

School of Information Management

**INFO 409 SPECIAL TOPIC: IT, INNOVATION,
VALUE & PRODUCTIVITY**

Trimester One 2012

COURSE OUTLINE

Names and Contact Details

Course Coordinator	Name	Dr Jean-Grégoire Bernard
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Trimester Dates

Teaching period: Monday 5 March – Friday June 8 2012

Withdrawal from Course

1. Your fees will be refunded if you withdraw from this course on or before Friday 16 March 2012.
2. The standard last date for withdrawal from this course is 18 May 2012. After this date, students forced to withdraw by circumstances beyond their control must apply for permission on an '*Application for Associate Dean's Permission to Withdraw Late*' including supporting documentation

The application form is available from either of the Faculty's Student Customer Service Desks.

Class Times and Room Numbers

Classes will be from 10:30am – 1:30pm on Mondays in RH G02

Course Content

Over the past 40 years, Information Technology (IT) has brought about profound changes, affecting individuals, organizations, and society in general. The effect of IT is obvious in the acceleration of the globalization of markets, in the transformation of social and commercial relationships, as well as in the emergence of new sources of information and competitiveness. Our notions of time and space, as well as our understanding of what is physical and what is information, have changed.

IT is now ubiquitous. There is a convergence of telephony, computing, networks and applications that challenges the traditional industrial and firm boundaries. IT has had a major impact on all types of innovation, but they often require new perspectives on business models to take full advantage of their potential. This is why it is essential to understand how consumers, industries, firms, and governments shape the adoption of IT and ultimately the value that can be derived from its use.

The appropriate use of IT to generate economic prosperity and welfare is always difficult to determine. This course will explore current theories about the use of IT to generate innovation and value for industries, firms and groups. It will also provide frameworks to understand the diffusion of IT innovation across a population of firms over time and to distinguish faddish technologies from truly disruptive technologies. The course concludes by examining at three novel ways to generate value from IT: the long tail phenomenon, open innovation (crowdsourcing in particular), and the application of IT to environmental sustainability problems. This course adopts a holistic perspective on IT value and assumes that IT value is not strictly limited to financial outcomes.

Lecture	Date	Topic	Deliverable
1	5 March	Introduction: IT, Innovation, Value & Productivity	
2	12 March	Evolution of IT Innovation	
3	19 March	IT Value at the Industry Level of Analysis	Cases #1 & #2
4	26 March	IT Value at the Firm Level of Analysis	
5	2 April	IT Value at the Group Level of Analysis	Cases #3 & #4
	Break		
6	23 April	The Diffusion of IT Innovation: Organizational Learning and Social Contagion	
7	30 April	Case study week	
8	7 May	The Diffusion of IT Innovation: Standardization and Computerization Movements	Individual assignment (case study)
9	14 May	The Diffusion of IT Innovation: Isomorphism, Fashion and Mindfulness	
10	21 May	IT-Enabled Innovation: The Long Tail Phenomenon & Open Innovation	
11	28 May	IT-Enabled Innovation: Environmental Sustainability and IT	Innovation report

Course Learning Objectives

By the end of this course, students should understand and be able to apply current and emerging research knowledge about:

1. The relationship between IT investments and productivity (all weeks – LG1 to 5)
2. The processes driving the evolution of IT and the emergence of disruptive IT (week 1 to 2 – LG3)
3. The role of IT as a resource for industries, firms, and groups (week 3-4-5-7 – LG1, LG2)
4. The influence of IT on innovation outcomes and how to foster innovation (week 2-3-4-5 – LG1 to LG4)
5. The concept of strategic alignment (week 7 – LG2, LG3)
6. The processes by which a novel IT (does not) diffuse(s) across networks of firms over time (week 6-8-9 – LG1 to 3)
7. The long tail vs. superstar phenomenon (week 10 – LG3)
8. The role of IT in fostering open innovation and crowdsourcing platforms (week 10 – LG3)
9. The role of IT in enabling business models and organizational processes that are environmentally sustainable (week 11 – LG3).

The course objectives include the Faculty learning objectives (FCA-LG) which are the development of literature research (LG1), research/analytical skills (LG2), discipline specific skills (LG3), communication skills (LG4), and leadership skills (LG5). Selected Faculty learning objectives will be assessed along with the following specific outcomes based on the statutory statement of course learning objectives above.

Expected Workload

Students are expected to work on average 150 hours for this course. The following breakdown reflects the course structure:

- Attending lectures: 33 hours
- Preparing for lectures (reading the material and preparing notes): 60 hours
- Writing individual assignments (5): 32 hours
- Writing team assignment: 15 hours
- Preparing presentation: 10 hours

Readings

Please note that changes might be made to this schedule as the trimester progress. Changes will be communicated in class if necessary – *Blackboard will contain the official, final reading list for this course.* There is no textbook for this course. Case studies to be discussed in class will be assigned and communicated in class during the trimester. I expect you to read the required readings before each class and to have done the informal exercises if any were assigned for the class. All course readings will be made available via the 'Blackboard' system. Supplementary readings will also be provided on 'Blackboard' for your own curiosity.

<i>Class</i>	<i>Topic</i>	<i>Required readings and preparation</i>
Week 1 5/3	Introduction: IT, Innovation, Value & Productivity	<ul style="list-style-type: none"> – Swanson, E. B. (1994). Information Systems Innovation Among Organizations. <i>Management Science</i>, 40(9), 1069-1092. (focus on p.1075-1084) – Brynjolfsson, E. (2010). The Four Ways IT is Revolutionizing Innovation. <i>Sloan Management Review</i>, 51(3), 51-56. – Aubert, B.A. and Reich, B.H. (2009). <i>Extracting Value from Information Technologies</i>. Burgundy Report, CIRANO, 38 pages.
Week 2 12/3	Evolutionary Processes of IT Innovation	<ul style="list-style-type: none"> – Shane, S.A. (2009). Technology Evolution. In <i>Technology Strategy for Managers and Entrepreneurs</i>. Prentice Hall. – Christensen, C.M. (1997). Introduction. In <i>The Innovator's Dilemma</i>. Cambridge, MA: Harvard Business School Press, p.ix-xxiv.
Week 3 19/3	IT Value at the Industry Level of Analysis	<ul style="list-style-type: none"> – Grover, V., & Ramanlal, P. (1999). Six myths of information and markets: Information technology networks, electronic commerce, and the battle for consumer surplus. <i>MIS Quarterly</i>, 23(4), 465-495. – Dedrick, J., Kraemer, K.L., Linden, G. (2009). Who profits from innovation in global value chains? A study of the iPod and notebook PCs. <i>Industrial and Corporate Change</i>, 19(1), 81-116. – Case study to be put on Blackboard. <p>Cases #1 and #2 due on the Wiki.</p>

Week 4 26/3	IT Value at the Firm Level of Analysis	<ul style="list-style-type: none"> – Seddon, P.B. et al. (2010). A multi-project model of key factors affecting organizational benefits from enterprise systems. <i>MIS Quarterly</i>, 34(2), 305-328. – Aral, S., & Weill, P. (2007). IT assets, organizational capabilities, and firm performance: How resource allocations and organizational differences explain performance variation. <i>Organization Science</i>, 18(5), 763-780. – Rivard, S., Pinsonneault, A., Croteau, A-M. (2011). Information Technology at Cirque du Soleil: Looking Back, Moving Forward. <i>Proceedings of the 32nd International Conference on Information Systems (ICIS)</i>. Shanghai, China.
Week 5 2/4	IT Value at the Group Level of Analysis	<ul style="list-style-type: none"> – Gray, P. H., Parise, S. and Iyer, B. (2011). Innovation impacts of using social bookmarking systems. <i>MIS Quarterly</i>, 35(3), 629-643. – Kane, G.C. and Borgatti, S. (2011). Centrality–IS proficiency alignment and workgroup performance. <i>MIS Quarterly</i>, 35(4), 1063-1078. – Leonardi, P. M. (2007). Activating the informational capabilities of information technology for organizational change. <i>Organization Science</i>, 18(5), 813-831. <p>Cases #3 and #4 due on the Wiki.</p>
Break		
Week 6 23/4	The Diffusion of IT Innovation: Organizational Learning and Social Contagion	<ul style="list-style-type: none"> – Rogers, E. M. (1995). Elements of Diffusion. Chapter 1 of <i>Diffusion of Innovations</i> (4th ed.). New York, NY: Free Press. – Wang, P., & Ramiller, N. C. (2009). Community learning in information technology innovation. <i>MIS Quarterly</i>, 33(4), 709-734. – Watts, D.J. (2003). Tresholds, cascades, and predictability. Chapter 8 of <i>Six Degrees: The Science of a Connected Age</i>. New York, NY: W.W. Norton & Company.
Week 7 30/4	Case Study Week	– Case study and readings for this week will be put on Blackboard.

Week 8 7/5	The Diffusion of IT Innovation: Standardization and Computerization Movements	<ul style="list-style-type: none"> – Shapiro, C., Varian, H.R. (1999). The art of standard wars. <i>California Management Review</i>, 41(2), 8-32 – Kling, R., & Iacono, S. (1988). The mobilization of support for computerization - The role of computerization movements. <i>Social Problems</i>, 35(3), 226-243. <p>Individual assignment (case study) due.</p>
Week 9 14/5	The Diffusion of IT Innovation: Isomorphism, Fashion and Mindfulness	<ul style="list-style-type: none"> – DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited - Institutional isomorphism and collective rationality in organizational fields. <i>American Sociological Review</i>, 48(2), 147-160. – Swanson, E. B., & Ramiller, N. C. (2004). Innovating mindfully with information technology. <i>MIS Quarterly</i>, 28(4), 553-583. – Wang, P. (2010). Chasing the hottest IT: Effects of information technology fashion on organizations. <i>MIS Quarterly</i>, 34(1) 63-85.
Week 10 21/5	IT-Enabled Innovation: The Long Tail Phenomenon & Open Innovation	<ul style="list-style-type: none"> – Anderson, C. (2004). The Long Tail. <i>Wired</i>, 12(10). http://www.wired.com/wired/archive/12.10/tail.html – Brynjolfsson, E., Hu, Y., Smith, M.D. (2011). Long Tails vs. Superstars: The Effect of Information Technology on Product Variety and Sales Concentration Patterns. <i>Information Systems Research</i>, 21(4), 736-747. – Howe, J. (2006). The Rise of Crowdsourcing. <i>Wired</i>, 14(6) http://www.wired.com/wired/archive/14.06/crowds.html – Jeppesen, L.B. and Lakhani, K.R. (2010). Marginality and problem solving effectiveness in broadcast search. <i>Organization Science</i>, 21(5), 1016-1033.
Week 11 28/5	IT-Enabled Innovation: Environmental Sustainability and IT	<ul style="list-style-type: none"> – Jenkin, T.A., Webster, J., McShane, L. (2011). An agenda for ‘Green’ information technology and systems research. <i>Information and Organization</i>, 21(1), 17-40. – Watson, R.T., Boudreau, M.C., Chen, A.J., Sepúlveda, H.H. (2010). Green projects: An information drives analysis of four cases. <i>Journal of Strategic Information Systems</i>, 20(1), 55-62. <p>Written Innovation Report Due + Innovation Report Team Presentations.</p>

Course Delivery

A series of seminars where the weekly readings will act as the basis of discussions and collective analysis of managerial dilemmas will act as the foundation for the course. You will be actively involved in informal case studies, class exercises, and informal group presentations. These class exercises and presentations will not contribute to course grades (except from the one stated in the assessment requirements section below). These activities will foster deeper involvement and understanding of the themes and concepts addressed in the lectures.

Materials and Equipment

You will make extensive use of the University Library print and electronic resources to elaborate your vendor report (assignment #1) and request for proposal (assignment #2). As a starting point, among the relevant resources we find:

- Proquest
- LexisNexis
- Factiva
- Business Source Complete
- RDS Business Suite
- Index New Zealand
- NewztextPlus
- On the internet: CIO Magazine, ComputerWorld, InformationWeek, Baseline, and enterprise systems vendors' websites are good starters, but there are many others.

Assessment Requirements

		Due date
4 Quizzes – Individual (3% each)	12%	4 lectures chosen randomly between w2 and w11.
4 Quizzes – Team (2% each)	8%	4 lectures chosen randomly between w2 and w11.
Discussion leadership	10%	1 lecture chosen randomly between w2 and w11.
Wiki collection of IT innovations	20%	March 19 th (w3) and April 2 nd (w5).
Ind. assignment: Case study analysis	20%	May 7 th .
Team assignment: Innovation report	23%	May 28 th .
Team presentation	<u>7%</u>	May 28 th .
Total	100%	

The Faculty learning goals for BCA(Hons) targeted by each assessment is indicated in parentheses for each assessment item.

Readiness Assurance Process Quizzes - Individual and team (LG2 to LG3)

There will be 4 *random* quizzes during the trimester (week 2 to 11, except week 6). The quizzes will consist of 8 or less multiple-choice questions that will assess whether you have a sound understanding of the key concepts from the required readings for that week. The questions will focus on foundational concepts, not picky details, and are meant to assess your readiness to discuss the week's topic. The quizzes will be completed in a two steps fashion. At the beginning of the class, the quizzes are completed individually. Once the individual quizzes are completed, you will retake the same quizzes, but this time as a team of 3 students and the team must reach agreement on the answers to each quiz question. The teams will be formed on a random basis at the beginning of each quiz sessions. The individual quizzes are worth 3% each and the team quizzes are worth 2% each. If you are absent without appropriate justification when the

readiness assurance process takes place (e.g. official medical note sent to the lecturer before the beginning of class), you will obtain a mark of 0 for both the individual and the team quizzes in that given week.

Discussion leadership (LG1 to LG5)

For every lecture between week 2 and week 11, a discussant will be assigned to a specific article. The discussant has the responsibility to present a synopsis of the article, a personal critique/commentary on puzzling aspects of the article, establish links with other articles in the required/supplementary readings, and to elicit discussion questions.

Wiki collection of IT innovation cases (LG1 to LG4)

During weeks 2 to 5, you will search documentary and relationship sources for interesting cases where firms (or governmental agencies, non-profit organizations, groups, etc.) innovate with IT. The cases should be relatively recent, but exceptions may be granted if a case is particularly puzzling. You will contribute a total of four cases to the course wiki (on Blackboard, tbc). Each case should be about 1 page in length. These cases will be used as a basis for discussion in class. Further information will be posted on Blackboard regarding the information required in the case descriptions.

Individual assignment: Case study analysis (LG1 to LG3)

For this case study, you will identify the key issues and challenges faced by the managers of a firm facing significant challenges in designing an IT-enabled business model. The written report of the case analysis should be of no more than 3000 words, but no less than 2000 words (excluding figures and tables). Specific questions will guide your analysis of the cases. Further instructions on how to elaborate the case study analysis as well as a detailed marking grid will be communicated in class on April 2nd. An electronic copy of the case analysis is due on May 7th before the class, by email as a PDF attachment.

Team assignment and presentation: IT innovation report (LG1 to LG4)

You will select one novel and high-impact case from the wiki collection that will have been developed in the first half of the course. You will conduct further research and analysis and develop an in-depth case study. If the case is based in Wellington, you are encouraged to contact the organization in order to conduct interviews and visit the organization's offices so you can generate a "thick" description. You may write the report as teams of two to three students based on your shared interests (e.g. in the specific technologies, industries, or market spaces). A one-page proposal (not assessed) should be prepared at the beginning of the project (April 23 at the latest). Your final innovation report should not exceed 6000 words (including appendices). Please consider this limit as a constraint rather than as a target – conciseness is a virtue. Further instructions on how to elaborate the innovation report as well as a detailed marking grid will be communicated in class on April 2nd. An electronic copy of the innovation report is due on May 28th before the class, by email as a PDF attachment.

Mandatory Course Requirements

An attendance register will be kept, however there will be no penalty for non-attendance. To pass the course, you must gain a weighted average of 50% across all assessments. Students are expected to attend all classes and to submit all assignments as well as sit the test. In the case of absence due to illness, a medical certificate should be submitted to the Course Coordinator, immediately after return to university. Absence or non-submission of assignments for other reasons should be discussed with the Course Coordinator, preferably in advance. Failure to meet mandatory requirements does not prevent a student from completing other pieces of assessment.

Group Work

The group work which will be marked as *Group Assessment* (in terms of par. 5.4, p.14, of the University's "Assessment Handbook 2009" as published on

http://www.vuw.ac.nz/home/about_victoria/publications.html#assessment) consists of the following assessment items:

- Four (4) team quizzes, worth 2% each, will take place during the trimester as part of the readiness assurance process for this course. Further details about the team quizzes are found in the Assessment Requirements section of this outline.
- The innovation report presentation in week 11 (7%). All group members will obtain the same mark. If a group member is absent on the day of the presentation, he or she will obtain a mark of 0 for the presentation but with no penalty to the other group members.
- The team written innovation report (23%). The innovation report will be attached to a sheet specifying the contribution percentage for each group member as agreed by all group members. Omission of this contribution percentage will be an indication that the group wishes to award equal marks to all group members.

It is anticipated that participation in group work will not add more than 2 hours per assignment to the average workload, but may be particularly concentrated in the second half of the trimester (weeks 7-11).

Grading Standards

Letter Grade	Number grade	Approx Dist'n *	Simple Description	More Complete Description**
A+	Over 84	4%	Outstanding	Far exceeds requirements, flawless, creative
A	80-84	10%	Excellent	Polished, original, demonstrating mastery
A-	75-79	14%	Very Good	Some originality, exceeds all requirements
B+	70-74	22%	Good	Exceeds requirements in some respects
B	65-69	26%	Satisfactory	Fulfils requirements in general
B-	60-64	18%	Acceptable	Only minor flaws. Unoriginal
C+	55-59	4%	Pass	Mistakes, recapitulation of course material
C	50-54	2%	Minimum pass	Serious mistakes or deficiencies
D	40-49	1%	Unacceptable	Little understanding, poor performance
E	00-39	1%	Fail	Below the minimum required

* This is the hypothetical percentage of students that would attain the various levels of performance, over several repetitions of the course, under similar conditions. It is recognised that the distribution in a particular course, particularly with small enrolment, may differ markedly from the long-term distribution. To obtain a fair distribution of marks relative to assignment difficulty, scaling of marks may be employed on some or all assessments.

** The lecturer will develop a more complete or specific description of the meaning of the various levels of performance based upon the specific nature of the assessment in a course. For example, performance may be determined by the qualities of a written report, a classroom presentation, or an examination. The words used to describe these kinds of assessments will obviously vary.

Note

Your assessed work may also be used for quality assurance purposes, such as to assess the level of achievement of learning objectives as required for accreditation and audit purposes. The findings may be used to inform changes aimed at improving the quality of FCA programmes. All material used for such processes will be treated as confidential, and the outcome will not affect your grade for the course.

Examinations

There will be no examination for this course.

Penalties

For work submitted after a deadline, students will be awarded 0% for that assignment.

Communication of Additional Information

Additional information, or information on changes, will be announced in class or conveyed to students via Blackboard, email, phone, or through the class representative.

Use of Turnitin

Student work provided for assessment in this course may be checked for academic integrity by the electronic search engine <http://www.turnitin.com>. Turnitin is an on-line plagiarism prevention tool which compares submitted work with a very large database of existing material. At the discretion of the Head of School, handwritten work may be copy-typed by the School and subject to checking by Turnitin. Turnitin will retain a copy of submitted materials on behalf of the University for detection of future plagiarism, but access to the full text of submissions will not be made available to any other party.

For the following important information follow the links provided:

Academic Integrity and Plagiarism

<http://www.victoria.ac.nz/home/study/plagiarism.aspx>

General University Policies and Statutes

Find key dates, explanations of grades and other useful information at www.victoria.ac.nz/home/study.

Find out about academic progress and restricted enrolment at www.victoria.ac.nz/home/study/academic-progress.

The University's statutes and policies are available at www.victoria.ac.nz/home/about/policy, except qualification statutes, which are available via the Calendar webpage at www.victoria.ac.nz/home/study/calendar (See Section C).

Further information about the University's academic processes can be found on the website of the Assistant Vice-Chancellor (Academic) at www.victoria.ac.nz/home/about_victoria/avcacademic/default.aspx

AVC (Academic) Website: information including: Conduct, Academic Grievances, Students with Impairments, Student Support

http://www.victoria.ac.nz/home/about_victoria/avcacademic/Publications.aspx

Faculty of Commerce and Administration Offices

<http://www.victoria.ac.nz/fca/studenthelp/>

Manaaki Pihipihinga Programme

http://www.victoria.ac.nz/st_services/mentoring/