

DELIVERING A TECHNOLOGY-BASED CASE IN A TECHNOLOGICAL WAY: THE SMARTCART CASE

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ABSTRACT

This submission describes a technology-based business case used to deliver concepts related to entrepreneurship, technology and business. The case profiles a team of four entrepreneurs (recent graduates) who develop the SmartCart product. Instructors release the integrated case on a website, and update it daily with interpersonal and financial crises. The case story is enhanced by icons, cartoons and websites. Students must create a business plan to launch the high tech innovation profiled in the case. The mode of delivery engages students by tying delivery method to course content in aspects of entrepreneurship and technology. The crises create an urgency and dynamism that resembles real-life situations.

INTRODUCTION

This submission profiles a technology-based interactive business case used to deliver concepts related to entrepreneurship, technology and business. Chiesl (1979) discussed the interactive case as one that combines two ways of bringing realism into the classroom: case method and computer simulation. In the SmartCart exercise, an interactive mode of delivery engages students by tying technology-based delivery method to technological course content. Instructors release the essentials of the case on a restricted website. Students access information by clicking on icons that represent characters and events in the case. They must check the website daily and receive updates related to new developments.

A semi-dynamic approach combining case and simulation methods integrates the learning from first term masters' level business courses. This method is appropriate because the case method provides learning outcomes related to 1) familiarity with business environment, 2) the application of sound concepts and techniques, 3) a systematic approach to complex problem analysis and solution, and 4) objective setting (Baillie, McIntire, Newell, Pierson, & Thavikulwat, 1984). In contrast, games emphasize managerial tools and tactics, often simulating competitive market forces. The objective of this case differs

from gaming tactics because the launch and financing of a new product involves a more static look at the characteristics of market entry. The students are relatively inexperienced in business strategy, with little tactical knowledge. Therefore, the use of constraints demanding tactical response (often found in gaming and simulations) is limited to crises released to the students at timed intervals.

OBJECTIVES

The objectives of the SmartCart case are:

- To integrate and apply concepts related to the study of entrepreneurship, business and technology
- To demonstrate to students the importance of both planned strategy and tactical responses
- To develop a seed plan
- To develop an understanding of interpersonal issues

CONTENT AND METHOD MATCH TO LEARNING OUTCOMES

A team of entrepreneurs and their innovation are profiled. The featured innovation is not sponsored by an established company; instead it is rooted in an actual engineering student innovation at the University of Waterloo (a high-tech research-intensive university in South-western Ontario). This semi-dynamic case draws on the guidance of Estes (1974), who suggested that simulations engage students in learning how to manage a small business. Using simulations, instructors can "breathe life into short-term and long-range planning, budgeting and policies etc. that sound so common-place and dull as the student reads them in a textbook" (Estes, 1974, p. 229).

Case delivery method combines the concept of progressive cases with shocks used in simulations. Much like the progressive case described by Whitney (1990), a business situation unfolds. Subsequent segments contribute new information to the case and influence managerial decisions. (Snyder, 1999) described the use of shocks to stimulate and challenge players in total enterprise simulations. As students play through the modules of a simulation they are faced with random non-stochastic

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shocks (Alston & Chi, 1990). These shocks simulate uncertainty and changing environmental information and require quick assessment and adjustment to the information. Although these shocks are delivered online, they do not appear to capture the dynamism of new products that have never been to market. Also differing from previous simulations, the importance of team relationships to product success is emphasized through the interpersonal experiences highlighted in the shocks.

Web-based delivery of a new technological innovation situates the case within the program mandate. The students have technical backgrounds and are in their first year of a Masters degree in Business Entrepreneurship and Technology (MBET). Many intend to develop their own innovations into successful businesses. The SmartCart case targets this learning outcome by profiling how similar technical students plan to introduce their product to the market.

Active learning is defined as anything that “involves students in doing things and thinking about the things they are doing” (Bonwell and Eison, 1991, as cited in Szczerbacki, Duserick, Rummel, Howard, & Viggiani, 2000). Accordingly, students work in teams to develop a business plan for seed capital. As the SmartCart is a new technology created by a University of Waterloo engineering student, it is a “live”, closely guarded secret. Effective resolution of the case issues reflects the level of pro-activeness, risk-taking and innovation present in the team members.

Nulsen and Faria (1977, p. 217) discussed how the involvement of the administrator facilitates an “experimental decision-making laboratory”. Smith (1980) described the use of “live” cases to involve and excite students. Accordingly, instructors deliver the SmartCart case in a fun and interesting way. Targeting technical students, the case is delivered on-line, using animated cartoon strips, images and profiles of typical students, and is narrated by the main student character. Building on the concept of a live case, it engages the entrepreneurial style of the students in this program. The team’s story is developed using a cartoon or video. Product features are listed and depicted in pictures.

CASE SUMMARY

This case profiles a team of four entrepreneurs who develop the SmartCart product. The SmartCart is a system of networked shopping carts that interfaces with the grocery store’s inventory records. As customers pick up items for purchase, modifications are made to both the store inventory and the customers’ bills. All of this information is maintained in real-time so that when the customer has completed his or her shopping, all they need to do is pay the required amount, which has already been automatically tabulated. The team is challenged by interpersonal issues as they develop their product concept, research the market and prepare for seed funding application. Working in

competitive groups, students must develop a seed plan for the SmartCart product.

DELIVERY METHOD

The instructor delivers the case as follows:

- 1) Release information on base case to website. Appendix A depicts the website layout and Appendix B is a print-out of one of the webpages.
- 2) Analysis Timeframe – two weeks (approx 15 hours / week)
- 3) Throughout the period, the instructor presents the students with 3 crises or updates. These updates will be posted to the website every two days. A two page summary of their resolution of each crisis must be submitted within 24 hours of the update posting. At the end of the two weeks they submit their business plans. The plans will differ depending upon how they have resolved the crises.
- 4) This method provides a variety of answers, and will be both challenging and interesting for the professors to mark. It will also provide the basis for interesting business plan presentations and discussion.

STUDENT EVALUATION

Student group submissions are evaluated by all faculty involved in the first term of the Masters program in Business, Entrepreneurship and Technology. Appendix C highlights implications for business areas involved in the seed phase of a start-up venture. These areas are expanded in the actual case teaching notes.

FUTURE DEVELOPMENT OF THIS CASE VEHICLE

The SmartCart case was premised on the business launch of a new technological innovation. Interestingly, this feature increased the risk of case redundancy because there was a potential for being “scooped”. Indeed, just prior to case delivery, IBM announced the introduction of its own “Shopping Buddy”; a concept very similar to that of the SmartCart. Consequently, effective delivery of this type of case involves annual adjustment, using the case and delivery website as a template for other innovative products.

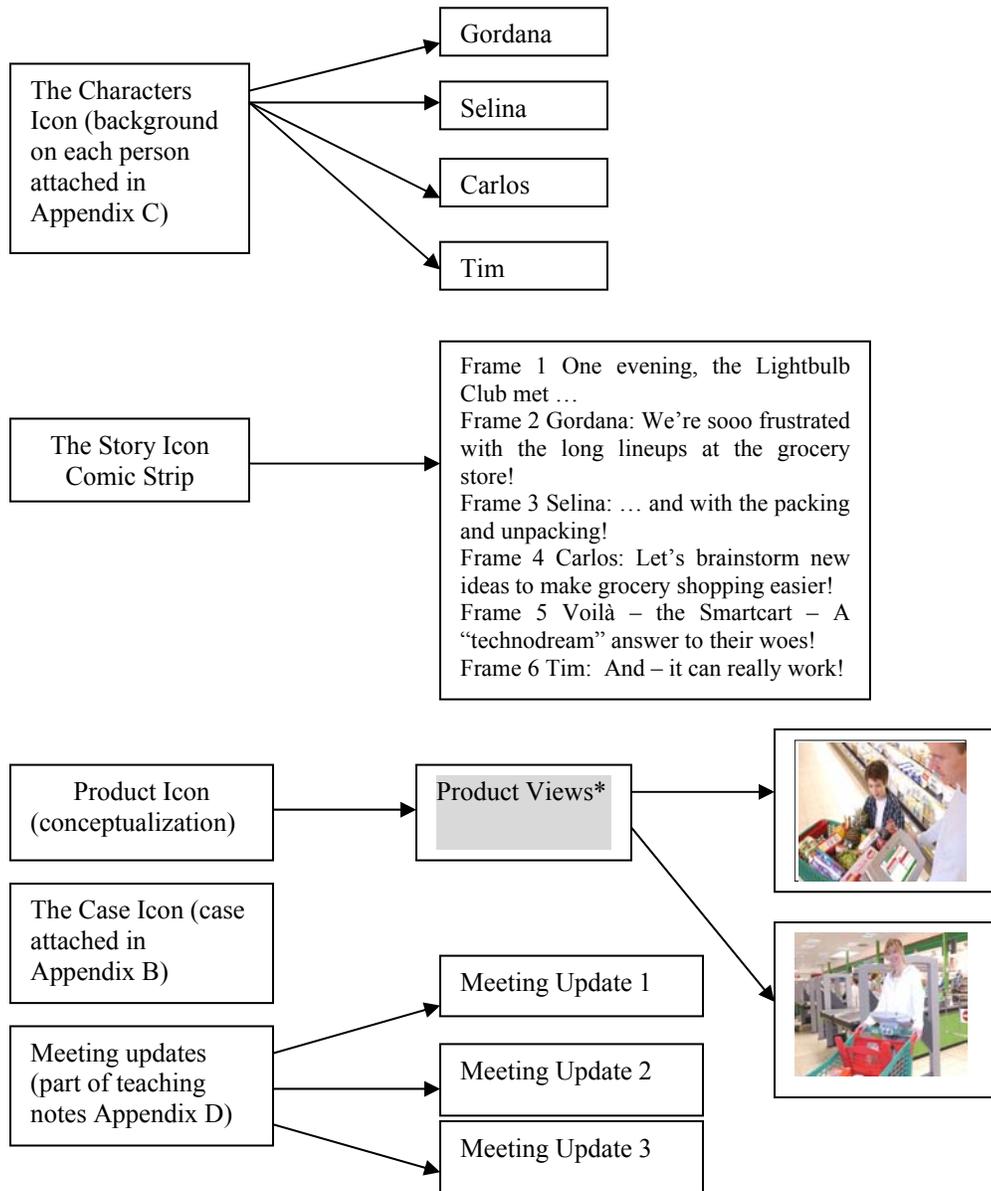
PRESENTATION AT ABSEL 2005

The case, updates, team member profiles, and the teaching notes exceed the page requirements for ABSEL 2005. This is a capstone case for the first term of the Masters Entrepreneurship and Technology Degree at the University of Waterloo with delivery in December 2005. Presenters intend to demonstrate the case website at ABSEL and communicate student feedback on the process.

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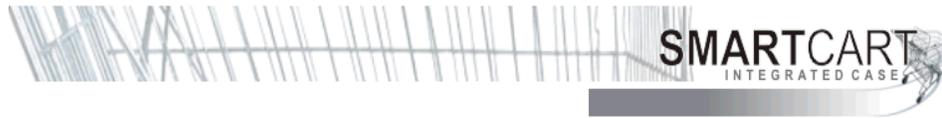
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APPENDIX A: SMARTCART WEBPAGE LAYOUT



- Source of the product pictures: <http://www.future-store.org>

APPENDIX B: SMARTCART SAMPLE WEBPAGE



INTEGRATED STUDY HOME ASSIGNMENTS HELP

INTEGRATED STUDY

THE INTEGRATED CASE

			
CHARACTERS	THE STORY	THE CART	THE CASE
PEOPLE BEHIND THE IDEA	HISTORY BEHIND THE MAKING	INTERACT WITH THE SMART CART	VIEW/PRINT THE CASE

[HOME](#) - [INTEGRATED CASE](#) - [ASSIGNMENTS](#) - [HELP](#)

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APPENDIX C – INTEGRATED CURRICULUM COVERAGE

Course	Topics	Key Questions
Strategy	Nature of Strategy: Setting a vision Mission statements Initial goal setting	Four partners, each with different areas of expertise, have created a working model. What should they do now?
Marketing	Customer Value Customer Management Concepts Emerging Customer Markets General Business Markets Investor Relationships Developing a Marketing Plan	They have conceptualized a prototype, now who will finance them? They have one customer (Zehrs), how do they get more?
Technology Management	Technology Strategy Developing Technical Capabilities Transitioning from one to many Using innovation in strategy	Now that we have built one, how do we build more? How many should we build?
Operations Management	Initial Design considerations Hardware and software design Effective System integration	We cannot build them all ourselves. We must get others to help us. So we must design the product so that other differently skilled people can help us.
Accounting	Financial Statements Concept Creating Value using Accounting Performance Measurement	What do we need to track? How do we do it? Why should we keep track of anything?
Finance	Risk vs. Uncertainty Decisions under risk Decisions under uncertainty	What model should we use to plan our future when so much is unknown and not within our control.
Tax	Deductions to income Self Employed vs. Partnership Government Grants	What will we have to pay tax on and how can we minimize our total taxes payable? Is there any government money that we could access to assist us in getting started?
Law	Types of entities Intellectual property Patents Partnership / shareholder Agreements	What form of business entity should we create? What type of agreement will help us manage our various intellectual contributions? How do we protect our product from piracy? How do we handle partners who walk away?
Organizational Behaviour	Individual differences Leadership Team roles Developing relationships Conflict Motivating Communication	How do we address differences in personalities, abilities and motivation? How do we develop strong internal and external relationships? How do we ensure clear communication (consider message, medium and noise issues).