tech., American Graduate School of Int'l Mgt		June 1996
ABET Evaluators Committee, IIE	 April 1996	Mar. 1999
NAE Peer Committee	Jan. 1996	Dec. 1998
Honors & Awards Committee, IIE	Jan. 1997	Mar. 2001
Chair, NAE Peer Committee	Jan. 1997	Jan. 1998
•	•	-
Stanford Univ. Industrial & Mgt. Eng.	Jan. 1997	Feb. 1997
Advisory Board	C 1 1007	O 1 1000
NRC Study Team on Defense Mfg.	Sept. 1997	Oct. 1998
Executive Steering Board, <u>Industrial</u> <u>Engineering Handbook</u>	Sept. 1998	Mar. 2001
IIE Executive Director Search	Oct. 1998	Jan. 1999
Committee	Oct. 1990	Jan. 1999
Secretary, IIE Council of Fellows	May 1999	April 2000
NAE Committee on Membership Policy	•	May 2001
NRC Study Team on Totally Integrated	Aug. 1999	July 2000
Munitions Enterprise	1146. 1777	jury 2000
NAE Membership Committee	Jan. 2000	Jan. 2003
Vice Director, IIE Council of Fellows	May 2000	April 2001
Chair, IIE Council of Fellows	May 2001	May 2002
WPI Dept. of Industrial Engineering	Sept. 2002	August 2007
Advisory Board	-	J
NRC Reviewer of "New Directions in	Oct. 2003	Nov. 2003
Manufacturing: Report of a Workshop	"	
Editorial Reviewer, Int'l Journal of	May 2004	Present
Knowledge & Systems Management	•	
Advisory Board, "Project Lead the Way	January 2008	June 2010
Chaminade Juliene HS Dayton, Ohio	· •	
Edit. Reviewer "Systems Engineering"	April 2008	Present
DoD Panel on Educational Requirements	s Nov 2008	June 2009
For National Security Leadership		
Editor in Chief, "Journal of Enterprise	Nov 2008	January 2015
Transformation"		Ž
IIE Enterprise Transformation	June 2010	April 2012
Conference Committee		•
National Academies Committee:	August 2011	August 2013
21st Century Manufacturing:	O	O
The Role of the Manufacturing		
Extension Partnership Program		
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Dean of Engineering Advisory	Sep 2012	Present
Committee, University of Dayton		
Massport Security Advisory	May 2013	Present
Committee (MSAC)		
Systems Health Advisory Board	Sept 2014	Present
NAE Peer Committee	Nov 2015	Present
Systems Health Advisory Board		

### 11. Awards Date

Scientific/Technical Achievement Award,1972 AF Aeronautical Systems Command Patricia Kayes Glass Award (outstanding 1972 woman scientist of the year, AFSC) Outstanding Manager of the Year, American 1991 Society for Training & Development 1993 National Academy of Engineering Special Achievement Alumni Award, 1994 University of Dayton Fellow, Institute of Industrial Engineers 1994 1995 Distinguished Alumni Award, Ohio State Univ. International Academy of Astronautics (IAA) 2003 **Engineering Book Award** 

# 12. Current Organization Membership:

<u>Organization</u>	Offices Held
National Academy of Engineering	Chair, Peer Selection Committee
Institute of Industrial & Systems	
Engineers	Director, Operation Research
	Division, 1985-1986
	VP., Design & Production
	Systems, (BOT) 1989-1991,
	VP, Publications & Professional
	Development, (BOT), 1991-1993
	President-Elect & CFO, 1994-1995
	President, 1995-1996

International Council on Systems Engineering (INCOSE)

The Boston Club (Executive Women Leaders)

- 13. Major New Products, Processes, Designs, or Systems:
  - Enterprise Architecting Framework (1.3, 2.9, 2.1, 3.16, 3.23, 3.25) Enterprises have long been studied by management, social and information scientists; however, this has largely been through taking one single view of the enterprise such as studying the organizational structure or the information technology architecture. Research in the Lean Advancement Initiative on enterprise transformation and design has determined that *enterprise architecting* must take a systems perspective, viewing the entire enterprise as a holistic system that can be understood by examining the enterprise through multiple perspectives or views of an overall integrated framework. These include the strategy view, policy/external environment view, organization view, process view, knowledge view, enabling information technology view, product view, service view and the interrelationships between these views.
  - Enterprise Strategic Analysis for Transformation (ESAT) (4.1.2, 4.31, 4.32, 4.33)

ESAT is a process for assessing the current state of an enterprise, establishing goals for a desired future state, and developing a strategy and roadmap of specific actions to enable transformation to the desired new state. It utilizes engineering system methodologies and decision support tools for analyzing enterprise performance.

• Lean Enterprise Self Assessment Tool (LESAT) (2.3, 4.28, 4.29, 4.33)

A methodology for assessing the maturity of an organization and its readiness to change. It includes a capability maturity model that addresses key integrative and strategic issues in life cycle, leadership and enabling processes. LESAT is currently employed by numerous industry and government enterprises, some as a corporate-wide standard.

• Transition-to-Lean (TTL) enterprise transformation model (1.1, 1.2, 2.3, 2.6, 4.25, 4.26, 4.27)

The Enterprise Transformation Roadmap was developed based on ten years of research for enterprise leadership to aid in incorporating best practice in the strategic analysis, transformation and sustainment of new processes. It consists of three cycles: 1) a *strategic* cycle where the business case for transformation is made along with the engagement of leadership, 2) a *planning* cycle where both the current state and future state are analyzed and defined, along with a transformation plan to achieve the future vision, and 3) an *execution* cycle that puts the plan into practice.

• <u>SAINT Man-machine Simulation Language</u> (3.2, 3.5 through 3.12, 4.1 through 4.16)

Co-developer of a network based combined discrete event / continuous flow simulation modeling language designed for modeling complex man-machine systems. Extensively deployed by over a dozen federal labs and government research organizations.

The following products were developed while engaged as a senior executive at AlliedSignal Engines:

- Enterprise-wide Integrated Modernization plan (4.17, 4.18) Comprehensive plan that spanned engineering, operations, supply chain, IT, Finance, HR and incorporated products, processes, people, systems, and information integration
- <u>Strategic partnering process</u>
   Methodology for analyzing and aligning technology and operational strategic partners to achieve strategic objectives
- <u>IPPD Process (4.19, 4.23)</u>
   Corporate wide methodology for Integrated Product and Process
   Development; included constructs for rapid product design and development in parallel with operational and support process design.

# <u>Teaching & Educational Contributions of Deborah J. Nightingale</u>

# 1. Teaching Experience

Term	Subject Number	Title	Role	Course type	Course evaluation survey given
IAP98	SDM	SDM student projects	Developed problem Statement, team advisor, faculty judge for final presentations	Grad	given
IAP98		"Aerospace manufacturing in the Next Millennium"	Lecturer in charge	Lecture	
FT98	16.982	Integrating the Lean Enterprise	Creator, lecturer in charge	Grad	
ST98	16.982	Integrating the Lean Enterprise	Creator, lecturer in charge	Grad	
FT99	16.852	Integrating the Lean Enterprise	Creator, lecturer in charge	Grad	
FT00	16.852J/ ESD.61J	Integrating the Lean Enterprise	Creator, lecturer in charge	Grad	
FT01	16.852J/ ESD.61J	Integrating the Lean Enterprise	Creator, lecturer in charge	Grad	Aero/Astro
FT02	16.852J/ ESD.61J	Integrating the Lean Enterprise	Creator, lecturer in charge	Grad	Aero/Astro
IAP03		UPOP Seminar	Developed value stream exercise, led team presentations	Under Grad	
FT03	16.852J/ ESD.61J	Integrating the Lean Enterprise	Creator, lecturer in charge	Grad	Aero/Astro
IAP04		UPOP Seminar	Developed value stream exercise, led team presentations	Under Grad	
ST04	ESD 38J/ 16.855J	Enterprise Architecting	Creator, lecturer in charge	Grad	ESD
FT04	16.852J/ ESD.61J	Integrating the Lean Enterprise	Creator, lecturer in charge	Grad	Aero/Astro
IAP05		UPOP Seminar	Developed value stream exercise, led team presentations	Under Grad	
ST05	ESD 38J/ 16.855J	Enterprise Architecting	Creator, lecturer in charge	Grad	ESD
FT05	16.852J/ ESD.61J	Integrating the Lean Enterprise	Creator, lecturer in charge	Grad	Aero/Astro

IAP06		UPOP Seminar	Developed value stream exercise, led team presentations	Under Grad	
ST06	ESD 38J/ 16.855J	Enterprise Architecting	Creator, lecturer in charge	Grad	ESD
FT06	16.852J/ ESD.61J	Integrating the Lean Enterprise	Creator, lecturer in charge	Grad	Aero/Astro
IAP07		UPOP Seminar	Developed value stream exercise, led team presentations	Under Grad	
ST07	ESD 38J/ 16.855J	Enterprise Architecting	Creator, lecturer in charge	Grad	ESD
FT07	16.852J/ ESD.61J	Integrating the Lean Enterprise	Creator, lecturer in charge	Grad	Aero/Astro
IAP08	·	UPOP Seminar	Developed value stream exercise, led team presentations	Under Grad	
ST08	ESD 38J/ 16.855J	Enterprise Architecting	Creator, lecturer in charge	Grad	ESD
FT08	16.852J/ ESD.61J	Integrating the Lean Enterprise	Creator, lecturer in charge	Grad	Aero/Astro
ST09	ESD 38J/ 16.855J	Enterprise Architecting	Creator, lecturer in charge	Grad	ESD
FT09	16.852J/ ESD.61J	Integrating the Lean Enterprise	Creator, lecturer in charge	Grad	Aero/Astro
ST10	ESD 38J/ 16.855J	Enterprise Architecting	Creator, lecturer in charge	Grad	ESD
FT10	16.852J/ ESD.61J	Integrating the Lean Enterprise	Creator, lecturer in charge	Grad	Aero/Astro
ST11	ESD 38J/ 16.855J	Enterprise Architecting	Creator, lecturer in charge	Grad	ESD
FT11	16.852J/ ESD.61J	Integrating the Lean Enterprise	Creator, lecturer in charge	Grad	Aero/Astro
ST12	ESD 38J/ 16.855J	Enterprise Architecting	Creator, lecturer in charge	Grad	ESD
FT12	16.852J/ ESD.61J	Integrating the Lean Enterprise	Creator, lecturer in	Grad	Aero/Astro
ST13	ESD 38J/	Enterprise	charge Creator, lecturer in	Grad	ESD
FT13	16.855J 16.852J/	Architecting Integrating the	charge Creator, lecturer in	Grad	Aero/Astro
ST14	ESD.61J ESD 38J/ 16.855J	Lean Enterprise Enterprise Architecting	charge Creator, lecturer in charge	Grad	ESD

#### 2. Other Educational Contributions

- Lean Enterprise Value Short Course, June 2002
- Education Network university network for lean curriculum and research
- University of Cambridge Lean Executive Course, November 2003
- University of Cambridge Lean Executive Course, June 2004
- Oxford Univ. BAE Executive Short Course, Feb 2005
- World Class Lean Enterprises, March, 2007
- Enterprise Value Stream Mapping and Analysis (EVSMA)
   Executive Short Course, June 2007
- Enterprise Architecting Executive Short Course, MIT, June 2007
- World Class Lean Enterprises, Executive Short Course, MIT, October 2007
- Lean Enterprise Short Course, BAE Systems, Blackpool, UK, May 2008
- Enterprise Strategic Analysis for Transformation (ESAT) Executive Short Course, September, 2008
- Enterprise Architecting, MIT Engineering Professional Institute, June 2009
- Enterprise Architecting, MIT Engineering Professional Institute, June 2010
- Principles of Enterprise Transformation, Executive Short Course, MIT, September 2010
- Architecting the Future Enterprise, MIT Engineering Professional Institute, June 2011
- Principles of Enterprise Transformation, Executive Short Course, MIT, June 2011
- Architecting the Future Enterprise, MIT Professional Education Short Course, Milan, Italy, January 2012
- Architecting the Future Enterprise, MIT Professional Education Short Course, Rome, Italy, January 2012
- Architecting the Future Enterprise, MIT Engineering Professional Institute, June 2012
- Principles of Enterprise Transformation, Executive Short Course, MIT, June 2012
- Architecting the Future Enterprise, MIT Engineering Professional Institute, June 2013
- Principles of Enterprise Transformation, Executive Short Course, MIT, June 2013
- Architecting the Future Enterprise, MIT Engineering Professional Institute, June 2014
- Principles of Enterprise Transformation, Executive Short Course, MIT, June 2014
- Principles of Enterprise Transformation, Executive Short Course, UPAEP, Puebla, Mexico, November 2014, April 2015, July 2015 and April 2016
- Architecting the Future Enterprise, On-Line Executive Short Course, MIT, Accenture, April to June 2014 and Jan to Feb 2015
- Strategic Enterprise Transformation Seminar, Executive Course, UPAEP, Puebla, Mexico, April 2016

## Publications of Deborah J. Nightingale

#### 1. Books

- 1. Murman, Earll, Deborah J. Nightingale, et. al., <u>Lean Enterprise Value</u>, Palgrave, March 2002; published in Korean, 2007; published in Chinese 2008.
- 2. Nightingale, Deborah J., and Srinivasan, Jayakanth, <u>Beyond the Lean Revolution: Achieving Successful and Sustainable Enterprise Transformation</u>, AMACON, August 2011, published in Chinese 2014.
- 3. Nightingale, Deborah J., and Rhodes, Donna H., <u>Architecting the Future Enterprise</u> MIT Press, Feb 2015

### 2. Papers in Refereed Journals

- 1. Mize, Joe H., Deborah J. Seifert and Gayle Berry, Strategic Planning for Factory Modernization- A Case Study, <u>Productivity Review</u>, December 1984.
- 2. Nof, Shimon Y. and Deborah J. Seifert, et. al., Research Needs and Challenges in Application of Computer and Information Sciences for Industrial Engineering, <u>IIE Transactions</u>, Spring 1989.
- 3. Nightingale, D. J., et al, Committee on Defense Manufacturing in 2010 and Beyond, Commission on Engineering and Technical Systems, National Research Council, "Defense Manufacturing in 2010 and Beyond: Meeting the Changing needs of National Defense", March 2001
- 4. Nightingale, Deborah J., Mize, Joe H., Development of a Lean Enterprise Transformation Maturity Model, <u>Journal of Information Knowledge</u>
  <u>Systems Management (IKSM)</u>, December 2002.
- 5. Downen, Troy D., Nightingale, Deborah J., and Magee, Christopher L., A Multi-Attribute Value Model for Business Airplane Product Development, <u>AIAA Journal of Aircraft</u>, 42 (6): 1387-1395 November-December 2005.

- 6. Davidz, H. and Nightingale, Deborah J., Enabling Systems Thinking to Accelerate the Development of Senior Systems Engineers, <u>Systems</u> Engineering Journal, Vol. 11, No.1, Spring 2008
- 7. Valerdi, R., Nightingale, D. J. and Blackburn, C., "Enterprises as Systems: Context, Boundaries and Practical Implications," <u>Information</u>, <u>Knowledge and Systems Management 8</u>(3), 1-23, 2009
- 8. Peck, J., Nightingale, D. & Kim, S.-G., 2010. Axiomatic approach for efficient healthcare system design and optimization. <u>CIRP Annals Manufacturing Technology</u>, 59(1), pp.469-472.
- 9 Mikaelian, T., Nightingale, D., Rhodes, D., and Hastings, D., "Real Options in Enterprise Architecture: A Holistic Mapping of Mechanism and Types for Uncertainty Management" <u>IEEE Transactions on Engineering Management</u>, 2010, Vol. PP, Issue: 99, March 28, 2011
- 10. Perkins, L. N., Abdimomunova, L., Valerdi, R., Shields, T. and Nightingale, D. J., "Insights from Enterprise Assessment: How to Analyze LESAT Results for Enterprise Transformation, "Information, Knowledge and Systems Management, 2011.
- 11. Valerdi, R. and Nightingale, D. J., "An Introduction to the Journal of Enterprise Transformation," <u>Journal of Enterprise Transformation</u>, 1(1), 2011.
- 12. Purchase, V., Parry, G., Valerdi, R., Nightingale, D. J. and Mills, J., "Enterprise Transformation: Why Are We Interested, What Is It, And What Are The Challenges?," <u>Journal of Enterprise Transformation</u>, 1(1), 2011.
- 13. Peck, Jordan, James Benneyan, Deborah Nightingale, and Stephan Gaehde, "Predicting Emergency Department Inpatient Admissions to Improve Same-day Patient Flow" Submitted for Publication to <u>Academic Emergency Medicine</u>, December 2011.
- 14. Jorge M. Fradinho, Deborah J. Nightingale, and Maria T. Fradinho, "A Systems-of-Systems Perspective on Healthcare: Insights from two multimethod exploratory cases of leading U.S. and U.K. Hospitals", accepted for publication <u>IIE Systems Journal</u>, June 2012.
- 15. Peck, J., Benneyan, J., Nightingale, D., Gaehde, S., 2012. "Predicting emergency department inpatient admissions to improve same-day patient flow." <u>Academic Emergency Medicine</u>, 19 (9) E1045-E1054

- 16. Peck, J., Gaehde, S., Nightingale, D., Gelman, D., Huckins, D., Lemons, M., Dickson, E., Benneyan, J., 2013." Generalizability of a simple approach for predicting hospital admission from an emergency department" Accepted: <u>Academic Emergency Medicine</u> 6/2013
- 17. Teo, K.S., Costa, J.M.H., Oehmen, J., Tay, M., and Nightingale, D. (2013) "Proposal of a Metric Design Framework to Extract High Value from Enterprise Performance Measurement Systems." (Forthcoming in <u>Journal of Enterprise Transformation</u>)
- 18. Costa, J.H.C, Oehmen, J., Rebentisch, E, and Nightingale, D. (2013), "Toward a Better Comprehension of Lean Metrics for Research and Product Development Management." May 27, 2014, <u>R&D Management Journal</u>)
- 19. Landow, Shoshana, Wessendorf, Ashley, Korgarvkar, Kaveri, Nightingale, Deborah, Weinstock, Martin A., "Using Teledermatology to Prevent Face-to-Face Dermatology Visits: A Review of Factors Associated with Appointments Avoided", April 3, 2014, <u>Journal of American Academy of Dermatology.</u>
- 20. Glover, Wiljeana, Plmanabhan, Jayaprasad, Rhodes, Donna, and Nightingale, Deborah, "Architecting the Future U.S. Military Psychological Health Enterprise via Policy and Procedure Analysis"; Journal of Military Medicine, 2015

### 3. Proceedings of Refereed Conferences

- 1. Seifert, Deborah J., Graphic Routines for Analyzing Input and Output in a Monte Carlo Simulation, <u>Proceedings of the Third Annual Pittsburgh</u> <u>Conference on Modeling and Simulation</u>, Pittsburgh, PA, April 1972.
- 2. Seifert, Deborah J. and Gerald P. Chubb, Computer Models of Man-Machine Survivability/Vulnerability, <u>Proceedings of the Winter Simulation</u> <u>Conference</u>, San Antonio, Texas, 17-19 October 1972.
- 3. Connelly, Edward M., Diane G. Loental, and Deborah J. Seifert, A Non-Linear Operator Model for System Performance Measurement, <u>Proceedings of the Fifth Annual Pittsburgh Conference on Modeling and Simulation</u>, Pittsburgh, PA, 24-26 April 1974.

- 4. Pritsker, A. Alan B., David B. Wortman, Gerald P. Chubb, and Deborah J. Seifert, SAINT: Systems Analysis of Integrated Networks of Tasks, Proceedings of the Fifth Annual Pittsburgh Conference on Modeling and Simulation, Pittsburgh, PA, 24-26 April 1974.
- 5. Wortman, David B., Steven D. Duket, and Deborah J. Seifert, Simulation of Remotely Piloted Vehicle/Drone Control Facility Using SAINT, <u>Proceedings of the Summer Computer Simulation Conference</u>, San Francisco, California, 21-23 July 1975.
- 6. Kuperman, Gilbert and Deborah J. Seifert, Development of a Computer Simulation Model for Evaluating DAIS Display Concepts, <u>Proceedings of the Human Factors Society Conference</u>, Dallas, Texas, October 1975.
- 7. Wortman, David B., Steven D. Duket, and Deborah J. Seifert, SAINT Simulation of a Remotely Piloted Vehicle/Drone Control Facility, <a href="Proceedings of the Human Factors Society Conference">Proceedings of the Human Factors Society Conference</a>, Dallas, Texas, October 1975.
- 8. Askren, William B., Wendy B. Campbell, and Deborah J. Seifert, Evaluating Human Effects on Nuclear Systems Safety and Performance, Proceedings of the 19th Annual American Psychological Association Meeting, September 1976.
- 9. Seifert, Deborah J., David B. Wortman, and Steven D. Duket, SAINT: A Combined Discrete/Continuous Network Simulation Technique, Proceedings of the Eighth Annual Pittsburgh Conference on Modeling and Simulation, Pittsburgh, PA, April 1977.
- 10. Wortman, David B., Steven D. Duket, and Deborah J. Seifert, Modeling and Analysis Using SAINT: A Combined Discrete/Continuous Network Simulation Language, <u>Proceedings of the 1977 Winter Simulation</u>
  <u>Conference</u>, Gaithersburg, Maryland, December 1977.
- 11. Seifert, Deborah J., and Gerald P. Chubb, SAINT: A Combined Simulation Language for Modeling Large, Complex Systems, <u>Proceedings of the Simulation Special Interest Group 1978 Conference</u>, Canberra, Australia, AMRL-TR-78-48, 4-6 September 1978.

- 12. Miller, R.A. and Deborah J. Seifert, Combined Discrete Network Continuous Control Modeling of Operator Behavior, <u>Proceedings of the 16th Annual Conference on Manual Control</u>, May 1980.
- 13. Seifert, Deborah J. and Jeffrey A. Low, Simulation: A Dynamic Tool for Evaluating Advanced Manufacturing Concepts, <u>Proceedings of IEEE Conference on Systems</u>, Man and Cybernetics, October 1982.
- 14. Mize, Joe H. and Deborah J. Seifert, CIM A Global View of The Factory, <u>Proceedings</u>, of the 1986-Annual International IIE Conference, November 1986.
- 15. Allen, Thomas and Deborah J. Nightingale, Engineering Systems: An Enterprise Perspective, Monograph, MIT Engineering Systems

  Symposium, March 2004.
- 16. Nightingale, Deborah J. and Donna Rhodes, Enterprise Architecting: An Emerging Art and Science within Engineering Systems, <u>MIT</u>
  <u>Engineering Systems Symposium</u>, March 2004.
- 17. Davidz, Heidi L., Nightingale, Deborah, J., and Rhodes, Donna H., Enablers, Barriers, and Precursors to Systems Thinking Development: The Urgent Need for More Information, <u>Proceedings of the ICSE & INCOSE Joint 2004 Conference</u>, Las Vegas, Nevada, September, 2004.
- 18. Downen, Troy D., Nightingale, Deborah J., and Magee, Christopher L., A Mathematical Multi-Attribute Value Model for the Front-End Product Development Process, <u>Proceedings of the ICSE/INCOSE Joint Conference</u>, Las Vegas, NV, September, 2004
- 19. Davidz, Heidi L., Nightingale, Deborah J., and Rhodes, Donna H., Accelerating the Development of Senior Systems Engineers, <u>Proceedings of the International Council on Systems Engineering (INCOSE)</u>, March 2005
- 20. Davidz, Heidi L., Nightingale, D. Rhodes, "Enablers and Barriers to Systems Thinking Development: Results of a Qualitative and Quantitative Study." <u>Proceedings of 3<sup>rd</sup> Annual Conference on Systems Engineering Research (CSER)</u>, Hoboken, NJ, 2005

- 21. Rhodes, Donna H and Nightingale, Deborah J. Educating Services Science Leaders to Think Holistically About Enterprises. <u>Proceedings of IBM Services Conference</u>, October 2006
- 22. Oliveira, Jorge, Nightingale, Deborah J., "Adaptable Enterprise Architecture and Long-Term Value Added Partnerships in Healthcare", ECIS-2007, <u>Proceedings of 15<sup>th</sup> European Conference Information Systems</u>, St. Gallen, Switzerland, June 2007
- 23. Lamb, C.T., Rhodes, D.H. and Nightingale, D. J., Evolving Systems Engineering for the Realization of Effective Enterprises, <u>Proceedings of Conference Systems Engineering Research (CSER)</u>, Los Angeles, CA., April 2008
- 24. Mikaelian, T., Rhodes, D. H., Nightingale, D.J., Hastings, D. E., Managing Uncertainty in Socio-Technical Enterprises Using a Real Options Framework, <u>Proceedings of Conference Systems Engineering Research</u> (CSER), Los Angeles, CA., April 2008
- 25. T. Mikaelian, D. Rhodes, D. Nightingale, and D. Hastings, "Managing Uncertainty in Socio-Technical Enterprises using a Real Options Framework". 6th Conference on Systems Engineering Research (CSER-08), Redondo Beach, CA., 2008
- 26. Valerdi, R., Nightingale, D., Blackburn, C., "Practical Implications of Enterprise Research," <u>Proceedings of the 6th Conference on Systems</u>
  <u>Engineering Research</u>, Los Angeles, CA, April 2008
- 27. Rhodes, D.H., Lamb, C.T. and Nightingale, D.J., "Empirical Research on Systems Thinking and Practice in the Engineering Enterprise," <u>Proceedings of the 2nd Annual IEEE Systems Conference</u>, Montreal, Quebec, Canada, April 7-10, 2008
- 28.. Nightingale, Deborah J. and Rhodes, Donna H., "Educating Services Science Leaders to Think Holistically About Enterprises", <u>Service Science, Management and Engineering: Education in the 21st Century</u>, September 2008
- 29. Rhodes, Donna H., Ross, Adam M., and Nightingale, Deborah J., "Architecting the System of Systems Enterprise: Enabling Constructs and

- Methods from the Field of Engineering Systems", <u>3<sup>rd</sup> Annual IEEE Systems</u> <u>Conference</u>, March 2009
- 30. Mikaelian, T., Rhodes, D.H., Nightingale, D.J., Hastings, D.E., "Model-Based Estimation of Flexibility -and Optionability in an Integrated Real Options Framework", 3<sup>rd</sup> Annual IEEE Systems Conference, March 23-26, 2009
- 31. Jorge F. Oliveira, Deborah J. Nightingale, "High Performing Hospital Enterprise Architecture: Insights from a Multi-method Exploratory Case", 1st Global Conference on Systems and Enterprises (GCSE), Washington, D.C., December 3-4, 2009
- 32. Nightingale, Deborah, and Peck, Jordan, "Lean Enterprise Transformation and Enterprise Architecture of Health Care Systems", Society of Healthcare Systems Annual Conference, SHS/ASQ Conference and Expo 2010, February 25-28, 2010, Atlanta, GA.
- 33. Jorge F. Oliveira, Deborah J. Nightingale, "A Systems-of-Systems Perspective on Healthcare: Insights from Two Multi-Method Exploratory Cases of Leading UK and US Hospitals", <u>IEEE Systems Conference</u>, July 10, 2010
- 34. Perkins, L. N., Valerdi, R. and Nightingale, D., "Organizational Assessment Models for Enterprise Transformation," <u>20th INCOSE Symposium</u>, Chicago, IL, July 2010.
- 35. Glover, W., Kamin, C., Wang, J., Srinivasan, J., Kenley, B., and Nightingale, D., (2011), "Continuum of Care for Post-Traumatic Stress in the US Military Enterprise", <u>Proceedings of the 2011 Society of Health Systems Conference</u>, Orlando, FL, February 17-19, 2011, CD-ROM.
- 36. Deborah J. Nightingale and Jordan S. Peck, "Lean Enterprise Transformation and Enterprise Architecture of Health Care Systems" Proceedings of the 2011 Society of Healthcare Systems Conference, Orlando, FL, February 17-19, 2011
- 37. Deborah J. Nightingale and Jordan S. Peck, "Using Prediction to Improve Patient Flow in a Health Care Delivery Chain, <u>Proceedings of the</u>

- <u>2011 Society of Healthcare Systems Conference, Orlando, FL, February 17-19, 2011</u>
- 38. Peck, Jordan, Nightingale, Deborah, et al., 2011. "Facilitating Patient Flow in a Health Care Delivery Chain", <u>VERC Symposium</u>, Detroit, MI., May, 2011
- 39. Peck, Jordan, Gaehde, S., Nightingale, Deborah, et al. "A Model for Forecasting Inpatient Unit Demand Originating from an Emergency Department", <u>Informs Health Care Conference</u>, Montreal, Quebec, Canada, June 20-22, 2011
- 40. Peck, Jordan, Nightingale, Deborah, et al., "Using Prediction to Improve Patient Flow in a Health Care Delivery Chain", 2011 Technology Management and Policy Graduate Consortium, Carnegie Mellon University, Pittsburg, PA, June 25-26, 2011
- 41. Peck, J., Benneyan, J., Gaehde, S., Nightingale, D., "Models for Using Prediction to Facilitate Hospital Patient Flow". <u>Proceedings of the 2012 Society of Health Systems Conference</u>. Las Vegas, NV.,December 2-6, 2012
- 42. Al-Haque, Shahed, Ceyhan, M.E., Nightingale, D., "Responding to Traveling Veterans' Seasonal Demands for Healthcare Services", <a href="Proceedings of the ISERC 2013 Conference">Proceedings of the ISERC 2013 Conference</a>, San Juan, Puerto Rico, June 2013
- 43. Peck, J., Benneyan, J., Nightingale, D., Gaehde, S., "Modeling the Flow Effects of Prediction in a Hospital", <u>Proceedings of the ISERC 2013</u> <u>Conference</u>, San Juan, Puerto Rico, June 2013
- 44. Costa, J.M.H, Rossi, M., Rebentisch, E., Taisch, M. and Nightingale, D. (2014) "What to Measure for Success in Lean System Engineering Programs?" (accepted for 12th Annual Conference on Systems Engineering Research, Redondo Beach, CA. March 20-22, 2014)
- 45. Monica Rossi; Eric Rebentisch; Sergio Terzi; Marco Taisch; Deborah J Nightingale, "'What to Measure for Success in Lean System Engineering Program?', accepted for 2014 Conference on Systems Engineering Research (CSER 2014) March 21-22, Redondo Beach, California

### 4. Other Major Publications

- 1. Pritsker, A. Alan B. David B. Wortman, Charles S. Seum, Gerald P. Chubb, and Deborah J. Seifert, <u>SAINT: Systems Analysis of Integrated Networks of Tasks</u>, Aerospace Medical Research Laboratory, Wright-Patterson, AFB, Ohio, AMRL-TR-73-126.
- 2. Wortman, David B., A. Alan B. Pritsker, Charles S. Seum, and Deborah J. Seifert, <u>SAINT: User's Manual</u>, Aerospace Medical Research Laboratory, Wright-Patterson AFB, AMRL-TR-73-128, 1973.
- 3. Wortman, David B., C. Elliott Sigal, A. Alan B. Pritsker, and Deborah J. Seifert, New SAINT Concepts and the SAINT II Simulation Program, Aerospace Medical Research Laboratory, Wright-Patterson AFB, Ohio, AMRL-TR-74-119.
- 4. Wortman, David B., C. Elliott Sigal, A. Alan B. Pritsker, and Deborah J. Seifert, <u>SAINT II Documentation Manual</u>, Aerospace Medical Research Laboratory, Wright-Patterson AFB, Ohio, AMRL-HESS-74-4.
- 5. Askren, William B., Wendy B. Campbell, and Deborah J. Seifert, Feasibility of a Computer Simulation Method for Evaluating Human Effects on Nuclear Systems Safety, AFHRL-TR-76-18, May 1976.
- 6. Wortman, David B., Steven D. Duket, and Deborah J. Seifert, <u>New Developments in SAINT: The SAINT III Simulation Program</u>, Aerospace Medical Research Laboratory, Wright-Patterson AFB, Ohio, AMRL-TR-75-107, June 1976.
- 7. Wortman, David B., Steven D. Duket, and Deborah J. Seifert, <u>SAINT</u> <u>Simulation of a Remotely Piloted Vehicle/Drone Control Facility: Model Development and Analysis</u>, Aerospace Medical Research Laboratory, Wright-Patterson AFB, Ohio, AMRL-TR-75-118, June 1976.
- 8. Duket, Steven D., David B. Wortman, and Deborah J. Seifert, <u>SAINT Simulation of a Remotely Piloted Vehicle/Drone Control Facility</u>, Aerospace Medical Research Laboratory, Wright-Patterson AFB, Ohio, AMRL-TR-75-119, June 1976.

- 9. Wortman, David B. Steven D. Duket, Deborah J. Seifert, Reuben L. Hahn, and Gerald P. Chubb, <u>Simulation Using SAINT A User-Oriented Instruction Manual</u>, Aerospace Medical Research Laboratory, Wright-Patterson AFB, Ohio, AMRL-TR-77-61.
- 10. Wortman, David B., Steven D. Duket, Deborah J. Seifert, Reuben L. Hahn, and Gerald P. Chubb, <u>The SAINT User's Manual</u>, Aerospace Medical Research Laboratory, Wright-Patterson AFB, Ohio, AMRL-TR-77-62.
- 11. Duket, Steven D., David B. Wortman, Deborah J. Seifert, Reuben L. Hahn, and Gerald P. Chubb, <u>Documentation for the SAINT Simulation Program</u>, Aerospace Medical Research Laboratory, Wright-Patterson AFB, Ohio, AMRL-TR-77-63.
- 12. Duket, Steven D., David B. Wortman, Deborah J. Seifert, Reuben L. Hahn, and Gerald P. Chubb, <u>Analyzing SAINT Output Using SPSS</u>, Aerospace Medical Research Laboratory, Wright-Patterson AFB, Ohio, AMRL-TR-77-64.
- 13. Seifert, Deborah J., <u>Combined Discrete Network -- Continuous Control Model of Man-Machine Systems</u>, Ph.D. Dissertation, Ohio State University, March 1979.
- 14. Seifert, Deborah J., SAINT: A Combined Simulation Language for Modeling Man-Machine Systems, <u>Models of Human Operators in Vision Dependent Tasks</u>, NASA Conference Publications 2103, October 1979.
- 15. Seifert, Deborah J. Koeplinger, George and Constance M. Hoyland, <u>REDIMEN: SAINT Redimensioning Program</u>, Aerospace Medical Research Laboratory, Wright-Patterson AFB, Ohio, AFAMRL-TR-80-5, February 1980.
- 16. Seifert, Deborah J. and B. Doring, SAINT: A Technique for Modeling, Simulation and Analysis of Man-Machine Systems, <u>Angewandte</u> <u>Systemanalyse</u>, 1981.
- 17. Mize, Joe H., Deborah J. Seifert and F. Stan Settles, Formation and Workings of a Corporate-Wide CIM Committee at Garrett Corporation, <u>Industrial Engineering</u>, November 1985.

- 18. Seifert, Deborah J., Garrett Corporate Approach to CIM Planning, <u>Proceedings of 1986 SAE Aerospace Conference & Exposition</u>, October 1986.
- 19. Seifert, Deborah J., The CIM Challenge Integrating Design Engineering and Manufacturing, <u>Simultaneous Engineering Conference</u>, March 1988.
- 20. Settles, F. Stan and Deborah J. Seifert, Are Industrial Engineers Working on the Right Things? <u>Industrial Engineering</u>, March 1989.
- 21. Seifert, Deborah J., Societies, Divisions, and Interest Groups Strive for Excellence in Technical Customer Service, <u>CACTIE</u>, (IIE Central Arizona Chapter Newsletter), April 1991.
- 22. Seifert, Deborah J., The Customer is First at Garrett Engine Division, <u>CACTIE</u>, (IIE Central Arizona Chapter Newsletter), February 1991.
- 23. Seifert, Deborah J., Integrated Product Delivery and Support A Company-Wide Approach, <u>Proceedings of the 1995 IIE Regional Conference</u>, Rochester, NY, April 1995.
- 24. Nightingale, Deborah J., et. al., Lean Aerospace Initiative- A Successful Model for Industry, Government, and University Collaboration, <u>IIE</u> <u>Solutions</u>, Nov. 1998.
- 25. Nightingale, Deborah J., et. al., Transitioning To A Lean Enterprise: A Guide For Leaders, Volume I Executive Overview, MIT Lean Aerospace Initiative, September 2000.
- 26. Nightingale, Deborah J., et. al., Transitioning To A Lean Enterprise: A Guide For Leaders, Volume II Transition-to-Lean Roadmap, MIT Lean Aerospace Initiative, September 2000.
- 27. Nightingale, Deborah J., et. al., Transitioning To A Lean Enterprise: A Guide For Leaders, Volume III Roadmap Explorations, MIT Lean Aerospace Initiative, September 2000.

- 28. Nightingale, Deborah J., et. al., Lean Enterprise Self Assessment Tool (LESAT), MIT Lean Aerospace Initiative, August, 2001.
- 29. Nightingale, Deborah J., et. al., Lean Enterprise Self Assessment Tool (LESAT) Facilitator's Guide, MIT Lean Aerospace Initiative, August, 2001.
- 30. Nightingale, Deborah J., The Lean Aerospace Initiative: Innovating Transformation, MIT Aero/Astro Alumni Newsletter, November, 2003.
- 31. Nightingale, Deborah J., et. al., Enterprise Value Stream Mapping and Analysis (EVSMA) User guide, Version 1.0, August 2005
- 32. Stanke, Alexis, and Nightingale, Deborah J., Enterprise Value Stream Mapping (EVSMA) Facilitator's Guide, August 2005
- 33.Nightingale, Deborah J., and Bryan, Terry, Enterprise Strategic Analysis for Transformation (ESAT), Version 2.0, September 2008
- 34. Nightingale, Deborah, et. al., LESAT 2.0, Lean Advancement Initiative, MIT, 2011
- 35. Wessner, Charles, Nightingale, Deborah J., et al, National Academy of Sciences Report, "21st Century Manufacturing: The Role of the Manufacturing Extension Partnership Program", October 2013
- 36. Hashmi, Sahar, and Nightingale, Deborah J, "Innovative Concept Design for an Integrated Complex System of Patient-Centered Care with Advancing Technologies in the World of Healthcare", ESD working paper, October 2013
- 5. Internal Memoranda and Progress Reports
  - 1. AlliedSignal Engines Strategic Plans
  - 2. AlliedSignal Engines Partnership Process

#### 6. Invited Lectures

1. "Computer Integrated Manufacturing," and "Group Technology," University of Michigan, May 1990.

- 2. Keynote Address: "What I Am Is Where I Was When," Industrial Engineering Manager's Conference, Washington D.C., Mar 1991.
- 3. Keynote address, "Keys to Managing Engineers in the 90's," Conference on Computer Integrated Manufacturing, Arizona State University, Tempe, AZ, July 1991.
- 4. "Key Dimensions of the Integrated Enterprise", Institute of Industrial Engineers International Conference, St. Louis, MO, May 1992.
- 5. "Integrated Product Delivery and Support," Institute of Industrial Engineers International Conference, Atlanta, GA, May 1994.
- 6. "Career Opportunities in Industrial Engineering," Institute of Industrial Engineers International Conference, Atlanta, GA, May 1994.
- 7. "What is Driving Change in Engineering Workplace Clues to Adapt, Survive & Prosper," Satellite Broadcast for National Engineers Week sponsored by IIE, ASME, and AIChE, viewed by 200 Senior & Student chapters in U.S., Canada, and Mexico, February 1995.
- 8. Keynote Address, "IIE State of the Institute," Institute of Industrial Engineers International Conference, Nashville, TN, May 1995.
- 9. Keynote Address, "Industrial Engineers' Role in Companies That are Rightsizing," Industrial Engineers Conference, Monterrey Technological Institute, Monterrey, Mexico, September 1995.
- 10. Keynote Address, Inauguration of Ireland Chapter of IIE, U.S. Embassy, Dublin, Ireland, April 1996.
- 11. Keynote Address, "IIE State of the Institute", IIE International Conference, Minneapolis, MN, May 1996.
- 12. Keynote Address, "Industrial Engineers" Role in Companies That Are Rightsizing", IIE International Conference, Minneapolis, MN, May 1996.
- 13. Keynote Address, Korean Management Association, "Manufacturing Enterprise Issues in the Next Millennium", Seoul, Korea, October 1996.

- 14. "Career Guidance for Graduating Industrial Engineers", International Industrial Engineering Conference, Miami Beach, FL, May 1997.
- "Transition to Lean Roadmap for the Aerospace Enterprise: A Progress Report", MIT Supplier Relations Conference, Cambridge, MA, June 1999.
- 16. Keynote Address, "Integrating the Lean Enterprise", Department of Energy Conference on Manufacturing, Washington, DC, Oct. 1999.
- 17. "Strategic Considerations in Lean Enterprises", SAE Conference, Fort Worth, TX, May 2000.
- 18. Keynote Address, "A Roadmap for Transforming the Aerospace Enterprise", IIE Aviation and Aerospace Conference, October, 2000.
- 19. "Enterprise Transition to Lean Roadmap, Defense Manufacturing Conference, Tampa, FL, November 2000.
- 20. Keynote Address: "Lean Enterprises Beyond the Shop Floor", IIE Lean Enterprise Conference, St. Louis, MO, September, 2001.
- 21. Keynote Address: "Lean Enterprise Transformation", LAI Lean Learning Conference, Charleston, NC, November 2001.
- 22. "Lean Enterprise Self Assessment Tool", Defense Manufacturing Conference, Las Vegas, NV, November, 2001.
- 23. Keynote Address: "Lean Enterprise Transformation", Council of Industrial Engineers Executives, Charleston, NC, March, 2002.
- 24. Keynote Address: "Lean Enterprises", DCMA/Industry Crosstalk Meeting, Washington DC, April, 2002.
- 25. Keynote Address: "Lean Enterprise Transformation", Lean Six Sigma Conference, Chicago, Illinois, April, 2002.
- 26. Keynote Address: "Lean Enterprise Transformation", Raytheon Six Sigma Forum, Boston, MA, June 2002.

- 27. Lecturer: LAI Short Course: "Lean Enterprise Value", Cambridge, MA, June 2002.
- 28. Keynote Address: "Lean Enterprise Value Creation: Next Steps", Boeing Lean Leadership Conference, Seal Beach, CA, August, 2002.
- 29. Keynote Address: "Transformation to Lean in Aerospace and Defense", SAP Lean aerospace Conference, Philadelphia, PA, November, 2002.
- 30. Keynote Address: "Road Map to a Lean Enterprise: Principles of Transformation", IIE/SME Lean Enterprise Conference, Waterford, Ireland, November, 2002.
- 31. Keynote Address: "The Lean Aerospace Initiative: An Enabler for Aerospace Enterprise Transformation", MIT-UTC Managers/Supervisors Workshop, February, 2003.
- 32. Keynote Address: "Lean Aerospace Transformation: Creating Enterprise Value", Scottish Enterprise Aerospace Team Conference on Lean Manufacturing, Kilmarnock, Scotland, May 2003.
- 33. Keynote Address: "Creating Lean Enterprise Value", IIE Annual Lean Management Solutions Conference, Atlanta, GA, September, 2003.
- 34. Keynote Address: "Measuring and Accelerating the Transformation to a Lean Enterprise", Software Productivity Consortium Executive Round Table, Washington, D.C., September, 2003.
- 35. Keynote Address: "Creating Lean Enterprise Value", IMEC Creating Value Workshop, Moline, IL, September, 2003.
- 36. "Insights in Transforming to Lean", ABB Manufacturing Day, Zurich, Switzerland, January, 2004.
- 37. Keynote Address: "Accelerating the Journey to Lean Six Sigma and Sustaining the Gains", Oracle AppsWorld, San Diego, CA, January 2004.

- 38. Keynote Address: "Accelerating the Journey to Lean Six Sigma", National Manufacturing Week Conference, Chicago, IL, February, 2004.
- 39. Webcast: "Transforming to a Lean Enterprise", National Manufacturing Week Conference", Chicago, IL, February, 2004.
- 40. Keynote Address: "Transforming the Lean Enterprise Value Stream", NEPCON, Boston, MA, April, 2004.
- 41. Keynote Address: "LAI Overview: Northrop Grumman Enterprise Excellence Workshop", Baltimore, MD, May, 2004.
- 42. Webcast: "Creating Lean Enterprise Value Managing Automation Through Collaboration", May, 2004.
- 43. "Application of Lean Ideas to the Aerospace Industry", Lean Thinking Strategies and Applications", Cambridge, UK, June, 2004.
- 44. "Transforming the Lean Enterprise Value Stream", BAE Systems Executive Course, Templeton College, Oxford University, January 2005
- 45. "Enterprise Systems Architecting: Emerging Art and Science within Engineering Systems", MIT/MITRE Research Workshop, Bedford, MA, January 2005
- 46. "Enterprise Systems Architecting: Emerging Art and Science: IIE Conference, Atlanta GA., May 2005
- 47. "Enterprise Architecting: An Emerging Art and Science within Engineering Systems" MIT Engineering Systems Conference, September 2006"
- 48. Keynote Address: "MIT's Lean Aerospace Initiative: Growth in Lean Application Across the Aerospace Enterprise", Lean Flight Initiative Conference, Dublin, Ireland, May 2006
- 49. "Coupling Lean Thinking and Systems Thinking at the Enterprise Level", IERC, Orlando, FL, May 2006

- 50. "Issues in Lean Enterprise Architecting and Transformation" TPP/IAP Seminar Series, MIT, Cambridge, MA, January 2007
- 51. Keynote Address, "The Journey of an Enterprise Systems Integrator", IIE Region IV Conference, Ohio State University, Columbus, Ohio, February 2007
- 52. "World-Class Lean Enterprise Executive Seminar and Roundtable" LAI Knowledge Exchange Event, Cambridge, MA, March, 2007
- 53. Keynote Address, "Strategic Approach to Lean Enterprise Transformation", Irish Center for Business Excellence Lean Conference, Dromoland Castle, Shannon, Ireland, March 2007
- 54. "LAI Overview" NASA, Washington, D.C., April 2007
- 55. Keynote Address, "Partnering for Enterprise Excellence", LAI Annual Conference, Cambridge, Maryland, April 2007
- 56. "Architecting Future Enterprises", LAI Knowledge Exchange Event, Cambridge, MA, June, 2007
- 57. "Applying EVSMA to Your Enterprise", LAI Knowledge Exchange Event, Cambridge, MA, June 2007
- 58. "World-Class Lean Enterprise Executive Seminar and Roundtable" LAI Knowledge Exchange Event, Cambridge, MA, October, 2007
- 59. "Lean Enterprise Transformation: Strategies for Success", LFM/SDM Industry Faculty Research Forum, MIT, Cambridge, MA, November 2007
- 60. "Enterprise Value Analysis", Intel Corporation Executive Workshop, December 2007, Chandler, AZ
- 61. "I.T. as Enterprise Enabler", CIO Aerospace and Defense Roundtable, MIT, Jan. 2008, MIT
- 62. "Lean Enterprise Transformation Strategies for Success", MIT-Portugal Conference, Lisbon, Portugal, March 2008

- 63. "An Enterprise Systems Approach to Healthcare" HaCIRC Symposium, Imperial College, London, April 2008
- 64. "Highlights of Enterprise Transformation Research", LFM Advisory Council, April 2008
- 65. Keynote Address: "Highlights of Enterprise Transformation", Lean Advancement Initiative Annual Conference, Boston, MA, April 2008
- 66. "Lean Enterprise Transformation: Strategies for Success", WCBF's Gov/Defense Benchmarking Forum, Chicago, IL, May 2008
- 67. "BAE Executive Session: Enterprise Architecting, Enterprise Transformation", BAE Systems, UK, one day executive workshop on enterprise transformation research, May 17, 2008
- 68. "LAI Enterprise Transformation Strategies", Boeing Lean and Corporate Leadership Meeting, Huntington Beach, CA, Sept. 2008
- 69. Executive Short course: "Enterprise Strategic Analysis for Transformation" lead instructor, 1 week, Huntsville, AL, 25 students, Sept. 2008
- 70. "An Enterprise Systems Approach to Healthcare", INFORMS Conference, October 12, 2008
- 71. "Lean Enterprise Self Assessment", presentation at Metrics Knowledge Exchange Event, Raytheon, Andover, MA, Oct 2008
- 72. Keynote Address: "Perspectives on Enterprise Thinking", Army Acquisition, Logistics, and Technology Leadership Conference, Dallas Texas, Nov. 2008
- 73. Keynote Address, "Achieving Enterprise Excellence", LAI Annual Conference, Baltimore, MD, April 2009
- 74. Keynote Address, "Lean Enterprise Transformation: Insights from MIT's Lean Advancement Initiative" BAE Systems Conference, FT. Wayne, IN

- 75. "A Lean Enterprise Sysems Approach to Health Care Transformation" 2010 IAP Seminar Series on Issues in Technology and Policy, MIT, January 12, 2010
- 76. Keynote Address, "Lean Enterprise Transformation and Enterprise Architecture of Health Care Systems", SHS/ASQ Conference and Expo 2010, Atlanta GA., February 26, 2010
- 77. Keynote Address, "Leading Enterprise Transformation", LAI Annual Conference, LAI Annual Meeting, Dana Point CA, March 24, 2010
- 78. Keynote Address, "Lean Enterprise Thinking", Siemens Corporate R&D and Engineering Workshop, Munich, Germany, April 15, 2010
- 79. Keynote Address "Lean Enterprise Thinking", CEAGA Corporate University Inauguration, Vigo, Spain, September 22, 2010
- 80. "Roadmap for Enterprise Transformation", CEAGA Executive Network, Vigo, Spain, September 23, 2010
- 81. Keynote Address "Lean Enterprise Thinking", Lean Enterprise Systems & Software (LESS 2010) Conference, Helsinki, Finland, October 18, 2010
- 82. "Principles of Enterprise Transformation", LESS 2010 Executives Day, Helsinki, Finland, October 19, 2010
- 83. "An Enterprise Systems Approach to Logistics Transformation", Air Force Future Logistics Challenges Workshop, MIT, October 21, 2010
- 84. "Service Systems Innovation for Treatment of Post-Traumatic Stress in the U.S. Military: An Enterprise Systems Approach", MIT-SDM 2010 Systems Thinking Conference, October 22, 2010
- 85. "Post Traumatic Stress Innovations: U.S. Military Enterprise Analysis", 2011 Military Health Systems Conference, National Harbor, MD, January 26, 2011
- 86. Keynote Address "Principles of Lean Enterprise Transformation", University of Texas at Arlington, Distinguished Speakers Series, April 13, 2011
- 87. Keynote Address "Principles of Lean Enterprise Transformation", 2011 Lean Electronics Conference, Rockwell Collins, Cedar Rapids, Iowa, April 19, 2011
- 88. "How to Start Lean Enterprise Transformation", LAI Mexico, UPAEP, Puebla, Mexico, February 16, 2012

- 89. "Roadmap for Enterprise Transformation" IIE Enterprise Transformation Conference, Atlanta, Georgia, April 3, 2012
- 90. "Principles of Lean Enterprise Transformation", University of Miami Distinguished Speaker Series, Miami, Florida, April 19, 2012
- 91. Keynote Address "Roadmap for Enterprise Transformation", Lean Government Summit 2012: Getting Started", Canadian Museum of Nature, Ottawa, Ontario, October 17, 2012
- 92. Keynote Address "Architecting the Future Enterprise", Lean Government Summit 2013, Canadian Museum of Nature, Ottawa, Ontario, October 23-25, 2013
- 93. Keynote Address: "A Holistic Systems Approach to Architecting the Future Enterprise", MIT Chief Data Officer Information Quality Symposium, Cambridge, MA, July 23, 2014
- 94. Keynote Address: "Architecting the Future Enterprise", Innovation Strategies for the Future Conference, Tepozland, Mexicao, April, 2015

# Record of Research Funding for Deborah J. Nightingale

Air Force Research Lab	1998 to 2000	740,000
Lean Aerospace (Advancement) Initiative	2002	2,000,000
Consortium		
	2002 to 2003	3,325,000
	2003 to 2004	3,150,000
	2004 to 2005	2,825,000
	2005 to 2006	4,800,000
	2006 to 2007	3,600,000
	2007 to 2008	3,600,000
	2008 to 2009	2,500,000
	2009 to 2010	2,500,000
	2010 to 2011	1,200,000
	2011 to 2012	975,000
Portugal Project	June 2007 to Aug. 2008	100,000
Lahey Clinic	Sept. 2007 to June 2009	80,000
U. S. Army		
Phase 1: Enterprise Transformation	2008 to 2009	2,500,000
Phase 2: PATFRAME (SoS Trainiing)	2009 to 2010	2,500,000
Harvard Pilgrim Healthcare, Inc.	2008	8,000
Veterans Administration	2008 to 2012	625,000
Boeing Phantom Works	2008 to 2009	35,000
Naval Post Graduate School		
Phase 1: Cost Modeling	2009 to 2010	60,000
Phase 2: TRL	2010 to 2011	120,000
U.S. Air Force		
Phase 1: Portfolio Analysis	2009 to 2010	120,000
Phase 2: Risk Analysis	2010	50,000
Military Health System (PTSI)		
Task 1a	2010	978,000
Task 1b	2010 to 2012	1,700,000
Task 2	2012 to 2015	8,000,000
Siemens	2011 to 2012	830,000
MEHi	2013 to 2014	155,000

TOTAL \$48,246,000 M

### Theses Supervised by Deborah J. Nightingale

### Summary

-	<u>Total</u>	Completed	<u>In Progress</u>
Bachelor's	1	1	
Master's As Supervisor	124	124	0
As Committee Member	7	7	0
MEng			
Engineer's			
<u>Doctoral</u>			
As Supervisor/Chair	14	14	0
As Reader/Committee Member	11	10	1

#### **Bachelor's Theses**

Kwon, Annie Y., "Analysis of a Hospital Network Transportation System with Discrete Event Simulation", January 2011

# Master's Theses Supervisor

Milby, Michael G., "Methodology for Sizing Finished Goods Inventories for a Vinyl Siding Extrusion Plant," May 1999, LFM.

Johnson, John H., "Metrics for a Platform Team," February 2000, SDM.

Tonaszuck, David M., "The Impact of Leadership on Systematic Organization Change," February 2000, SDM.

Wolters, James, "Optimizing the Assembly Sequence of an Aerospace Manufacturing Process", May 2000, Aero/LFM.

Taneja, Abhinav, "Knowledge Organization and Content Generation in Knowledgemediaries", September 2000, TPP.

Cocuzzo, David L. and Brian Millard, "The Application of System Engineering Methodologies in Support of the Lean Enterprise Transformation", February 2001, SDM.

Sadownick, Ronald, "Helicopter Configuration Optimization", January 2001, SDM.

Nicol, Robert A., "Design and Analysis of an Enterprise Metrics System", June 2001, LFM.

Kennedy, Laura, "Manufacturing Initiatives in a Decentralized Company", June 2001. LFM.

Wilhelmi, Julie Lynn, "Analyzing the Boeing 777 Link the Flow Process for Value Stream Flow Reduction Against the Lean Aerospace Initiative's Enterprise Level Roadmap", June 2001, Aero/LFM.

Mahoue, Frederic, "The Internet as an Enabler to the Lean Enterprise", June 2001, TPP.

Uzair, Khusrow, M., "Development of a Framework for Comparing Performance Improvement Programs", August 2001, SDM.

Bouzekouk, Salim, "Strategies for Lean Technology Management", August 2001, TPP.

Brady, Timothy K., "Utilization of Dependency Structure Matrix Analysis to Assess Implementation of NASA's Complex Technical Projects", January 2002, SDM.

Douglas III, Freddie, "Lean Principles Implementation in the Program Preparation Phase", January 2002, SDM.

Chou, Shui-Fang, "Multiple Commodities Optimization of Lean Technology Infusion for Automobile Manufacturer", January 2002, SDM.

Mullooly, John F., "A Systems Engineering Approach for Implementation of a Corporate Growth Strategy", January 2002, SDM.

Gastelum, Victoria, "Application of Lean Manufacturing Techniques for the Design of the Aircraft Assembly Line", June 2002, Aero/LFM.

Sweitzer, Timothy, "A Simulation-Based Concurrent Engineering Approach for Assembly System Design", June 2002, LFM.

Hoag, Michael, "Improved Integration of Information in Discrete Part Manufacturing Environments", May 2002, LFM.

Sargeant, Roland B., "Functional Specification of a Manufacturing Execution System", June 2003, LFM.

White, Eric A., "Lean Enterprise Distribution Tactics with Customer Supply Chain Integration", June 2003, LFM.

Bowers, Brian N., "Enhancing the Lean Enterprise Through Supply Chain Design: Establishing Remarketing and Reverse Logistics at a High Tech Firm", May 2003, Aero/LFM.

Rheaume, Jonathan M., "High-Mix, Low-Volume Lean Manufacturing Implementation and Lot Size Optimization at an Aerospace OEM", June 2003, LFM.

Flores, Annabel, "Implementing a New Organization to Manage Manufacturing Technology Innovation", June 2003, LFM.

Seitz, Thomas A., "Lean Enterprise Integration: A New Framework for Small Businesses", April 2003, SDM.

Grossi, Ignacio, "Stakeholder Analysis In The Context Of The Lean Enterprise", March 2003, SDM.

Sise, Lincoln J., "A Lean Transformation in Low Volume Space Manufacturing", June 2003, SDM.

Stagney, David B., "The Integrated Concurrent Enterprise", September, 2003, Aero/LFM.

Hagan, Mark, "Process for Evaluating Options for Materials Management Outsourcing", June, 2004, Chemical Engineering/Sloan/LFM.

Brylawski, Michael M., "Developing A Circumstance-Based Innovation Strategy for a Midsized Aerospace Manufacturer: Fostering Intrapreneurship, Opening Boundaries, and Seeding Disruption", June 2004, Aero/LFM.

Krishnan, Satish, "Driving a Lean Transformation Using a Six Sigma Program", June 2004, LFM.

Paxton, Blaine, "The Dell Operating Model", June 2004, LFM.

Frenkel, Yuliya M., "Enterprise Value Stream Mapping and Analysis for Aircraft Carrier Components", June 2004, LFM.

Allison, Daniel J., "The Application of Value Stream Management Principles In a Batch Production Environment", June, 2004, Aero/LFM.

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