TTMG 5103T
ADVANCED TOPICS IN TELECOMMUNICATIONS TECHNOLOGY MANAGEMENT

TOPIC: ECOSYSTEMS

Summer 2010
Department of Systems and Computer Engineering
Carleton University

Professor Weiss
527 Architecture Annex (AA)
weiss@sce.carleton.ca

This course outline is a living document. Improvements   Version 0.2
may be made as necessary during the term.

Instructor availability
The instructor is available via e-mail any time. Office hours by appointment (online and offline).

Time and location
Tuesday and Friday, 6-9pm, ME 4359 and online

Calendar description
TTMG 5103T [0.5 credits] Advanced Topics in Telecommunications Technology Management
In-depth exploration of an advanced topic in the field of telecommunications technology management. A different topic is covered each term and more than one section, with different topics, may be offered in the same term.

Prerequisites: one of TTMG 5004, TTMG 5005, TTMG 5101 (or approval from TIM Director)

Course objectives
The focus of this course is on how technology companies can leverage ecosystems to grow.

The specific goals of this course are to:

   •   learn how to design ecosystem-based business models
   •   be able to map and shape ecosystems
   •   be able to manage openness and collboration

Class Sessions
The thesis option of this course will be conducted in class. Project option students will participate online by logging into conference room 85103 with password "student" at http://present.sce.carleton.ca.

Please see detailed instructions on joining an online classroom at (except that our conference room is 85103):

http://www.bigbluebutton.org/content/videos

For the weekly sessions, there will be assigned readings and tasks. The course material and recordings of the class sessions will be made available on the Moodle learning content management system at http://cms.sce.carleton.ca. The instructor aims to make a version of the slides available before every class, however, they may be updated as a result of in-class discussion. So please check for updates after class.

During the student group presentation sessions, groups will be asked to make short presentations on their assignments (max. 10 minutes; please practice so you stay on time). Each group decides who presents what and in which order. Before 6 p.m. EST the day prior to when presentations are due, each group will upload the slides to

be presented the next day to Moodle in PDF format. An easy way to convert presentations to PDF is to use Open Office, which can import files from PowerPoint and Word and save them to PDF.

Student Evaluation
Course participants are required to complete two group assignments, participate actively in class (discussion and assigned tasks), and complete a final exam. To determine the course grade, these weights apply:

- Course project (individual)   40%
- Presentation of class topic (group)   40%
- Class participation (individual)   20%

Assignments submitted late and presentations not made will receive a grade of zero. All students in a group receive the same grade. Final grade reports will follow Carleton University guidelines.

Course project
This is an individual assignment.

Document an ecosystem-based business model following this structure:

- Select a company that uses an ecosystem strategy
- Describe the business model used
- Identify players, their relationships, and environment
- Create an ecosystem map (1)
- Identify opportunities to shape the ecosystem (2)

Notes:

1. Create the map using one of the several approaches discussed in class.
2. Alternatively, you could map the ecosystem at two points in time and document the shaping actions.

Presentation of first version due: June 4, 2010, to be submitted through Moodle
Presentation of final version due: June 22, 2010

Presentation of class topic
This is a group assignment. Groups can have up to two members, depending on class size.

Each group will create a module around a class topic and be provided with the required readings:

1. The module should extract all relevant management insights from the readings.
2. The presentation should be at most 20 slides or 2 hours in length (including breaks and discussions).
3. The module should be improved based on the feedback from class participants and instructor.
4. The final version of the module should be delivered in the last class.

The module should have the following structure:

1. Title
2. Objectives
3. Agenda
4. Highlights from the readings (one section per subtopic)
5. Key lessons
6. List of key concepts
7. Questions
8. References

Each presentation must have two breaks, during which class participants can ask questions and comment on the material presented. You should also incorporate discussions in a peer-share or round robin format. Often it is suitable to start the presentation of a subtopic with a discussion: there is a lot we can learn from each other, and it is much easier to absorb new material if you can relate it to your experience or examples.

All material in the module must be your own or you must have the rights to use it. Copying or scanning tables or figures is not acceptable. There are obviously exceptions, for example, when you want to show a graph from a paper. In this case, clear attribution is required. In all other cases, you need to rephrase and rework the material. A good presentation does not just summarize the readings (everybody is expected to have read them), but extracts actionable insights from the articles that a technology company can apply in order to grow.

The template that all presentations need to follow will be provided in class.

Slides need to be submitted through Moodle.

Class participation
Active class participation is an important component of this class:

1. Participate in class discussions (contribute to lessons learned at the end of each class, lead a discussion, provide feedback on the assignments of your classmates, contribute to the discussion forum).
2. Summarize lessons learned from an assigned class session on the course wiki.
3. Start two and contribute to two other online discussions.
4. Write four glossary entries on key concepts and post them to the course glossary.

Group work and free loaders
Group work is an important component of this course. You may elect to work in the same group to prepare both assignments or work in two different groups. Group conflicts are to be dealt with by the group in a way that is fair, fast and without personal attacks. The instructor does not settle group disputes.

The instructor will dissolve a group that is late submitting an assignment. A group of three is expected to deliver better work than a group of two.

Free loaders are not welcome anywhere. This course is no exception. The best way to deal with free loaders is to not include their names in the first page of the group assignments. If a student's name does not appear in an assignment submitted by his or her group, the student must submit his or her own assignment. Failure to do so, the student will receive zero for the assignment. There is zero tolerance for free loaders.

Students with disabilities
Students with disabilities who require academic accommodations in this course are encouraged to contact the Paul Menton Centre (PMC) for Students with Disabilities to complete the necessary forms. After registering with the PMC, make an appointment with me in order to discuss your needs at least two weeks before the first assignment is due. This will allow for sufficient time to process your request

Plagiarism
Plagiarism (copying and handing in for credit someone else's work) is a serious instructional offence that will not be tolerated. Please refer to the section on instructional offences in the Graduate Calendar for additional information. Plagiarism is against the TIM culture. A case of plagiarism will be referred to the Chair of the Department and the Carleton University Ethics Committee. The instructor will not deal with the matter directly. The university has clear processes to deal with students who are suspected of plagiarism.

Administrative details
These are the rules of conduct for this course:

- Please notify the instructor vie e-mail if you will not attend a class.
- You must be prepared for each class. You do so by reading the material assigned and being prepared to discuss in class how what was read can be applied in product development organizations.
- Each presenter must upload his/her slides to Moodle by 6pm the day before class.

Advanced Topics in Telecommunications Technology Management: Schedule

Date	Topic	Readings
May 11	Session 1: Introduction	• Course outline
May 14	Session 2: Networks and the environment	• Hakansson & Ford (2002) • Low (1998) • Osterwalder & Pigneur (2009), Chunk 16 • Gulati (2005)
May 18	Session 3: Business model design I	• Johnson et al. (2008) • Venkatraman & Henderson (2008) • Osterwalder & Pigneur (2009), Chunk 3 • Osterwalder & Pigneur (2009), Chunk 9
May 25	Session 4: Business model design II	• Osterwalder & Pigneur (2009), Chunk 4 • Osterwalder & Pigneur (2009), Chunk 5 • Osterwalder & Pigneur (2009), Chunk 7 • Osterwalder & Pigneur (2009), Chunk 8 • Osterwalder & Pigneur (2009), Chunk 10
May 28	Session 5: Mapping Ecosystems I	• Moore (2006) • Dhanaraj & Parkhe (2006) • Iansiti & Richards (2006) • Chesbrough & Garman (2009)
Jun 1	Session 6: Mapping Ecosystems II Topics for course projects due	• Adner (2006) • Bloom & Dees (2008) • Basole (2009) • Weiss & Gangadharan (2010)
Jun 4	Session 7: Peer assessment of initial course project	
Jun 8	Session 8: Managing openness and collaboration I	• Stuermer et al. (2009) • West & Gallagher (2006) • Pisano & Verganti (2008) • Evans & Wolf (2005)
Jun 11	Session 9: Managing openness and collaboration II	• Boudreau & Lakhani (2009) • Eisenmann et al. (2006) • Malone et al. (2010) • Venkatraman & Lee (2004)
Jun 15	Session 10: Shaping Ecosystems I	• Hagel et al. (2008) • Iyer et al. (2006) • Borgatti (2006) • Kilkenny & Nalbarte (2000)
Jun 18	Session 11: Shaping Ecosystems II	• Kim & Mauborgne (2004) • Osterwalder & Pigneur (2009), Chunk 11 • Brandenburger & Nalebuff (1995) • Roth (2007)
Jun 22	Session 12: Final version of course project	• Lessons learned from the course

Readings

To access the required journal articles in electronic form, go to: http://www.library.carleton.ca, and click on "Journals & Journal Articles". Enter the name of the journal, and click "Search". Click on the link (there may be several), and enter your barcode number and PIN. For material on the Web, the URL is provided.

Several chapters are taken out of the book Osterwalder, A. & Pigneur, Y. (2009), *Business Model Generation*, self-published, www.businessmodelgeneration.com, to be published by Wiley, 2010.

Readings for Session 2: Networks and the environment

Hakansson, H., & Ford, D. (2002), How should companies interact in business networks?, *Journal of Business Research*, 55, 133-139.

Low, B. (1998), Managing business relationships and positions in industrial networks, *Industrial Marketing Management*, 26, 189-202.

Osterwalder, A., & Pigneur, Y. (2009), Scanning a business model's environment, Chunk 16.

Gulati, R. (2005), Shrinking core, expanding periphery: the relational architecture of high-performing organizations, *California Management Review*, 47(3), 77-104.

Readings for Session 3: Business model design I

Johnson, M., Christensen, C., & Kagermann, H. (2008), Reinventing your business model, *Harvard Business Review*, December, 50-59.

Venkatraman, N., & Henderson, J. (2008), Four vectors of business model innovation: value capture in a network era, in: Pantaleo, D., & Pal, N., *From Strategy to Execution*, Springer, 259-280.

Osterwalder, A., & Pigneur, Y. (2009), The business model canvas, Chunk 3.

Osterwalder, A., & Pigneur, Y. (2009), Visual thinking, Chunk 9.

Readings for Session 4: Business model design II

Osterwalder, A., & Pigneur, Y. (2009), Business model patterns, Chunk 4.

Osterwalder, A., & Pigneur, Y. (2009), Long tail business models, Chunk 5.

Osterwalder, A., & Pigneur, Y. (2009), Unbundling business models, Chunk 7.

Osterwalder, A., & Pigneur, Y. (2009), Free as a business model, Chunk 8.

Osterwalder, A., & Pigneur, Y. (2009), Open business models, Chunk 10.

Readings for Session 5: Mapping Ecosystems I

Moore, J. (2006), Business ecosystems and the view from the firm, *Antitrust Bulletin*, 51(1), 31-75.

Dhanaraj, C. & Parkhe, A. (2006), Orchestrating innovation networks, *Academy of Management Review*, 31(3), 659-669.

Iansiti, M., & Richards (2006), The information technology ecosystem: structure, health, and performance, *Antitrust Bulletin*, 51(1), 77-110.

Chesbrough, H., & Garman (2009), How open innovation can help you cope in lean times, *Harvard Business Review*, December, 68-76.

Readings for Session 6: Mapping Ecosystems II

Adner, R. (2006), Match your innovation strategy to your innovation ecosystem, *Harvard Business Review*, April, 98-107.

Bloom, P., & Dees, J. G. (2008), Cultivate your ecosystem, *Stanford Social Innovation Review*, Winter, 47-53.

Basole, R. (2009), Visualization of interfirm relations in a converging ecosystem, *Journal of Information*

Technology, 24, 144-159.

Weiss, M., & Gangadharan, G.R. (2010), Modeling the Mashup Ecosystem: Structure and Growth, *R&D Management*, 40(1), 40-49.

Readings for Session 8: Managing openness and collaboration I

Stuermer, M., Sebastian S. & von Krogh, G. (2009), Extending private-collective innovation: a case study, *R&D Management*, 39(2), 170-191.

West, J. & Gallagher, S. (2006), Challenges of open innovation: the paradox of firm investment in open-source software, *R&D Management*, 36(3), 319-331.

Pisano, G. & Verganti, R. (2008), Which kind of collaboration is right for you?, *Harvard Business Review*, 86(12), 78-86.

Evans, P, & Wolf, B. (2005), Collaboration rules, *Harvard Business Review*, July-August, 96-104.

Readings for Session 9: Managing openness and collaboration II

Boudreau, K., & Lakhani, K. (2009), How to manage outside innovation, *MIT Sloan Management Review*, 50(4), 69-76.

Eisenmann, T., Parker, G., & Van Alstyne, M. (2006), Strategies for two-sided markets, *Harvard Business Review*, October, 92-101.

Malone, T., Laubacher, R., & Dellarocas, C. (2010), The collective intelligence genome, *MIT Sloan Management Review*, 51(3), 21-31.

Venkatraman, N. & Lee, C.H. (2004), Preferential linkage and network evolution: a conceptual model and empirical test in the u.s. video game sector, *Academy of Management Journal*, 47(6), 876-892.

Readings for Session 10: Shaping Ecosystems I

Hagel, J., Brown, J. S., & Davison, L. (2008), Shaping strategy in a world of constant disruption, *Harvard Business Review*, October, 81-89.

Iyer, B., Lee, C.-H., & Venkatraman, N. (2006), Managing in a "small world ecosystem": lessons from the software sector, *California Management Review*, 48(3), 28-47.

Borgatti, S. (2006), Identifying a set of keyplayers in a social network, Computational and Mathematical Organizational Theory, 21, 21-34.

Kilkenny, M., & Nalbarte, L. (2000), Keystone sector identification, TVA Rural Studies, Contractor Paper 00-08, May, http://www.uky.edu/Ag/AgEcon/pubs/tva/staff/Kilkenny00-08.pdf.

Readings for Session 11: Shaping Ecosystems II

Kim, W., & Mauborgne, R. (2004), Blue ocean strategy, *Harvard Business Review*, October, 76-84.

Osterwalder & Pigneur (2009), Business model perspective on blue ocean strategies, Chunk 11.

Brandenburger, A., & Nalebuff, B. (1995), The right game: use game theory to shape strategy, *Harvard Business Review*, July-August, 57-71.

Roth, A. (2007), The art of designing markets, *Harvard Business Review*, October, 118-126.

Suggested books

The following books are optional, but they allow you to pursue specific topics of the course in more detail. Some of these books can also be downloaded online or have significant web resources.

Benkler, Y. (2006), The Wealth of Networks: How Social Production Transforms Markets and Freedom, Yale

University Press. [http://cyber.law.harvard.edu/wealth_of_networks/Main_Page]

Bruggeman, J. (2008), *Social Networks: An Introduction*, Routledge. [http://sites.google.com/site/jebrug/jeroen-bruggeman-social-science]

Chesbrough, H., Vanhaverbeke, W. & West, J. (2006), *Open Innovation: Researching a New Paradigm*, Oxford University Press. [http://www.openinnovation.net/Book/NewParadigm/index.html]

Conway, S. & Steward, F. (2009), *Managing and Shaping Innovation*, Oxford University Press.

Evans, D., Haigu, A. & Schmalensee, R. (2006), Invisible Engines: How Software Platforms Drive Innovation and Transform Industries, MIT Press. [http://mitpress.mit.edu/catalog/item/ebook.asp?ttype=2&tid=10937]

Evans, D. & Schmalensee, R. (2007), *Catalyst Code*, Harvard Business School Press.

Gawer, A. & Cusumano, M. (2002), *Platform Leadership: How Intel, Microsoft, and Cisco Drive Industry Innovation*, Harvard Business School Press.

Gulati, R. (2009), *Reorganize for Resilience*, Harvard Business Press.

Hagel, J., Brown, J., & Davison, L. (2010), *The Power of Pull: How Small Moves, Smartly Made, Can Set Big Things in Motion*, Basic Books.

Hakansson, H. , Ford, D., Gadde, L.-E., Snehota, I., & Waluszewski, A. (2010), *Business in Networks*, Wiley.

Johnson, M. (2010), *Seizing the White Space: Business Model Innovation for Growth and Renewal*, Harvard Business Press.

Nambisan, N. & Sahwney, M. (2008), *The Global Brain: Your Roadmap for Innovating Faster and Smarter in a Networked World*, Wharton School Publishing.

Osterwalder, A. & Pigneur, Y. (2009), *Business Model Generation*, self-published, www.businessmodelgeneration.com, to be published by Wiley, 2010.

Tuomi, I. (2006), *Networks of Innovation*, Oxford University Press.

Valente, T. (2010), *Modeling Influence: Social Networks, Behavior, and Health*, Oxford.