95-722 - Digital Transformation (Distance Education)

Carnegie Mellon University

Masters of Information Systems Management Program

Fall 2010, Mini 1

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Course Information:
Section Z1
TuTh 9:00-10:20 LIVE
On-Demand ANYTIME

Course Duration: August 24 – October 7

Take-Home Final Exam: October 7 (available), October 13 (due)
Course Description:

This course serves as a capstone course integrating technological and managerial aspects of information technology. Information and communication technologies play multiple roles within an organizational context:

- From a technological perspective, they define the information and communication infrastructure of the firm and they enable new ways to digitize business processes.
- From a managerial perspective, they facilitate new coordination and communication within and across entities, enable new organizational forms, change the information environment underlying the business, and permit new incentive structures.

Successful efforts at digitization have to keep both technological and managerial perspectives in mind. Using a collection of cases, this course will study how the deployment of information technology changes interactions and processes within organizations, across organizations, within industries, and across society.

The case analyses will require students to engage in both technical and managerial problem solving. The technical component of the analysis requires students to propose IT architectures for the problems highlighted in the case. The managerial component of the analysis requires students to analyze the business value of the proposed solution and address the change management issues that arise in implementing any digital transformation initiative.

Cheating, Plagiarism, and Academic Integrity:

Students at CMU are engaged in preparation for professional activity of the highest standards. Each profession constrains its members with both ethical responsibilities and disciplinary limits. To assure the validity of the learning experience Carnegie Mellon establishes clear standards for student work. You are required to be familiar with all university policies on this subject (see http://www.cmu.edu/policies/documents/Cheating.html). An extract of these policies is reproduced here:

In any presentation, creative, artistic, or research, it is the ethical responsibility of each student to identify the conceptual sources of the work submitted. Failure to do so is dishonest and is the basis for a charge of cheating or plagiarism, which is subject to disciplinary action.

Cheating includes but is not necessarily limited to:

- Plagiarism, explained below.
- Submission of work that is not the student's own for papers, assignments or exams.
- Submission or use of falsified data.
o Theft of or unauthorized access to an exam.
o Use of an alternate, stand-in or proxy during an examination.
o Use of unauthorized material including textbooks, notes or computer programs in the preparation of an assignment or during an examination.
o Supplying or communicating in any way unauthorized information to another student for the preparation of an assignment or during an examination.
o Collaboration in the preparation of an assignment. Unless specifically permitted or required by the instructor, collaboration will usually be viewed by the university as cheating. Each student, therefore, is responsible for understanding the policies of the department offering any course as they refer to the amount of help and collaboration permitted in preparation of assignments.
o Submission of the same work for credit in two courses without obtaining the permission of the instructors beforehand.

Plagiarism includes, but is not limited to, failure to indicate the source with quotation marks or footnotes where appropriate if any of the following are reproduced in the work submitted by a student:

- A phrase, written or musical.
- A graphic element.
- A proof.
- Specific language.
- An idea derived from the work, published or unpublished, of another person.

Regarding plagiarism, you should also familiarize yourself with the content of the separate handout entitled “A Note on Plagiarism and Citing Sources.”

One application of this plagiarism policy for our class is that you may not provide or receive information on case write-ups or class discussions from students outside of your section. This includes both students from prior semesters and students from other sections in this semester.

A Note Regarding Case “Solutions” on the Web:

Because these cases are used at a variety of schools, there may be slides and other materials available for them on the web. I am asking you not to use these materials for the following reasons:

1. Presumably you are here to learn how to best design, implement, and manage corporate IT systems. The best way to do that is to struggle with these issues yourself and with your teammates and classmates. Anything less and you are wasting your time and money as a student and short-changing your long-term growth as an IT professional. Making (and learning from) mistakes today is a very low cost way to improve your skills. Once you hit the corporate world, the mistakes become much more costly.

2. Case analysis is not like algebra where there is a particular answer that the grader is looking for. These cases are typically written with multiple possible recommendations. Don't assume that
just because someone in some business school says you should do X, that X is the “correct” way (or even a good way) to approach a particular case.

3. You run the risk that others in the class will come across the same materials, make the same recommendation as you (possibly using very similar words) — which raises huge red flags regarding plagiarism.

4. It damages our classroom discussion. If everyone gives the same recommendation, we don't have the opportunity to fully explore other options — and exploring and learning from other options is part of the joy and excitement of case work.

5. It makes you subservient to the recommendations of others — who may or may not know anything about the underlying technology, IT project management, etc. One of the premises of the MISM program is that people with a strong IT background will be able to do a better job managing IT projects than others who don't have a tech background. I'm assuming that's why you are here and not somewhere else.

So, for the sake of your professional development, our classroom discussion, your academic integrity, and your pride in the MISM program, using someone else's case “solutions” is a bad idea. However if you insist on using these resources, you must cite your sources in the body of your report and on your slides, whether you use direct quotes from them or not. You are, of course, perfectly free (and encouraged) to research any of the companies or issues that we discuss in class. I am just asking that you not use outside discussions of the cases themselves.

**Course Web Site:**

Web: http://blackboard.andrew.cmu.edu

We will use the blackboard site for course information and announcements. If you are registered in the class you should already have access. Your login id is your andrew id and password.

If you are on the wait list, you should still be able to access the site with your Andrew login (with the exception of the student’s resources section). If this does not work, please e-mail any of us to obtain temporary access.

The web site has an up-to-date copy of the syllabus, schedule, and any class announcements. While I will try to make announcements both in class and on the web site, it is a good idea for you to check the web site regularly. Additionally, the web site has links to class readings and relevant sites mentioned in class and more extensive background material.

**Reading Materials:**

A “digital” reading packet containing most of the cases and readings for this course is available from HBS Publishing.
You should have received an email from Harvard with details and a link to a set of HBS case studies. If you did not receive this email, please send me an email.

Supplemental readings are available on Blackboard or will be distributed in class.

**Grading and Course Requirements:**

You will be evaluated on the basis of your case analyses, participation in discussions, case presentations, and an individual final exam assignment handed out at the end of the mini. Your case analyses will be graded as group work. Your grades for the final exam and discussion forum participation will be your own.

The final grade for the course is distributed among various assignments and activities as follows:

1. Case Analysis: 40%
2. Final Exam: 40%
3. Class Discussions Participation (Forum/Chat): 10%
4. Virtual Case Presentation: 10%

To facilitate the creation of groups, please complete the survey posted under the assignments section of the course blackboard page. We will use this information to assign you to a group.

**Class Discussion Participation**: The quality of our learning environment is contingent on effective and informed participation of each class member. The goal here is not to dazzle us with your individual brilliance or with the number of comments you make, but rather to help make the class smarter. Note that, in addition to providing new insights to the discussion, it is possible to make the class smarter by asking the right question or by assimilating comments from other students or sources.

The case analyses are designed to help you participate in an effective manner in class. The quality of your comments and your ability to build on and respond to threads in a conversation about a particular issue will be taken into account in assigning your participation grade.

It is important to note that class contribution is assessed on an individual basis. This is inherently a subjective assessment but will take the following factors into account:

   a. Ability to coherently present arguments and to contribute to a discussion (vs. creating new threads)
   b. Ability to influence and persuade others in class to agree with your opinions.

**Case Analysis**: You case analysis grade is based on a 2-page write-up (1.5-spacing, 11-point Arial font, 1 inch margins). You case submission is *due to Blackboard by midnight the day before the case is discussed in class.*

I will also assign groups to present their recommendations to class. Your write-up and presentation should address the issues raised in the case narrative and associated discussion.
questions. However, you are encouraged to go beyond the set of questions that I give you to seed the discussion and to use additional resources to research the background of the firms as you see fit. Case analysis documents are group work and should adopt the following perspective:

a. What are the business/strategic drivers of process digitization in the particular environment being analyzed?

b. What is the role of IT architecture in either enabling or inhibiting process digitization?

c. Given your knowledge of technologies to date, do you agree with the choice of technologies and the manner in which the technologies were deployed in process digitization?

d. Did the case describe the organizational challenges encountered in process digitization? Do you agree with the manner in which the organizational challenges were dealt with? If the case did not describe organizational challenges, what do anticipate them to be and what are your recommendations for overcoming them?

The format for the case write-up is contained in a handout that will be provided in class. For the presentations, you should target 15 minutes of prepared comments, but with enough backup slides/information to answer any questions that might arise about your recommendations.

Final Exam: There will be a take home final exam handed out in the last week of class and due approximately a week later. The exam will ask you to integrate information we have learned across the cases we covered in the semester.

Peer Review: Since the case analyses and the position paper are group work, I will use a peer review instrument to ensure that feedback from group members about contribution is taken into account in the determination of the final grade.

A Note on Regrade Requests: We make every effort to return graded assignments within 1 week of their submission. If you believe that your grade is inaccurate, you may request a regrade under the following conditions:

1. Regrade requests must be submitted within 1 week of the date when the grade was returned.

2. Regrade requests must be in writing and must include a copy of the original assignment.

3. Regrade requests must outline the reasons you deserve a higher grade. These will typically be that the grader misread or misunderstood your answer, or didn’t take something into account that they should have. For this, you should use the written comments on the assignment as your reference point. Referencing another student’s grade is inappropriate and irrelevant. While we do our best to apply an even standard across students, we can’t discuss anyone else’s grade with you, so we need to deal with the merits of your particular case.
4. I reserve the right to regrade the entire assignment and thus your grade may go up or down.

5. Class participation grades are inherently subjective and not subject to a regrade request. I will make notes on participation at the end of each class and assign grades at the end of the semester based on these notes.
Course Schedule:

This schedule is subject to change during the semester. All changes will be announced in class or posted to Blackboard.

Unless otherwise announced, all assignments are due to Blackboard by midnight the night before the assignment is discussed in class. There is a 10% penalty for late assignments. No assignments are accepted after the start of class.

Readings marked with: (HBS) and all of the assigned cases are in the reading pack available from the Harvard Business School Publishing website. Readings marked with (BB) are available on Blackboard.

**August 24 — Introduction:** I will briefly review the course objectives and introduce to you the set of readings and cases we will use during the mini. The objective of the course is to engage you in analytical thinking of important information technology management issues. You will combine your knowledge of information technology, decision-making, strategy and data analysis in these case analyses and discussions. There will be no lectures per se in this course beyond these introductory lectures to provide a set of analytic frameworks. You will be tasked with preparing cases and evaluated on the quality of your participation and analysis.

**August 26 — Does IT Matter Discussion:** In this class, we will discuss strategies for effective communication in case writeups and presentation and present several frameworks that may be helpful to you in analyzing the cases we will discuss throughout the term. Following this discussion, we will debate the merits of the arguments in the Harvard Business Review article “IT Doesn’t Matter.”

**Required Articles**
- Handout: Notes on Case Analysis
- “IT Doesn’t Matter,” Nicholas G. Carr, OnPoint Edition (with Letters to the Editor), HBS Product Number 3566. (HBS)

**Supporting Articles**
(http://tinyurl.com/5h89bs)

Module 1: Gaining Competitive Advantage Through Digital Transformation

August 31 — Dubai Ports Authority (HBS 9-603-061): This case discusses digitization of paper-based systems at Dubai Port Authority. Dubai Ports Authority (DPA) is in an industry characterized by powerful shipping lines and a plethora of proprietary formats on the one hand and low levels of automation among other members of the value chain. The detailed information flow provided on page 16 offers a detailed view of operations and opportunities for digital transformation. I would like you to propose and defend an IT architecture and solution to the DPA problem. Hand in hand with the technology solution (and perhaps even more challenging in any real organizational context) are business issues related to competition and change management. I would like you to discuss ways in which digitization impacts the factors on which ports compete. I would also like for you to discuss the relevant organizational challenges that arise in effecting this digital transformation spanning multiple organizational partners.

September 2 — Los Grobos (HBS 9-606-014): Los Grobos is an agricultural company based in Argentina. From 1998 to 2004, under the leadership of its CEO, Los Grobos had transformed from a family business into a large network of interdependent collaborators. In this case you will study the company’s existing business model and advise the CEO as to whether he should expand the company’s network into additional countries. There is no case to turn in for this class, but please come to class prepared to discuss the required readings.

Required Articles

September 7 — The ITC eChoupal Initiative (HBS 9-604-016): In this case, we will look at a fascinating example that illustrates how information flows in markets can be improved to the betterment of business profits and social justice. The ITC eChoupal case discusses an effort by ITC to improve the information flows in the Indian market for soybeans — and the resulting change in the farmers’ ability to extract profits from their efforts.

Module 2: Maintaining Competitive Advantage With Digital Transformation

September 9 — Disruptive Technologies and The Crisis at Encyclopædia Britannica (Kellogg Case 251): In this class we will discuss how new technologies, particularly information technologies, can disrupt competition in industries. We will illustrate our discussion with the experience of Encyclopædia Britannica. There is no case to turn in for this class, but please come to class prepared to discuss the required readings.
**Required Articles**

- “The Crisis at Encyclopædia Britannica,” Shane Greenstein and Michelle Devereux. Kellogg Case Number 251 (HBS)
- “Industry Transformation,” Michael E. Porter, Jan W. Rivkin. (HBS)
- “Creative Destruction and Deconstruction,” Shane Greenstein, IEEE Computer Society. ([http://tinyurl.com/n75sos](http://tinyurl.com/n75sos))

**September 14 — Newspaper Industry Transformation**: In this class, we will discuss the current transformation in the newspaper industry and analyze whether there strategies newspaper companies can use to maintain their strategic position in the news industry.

**Required Articles**


**Supporting Articles**

**Background:**

- [http://www.bloggingstocks.com/2009/09/23/smartphone-apps-to-spike-newspapers-to-miss-it-again/](http://www.bloggingstocks.com/2009/09/23/smartphone-apps-to-spike-newspapers-to-miss-it-again/) The "headline" story is that **only** 50% of newspaper publishers see smart phones as becoming crucial to content distribution over the next three years. The writer argues that this is a really low number relative to the likely impact of smartphones.

**Arguments to Increase Control:**

- Danny Sullivan's critique of the newspaper industry attempt to control access to its content through Google: [http://daggle.com/googles-love-for-newspapers-how-little-they-appreciate-it-443](http://daggle.com/googles-love-for-newspapers-how-little-they-appreciate-it-443)

**Arguments to Change Payment Structure:**

- Rupert Murdoch plans to charge "pay-per-view" for access to all news sites: [http://www.guardian.co.uk/media/2009/aug/06/rupert-murdoch-website-charges](http://www.guardian.co.uk/media/2009/aug/06/rupert-murdoch-website-charges)
- More arguments that this is the direction everyone is going: [http://www.guardian.co.uk/media/2009/jul/16/financial-times-lionel-barber](http://www.guardian.co.uk/media/2009/jul/16/financial-times-lionel-barber)
And Mark Cuban's critique of it (bundling would be better):

Argument in the Columbia Journalism Review for major newspapers to go to a subscription model: http://www.cjr.org/feature/build_the_wall_1.php?page=all

And John Gruber's critique: http://daringfireball.net/2009/07/pay_walls

And Dave Winer's (developer of RSS, editor at Wired) critique (and argument for a new industry structure:

Mark Cuban's argument for newspaper's to sell content through mega-bundles for news junkies:

And Michael Wolff/Newser's critique:

And Mark Cuban's response:

An argument from the WSJ that information wants to be expensive:
http://online.wsj.com/article/SB123534987719744781.html

Arguments to Keep It Free:

Summary of Chris Anderson's "Free" Arguments:
http://www.wired.com/techbiz/it/magazine/16-03/ff_free

Malcolm Gladwell disagrees:
http://www.newyorker.com/arts/critics/books/2009/07/06/090706crbo_books_gladwell

Seth Godin disagrees with Malcolm Gladwell:
http://sethgodin.typepad.com/seths_blog/2009/06/malcolm-is-wrong.html

And John Gruber disagrees with Seth Godin:
http://daringfireball.net/linked/2009/06/30/godin

Mark Cuban is also skeptical about free, here:
http://blogmaverick.com/2009/06/30/free-vs-freely-distributed/

…and here: http://blogmaverick.com/2009/07/05/the-freemium-company-lifecycle-challenge/

Arguments to Use Technology:

Mark Cuban's argument of the technological advantages in charging for access through Pubsubhubbub: http://blogmaverick.com/2009/08/25/the-internet-is-about-to-change/

Structure:

Mark Bernstein talks about the structure of the news industry:
http://www.markbernstein.org/Jul09/NewspapersAreBigNotBloated.html

Module 3: Organizational Change From Digital Transformation
September 16 — Guest Lecture: Jeff Godish, Head Digital Marketing and Media, H.J. Heinz Corporation: Jeff will discuss how digitization changes the marketing organization views consumers and B2B customers and how digital transformation impacts communication between the corporation and its customers. (Assignment To Be Announced.)

September 21 — Prediction Markets at Google (HBS 9-607-088): In his book “The Wisdom of Crowds,” James Surowiecki states “Corporate strategy is all about collecting information from many different sources, evaluating the probabilities of potential outcomes, and making decision in the face of an uncertain future. These are all tasks for which [prediction] markets are tailor-made.” In this case we will examine the experiences of Google in attempting to implement a “prediction market” for corporate decision-making. In your case write-up, I would like for you to think about the corporate uses for and implementation of prediction markets. You may want to address questions such as “what sort of decisions are prediction markets good for or not good for?” “what are the best ways to encourage more participation and more trading within a corporate prediction market (e.g., hard vs. soft incentives)?” and “will most managers welcome prediction markets within their company?”

Required Articles
- Prediction Markets at Google, HBS Case 9-607-088. (HBS)

September 23 — Class Cancelled: I have a prior trip scheduled and won’t be in town for this class. Sorry, but enjoy the break.

Module 4: Structural Change From Digital Transformation

September 28 — Google vs. iPhone and Transformation in the Wireless Industry: In this class, I would like to first debate whether Google Android or iPhone are better positioned in the competition for “smartphones.” There has been much discussion in the popular press about Google’s “Open” strategy versus Apple’s “Closed” strategy for cell phone development. I’d like to put some rigor to that discussion by asking which of these two platforms is best positioned for long terms success. I’d then like to talk about how smartphones in general may shift the nexus of competition in the cell phone industry away from providers and toward manufacturers.

Required Articles
- Google’s Andriod: Will It Shake Up the Wireless Industry in 2009 and Beyond?, Stanford Case SM176. (HBS)
- iPhone vs. Cell Phone, HBS Case 9-708-451. (HBS)
September 30 — H.E. Butt Grocery Corporation (A) and (B) (HBS 9-196-061 and 9-198-016): HEB Grocery Corporation is a medium sized, regional grocery chain facing a set of changes to their business model and industry resulting from innovations in the use of IT systems. This case is meant to illustrate how digital transformation can impact the operations in an entire industry.

There is no write-up to turn in for this case; instead I would like for you to come to class having read the required reading below and prepared to discuss the following questions:

1. Trace the key systems innovations in the grocery industry over the past decade. What has been their payoff? What are the keys to their success? In your discussion, pay particular attention to the role of technology in transforming the roles of supply chain participants.

2. What are the key technology challenges that management faces for the future? What advice do you want to give them? In your discussion, you may wish to discuss whether HEB should be concerned that their investments in IT can be easily copied by their competitors.

Required Articles
- H.E. Butt Grocery Corporation (A), HBS Case 9-196-061. (HBS)
- H.E. Butt Grocery Corporation (B), HBS Case 9-198-016. (HBS)
- Industry Transformation, Michael Porter and Jan W. Rivkin, HBS Note 9-701-008. (HBS)

October 5 & 7 — Transformation in The Music Industry (BMG Entertainment, HBS Case 9-701-003): Industries, particularly creative industries, are being hit by the dual forces of new technologies that lower the cost of production and new marketplaces that lower the cost of distribution and promotion. One industry where these phenomena are clearly seen is the record industry where new production technologies and “long tail” promotion and distribution technologies may change the relationship between artists and record companies.

In this class, we will debate the question of whether digital technologies will change the structure of the music industry. I will assign two groups to take opposite sides of this question and present their sides to the class. The remaining groups will create a 2-page white paper presenting their position on this question. More details will be announced in class.

To prepare for this case, you should think about the value chain for the music business (the HBS case may be helpful in this regard). How does music go from artist to consumer? What value have record companies added to this value chain and is that likely to change with Long Tail markets and other Web 2.0 changes? Will these changes significantly impact their businesses? If not, then why not? If so, what will the new chain look like in terms of the number of competitors at each level, and the nature of competition between players at a particular level and between levels? You are free to add in anything else you like. If you think a discussion of digital piracy, my space, or iTunes is relevant, add it in. Have fun with it. Be creative. Enjoy.

Required Articles
- BMG Entertainment, HBS Case 9-701-003. (HBS)
Supporting Articles