IT for Managers: Journey of a core MBA course over ten years

Completed research paper

Subir Bhattacharya
IIM Calutta, India
subir@iimcal.ac.in

Rahul Roy
IIM Calcutta, India
rahul@iimcal.ac.in

Abstract

This paper narrates our experience with a course on Information Technology that is part of the MBA core of a premier management school in India. World over, there is a trend to drop IT-related course(s) from the core MBA curriculum since, some believe, IT being embedded in all business disciplines need not be taught separately. We argue that with IT becoming omnipresent, every line manager needs to be aware of its possibilities. The students need a course whose content should be dynamic as emerging IT concepts of yesteryears become entrenched today, and newer ones emerge. Over ten years, we turned around a core course that was once disliked, to one which is now considered to add significant value. We emphasize the journey that utilized student-feedback as important signal for successful course design. We believe every school, given its forte and target students’ profile, needs to discover its own IT-related core course through a similar journey.

Keywords

MBA Curriculum, MIS, Core, IS Curriculum

Introduction

Should there be a compulsory course on Information Technology (IT) and Information Systems (IS) for graduate students of management? The debate is on for quite some time. Opinions and actions suggest that such a compulsory course has fallen out of favor. As of 2006, a standalone course on MIS did not find a place in the core curricula of top-twenty ranked schools in the US (Shore and Briggs, 2007). Enrollment has been declining, “as much as 70% in some institutions” (Benamati et al., 2006). The pressure to drop MIS from the core list has been mounting since the dotcom bust. Telltale evidence of the same can be found in the responses received by Avison (2003), when he sought help from his peers to justify retention of the IS core course. Reasons why a core course on IT is losing its ground may not be difficult to find. Some of these discussed in literature include, among others, (a) IT being intertwined with all aspects of management need not be covered separately; (b) declining popularity of such a course since dotcom bust; (c) pressure on business schools to squeeze the compulsory part of the curriculum; and (d) trend towards shortening the length of the MBA program itself, and consequent need to curtail courses (Shore and Briggs, 2007).

In this backdrop of the ongoing struggle to justify the MIS course in the compulsory list of courses for MBA aspirants, we narrate our experience with one course at a premier management institute in India over ten years. We argue that exposure to MIS topics is still very relevant for management student. But we posit that such an MIS course in a management curriculum is defensible only when the school discovers the content that would sync with the overall emphases of the school and the profile of the students it caters to. In a sense and respond world, the instructors should continuously endeavor to come up with the structure and content of the course that best suits the environment of the specific school.

This paper is a chronicle of the journey of a course that the authors taught. The journey involved continuous balancing of frameworks suggested in the literature and the ever improving IT awareness among target students, differentiating between the emerging and the entrenched IT implements, 'listening to the customers’, and, most importantly, mutating ourselves to discuss things that would be relevant for management graduates rather than what we are comfortable to teach. The course, which used
to be thoroughly disliked by general MBA students till 2003 – and dreaded by faculty who were assigned
to teach it – has been turned around. As of 2014, the course has got the structure that had remained stable
over last 3 years, is valued by the students, and has survived the curriculum review of 2007 that cut down
the compulsory bouquet by some 25%.

In the rest of the paper, we will first argue in favor of mandatory exposure on IT for every management
student, and then proceed to describing the evolution of the structure and content of such a course in our
place over ten years. We conclude the paper with the possible takeaway from this experience.

This paper wishes to add to the literature on learning-curriculum design. Specifically it aims to enrich the
literature on MIS curriculum in an MBA setting. The approach is process centric in the sense that the
discussion primarily focuses on the evolutionary track of the course. We expect this chronicle would help
peers in other management schools to discover valued core IT courses in their respective places.

Do we need an IT core course

Over the years the question facing MIS academics regarding the core course has changed from ‘What
should we teach them in IT’ to ‘Why do we need to teach them anything on IT’ (Nunamaker et al. 1982;
Ives et al. 2002; Mills et al. 2012). Implicitly the transition has stressed the need for continuous revision
of content based on the changes in the environmental needs. Keeping up with the change however has
been difficult given the rapidity of change in IT job profiles of MBA graduates (Johnston 2012).

The question that management schools face today is – given that most of the students do not intend to
make a career in IT, why do we need to teach them anything on IT. It is true that the target population of
students are more ‘digitally native’ than their instructors are. It is true that most of them have been ‘using’
MS Office since their school days. Now that IT is intertwined with all business activities, “Cannot
principles of technical support and integration with a complete business system be taught better in the
context of each of the business disciplines?” (Avison 2003).

Put differently, what capabilities would they be missing if they are given no further exposure on IT? There
will surely be a small fraction of MBA graduates, minted without any exclusive course on IT, who, out of
their own curiosity, would pick up recent trends in IT and would think out innovative ways of exploiting
those for organizational benefits and, in the process, would. Instead of just banking on the euphoria
around any new IT concept floating in the net, they would, on their own, study its pros and cons, figure
out possible opportunities of its deployment, and develop their own views about its future. The rest,
unfortunately, can only be expected to be expert users of the systems ‘given’ to them. It would be difficult
for them to be the enablers of change using IT in their respective organizations. These managers can use
the existing technology and infrastructure quite efficiently, but they, in general, may not be able to suggest
ways and means to leverage IT for improving the bottom line – be it reducing the cost, expanding the
market, or increasing efficiency. IT familiarity of the digital natives should not be mistaken as expertise in
the field. Consider, for example, the HR manager of a company who is fed up with the problems of paper
based time-card system. Would she know that, instead of investing in packaged software, she can get the
service on rental basis from some cloud-based service provider? Even if she has heard of Software-as-a-
Service and is willing to go for it, would she be aware of the problems she would face if the company’s
payroll software is behind the firewall? Somebody needs to tell her that SaaS need not always be the most
cost effective option.

Who, in the organization, should be responsible for deciding the ‘next’ information system that a company
may invest in? Now that IT is deeply embedded in all business disciplines, the onus of leveraging IT for
gaining competitive edge lies squarely on line or functional managers. How would these functional
managers decide the IS investment? How would they come to know about the non-IT aspects of an IS
deployment? How do they come to know of the technologies coming up the horizon, exploitation of which
might give them first mover advantage? The observation of Rockart et al. (1996) is more relevant in
today’s business scenario than it was 20 years back – “Only line managers are close enough to their
business segments to see the most effective ways to utilize this resource”. We find an echo of the same in
the survey conducted by Bassellier et al. (2003) – “business managers’ level of IT knowledge and
experience influence their intentions to champion IT use.” In today’s world, the role of the IT department
in an organization changes to that of a facilitator of ideas generated by the line managers. The fact that IT
is intertwined in almost all business activities makes it even more imperative that every business manager
is well versed in the possibilities of IT so that they can generate new ideas, set priorities, arrange funding, and act as lead sponsors for innovative IT initiatives and, in the process, gain competitive edge.

We would like to raise one alarm here. As the MBAs, having no exposure to IT in their curriculum, move up the ladder and be part of the C-suite, there might be technology voids in the top management leading to missed opportunities. The void is already being felt! Our concern finds resonance in a report from the Economist Intelligence Unit (2011) based on a survey of 508 European executives from across Europe, the Middle East and Africa – "What is far more important is for firms to ensure that they have strong, technology-savvy leadership in place. Firms that believe their senior management is strong on IT were about ten times more likely to be high performers in profit-growth terms than firms with weak technology knowledge at the top”.

Hence, we felt, there is an urgent need for something related to IT to be communicated to every MBA aspirants, even if they have no intention of making a career of it. But the key question is what do they need know? We maintain there cannot a single prescription for it. It needs to depend on the context of the specific school, which, in turn, involves the idiosyncrasies of the school, the profile of the students, and the job market in which the school operates. Below, we describe the making of one such course in the context of our school.

The Context

The course in point is part of the core curriculum of the flagship programme of a premier management institute in India. The two-year fulltime residential programme leads to Post Graduate Diploma in Management (PGDM), equivalent to MBA. The Institute is more than 50 years old, is accredited by AACSB and AMBA, and is a member of the CEMS Consortium. Every year the Institute selects some 400 students from among some 1,80,000 aspirants through a tiered selection process. Majority of the selected students (for example, 94% in the present first year batch) are engineers in some or other discipline. Having prior work experience is not mandatory for admission. Still, about half of the students would have worked in organizations before joining the programme. Graduates of the Institute are in high demand among companies in India and abroad. Almost all of them get placed within a week of completion of the coursework, and many of them get postings in foreign shores. In recent years, only about 10% of the graduating batch has joined the Information Technology Enabled Services industry.

The two-year PGDM curriculum entails nine hundred classroom hours spread across six terms. Of these, the core curriculum comprises 21 compulsory courses delivered through 480 hours of face-to-face sessions completed in the first year. One of these core courses is Information Technology and Systems, the only compulsory course offered by the MIS Group. This is the course under consideration in this paper.

On completion of classroom instructions of every course, every student must provide online anonymous feedback on the course (structure, intellectual challenge, evaluation method etc.) as well as the instructors (communication, availability to obtain feedback etc.). Students also have the option of giving qualitative feedback. Giving feedback is mandatory for all students. After declaration of the grades in the courses of a term, summarized numerical feedback for all courses are circulated among all stakeholders – the members of the Faculty, the students, and the Board of Governors of the Institute. Qualitative feedbacks of a course are accessible only to the course coordinator.

It was 2004 when we were looking for an alternate structure and content for the course that had traditionally been taught under the name of ‘Data Processing’. To be fair to the instructors who taught the course prior to 2004, the content of the course was being changed almost every year. However, the basic tenor of the course had remained technical with a very cosmetic link to business. For example, the year before we took it over, the course covered topics on Data Management and Database fundamentals, telecommunication fundamentals, Systems Development, and problem solving through C. This was at best partially aligned with the topics covered by the compulsories elsewhere, as reported in Stevens and O’Hara (2001). The students, especially those who had no intention of taking up any other IT-related course, used to dislike the course and openly criticized it as unfit in a management curriculum.

The initial versions: 2004-2007
We set our goal to make the MBA aspirants ‘enablers of change using IT’. We kept in mind the fact that the employers would be looking for “graduates who are prepared to leverage technology in a scalable fashion to advance firms’ strategies and operation” (AACSB 2002). We agreed on two things. The content and structure of the course cannot be cast in stone. Given that the course is related to IT, concepts and technologies that are relevant for the students would change rapidly, and so should be the course. Given that the age of the target students remains the same year after year, this year’s students are more digitally native than last year’s. Hence, technologies, which were considered ‘emerging’ in yesteryears might be common place now to demand a separate discussion. At the same time, we decided not to give much credit to the IT ‘knowledge’ of the students, supposedly acquired through their familiarity with IT systems. Much later, in 2006, we got support for the same in Professor Galleta’s comment (Benamati et al. 2006): “The house of cards is the business students’ belief that because they know how to use Microsoft Office, they do not need the MIS core course.”

We looked into the then literature in our quest for a suitable framework. We found our thought process best aligned with the core information systems concepts that Ives et al. (2002) considered “essential for a well-rounded business school graduate”. The content of the 2004 offering, as given in Table 1 of Appendices, was chosen in tune with these core concepts. We knew the matching might not be perfect, but we needed a template to set the ball rolling. The objective of the course was proposed as:

At the end of the course, students should be able to:

1. Understand the basics of available important components of Information Technology
2. Appreciate the impact that Information Technology has on organizations
3. Understand the components of IT strategy of an organization
4. Understand the process of developing an Information System

Apart from 30 contact hours in the classroom, there were work-outs to cover important Office tools according to a pre-planned syllabus and schedule. There was one quiz and one on-terminal test, in addition to mid and end term written examinations. There was also a game that could be solved using some combination of tools like Excel and Access. This game was given right at the beginning and the objective of the work-outs was to equip the students to solve this and similar problems on their own.

Before the course ended, we knew things had not gone well. Signals came from midterm answers, informal chats with the students, and body language of the students in classes. At the end of the course, we ‘listened’ to the students. The anonymous feedbacks were critical about the mismatch between expectations and perceived value, especially because of the high technical contents in discussions on current IT. As aptly summarized by one anonymous student:

“What I expected from the course?

1. It should cover the major elements of IT infrastructure used by companies. (this it did)
2. But emphasis should be on making decisions using these elements (this was not there at all)
3. Office application tutorials should be used to help students solve the business problems of classroom.”

Some of the other dominant views related to content and structure were:

“The DP course still seems to lack any direction whatsoever.”

“... develop the content to the next level where we learn really how can IT be used to enable MIS.”

“Inordinate focus on technical knowledge blurred the appreciation impact of IT on business.”

“Excel and other office applications are a manager’s first friend and everyone technical or not, should know how to use them.”

We received two lessons from this 2004 experience. First, business implications of IT were getting lost in the discussions on technicalities of it. Fortunately, at this point in time we received the same advice from George et al. (2004) – we need to focus more on “... why information technology is valuable to an organization rather than on what the technology is and how it works”. The instructors, engineers by
training, found it a big challenge to come out of their comfort zone. A change in our mindset was being asked for.

Secondly, the work-outs and the game revealed that the students’ knowledge about Excel was pretty limited. Their prior exposure to Excel did not help them to use it for modelling business decisions. But the good thing was they appreciated that there was something to be learnt to use spreadsheets as a modelling tool.

Accordingly, we introduced a few changes in 2005. We kept the structure intact. Drastic changes were not called for since the model has been tried only once. Firstly, coverage on technologies shifted from ‘how they work’ to ‘how they can be exploited’. For example, the module on ‘Networks and eBusiness’ was rechristened as ‘Internet and its impact’, with emphasis on revenue models of eCommerce, and on setting up the shop. Secondly, while we refused to teach Excel per se in the class, we decided to give some exposure to spreadsheet as a decision modelling tool. In the 30 hours of the course, space for the module was created by dropping the fourth objective of 2004 – understanding the process of developing an Information System. We thought the importance of it was much lower in the list of essentials for an MBA. Learning Excel was left to tutorials taken by select seniors, well versed in Excel.

The same year the Institute introduced central processing of students’ feedback, and started publishing the summary of quantitative feedbacks on courses and instructors among all the stakeholders – the students, the Faculty, and the Board of Governors. Giving feedback was still voluntary. This course received an overall 5.16 in a 7-point scale, far below our expectation and many of the other compulsory courses. However, the comments were now suggestions for improvement rather than expressions of frustration. Some of these were:

“Excel was really good job. The MIS part can be made more interesting.”

“Perhaps certain aspects like Data Mining can be focused on?”

“The course can be made more business oriented with possible live case analysis.”

“More stress on Excel.... Should learn more functionalities”

“Content on communication could be made less technical.”

The module on managerial decision support was well accepted. In 2006, we split the course in three parts:

1. One-fourth of the course was on IT-leveraged competitive advantage. We used two HBS cases, Otisline and ITC eChoupal, and concentrated more how the ideas were conceived rather than the benefits of it.

2. Another one-fourth discussed managerial decision support with focus on model based analysis, data visualization and scenario generation, and solution design.

3. The other half of the course was spent on ‘technology overview’, discussing (a) how information can be exploited using database, data warehouse and data mining, and (b) implications of internet and ecommerce.

The feedback notched up to 5.37, and there were encouraging comments like “It was extremely beneficial for those of us who are civil, chemical engineers with no experience of IT.” There were suggestions to include more cases, discuss open source versus proprietary software, and introduce “One project about IT solution for a current brick/mortar system.” As expected, demands continued for less of technicalities and more of decision support.

The objective of the course remained unchanged in 2007 for two reasons, (a) a complete review of the entire curriculum of the general management programme was underway, and (b) the current objectives served the purpose of the course and were more or less acceptable. However, there was change in content with the Technology Overview made more broad based with discussions on OSS, ERP, website effectiveness, data management and ecommerce. Overall quantitative feedback improved to 5.53 and qualitative comments to improve it further were only a few.

By 2007, after offering the course four times, we had fair idea of what the management aspirants were looking for, so far as IT knowledge is concerned.
(a) How to leverage IT for competitive gains

(b) How to facilitate decision making using spreadsheets

(c) Keeping track of recent trends in IT with their implications on business.

Meanwhile, the Institute had approved our request to rename the compulsory course as ‘Information Technology and Systems’. The Group, in its request, used the following justification, which is a crisp description of the aim of the course.

“The role of IT in an organization has changed drastically over time. Decades back, during the mainframe era, IT was used only as a support tool, as a storehouse for data under the control of the EDP people. But with time, IT has evolved into a strategic tool that can decide the make or break of a company, thanks to PCs, networks, internet and the web. The remodeled compulsory course intends to emphasize the role of Information Technology and Systems as a tool for competitive advantage, and to acquaint the students with the handles provided by IT that can be leveraged by managers to stay ahead of others. And hence the new name.”

By now, we had got the structure we were looking for. It turned out to be a ‘solid core with flexible boundary’. Objective (a) above was the invariant core of it. The frameworks discussed, or the cases used, might change over years but the MBA students would ever need to appreciate how IT can be leveraged for competitive advantage. As regards objective (c), the managers would ever desire to ‘feel’ the data through data visualization and scenario generation. However, the vehicle for the same may change from Excel today to, say, Tableau tomorrow. So objective (c) formed the quasi-core. In contrast, content around objective (b) would ever be changing because of its intention to discuss ‘recent trends’. Overall, the structure of the course was trying to address a subset of the business-centric and technology-centric issues raised by Dhar and Sundararajan (2007).

**Experimenting with the content: 2008-11**

The new curriculum for the entire programme was implemented from the academic year 2008-09. Arriving at the curriculum was a painstaking process, spanning over years, when the Review Committee interacted with various stakeholders, analyzed past data, checked curricula of other leading business schools, looked into the changes in the global and domestic business environments, and held series of meetings with the members of the Faculty. During its interactions with the Review Committee, the IS Group had suggested that the one 30-hour compulsory be replaced with three 15 hour compulsories covering (i) IT Tools for Management, (ii) Information Technology and Competitive Advantage, and (iii) Current Trends in Information Technology. The experience of the previous four years and the available feedback helped us justify our claim. However, since the share of compulsories within the overall requirement was being cut down by some 25% from 63 credits to 48 credits, the request of the Group was turned down. From 2008, Course and Instructor Feedbacks started being administered online, and providing feedback was made mandatory for all students. The summarized feedback continued to be available publicly within the Institute community.

The official version of the course outline was slightly tweaked to serve the following objectives:

- a) Appreciate the impact of Information Technology on organizations
- b) Understand the current trends of Information Technology and its usage
- c) Get acquainted with Spreadsheet modeling as a decision making tool

Coverage under objective (a) had remained stable over the years. Managerial decision support (objective c) expanded to 30% of the course. However, the students continued to demand more coverage in this module. Second year students returning from their summer internships suggested expanded coverage of (c). Experiments involving exclusion of the entrenched and inclusion of perceived ‘current trends’ continued with objective (b), as explained later in this section.

Since 2008-09 was the first year of the new curriculum, the formally elected representatives of the students prepared an audit report of all the compulsory courses and submitted it to the Chairperson of the Programme in 2009. In that document, ITS was also commented upon:
“Students found this course extremely relevant and useful. However, they felt that the Excel part of the course (Module 3) could perhaps be extended to ten lectures instead of the present six. For PGDM students, this is the only course where introductory Excel modelling is taught, and this is one tool that is very important from the industry point of view. The content otherwise was fine and the instruction very good.”

We had mixed experience with some of our experiments on current trends during this period. For example, in 2008 we introduced Software-as-a-Service, discussing it from both providers’ and consumers’ viewpoints and it is continuing till date. Same is true about Open Source software. However, in our zeal to cover more trendy concepts, we did try topics like disruptive innovation or rudiments of data analytics in some years. The students found the coverage either too little to be of any use, or beyond their comprehension. We had to drop these topics after a couple of iterations. In fact, these misadventures, and our steadfast refusal to allot more time to managerial decision support because of logistic reasons, brought down ITS feedback to rank fifth among the seven courses offered in the same term in 2011!

The Journey Continues: 2012 onwards

Finally, despite lots of logistic and workload problems, we relented to the pressure. From 2012, the course was virtually split into two 15 hour courses – Module I and Module II with the following objectives:

Module I: a) To understand how IT can be leveraged to gain competitive advantage.

b) To explore emerging trends in IT and their implications in business.

Module II: To develop the capability of modeling real life problem scenarios where data driven decision making play a key role.

While evaluation of Module I objectives were through traditional exams and assignments, Module II objectives were evaluated through a couple of online quizzes and a term-long project. In class the instructor discussed strategies for model building using Excel. In the process the ‘how-to’ of the package were also discussed. Student Tutors, selected from among the seniors, conducted out-of-class tutorials on features and operations of Excel.

Students liked the change. In 2012, we received the best ever feedback for the course, 5.95 out of 7. It was not only the highest ranked course in the corresponding term, but also the second highest ranked course – the best course getting 5.98 – among all the 21 compulsory credit courses in the curriculum.

Table 2 in appendices gives the session plan of the course as offered in 2014. Each session is of 90 minutes duration. It is interesting to note how the focus of Technology Overview, spread over seven sessions, has shifted over ten years to discussions on sourcing of information infrastructure and systems, and mobile platforms.

Concluding Remarks

It would be interesting to note that though we started our journey with the framework of Ives et al. 2002, the course in 2014, to the best of our knowledge, has hardly any resemblance with any of the published frameworks. In our considered opinion, that is how it should be. One-size cannot fit all. Every school has its own forte that draws students to that school. The student profile is also different in different schools. For example, we get more than 90% engineers which may not be true for other schools. The frameworks provide good starting points. But every school must assert the freedom to move through the define-measure-control cycle to discover the specific IT-related course that best suits the school. Beachboard and Aytes (2011) have discovered a course that fits their school, and may not be best suited for others.

We firmly believe that, in today’s IT-driven world, every MBA student needs to know the IT implements and how they link to business. “It would be irresponsible for a business school to graduate anyone without this fundamental preparation” (as quoted in Ives et al. 2002). However, two things might stand in the way of identifying the ‘right’ course: overdependence on existing frameworks, and reluctance to come out of the comfort zone of teaching what we know best rather than what the students need. Every management school needs to undertake a similar journey to discover the value to be added by their IT course and, in the process, weave the course into the curriculum of that management school. We hope that our
experience would encourage other business schools to rethink about inclusion of IT related course as part of their compulsory bouquet.

Appendices

<table>
<thead>
<tr>
<th>Core IS Concepts (Ives et al. 2002)</th>
<th>Topics Covered</th>
<th>Time allotted</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are Information Systems?</td>
<td>IT interaction Model</td>
<td>1.5 hours</td>
</tr>
<tr>
<td>How information systems influence organizational competitiveness?</td>
<td>Evolution of IT: IT leveraged business transformations</td>
<td>1.5 hours</td>
</tr>
<tr>
<td>Why have databases become so important to modern organizations?</td>
<td>Database and data warehouse: Building Business Intelligence</td>
<td>4.5 hours</td>
</tr>
<tr>
<td>Why are technology infrastructures so important to modern organizations?</td>
<td>Information Systems Strategy</td>
<td>3.0 hours</td>
</tr>
<tr>
<td>What is the role of the Internet and networking technology in modern organizations?</td>
<td>Networks and eBusiness</td>
<td>6.0 hours</td>
</tr>
<tr>
<td>What are the unique economics of information and information systems?</td>
<td>Information economy</td>
<td>3.0 hours</td>
</tr>
<tr>
<td>How information systems enable organizational processes?</td>
<td>Managerial perspective of ERP</td>
<td>3.0 hours</td>
</tr>
<tr>
<td>How organizations develop, acquire, and implement information systems?</td>
<td>IS Development; Object Orientation</td>
<td>4.5 hours</td>
</tr>
<tr>
<td>What is the nature of IS management?</td>
<td>Management of IT environment</td>
<td>3.0 hours</td>
</tr>
<tr>
<td>What ethical, criminal, and security issues do organizations face when using information systems?</td>
<td>Not covered; the Institute has a separate compulsory course on Ethics.</td>
<td></td>
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</tbody>
</table>

Table 1: Coverage of 2004

<table>
<thead>
<tr>
<th>Session</th>
<th>Coverage</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Planning for Information Systems: balancing between risk and gain</td>
<td>Porter’s article on ‘Strategy and the Internet’ InClass Case: Esel Shoes</td>
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<tr>
<td>2</td>
<td>How business need translates into IT implementation</td>
<td>HBS Case: OTISLINE</td>
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<td>3</td>
<td>Pros and cons of Open Source Software</td>
<td>Stanford Case: MySQL in 2006</td>
</tr>
<tr>
<td>4</td>
<td>Issues in IT outsourcing</td>
<td>HBS Case: Strategic Outsourcing at Bharti Airtel Limited</td>
</tr>
<tr>
<td>5</td>
<td>Overview of Cloud Computing</td>
<td>Readings to be uploaded on courseweb</td>
</tr>
<tr>
<td>6</td>
<td>SaaS: providers’ and consumers’ viewpoints</td>
<td>Readings to be uploaded on courseweb</td>
</tr>
<tr>
<td>7</td>
<td>Business model of a SaaS aggregator</td>
<td>HBS Case: Jamcracker</td>
</tr>
<tr>
<td>8</td>
<td>Technology Convergence</td>
<td>ECCH Case: Apple, Google, Microsoft</td>
</tr>
<tr>
<td>9</td>
<td>Mobility: impact on business</td>
<td>Readings to be uploaded on courseweb</td>
</tr>
</tbody>
</table>
## Module II

<table>
<thead>
<tr>
<th>Session</th>
<th>Topic</th>
<th>Caselet/Example</th>
<th>Pre-reading/practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Introduction to Modelling</td>
<td>Inner Eye/F1 Night City Race/Planning Restaurant Expansion/Bob’s Retirement Planning</td>
<td>IF(), Relative and absolute addressing, Iterations</td>
</tr>
<tr>
<td>2.</td>
<td>Tools for Modeling – Influence Diagram</td>
<td>Inner Eye/F1 Night City Race/Planning Restaurant Expansion/Bob’s Retirement Planning</td>
<td>Write-up on Influence Diagram</td>
</tr>
<tr>
<td>3.</td>
<td>Modeling Decision Rules</td>
<td>Snoey Software</td>
<td>VLookUp(), Match()</td>
</tr>
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<td>4.</td>
<td>Customer Service at Pizza Kutir</td>
<td>Snoey Software</td>
<td>Offset(), Index()</td>
</tr>
<tr>
<td>5.</td>
<td>Racquet Ball Racket</td>
<td>Snoey Software</td>
<td>Charting, Forecast(), Linest(), Logest()</td>
</tr>
<tr>
<td>6.</td>
<td>What-if Analysis</td>
<td>Inner Eye</td>
<td>Data table, scenario manager, Indirect()</td>
</tr>
<tr>
<td>7.</td>
<td>Model Analysis – Simulation</td>
<td>Draft Commercials/Paradise Ski-lift/National Leasing</td>
<td>Data Table</td>
</tr>
<tr>
<td>8.</td>
<td>Data consolidation and Presentation of Results</td>
<td>Product Review at Information Services Company/ Predicting the outcome of next general elections</td>
<td>Filter, Countif(), Sumif(), Database functions, Pivot table</td>
</tr>
<tr>
<td>9.</td>
<td></td>
<td>Price variation of Potato in two markets</td>
<td>Offset(), Table, Form Controls, Dynamic Named Range, Charts</td>
</tr>
<tr>
<td>10.</td>
<td>Wrap-up</td>
<td>Destiny Consultants</td>
<td></td>
</tr>
</tbody>
</table>

**Table 2: Coverage of 2014**

### References


