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Teaching Case

Privacy and ethics in the age
of the smartphone: A Case Study

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Abstract

Smartphones are fundamentally transforming almost all aspects of modern life. This case study examines moral and ethical issues surrounding the use of powerful smartphones that can be used to discreetly capture the activities of unsuspecting people. This case shows how a standard iPhone, coupled with widely available apps, can be used in a malicious manner to capture sensitive information. Furthermore, this case encourages students to consider issues surrounding privacy, ethics, ambition as well as corporate governance. This case is intended to be used at both the undergraduate and graduate levels. This case complements the model curriculum objectives in IS 2010.1, IS 2010.7

Case Summary:

InBin, Inc., which was founded by an entrepreneurial-minded MIS major, evolved out of a business school project and into a successful technology company built around the iOS operating environment. The founder is a charismatic and visionary young man who built a company that was admired by many in the tech industry, including the leadership at Apple. However, the operating environment that gave rise to his company's success also introduced risks that shook the company to its core.

Keywords: Security, Ethics, Privacy, Smartphones, mobile technology trends

1. INTRODUCTION

Alisha Brown sat quietly in the boardroom, stunned at the events that had transpired over the past few days. Looking across the empty room she knew that after today's meeting everything was going to be different. In short, lives were going to be changed in profound ways in the very near future.

A short while later, Jack Gray burst into the boardroom, startling Alisha. "What has our boy done this time?" he chided with a smirk. Jack had been on the board since the early days and often played the father figure to the youthful management team.

Alisha was glad Jack arrived first. Jack knew there were serious problems when he saw the expression on Alisha's face. "Jack, this is bigger than any of us could have imagined. It is going to take everything we have as a company to get through this." The other directors entered the room; Alisha and Jack's somber expressions spoke volumes.

2. COMPANY HISTORY

InBin, Inc. started as a far-fetched business school project. In the fall of 2000, while in his senior year of business school, John Smith began work on the framework for an online technical service. John's gregarious personality and leadership skills attracted interest in his idea and several students with strong technical skills volunteered to work on the project.

John poured all of his effort and energy into advancing his vision. While many thought his idea wasn't feasible, he ignored all critics and pushed ahead. In the spring of 2000, Dr. Alisha Brown encouraged him to participate in the annual business plan competition and offered to serve as his faculty sponsor. She knew there was something special about this young man's singular focus and she wanted to help push him to the next level. After a series of passionate presentations to the business plan judges, he was awarded 2nd place, which came with a $10,000 dollar prize to help get the company going.

The judges and audience members commented on his personal charisma and enthusiasm. In addition, many believed that if he was able to build his service beyond the prototype, the profit potential could be extraordinary. However, some expressed concern that "his product is too out there to be truly realistic" and that he lacked the technical sophistication to take this to the next step. Following his strong showing in the business plan competition, his focus on getting his company off the ground turned into a night and day obsession and he was frequently seen working in the college's computer lab with other students late into the night.

In spite of the fact that he was focused on this project, he graduated on schedule in the spring of 2001. Early that summer he married his college sweetheart, Lacie, and they welcomed their first child just before Christmas.

Also in the summer of 2001, John incorporated InBin. The same year, with much help from fellow students, the new company released InBin v.1.0 software for Macs, which provided online synchronization and backup with offline accessible computer folders.

The next several years were a struggle for InBin, but John had never been happier. Eventually revenue began to trickle in, and through the company's fanatical attention to customer service, they developed a strong user base. Of greater importance, he managed to develop a small team that believed in the product and the company. Part of the deep commitment of the company's employees was a by-product of John's complete focus on the Macintosh platform, which was counter to conventional wisdom. He would passionately argue that Apple makes computers for people and that technological platforms designed for people will always win!

John slowly hired some of the people who worked with him in business school, but he also began to attract talented developers who were drawn in by the excitement and energy that could be felt as soon as one walked into the company's shabby offices. Even during the lean times he never missed payroll and they almost always had the resources they required. As revenue began to arrive he kept operating expenses low and plowed the money back into development. While wages were low, morale was kept high with stock options for all employees. The remarkable part of John's approach was that he was able to start the company and grow it without ever taking a dime from investors. His "boot strap" approach enabled the company to be 100% owned by the

employees, which many considered to be remarkable.

The stars aligned in 2008 and the company exploded. Apple opened mobile app development on the iOS operating system and provided distribution through the ubiquitous iTunes store interface. John knew this was big and put almost all of the company's resources into developing in the iOS environment. John was elated because the vision he had in 1999, of which many were critical, had finally come true and his company had a solution that would allow a person to sync seamlessly throughout the Mac AND the iOS ecosystem.

Downloads of the InBin app were slow at first, but in October of 2008, Walt Mossberg, a noted technology columnist in the *Wall Street Journal*, wrote that InBin was the "clear leader in the synchronization and backup category and offered an elegant solution to a growing problem." The explosion of interest that followed almost overwhelmed the InBin infrastructure. By May of 2009, three million users were using the iOS app and it became one of the most popular productivity apps on the iTunes store. InBin witnessed another explosion in demand when in the spring of 2010 Apple introduced the iPad. In fact, when InBin released the iPad app, it broke all of the company's previous revenue records. As revenues poured in, John continued to invest back in the company. Everyone, previous detractors included, began to celebrate him as a visionary and extraordinary entrepreneur.

As the company's revenues exploded, the venture capital investing community began to show up in droves. John understood that he would need additional capital as well as the expertise within the VC firms to take InBin to the next level. During the first round of VC investment, John had a stake in the company somewhere in excess of $100 million. In the spring of 2011, riding high on InBin stardom, John Smith became one of the youngest and most successful technology millionaires since the dot com era. In the remaining months of 2010, John thoroughly enjoyed the attention and the satisfaction in knowing he was right.

What started as a crazy idea in a business school classroom evolved into one of the star companies in the mobile app arena. In fact, its success was splashed across the front page of the *Wall Street Journal* when it was announced that Apple wanted to buy the company and include InBin's technology in the next generation of its Mac and iOS operating systems.

3. FRIEND OR FOE

Having supported his vision starting from his undergrad studies, Dr. Alisha Brown remained in close contact with John and his young family through the years. She was enjoying her retirement when in the winter of 2007 her husband died unexpectedly.

Lonely for family, Alisha was delighted to become increasingly involved with John's young kids. To them she was "Grandma Leesh." In fact, when things began to look up for InBin in 2008, the Smith family purchased a home just two doors down from Alisha. Many mornings John's young family could be found at Alisha's house. John's wife Lacie would enjoy a cup of coffee while kids Nelli (5) and Jake (6) played.

In early 2010, when an InBin director resigned due to health issues, John asked Alisha to join the board. "Alisha, your expertise in marketing would be a welcome addition to our board. In addition, it was your encouragement and support when I was a student that really got this company going and, besides, you are someone I trust completely." Alisha replied, "I'd be happy to work on any board where you serve as the chairman, John. Of all my years as a professor, watching you grow as a young man and entrepreneur has been one of my great joys. I look forward to serving you and the company."

Professionally, John was on top of the world, but his personal life was far from good. John's singular focus on building InBin strained his marriage as well as other important relationships. Their marital problems were widely discussed within the company as John wasn't shy about discussing sensitive issues. It became widely known that John's wife Lacie had had an affair and John occasionally hinted that he had evidence to prove it.

By the summer of 2011, Lacie had moved out and John and Lacie had joint custody of the kids. Increasingly, Alisha spent a lot of time with the children and became a trusted intermediary between the battling parents. Sometimes Lacie would drop the kids off at Alisha's and John would pick them up when he was done with work. On some of these occasions John would share his fears surrounding his failed marriage

and the future of the kids, as well as concerns about InBin.

The emotional strain weighing on John became crippling and it was clear he needed a break. The pending divorce, coupled with his hectic professional life, had simply become too much and he, as well as almost everyone else, knew something had to give. In order to lighten up on some of his duties he asked Alisha to take over as chairman of the board while the Apple acquisition was negotiated. The board unanimously supported John's request. Privately, several directors expressed relief because they had become increasingly troubled by some of John's actions, including discussing sensitive issues surrounding his wife's affair.

The acquisition talks were progressing smoothly and the board, as well as knowledgeable outsiders, was happy to have Alisha in the chairman's role during the negotiations. Alisha was growing increasingly comfortable in her role as chairman of the board, but she wasn't ready for what happened next. Late on the evening of Wednesday, November 9th, 2011, Alisha received a call from John. In hushed tones, he asked her to come over right away. Alisha, fearing something had happened to one of the kids, rushed over. When she arrived, he asked her, "Can you take my iPhone and keep it safe for a few days?" Knowing something wasn't right, she reluctantly took it and dropped it into her purse.

4. iPHONE DISCOVERIES

Alisha tossed and turned all night. John's behavior over the last few months had been troubling, but she attributed it to the pain of losing his family. The next morning she sat alone in her kitchen wondering what to do. It was at times like these when she missed her late husband most because they could always help each other think through the difficult issues. She was torn between trying to look at what he might have on the phone, and going straight to the police. However, she knew that doing nothing was not an option. She was also aware that as chairman of the board she had a strict fiduciary responsibility to the company and its shareholders. Furthermore, with the Apple acquisition in its final stages she knew that whatever was on that phone might affect that acquisition.

She decided that she should attempt to view the contents of his phone and based upon her findings determine the next step. As recently as the previous week she had used John's phone to take pictures of him and the children, and she wondered if he still used the same four-digit passcode. Hesitantly she reached for his phone and entered the four-digit code, and it revealed a home screen with a picture she had taken of John and the kids.

The first thing she did was go to the Photos App and started scrolling through the pictures. As expected there were a lot of pictures of the kids and seemingly innocuous random images. However, there was a tremendous number of photos that seemed to repeat . . . or at least mostly repeat.

Priding herself on her smartphone abilities, Alisha swiped the home screen to the right to do a global search. "How about a search on the word Lacie," she thought aloud. The first result was a note. She opened it to find a list organized by date, the title of which was "Lacie."

Although the range of dates was expansive, they were carefully ordered using a standardized naming convention built around date and then topic. Because of this she was able to easily get to the dates near the time when John had learned of Lacie's affair.

One note in particular caught her eye. It was labeled 2011/10/09 – Find out where Lacie is going – set up IGPS. "IGPS?" thought Alisha, "what does that stand for?" Once again, she did a global search and simply typed in the letter "I" and then scanned through the search results looking for a result that might be associated with IGPS. She didn't have to scan down too far before she came to an app called "Instamapper GPS" (see appendix A). At first, Instamapper GPS did not appear to do anything, but then she clicked the information pane and followed a link which then took her to a site showing a detailed map of a route through the community with a destination and the address. "Aha, this iPhone was hidden in Lacie's vehicle to track her location and her route, and all with a time-stamp," Alisha thought.

She returned to her previous search and began scrolling through the notes surrounding the previous date range. Scrolling through the note list she was startled to find notes titled, "2011/05/09 – Capture Managers – SK"

"2011/09/21 – Capture Board – SK", and "2011/11/09 - Capture Lacie - SK." Once again, based on the previous pattern Alisha did a global search around the letter "S" and then scanned through the search results. It didn't take her long to find an application named SpyKit. After opening the application, Alisha was presented with sub applications with names like Voice Disguise, Stealth Cam and Covert Cam. It took her less than 20 minutes of playing around with the sub apps to determine things had gotten way out of hand. Essentially she found countless instances where conversations and corresponding photos were taken without the knowledge of those present. What was even more startling to her was that John was able to accomplish most of this with an app that is available for free through the iTunes store. Most of the entries related to Capture Managers included reference to photos and audio.

Even more alarming was what Alisha discovered in the board of directors capture instances. Sensitive meetings where John was present had been recorded and logged. Executive board sessions, where John was not allowed to be present, were also recorded. During the executive sessions sensitive issues often related to John's performance as CEO were discussed.

By now, all questions regarding Alisha's next steps were answered. She called InBin's legal counsel for advice on how to proceed. After reviewing some of the evidence the company's legal counsel suggested the police should be notified immediately. Since John was maintaining detailed notes and logs concerning Lacie's travels, coupled with his current strained mental state, they couldn't dismiss the possibility that John may harm Lacie. Furthermore, it was obvious that John crossed a line by spying on the board of directors, which was a clear violation of the law. She called the police and submitted the phone to them as evidence of possible crimes. Immediately following this an emergency board meeting was convened.

5. CONCLUSION

It had been 12 hours since Alisha handed over the phone to the police and called the emergency board meeting. The police analyzed John's iPhone and the District Attorney assigned to the case agreed there was ample evidence to prosecute him.

The police coordinated with InBin's legal counsel to initiate the arrest at the same time the board was scheduled to meet. During the meeting Alisha, along with InBin's legal counsel, methodically discussed what they believe happened and the impact it might have on the company. It was clear that John would be charged with several criminal acts and the company might be liable. What was unclear was the extent to which John employed these tactics with InBin's business partners and with Apple execs leading up to the pending acquisition. As Alisha relayed and displayed information found on John's iPhone to the board of directors, looks of confusion and a desire for answers overcame each director's face. Jack Gray could be heard occasionally grunting, "unbelievable."

Once Alisha completed her discourse and what she believed to be the possible implications, she said, "You now know all we know. In terms of next steps we have hired a PR firm to help us manage what is sure to be an avalanche of media issues. Finally, I wanted to inform all of you about the situation before calling Apple's legal counsel. My suggestion is that we try to keep the merger on track, but it won't be easy. Now, with that said, I am open to any and all suggestions!"

6. DISCUSSION QUESTIONS

1) One way to think about mobile technologies is to view them as powerful sensing devices that are constantly monitoring the environment. What sensing mechanisms do current smart phones have?

2) What will the capabilities of smart phones be in five years?

3) What are your state's laws concerning digitally recording private conversations without all of the participants' consent?

4) How do the states surrounding your state handle the issue addressed in Question 3? Do they differ significantly?

5) How diverse are the state laws for capture of images and audio? Is the public, or even a fraction of the public, aware of such laws? How many people with smartphones capable of violating such laws do so inadvertently?

6) Increasingly local police departments are being asked to investigate crimes where digital technology provides a significant part of the evidence. What resources does your local police department have to analyze this type of evidence? How about your District Attorney's office?

7) Pay-as-you-go phones, which don't require a contract and are difficult to track, are growing in popularity. What are the possible implications of someone utilizing multiple inexpensive phones with the capabilities discussed in this case?

8) The apps discussed in this case are all available on Apple's iTunes store, which means it is approved for distribution by Apple. However, are there other apps that aren't available on the store, but that can still be installed on an iPhone?

9) Can anything be done to avert the use of smartphone capabilities by those willing to work independent of the public app marketplaces?

10) What are the long-range regulation possibilities? How will the government(s) enforce these regulations?

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Appendix A