

School of Information Management

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

Trimester One 2013

**COURSE OUTLINE**

---

**Names and Contact Details**

Course Coordinator	Name	Dr Jean-Grégoire Bernard
	Room	RH 409, Rutherford House
	Tel.	463-9742
	E-mail	jean-gregoire.bernard@vuw.ac.nz
	Office hours	By appointment

**Trimester Dates**

Teaching period: Monday 4 March – Friday June 7 2013

**Withdrawal from Course**

1. Your fees will be refunded if you withdraw from this course on or before Friday 15 March 2013.
2. The standard last date for withdrawal from this course is 17 May 2013. 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 9:30am – 12:20pm on Tuesdays in RWW 127.

## 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	
	Break		
5	9 April	IT Value, Digital Business Models, & Process Virtualization	Cases #3 & #4
6	16 April	IT Value at the Group Level of Analysis	
	Break		
7	30 April	The Diffusion of IT Innovation: Organizational Learning and Social Contagion	
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	
12	4 June	Presentations of innovation reports	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, 2 & 5 – LG3)
3. The role of IT as a resource for industries, firms, and groups (weeks 3 to 7 – LG1, LG2)
4. The influence of IT on innovation outcomes and how to foster innovation (week 2 to 6 – LG1 to LG4)
5. The concept of strategic alignment (week 4 & 5 – LG2, LG3)
6. The processes by which a novel IT (does not) diffuse(s) across networks of firms over time (week 7 to 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 socially and 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. 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 (*INDICATIVE* - final, official list is found on Blackboard)</i>
Week 1 5/3	Introduction: IT, Innovation, Value & Productivity	<ul style="list-style-type: none"> <li>– Swanson, E. B. (1994). Information Systems Innovation Among Organizations. <i>Management Science</i>, 40(9), 1069-1092. (focus only on p.1075-1084)</li> <li>– Brynjolfsson, E. (2010). The Four Ways IT is Revolutionizing Innovation. <i>Sloan Management Review</i>, 51(3), 51-56.</li> <li>– Andreessen, M. (2011). Why software is eating the world. <i>Wall Street Journal</i>.</li> </ul>
Week 2 12/3	Evolutionary Processes of IT Innovation	<ul style="list-style-type: none"> <li>– Shane, S.A. (2009). Technology Evolution. In <i>Technology Strategy for Managers and Entrepreneurs</i>. Prentice Hall.</li> <li>– Christensen, C.M. (1997). Introduction. In <i>The Innovator's Dilemma</i>. Cambridge, MA: Harvard Business School Press, p.ix-xxiv.</li> </ul>
Week 3 19/3	IT Value at the Industry Level of Analysis	<ul style="list-style-type: none"> <li>– Grover, V., &amp; 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.</li> <li>– Sawyer, S., Wigand, R.T., Crowston, K. (2005). Redefining access: Uses and roles of information and communication technologies in the US residential real estate industry from 1995 to 2005. <i>Journal of Information Technology</i>, 20, 213-223.</li> <li>– 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.</li> </ul> <p><b>Cases #1 and #2 due on the Wiki.</b></p>

Week 4 26/3	IT Value at the Firm Level of Analysis	<ul style="list-style-type: none"> <li>– 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.</li> <li>– Quaadgras, A., Weill, P., Ross, J.W. (2011). Management commitments that maximize business impact from IT. <i>Proceedings of the 32nd International Conference on Information Systems (ICIS 2011)</i>. Shanghai, China.</li> <li>– Rivard, S., Pinsonneault, A., Croteau, A-M. (2011). Information Technology at Cirque du Soleil: Looking Back, Moving Forward. <i>Proceedings of the 32<sup>nd</sup> International Conference on Information Systems (ICIS)</i>. Shanghai, China.</li> </ul>
Break		
Week 5 2/4	IT Value, Digital Business Models, & Process Virtualization	<ul style="list-style-type: none"> <li>– Christensen, C.C., Johnson, M.W., Kagermann, H. (2009). <i>What are business models, and how are they built?</i> Harvard Business School Note #9-610-019.</li> <li>– Piccoli, G., Spalding, B. R., &amp; Ives, B. (2001). A framework for improving customer service through information technology: The customer-service life cycle. <i>Cornell Hotel and Restaurant Administration Quarterly</i>, 42(3), 38-45.</li> <li>– Overby, E. (2008). Process virtualization theory and the impact of information technology. <i>Organization Science</i>, 19(2), 277-291.</li> </ul>
Week 6 23/4	IT Value at the Group Level of Analysis	<ul style="list-style-type: none"> <li>– Gray, P. H., Parise, S. and Iyer, B. (2011). Innovation impacts of using social bookmarking systems. <i>MIS Quarterly</i>, 35(3), 629-643.</li> <li>– Kane, G.C. and Borgatti, S. (2011). Centrality–IS proficiency alignment and workgroup performance. <i>MIS Quarterly</i>, 35(4), 1063-1078.</li> <li>– Leonardi, P. M. (2007). Activating the informational capabilities of information technology for organizational change. <i>Organization Science</i>, 18(5), 813-831.</li> </ul> <p><b>Cases #3 and #4 due on the Wiki.</b></p>
Break		

Week 7 30/4	The Diffusion of IT Innovation: Organizational Learning and Social Contagion	<ul style="list-style-type: none"> <li>– Rogers, E. M. (1995). Elements of Diffusion. Chapter 1 of <i>Diffusion of Innovations</i> (4th ed.). New York, NY: Free Press.</li> <li>– Wang, P., &amp; Ramiller, N. C. (2009). Community learning in information technology innovation. <i>MIS Quarterly</i>, 33(4), 709-734.</li> <li>– 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 &amp; Company.</li> </ul>
Week 8 7/5	The Diffusion of IT Innovation: Standardization and Computerization Movements	<ul style="list-style-type: none"> <li>– Shapiro, C., Varian, H.R. (1999). The art of standard wars. <i>California Management Review</i>, 41(2), 8-32.</li> <li>– Elliott, M.S., Kraemer, K.L. (2008). Computerization movements and the diffusion of technological innovations. In Elliott, M. &amp; Kraemer, K.L. (Eds). <i>Computerization Movements and Technology Diffusion: From Mainframes to Ubiquitous Computing</i> (p.3-41). Medford, New Jersey: Information Today, Inc.</li> <li>– Elliott, M.S., Scacchi, W. (2008). Mobilization of software developers: The free software movement. <i>Information Technology &amp; People</i>, 21(1), 4-33.</li> </ul> <p style="text-align: center;"><b>Individual assignment (essay) due.</b></p>
Week 9 14/5	The Diffusion of IT Innovation: Isomorphism, Fashion and Mindfulness	<ul style="list-style-type: none"> <li>– DiMaggio, P. J., &amp; 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.</li> <li>– Swanson, E. B., &amp; Ramiller, N. C. (2004). Innovating mindfully with information technology. <i>MIS Quarterly</i>, 28(4), 553-583.</li> <li>– Wang, P. (2010). Chasing the hottest IT: Effects of information technology fashion on organizations. <i>MIS Quarterly</i>, 34(1) 63-85.</li> </ul>

Week 10 21/5	IT-Enabled Innovation: The Long Tail Phenomenon & Open Innovation	<ul style="list-style-type: none"> <li>– Anderson, C. (2004). The Long Tail. <i>Wired</i>, 12(10). <a href="http://www.wired.com/wired/archive/12.10/tail.html">http://www.wired.com/wired/archive/12.10/tail.html</a></li> <li>– 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.</li> <li>– Howe, J. (2006). The Rise of Crowdsourcing. <i>Wired</i>, 14(6). <a href="http://www.wired.com/wired/archive/14.06/crowds.html">http://www.wired.com/wired/archive/14.06/crowds.html</a></li> <li>– Jeppesen, L.B. and Lakhani, K.R. (2010). Marginality and problem solving effectiveness in broadcast search. <i>Organization Science</i>, 21(5), 1016-1033.</li> </ul>
Week 11 28/5	IT-Enabled Innovation: Social and Environmental Sustainability	<ul style="list-style-type: none"> <li>– Gino, F., Staats, B.R. (2012, December). The Microwork Solution. <i>Harvard Business Review</i>, 92-96.</li> <li>– 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.</li> </ul>
Week 12 4/6	Innovation Reports	<b>No readings. Written Innovation Report Due + Innovation Report Team Presentations.</b>

### 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

4 Quizzes – Individual (3% each)	12%
4 Quizzes – Team (2% each)	8%
Discussion leadership	10%
Wiki collection of IT innovations	12%
Ind. assignment: Essay	28%
Team assignment: Innovation report	23%
Team presentation	<u>7%</u>
Total	100%

### Due date

4 lectures chosen randomly between w2 and w11.
4 lectures chosen randomly between w2 and w11.
1 lecture chosen randomly between w2 and w11.
March 19 <sup>th</sup> (w3) and April 2 <sup>nd</sup> (w5).
May 7 <sup>th</sup> .
May 28 <sup>th</sup> .
May 28 <sup>th</sup> .

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 sources as well as your personal relationships 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 of a maximum of 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: Theory-building essay (LG1 to LG3)*

For this exercise, you will write an essay that explains a puzzling aspect of an IT innovation or an IT-enabled business model. Your essay should be of no more than 3000 words, but no less than 2000 words (excluding figures and tables). Detailed instructions on how to write your short essay will be communicated in class on April 2<sup>nd</sup>. An electronic copy of the essay is due on May 7<sup>th</sup> 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 strongly encouraged to contact the organization in order to conduct a few 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 4000 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 2<sup>nd</sup>. An electronic copy of the innovation report is due on June 4<sup>th</sup> 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. 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](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 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 FCom 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**

In fairness to other students, work submitted after the deadline will be subject to a penalty of 10% of the marks earned per day of lateness. Assignments more than one week late will not be accepted and a “zero” mark will be applied.

## **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 (if applicable)**

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.

## **Class Representative**

A class representative will be elected in the first class, and that person’s name and contact details made available to VUWSA, the course coordinator and the class. The class representative provides a communication channel to liaise with the course coordinator on behalf of students.

**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](http://www.victoria.ac.nz/home/study).

Find out about academic progress and restricted enrolment at [www.victoria.ac.nz/home/study/academic-progress](http://www.victoria.ac.nz/home/study/academic-progress).

The University’s statutes and policies are available at [www.victoria.ac.nz/home/about/policy](http://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](http://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/avcadademic/default.aspx](http://www.victoria.ac.nz/home/about_victoria/avcadademic/default.aspx)

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

[http://www.victoria.ac.nz/home/about\\_victoria/avcadademic/Publications.aspx](http://www.victoria.ac.nz/home/about_victoria/avcadademic/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/](http://www.victoria.ac.nz/st_services/mentoring/)