The Marshall School of Business
University of Southern California
Los Angeles, CA 90089-0808

MOR561
Strategies in High Technology Businesses
Fall, 2014

Robert Goren, PhD, Adjunct Professor
Home Office: 310-922-6790
USC Fax: 213- 821-6000
E-mail: rgoren@marshall.usc.edu

COURSE OVERVIEW

Why are some firms more successful in exploiting product or process technology than others? How can general managers who are not technologists or who are currently not up to date with relevant technology compete with, build competencies in, or make resource allocation decisions for technologies that they do not understand? How well do traditional general management approaches such as value-based management or market research work in technical organizations engaged in global competition? How can general managers build and retain technical competencies during tough economic times? How can general managers avoid ethical and legal problems in dealing with new and uncertain technologies? These and similar questions pose special concerns for general managers in technically based organizations and are some of the issues addressed in this course.

This course is intended to help Marshall MBA graduates prepare to lead their firms in exploiting the competitive potential of technology, regardless of the industry they enter or the functional specialization they pursue, by examining the central issues in the strategic management of technology. The course is organized into three modules: developing internal core technological competencies; accessing the technological competencies of others; and finally, developing and executing technology based strategies within the larger social context.

COURSE STRUCTURE

The three interlocking modules are organized within the course as follows:

Module I: Creating Value (Wks. 1-3 and 5)

During the first session, we survey the overall course framework and requirements with special attention to technological evolution and its implications for strategy in high tech firms. In addition, we'll spend some time discussing the concept of developing a personal framework from the course materials which is a key part of your learning in this course.

Finally, we'll discuss formulating technology strategy with the example of Polaroid's entry into digital imaging. This case provides a vehicle for introducing many of the topics we will cover in greater depth throughout the course such as developing internal technical competencies, leveraging the capabilities of others, competing with technology, and leading technical organizations.

During the second session, we compare two approaches to technology strategy using internal design. The first situation we examine is Polaroid which began with a charismatic leader, Edwin Land. Polaroid was a darling of Wall Street and designed many innovative products around which new industries developed. The second situation is Apple Computer which also began with a charismatic leader, Steve Jobs. Apple has also been a Wall Street darling and it too has designed many innovative products around which new industries developed. We explore the questions of similarities and differences in strategic choices and implementation each firm used and the results they obtained.

During the third session we examine how value has been created at IBM Microelectronics through R&D collaboration. Finally, in the fourth session we explore the challenge of creating value through design thinking and ideation. The last session in this module will feature a Guest Lecturer from the worldwide leader in industrial design consulting (IDEO) to discuss their process for creating value. It will be held in Week 5, slightly out of order, to fit his schedule.

Module II: Capturing Value (Wks. 4 and 6-8)

Beginning with the fourth session we examine how value is captured. We start this module with capturing value through disruption by comparing how disruption was created with DuPont's Kevlar and with Canon's contact sensor.   During the sixth and seventh sessions we explore how value is captured in "platform" industries which deal with situations of winter take all dynamics: in the sixth session (Adobe); and envelopment in the seventh session (Google).

Session eight returns to capturing value through disruption by comparing two examples of capturing value from intellectual property: first, in semiconductors with the Rambus case; and second in wireless phones with the QUALCOMM case.

Module III – Delivering Value (Wks. 9-15)

We begin our third module on delivering value with the alliance between Sharp and Xerox. The Sharp-Xerox case is a challenging one and was written especially for this course to illustrate how alliances work in practice between two technology firms trying to prosper in a global industry dominated by a strong, vertically integrated competitor.

In our tenth session we compare delivering value through modularization (e.g., Quanta) versus vertical integration (e.g., HTC).

During our eleventh session, we will examine how BMW delivers value by integrating the principles of "design thinking" and manufacturing. I am working to arrange a field trip to BMW Designworks USA in Newbury Park to understand how BMW does this.

Our last three sessions will focus on several companies that face potentially disruptive technologies… some successfully and others not. Competitive, strategic, collaborative, leadership, and resource issues were in play. These last cases deal with some of the issues raised earlier in the Polaroid and Apple cases and will provide an excellent opportunity for fine tuning and testing your analytic framework. The first of these sessions discusses how SMaL Camera, a new industry entrant with a potentially disruptive technology, can deliver value after an initially successful product places them in the cross-hairs of much larger incumbents. Session 14 discusses Kodak's entry into digital photography which threatened their once dominant control of very profitable film based imaging. After the Thanksgiving holiday, we return for our fifteenth and final session to discuss the case of Teradyne, an incumbent firm determined to develop its own disruptive technology.

COURSE MATERIALS

The course packet (Reader) contains the cases and some of the supplementary readings. Other supplementary readings are available through the Crocker Library using links provided in Blackboard (Bb). The remaining readings are contained in, <u>Managing Strategic Innovation and Change, 2nd Edition</u>, by Tushman and Anderson and is noted as (Book) in the assignments. Both the readings packet and the book are available through the University Bookstore.

GRADING

There are three graded components of the course:

1. Participation   10%

2. Written analysis of case (WAC)   30%

3. Individual Term Project or Mid Term/Final Exams (student choice)   60%

Retention of Graded Work: Final exams and all other graded work which affected the course grade will be retained for one year after the end of the course *if* the graded work has not been returned to you (i.e., if I returned a graded paper to you, it is your responsibility to file it, not mine).

Participation

In a case-based course, preparation and participation are critical. Consequently, 10% of your grade will depend on these elements, which are evaluated in three ways.

First, your voluntary participation in class sessions is of signal importance. As usual, quantity without quality is meaningless; the fundamental criterion is the extent to which your contributions advance the learning of all. Outstanding students display mastery of cases and readings, provide original and penetrating insight into the class of problems they represent, and are able in real-time to build upon and link the contributions of their classmates to the current discussion and the cumulative learning from the course. Appendix A is attached which lists participation behaviors and the range of scores associated with each. I will ask that after the first session that you sit in the same seat and bring and be certain that your name card is readable from the front of the class.

Second, during the first or second session, you will be asked to form yourselves into one of approximately 12 groups of from 2-3 people (max) each, and to then randomly draw a number that corresponds to specific case preparation responsibilities. These responsibilities include three or four written analyses and up to two assignments to be prepared to lead the discussion to supplement the groups that have written analyses. Thus each group and all members therein will be responsible for written and/or oral discussion of approximately five cases. All groups will have the same amount of work assigned.

Third, four of the sessions will not assign written analyses to any group. All groups will be invited to participate in discussing these three cases. Appendix E shows an example of case assignments from a previous year. This year's assignments will be made initially in the first or second session, but may be subject to subsequent revision.

Discussion Leadership

Discussion leadership means that the members of your group should be prepared to take on leadership responsibilities during the case discussion by carefully comparing the presenting team's approaches to the case analysis and identify any differences between them and your own group's analysis. Further, your group should be prepared to help integrate the underlying concepts that emerge from the discussion with the concepts previously discussed so that the class as a whole is able to any new information into their evolving framework.

Written analysis of case

30% of your grade will depend on your several written analyses of cases (WAC). For every case, you will be asked to articulate a framework that describes your general approach to a class of problems, and then applies your insights to the specific case. Because analytical frameworks are so central to this class, a note on frameworks is assigned for the first session. WACs may not exceed six double-spaced typewritten pages, excluding figures and references. These WACs must be e-mailed to me and to the individuals with session discussion responsibility (see discussion above) by 12 p.m. **the day before** the session being analyzed. Late WAC's will be downgraded by one grade.

At the end of the term you will be asked to complete a peer evaluation of your study group members to avoid the problem of free-riders (Appendix C).

Individual Term Project

An individually prepared Term Project makes up the remaining 60% of your grade. If students prefer, Mid Term and Final Exams may be substituted for the term project and will comprise 20%/40% (total 60%) respectively of your grade. We will discuss both options in the first session.

A Term Project is paper relating an aspect of the course applied to a practical managerial problem in which you demonstrate your ability to use the framework you've developed. You can undertake one of two types of projects. One is a **Field Project**, essentially a consulting assignment that applies the framework developed in this course to a real-time problem faced by an actual manager. I will be happy to work with you to identify your interests. When you identify a field site, I will provide help gaining access to the site if requested. There are only two restrictions on the field site: 1) you may not rehash your summer or current job assignments (although you may take on an entirely new project for people you worked with during the summer or currently); 2) **I must approve the project proposal before it is finalized**. Please consult with me before approaching a potential field site, to ensure that the project you have in mind falls within the domain of the course. If you choose a field project, you must produce a signed agreement between you and a specific client at the field site specifying what you are to

deliver to him/her (usually a report) and the deadline by which you will deliver it, which must fall before the end of the term. The client's written evaluation of your work is one of the factors that will contribute to your grade. If you choose this option, you will need to produce the report, a DVD (or other mutually agreed video format) of your presentation to the client, and ask them to e-mail their evaluation of your performance to me NLT 7:00 p.m. Wednesday, December 10th.

Here are some examples of suitable projects:

- A small defense contractor has developed a stealth technology that they would like to find a commercial application for such as legally avoiding police radar by making a vehicle invisible. They have hired a consulting firm but would like a student to also analyze the potential applicability of their technology to this new market. This represents a potential related diversification but the firm does not currently have any commercial expertise and there are already established competitors as well as legal issues to consider in choosing whether and how to enter this potential market.

- A global consumer products firm currently uses a mix of cross-functional virtual and f2f teams to develop strategic options for top management to choose between for dealing with unpredictable opportunities and threats. However, the virtual teams are consistently unable to develop solution options that are as novel as the f2f teams. How can senior management improve the performance of their virtual teams in situations where an f2f team is not feasible (e.g., global operations).

Alternatively, you may develop a **Case Study** and analysis using library sources and or field interviews. Such a **Case Study** could be suitable for use in this elective, either as a substitute for one of this term's cases, or as a problem that cuts across and integrates several of the topics we address this term, or as an analysis that builds insights into areas related to this course but which we do not explicitly address this term. Please consult with me before finalizing your topic to ensure that the project you have in mind falls within the domain of the course. Again, I will help you gain access for field interviews (by phone or visit) if requested. Your case should include both a description of the decision problem as well as a separate analysis, which highlights the lessons you would draw from it. Should you write a case, you need written permission from each person you interview to attribute quotations to them; they must understand that your case will become property of the Marshall School and may be distributed publicly.

Here are some examples of topics for this alternative:

- If past experience is any guide, there are many firms who did well with their founder at the helm but who then stumbled after that individual left the company (e.g., Xerox, Polaroid, Disney, IBM, Apple, and GE). Nike is currently at a similar cross-roads. How is Nike similar/different from the past examples? What conclusions do you draw from your analysis and why (e.g., Nike will decline like the others or continue to succeed because)?

- There are many recent examples of the effects of disruption in the press (e.g., Block Buster, Borders). There are also a number of potential disruptions that have not yet played out (e.g., tablets, cloud computing). Picking one of these (or another) industry

where potential disruption is underway, what similarities and differences are there between the actions of the current competitors (e.g., firms doing the disrupting and those being disrupted) actions from those who we have studied and are currently in the press.

Please confirm the Term Project topic with me by the end of session 6. If you are doing a field project, you must have a signed agreement (Appendix B1) with the client at that time.

Papers are due by 7:00 p.m. Wednesday, December 10th. Late submissions will be marked down one letter grade.

Examination Option

You may elect to take a mid-term **and** a final examination instead of undertaking a Term Project. These will be two hour examinations based on a case with supplemental essay questions covering course materials not in the case. The entire examination is open-note, open-book and will be taken remotely. You may use any aids you wish (e.g. calculator, computer, your notes, but, of course no assistance from any other person). Both the mid-term and final are two part exams. The first part will ask you to submit your personal framework for integrating the course material (see the article on frameworks for the first session). The second part will ask you to apply this framework in answering a set of questions based on a representative case distributed a week before the exam.

In considering whether or not to do a term project or the examination option here are several features of each to consider. The examination option will provide you with more concrete feedback earlier in the course than the term project. Therefore, if you are concerned about receiving timely feedback on how well you are doing, you should choose the examination rather than the term project option. For example, those choosing the term project option will only know how they scored on 30% (3-4 WAC's) of the course until the course is over while those choosing the examination option will know how they scored on 50% of the course before it is over. However, unless everyone chooses the examination option, it will not be possible to know how you compare to the rest of the class for grading purposes because some of you will have 30% of your total points while others will have 50% (3-4 WAC's + Mid-Term) before the final exam or project is due.

If you are not concerned about receiving additional feedback on grade standing and are more interested in digging in and helping a real organization with an interesting problem or exploring a topic that others could learn from, then the term project option is probably preferable.

The amount of effort and course learning for either the term project or the exam should be comparable.

You must select either the term project or the examination option by the 6th week.

COURSE ADMINISTRATION

Office Hours

I will be available before class from about 6:00 – 6:15 p.m. in the food court of Popovich Hall and after class. If you need to meet with me outside these hours, please e-mail me to set up an appointment for a telephone or Skype meeting.

Attendance

Since this class relies so heavily on participation, your attendance at each session is quite important. Please notify the Student Affairs office or me as soon as possible by any means available if you are unable to attend a session due to illness, family emergency, or an *unavoidable* conflict. In case of an unavoidable conflict, you will be required to hand in *before* class a three-page analysis of the case assigned for the session you miss. Unexcused absences from class will have a serious negative impact on your participation grade; no compensatory work will be permitted to make up for an unexcused absence

Academic Integrity

The following information on academic integrity, dishonesty, and the grading standard are placed here at the recommendation of the Marshall School of Business Faculty and are taken from the Faculty Handbook.

"The University, as an instrument of learning, is predicated on the existence of an environment of integrity. As members of the academic community, faculty, students, and administrative officials share the responsibility for maintaining this environment. Faculty have the primary responsibility for establishing and maintaining an atmosphere and attitude of academic integrity such that the enterprise may flourish in an open and honest way. Students share this responsibility for maintaining standards of academic performance and classroom behavior conducive to the learning process. Administrative officials are responsible for the establishment and maintenance of procedures to support and enforce those academic standards. Thus, the entire University community bears the responsibility for maintaining an environment of integrity and for taking appropriate action to sanction individuals involved in any violation. When there is a clear indication that such individuals are unwilling or unable to support these standards, they should not be allowed to remain in the University." (Faculty Handbook, 1994: 20)

Academic dishonesty includes: (Faculty Handbook, 1994: 21-22)

1. Examination behavior - any use of external assistance during an examination shall be considered academically dishonest unless expressly permitted by the teacher.
2. Fabrication - any intentional falsification or invention of data or citation in an academic exercise will be considered a violation of academic integrity.
3. Plagiarism - the appropriation and subsequent passing off of another's ideas or words as one's own. If the words or ideas of another are used, acknowledgment of the original source must be made through recognized referencing practices.

4. Other Types of Academic Dishonesty - submitting a paper written by or obtained from another, using a paper or essay in more than one class without the teacher's express permission, obtaining a copy of an examination in advance without the knowledge and consent of the teacher, changing academic records outside of normal procedures and/or petitions, using another person to complete homework assignments or take-home exams without the knowledge or consent of the teacher.

Students with Disabilities

- Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me as early as possible in the semester. DSP is located in STU 301 and is open 8:30 a.m.-5: 00 p.m., Monday through Friday. The telephone number for DSP is: 213-740-0776.

  Students with learning disabilities or other special needs should contact me at the beginning of the term to discuss any accommodations that may be necessary.

Posting of Course Information

- I will use the USC Blackboard instructional intranet system for course communications including grades for course components, case discussion questions, overhead slides, and other relevant communication. You can access Blackboard either by going to http://totale.usc.edu/webapps/portal/frameset.jsp or by going through the "My Marshall" portal http://mymarshall.usc.edu. You will need your UNIX password for either site. After entering Blackboard, please double-check that your e-mail address is set to the one you wish to receive your class information through.

Visitors

- I have invited several guests to join us for different sessions to help us better understand the key issues covered in the cases. We may have to reschedule some sessions in order to accommodate their schedules.
- Several of you are welcome to join us at the dinner I will host for each guest at the University Center from 5-6 p.m. I will post a sign-up sheet within the USC Blackboard for you to sign-up beforehand.

Session Outline

In the Session Outline below (Bb) refers to links posted in Blackboard, (Book) refers to the assigned text book, and (Reader) refers to the cases and article readings available for purchase in the University Bookstore.

#	Date	Session Topic and Assignments
1	8/27	**Introduction - Formulating Technology Strategy** Reading (skim before class – read more carefully later): • (Reader) Note on Frameworks (read more carefully later as it becomes very important as the course develops) • (Reader) Strategy Formulation and Inertia • (Book, pp. 59-69) Gunfire at Sea: A Case Study of Innovation • (Reader) Why hard-nosed executives should care about management theory
		Module I: Creating Value
2	9/3	**Creating Value through Internal Design and Innovation** Reading: • (Reader) Design Thinking • (Book, pp 35-41) Managing through Cycles of Technological Change Cases: • *(Reader) Polaroid Corporation: Entering Digital Imaging Rev. 2007* • *(Reader) Design Thinking & Innovation at Apple, Rev. 2012* Note: Pick 3 group WAC's and 2 different individual cases for discussion leadership.
3	9/10	**Creating Value through External Design and Innovation - R&D Collaboration** Reading: • (Bb) Innovation & Shakeouts • (Bb) Future of Integrated Electronics Case: • (Reader) Radical Collaboration: IBM Microelectronics Joint Development Alliances

4	9/17	**Capturing Value through Disruption** Reading: (Bb) Innovation Killers (Bb) The Knowledge Creating Company (Bb) Other materials posted (*Reader) Discovery-Driven Planning* Cases: • *(Reader) DuPont Kevlar* • *(Reader) New Product Development at Canon*
5	9/24	**Creating Value through Design** Reading: • (Bb) Materials posted on IDEO background (e.g., watch videos, read various articles) *Case: • *(Reader) IDEO Product Development* ***Guest: Jonah Houston, Senior Project Leader IDEO, Palo Alto***
6	10/1	**Capturing Value Through Winner Take All (WTA) Strategies in Platform Industries** Reading: • (Bb) MIT Executive Summary • (Bb) PMN Winner Take All Dynamic Slides Case: • *(Reader) Adobe*
7	10/8	**Capturing Value Through Envelopment Strategies in Platform Industries** Reading: • (Bb) PMN Envelopment Slides Case: • *(Reader) Google Inc.*

8	10/15	**Capturing Value by Protecting Intellectual Property**
		
		Reading:
		   • (Bb) Strategic Management of Intellectual Property
		   • (Bb) Other materials posted
		
		Cases:
		   • *(Reader) Rambus, Inc., 2005*
		   • *(Reader) Qualcomm 2004*

Module III: Delivering Value		

9	10/22	**Delivering Value through Collaboration**
		
		Reading:
		   • (Bb) Materials posted
		   • (Book: pp. 506-522) Involving Suppliers in New Product Development
		   • *(Reader) What are Business Models and How Are They Built*
		
		Case:
		   • *(Bb) Sharp-Xerox Strategic Alliance in Personal Copiers*

10	10/29	**Delivering Value through Modularity vs. Integration**
		
		Reading
		   • (Book, pp. 151-160) Managing in an Age of Modularity
		   • *(Reader) How GE is Disrupting Itself*
		
		Cases:
		   • *(Reader) Quanta Computer*
		   • *(Reader) HTC in 2012*

11	11/5	**Delivering Value through Integrating Design & Manufacturing**
		
		Reading:
		   • (Bb) Materials posted
		
		*Case
		   • *(Reader) BMW A.G.: The Digital Car Project (A)*
		
		   • Field trip to BMW Designworks USA (Not confirmed)

12	11/12	**Delivering Value as a New Entrant** Reading: • (Book, pp. 276-291) The Ambidextrous Organization: Managing Evolutionary and Revolutionary Change • (*Reader*) *Catching the Wave* Case: *(Reader) Making SMal Big: SMaL Camera Technologies*
13	11/19	**Delivering Value as an Incumbent** Reading: • (Book, pp. 530-540) Convergence and Upheaval: Managing the Unsteady Pace of Organizational Evolution • *(Reader) Research that Reinvents the Corporation* Case: • *(Reader) Kodak and the Digital Revolution (A)*
14	11/26	THANKSGIVING HOLIDAY
15	12/3	**Delivering Value as an Incumbent** Reading: • (Bb) Smith Corona • (Bb) Other materials posted • (Book, pp 70-72 and 87) Customer Power, Strategic Investment and the Failure of Leading Firms (*Note: this is a very long article. I suggest reading only the first few pages and the last, unless the subject really appeals to you*). Cases: • *(Reader) Teradyne: Corporate Management of Disruptive Change* • *(Reader) Teradyne: the Aurora Project*
16	12/10	**FINAL PAPER DUE**

*Not available for WAC

APPENDIX A: PARTICIPATION BEHAVIORS AND ASSOCIATED SCORES

Excellent performance range: 100 to 90
 -initiates information relative to topics discussed
 -accurately exhibits knowledge of assignment content
 -demonstrates excellent listening by remaining on "same page" as rest of class as
  demonstrated by comments
 -brings up questions that need to be further explored
 -clarifies points that others may not understand
 -draws upon practical experience or personal opinion
 -offers relevant/succinct input to class
 -actively participates in simulations and classroom exercises
 -demonstrates ability to apply, analyze, evaluate, and synthesize course material
 -demonstrates willingness to take risk in attempting to answer unpopular questions

Good performance range: 85 to 89
 -regularly participates in discussions
 -shares relevant information
 -gives feedback to classroom group discussions
 -consistently demonstrates knowledge of reading assignments
 -demonstrates ability to analyze/apply course material
 -demonstrates willingness to attempt to answer questions

Fair/average performance range: 80-84
 -participates in group discussion when solicited
 -demonstrates knowledge of course material
 -offers clear, concise, "good" information relative to class assignments
 -offers input, but tends to reiterate the intuitive
 -attends class regularly

Poor performance range: 75-79
 -occasional input, often irrelevant, unrelated to topic
 -reluctant to share info
 -not following flow of ideas
 -personal application only
 -drains energy from class goals

Unacceptable performance range: <74
 -fails to participate even when specifically asked
 -gives no input
 -does not demonstrate knowledge of readings
 -shows up to class; does nothing
 -group distraction
 -irrelevant discussion
 -not sticking to topic
 -Behaves toward others in disruptive fashion, for example, sarcastic comments aimed at others

APPENDIX B1: ENGAGEMENT CONTRACT PROFORMA

"As <job title> of <client organization>, I agree to support the USC MBA consulting team in analyzing our strategy and organization. I understand that this will require our organization to provide the team with the relevant information. It will also require some time for interviews with me and a few other members of our organization. At the end of the engagement, sometime before December 5, 2014, the consulting team will report their conclusions to others and me in the organization. This report will take the form of a 35-40 minute oral presentation and the accompanying documentation. There should be a following discussion by my team and me in reaction to the report. The consulting team will videotape this presentation to me and my team, and the ensuing discussion, and USC MBA faculty will review the tape as part of the evaluation of the team's performance. The videotape and written material will not circulate beyond the consulting team and the faculty responsible for evaluating the team without my express prior approval. At the conclusion of the project, I will respond to a brief questionnaire from the faculty on the team's performance."

Signature

Title

Telephone

E-Mail Address

APPENDIX B2: CLIENT EVALUATION PROFORMA

TO: Senior Client Executive

FROM: Adjunct Prof. Robert Goren

The USC MBA faculty thanks you for allowing our students to study your organization. We appreciate the time and effort this has taken on your part. These consulting projects have proven to be an immensely valuable component of our MBA program, so we are very grateful for your help. In return, we hope this project has provided you with some useful ideas.

In order to assess better the team's performance in this project, it would be very helpful if you could take a few minutes to jot down your evaluation under the following headings:

1. professionalism in interacting with you and other members of your organization
2. quality of the team's assessment of your current situation and issues
3. quality of the team's recommendations concerning strategy
4. quality of the team's recommendations concerning implementation

Please e-mail your evaluation to my office (rgoren@marshall.usc.edu) before December 10, 2014. Either electronic format or scanned copy of handwritten material will be fine. Or you may send by fax to my attention (213-821-6000).

On behalf of USC, allow me to thank you once again,

Sincerely,

Adjunct Professor Robert Goren

APPENDIX C: PEER EVALUATION

As part of your WAC'S I would like each of you to evaluate the contribution made by each of your team members. Allocate 100 points across all the members of your team apart from yourself, so as to reflect your assessment of their individual contributions to the team effort. I will treat your assessments as confidential.

Your name: _____

Team-member name: contribution:

1. _____   _____

2. _____   _____

3. _____   _____

4. _____   _____

                    Total: 100

APPENDIX D: BRIEF BIOGRAPHY ROBERT GOREN

Dr. Robert Goren received an A.B. from Harvard College and then attended the University of California at Berkeley, obtaining an M.S. in physics, and Harvard University, obtaining a Ph.D. in applied physics. He also attended the Executive PMD Program (Program for Management Development) at Harvard Business School.

In 2001 Dr. Goren formed PACT International, which provides consulting services to industry and government clients in the areas of technology acquisition, product development, and strategic business alliances. He also has been a Guest Lecturer at the Marshall School of Business at USC, a Faculty Advisor in the Global Access Program at the Anderson School of Business at UCLA, and has written two MBA business school case studies, *Sharp-Xerox Strategic Alliance in Personal Copiers (A and B).* In 2006 he started a small business, Old Man In The Sea, specializing in Underwater Video Production.

Previously Dr. Goren held a variety of positions with Xerox Corporation including progressive management positions in the Corporate Research Laboratory in Rochester, New York in the areas of color xerography and novel printing technologies. He was responsible for building Xerox's Large Area Thin Film Electronics Laboratory and initiating research efforts in this area. Then he moved to Xerox's printing systems division in El Segundo, California, in order to participate more directly in product development, customer engagement, and general management. Ultimately he served as chief engineer, responsible for development and market engagement of Xerox's production highlight color printers. In this position, he directed a team of over 400 engineers that developed two-color, production-class printers based on a revolutionary new imaging technology which created a new multi $B business for Xerox. In 1994 Dr. Goren moved to Xerox's office systems business and a variety of management positions including vice president of strategy and integration, vice president of marketing, and vice president–general manager of the office printing business. In 1997 Dr. Goren became vice president, business arrangements, small office/home office business and channels groups, responsible for negotiating and maintaining business alliances with Asian strategic suppliers and/or co-developers of acquired products for Xerox's indirect channels businesses.

APPENDIX E: SAMPLE CASE ASSIGNMENT MATRIX

Case	Session	Group 1	2	3	4	5	6	7	8	9	10	11	12	Count
Polaroid Corp	2	DISC	DISC	DISC	DISC	DISC	DISC	DISC	DISC	DISC	DISC	DISC	DISC	12
Apple	2	DISC	DISC	DISC	DISC	DISC	DISC	DISC	DISC	DISC	DISC	DISC	DISC	12
IBM Microelectronics	3			WAC			WAC			WAC			WAC	4
DuPont	4	WAC			WAC			WAC			WAC			4
Canon	4		WAC			WAC			WAC			WAC		4
* IDEO	5	DISC	DISC	DISC	DISC	DISC	DISC	DISC	DISC	DISC	DISC	DISC	DISC	12
Adobe	6			WAC			WAC			WAC			WAC	4
Google	7	WAC			WAC			WAC			WAC			4
Rambus	8		WAC		WAC				WAC			WAC		4
Qualcomm	8						WAC	WAC		WAC			WAC	4
Sharp - Xerox	9	WAC		WAC					WAC		WAC			4
*BMW	10		DISC	DISC	DISC	DISC	DISC	DISC	DISC		DISC	DISC		12
Quanta	11		WAC			WAC						WAC	WAC	4
HTC	11	WAC		WAC						WAC				4
SMaL	12		WAC		WAC			WAC		DISC				4
Kodak	13						WAC		WAC		WAC		DISC	4
Teradyne (2)	15	DISC			WAC	WAC						WAC		4
Count of Assignments		8	8	8	8	8	8	8	8	8	8	8	8	
Count of WACs		4	4	4	4	4	4	4	4	4	4	4	4	
Count of DISC		4	4	4	4	4	4	4	4	4	4	4	4	

WAC = WRITTEN ANALYSIS OF CASES (PREPARE WRITTEN ANALYSIS OF CASE)

DISC = DISCUSSANT LEADERSHIP (CAREFULLY READ THE CASE AND PREPARE TO HELP WITH QUESTIONS DURING DISCUSSION TO BRING OUT MAIN ISSUES)

* CASE NOT AVAILABLE FOR WAC

NOTE: THIS MATRIX WILL BE REVISED FOR 2014 BASED ON NUMBER OF STUDENTS (AND THUS GROUPS), AND STUDENT DECISION TO HOLD MID TERM/FINAL EXAMS. PROBABLY THE NUMBER OF WACS WILL DROP TO 3.