

## TEACHING CASE

# Managing the risks of big data at MyTelco: taking ethics seriously

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**Abstract** In 2014, MyTelco established an independent Business Analytics (MyBA) organization that provided data analytics services to both MyTelco and third party customers. It was expected that this organization would be able to fund itself through the revenues generated from the commercialization of insights derived from MyTelco's data. To address the ethical risks associated with mining and commercializing big data, MyBA relied on an Ethics and Compliance Committee (ECC) to review project proposals that involved customer data. Situated in November 2016, a week after the Federal Communications Commission (FCC) passed new legislation to increase consumer's choice over their personal information, the case describes three proposals that the ECC needed to evaluate. Students deliberate each proposal's legality and ethicality from the point of view of MyTelco's Ethics and Compliance Committee.

**Keywords** Telecom industry · Business analytics · Surveillance · Privacy · Ethical decision making

## Introduction

Craig Longman, the Director of Compliance within MyTelco's Business Analytics (MyBA) organization, was getting ready for their bi-weekly Ethics and Compliance

Committee (ECC) meeting, which he chaired. The purpose of the ECC meeting was to discuss three Business Analytics (BA) projects proposed by different analysts in MyBA in order to discern whether the projects met MyTelco's risk and compliance parameters, which included ethical and legal requirements.

It was November 9, 2016, the day after the U.S. elections that brought Donald J. Trump to power. This was their first meeting after the October 27, 2016, passage of the U.S. Federal Communications Commission's (FCC) landmark legislation that brought American broadband customers' privacy protections in line with most other countries' rules.<sup>1</sup> However, the results of the presidential elections raised significant questions about this new law's persistence.

The incoming Trump administration and a Republican-led congress foreshadowed a more pro-business stance on all policy issues; a reversal of this new legislation was thus highly likely,<sup>2</sup> especially since the FCC commissioners were political appointees. The telecom industry had stood united in its opposition to the FCC's new legislation, citing that internet giants such as Google, Facebook, Amazon, and Netflix—who were not under the FCC's legislative power—did not have to comply with these new consumer privacy restrictions. MyTelco and other telecom providers therefore charged that the FCC's legislation put them at a competitive disadvantage and also created a confusing patchwork of privacy rules that consumers would find difficult to navigate.

In light of these events, today's ECC's meeting was thus marked by uncertainty. Nevertheless Doug resolved that he

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<sup>1</sup> [https://apps.fcc.gov/edocs\\_public/attachmatch/DOC-341938A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DOC-341938A1.pdf).

<sup>2</sup> <http://www.marketplace.org/2016/11/30/world/fcc-under-trump-what-becomes-internet>.



and his colleagues would need to conduct today's meeting under the assumption that the new FCC regulations would remain operational, since Internet Service Providers (ISP) like MyTelco had only 30 days to implement some of its provisions. The FCC's October 2016 ruling had issued new data use notification and consumer choice requirements that were particularly pertinent to the projects the ECC typically evaluated. In addition to Craig, the committee consisted of two people from the MyBA organization (i.e., the Directors of Sales and Big Data Architecture), as well as four people from different functions within MyTelco, (i.e., the associate vice presidents of IT, Marketing, Communications and Legal).

## MyTelco

MyTelco was a telecommunication and media company headquartered in a United States state capital. It was the incumbent local exchange carrier for wireline telephone and DSL Internet service in its geographic region, providing broadband services to homes and businesses. Together with its subsidiaries, MyTelco Mobility and MyTelco TV, the company offered a broad suite of products including landline phones, Internet connectivity, cellular service, and direct-to-home satellite TV. It also owned media resources, i.e., the MyTelco TV network and a digital movie rental service similar to Netflix.

In 2016, the company had 13 million subscribers, most of whom resided in the southern and mid-western United States. MyTelco employed approximately 13,000 employees and had about 17 divisions (including IT, R&D, marketing, and networks).

## Business analytics at MyTelco

In August 2014, MyTelco established MyBA, a 150-person organization that would focus on leveraging MyTelco's wealth of data. The IT organization, which consisted of approximately 1300 employees—many of whom were located in most of MyTelco's 17 divisions—had been doing data analysis for a number of years. However, the skills and technologies that this emerging discipline required were becoming increasingly specialized. The MyBA organization was thus formed to capitalize on the learning synergies that could be generated from bringing together a community of individuals from different parts of the organization and having them work exclusively on BA projects.

MyBA was located at the corporate headquarters and its primary objective was to develop insights from the vast amount of data MyTelco customers and infrastructure generated, for use both internally and by third parties. For

instance, a consumer packed goods (CPG) organization might be interested in the demographic breakdown of the MyTelco customers who attended an event (e.g., football game) that the firm sponsored. There was an expectation that the BA organization would ultimately be able to finance itself through the revenues generated from the commercialization of MyTelco's insights and data.

However, Sally Resnick, MyTelco's CEO, was extremely aware of the risks associated with commercializing customer data, as it contained a significant amount of personally identifiable (PII) and sensitive information. Unlike most other firms, telecom providers had access to such private behavior as making phone calls, browsing the Internet, texting, and watching TV. Additionally, these transactions were accompanied by IP addresses, timestamps, geolocation data, and communication content (e.g., call recipient, text message content, URLs). Even though content was increasingly encrypted by devices (e.g., Apple phones) and websites (e.g., Google search and apps), there was nevertheless a considerable amount of traffic whose content MyTelco could access.

Among Sally's concerns was how MyTelco needed to handle personally identifiable and sensitive information in order to preserve customer privacy. The results of several recent studies had alarmed her. While many argued that MyTelco provided adequate protection for its customers by *de-identifying*<sup>3</sup> information such as customer name, phone number, and address, prior to releasing it to third parties, Sally knew that the protections offered by MyTelco's anonymization<sup>4</sup> process were limited. Data from another source could be used to link the data back to an individual, provided the individuals' behavior patterns were unique enough.

Indeed, researchers at MIT and the University Catholique de Louvain demonstrated this. Analyzing cell phone-generated trace data from 1.5 million users located in a small European country over a span of 15 months, they found that with just four spatio-temporal points (e.g., cell-tower location, time of cell-phone activity) they could identify unique movement patterns for about 95% of the individuals on their population.<sup>5</sup> By combining such unique mobility traces with other data sources (e.g., place

<sup>3</sup> *De-identification* of data refers to the process of removing or obscuring any personally identifiable information from individual records in a way that *minimizes* the risk of unintended disclosure of the identity of individuals and information about them.

<sup>4</sup> *Anonymization* of data refers to the process of data de-identification that produces data where individual records cannot be linked back to an original without using additional external information, as they do not include the required translation variables to do so.

<sup>5</sup> <http://newsoffice.mit.edu/2013/how-hard-it-de-anonymize-cellphone-data>.



directories, travel information) individuals could then readily be *re-identified*.

This finding partially echoed results found in a March 2014 report by Stanford graduate students Jonathan Mayer and Patrick Mutchler. In the wake of the NSA spying scandal, which had exiled the whistleblower Edward Snowden to Russia, their study showed that phone meta-data was also unambiguously sensitive. Using data generated by 546 participants who were using Android smartphones running the MetaPhone app that the researchers had developed for this study,<sup>6</sup> the researchers were able to determine the personal identity of 18% of the study's participants.<sup>7</sup> They did this by relying on only call metadata and publicly available data from social media (e.g., Facebook) and online directories (e.g., Yelp, Google Place).

Given these concerns about the vulnerability of individual customers' privacy, the telecom industry was increasingly targeted by consumer protection advocacy groups, as ISPs represented a gateway to communication services that were indispensable to being a citizen and resident of the United States. In light of this growing critique of the telecom industry, MyTelco wanted to seize the opportunity to differentiate itself from its competition by demonstrating to consumers, employees, and investors that it was dedicated to its customers' privacy protections. Sally therefore insisted on the formation of a compliance committee tasked with assessing the risks associated with IT projects that mined customer data for insights. To highlight its emphasis on ethics, this new committee came to be known as the Ethics & Compliance Committee (ECC). Its primary objective was to ensure that all BA projects that relied on customer data complied with corporate policy, offered no legal threat, and were beyond reproach morally.

## The ECC

As part of MyTelco's risk management infrastructure, one of the ECC's key tasks was to discern whether a proposed BA project was ethical, that is, whether it met the standards of right and wrong that prescribe what humans ought to do, such as defend rights, meet obligations, pursue benefits to society, maintain fairness, and achieve specific virtues. As a consumer-facing organization, MyTelco had to make sure that it avoided the ire of its customers with its BA projects, as consumers were increasingly weary of the invasion of their privacy. They were also increasingly vocal on social media when it came to any infractions of their perceived

rights. MyTelco wanted to avoid the kind of customer backlash and negative press that other companies (e.g., Facebook) had encountered.

The ECC represented one of the key governance mechanisms put in place to ensure that projects, especially those that dealt with Personally Identifiable Information (PII) and sensitive information, did not violate consumers' privacy. PII denotes any information that could be used to identify or trace an individual or to identify him/her in context. Markers such as name, social security number, date and place of birth, mother's maiden name, or biometric records were typically classified as PII. However, information that could identify an individual in context or reasonably ascertain—when combined—who the data represented, also generally fell under the PII designation (e.g., IP addresses, educational, and employment records).

Sensitive information, in contrast, is data whose disclosure will result in loss of an advantage or level of security, and hence adversely affect an individual's privacy and welfare.<sup>8</sup> In the 2016 FCC legislation, the following categories of information were deemed sensitive: geolocation, information about health, children and finances, web browsing and app use history, and the content of communication. Importantly, the new regulation stipulated that such sensitive data could not be used or shared by an ISP without the customer's explicit (opt-in) consent. In the past, opt-out consent sufficed for this class of information.

It was the ECC's experience that their deliberations about a proposed project's ethicality were challenging, tough, and contentious. There seemed to be no simple answers or straightforward decisions. For this reason, the ECC tackled no more than three proposals in their hour-long meetings. This meant that despite meeting every other week, the committee typically had a 5-project backlog.

## Three proposals before the ECC

For the November 9 meeting, the authors of proposals in the ECC's pipeline were asked to revise their one- to three-page project descriptions in order to make sure that they were in line with the new FCC regulations. On the Monday before the meeting, Doug chose three proposals that the committee needed to vote on. He posted these on the

<sup>6</sup> <http://www.technologyreview.com/news/522076/call-log-app-aims-to-reverse-engineer-nsa-surveillance/>.

<sup>7</sup> <http://news.stanford.edu/news/2014/march/nsa-phone-surveillance-031214.html>.

<sup>8</sup> According to the Data Protection Act of 1998 in the UK "Sensitive Personal Data" means personal data consisting of information as to (a) the racial or ethnic origin of the data subject, (b) his political opinions, (c) his religious beliefs or other beliefs of a similar nature, (d) whether he is a member of a trade union (within the meaning of the Trade Union and Labour Relations (Consolidation) Act 1992), (e) his physical or mental health or condition, (f) his sexual life, (g) the commission or alleged commission by him of any offence, or (h) any proceedings for any offence committed or alleged to have been committed by him, the disposal of such proceedings or the sentence of any court in such proceedings.



committee's workflow repository. In preparation for the meeting, each committee member was expected to read the three project descriptions.

*Project A: predicting churn through social network analysis*

Bill Baxter proposed this project. He had just returned from a workshop on Social Network Analysis. SNA is an application used to model the structure of social groups, that is, how individuals are connected to each other. SNA identifies where an individual is located within a group (e.g., a hub in the center, a gateway between two subgroups, a peripheral actor) and how strong the ties are between them and others. For example, frequent contact between two people is indicative of a strong tie (e.g., friendship, kinship).

It occurred to Bill that SNA might be used to anticipate and prevent customer "churn" at MyTelco. A service's "churn rate" is calculated as the percentage of its subscribers who discontinue their subscriptions over a given period of time. It serves as a measure of customer attrition that could be used to track, monitor, and assess customer satisfaction, as well as the success or failure of a company's customer retention program. There were numerous marketing statistics<sup>9</sup> highlighting the importance of preventing churn. Specifically, the cost of acquiring a new customer was estimated to be five to seven times higher than retaining an existing customer. Furthermore, customers were four times more likely to defect for reasons of poor service quality than for price. Lastly, dissatisfied customers were likely to tell 9–15 of their friends about their negative experience with a firm.

One of the key challenges with managing customer retention was that identifying unhappy customers proved difficult for MyTelco. This was because—as per average marketing statistics<sup>9</sup>—only about 4% of dissatisfied customers were estimated to complain directly to the company; the majority of unhappy customers simply dropped the service and never returned.

Bill believed that SNA would allow MyTelco to rely on customers' actual behavior to predict churn. He proposed that a SNA be run on every customer who canceled his/her subscription in order to identify the people in his/her network. A given individual's network would be established using only metadata, e.g., phone numbers dialed or texted to, email addresses sent to, or received from. The frequency of such interactions, as well as any temporal patterns (e.g., time of day, day of week), would be taken

into account also to establish the strength of the relationships between the defector and the members of his/her network.

Based on the strength of the tie between them, a "defection-likelihood" score for MyTelco customers connected to the defecting customer was updated. If a MyTelco customer was connected to multiple defectors, this score would go up exponentially, indicating that a given customer was a high churn risk.

Attending to customers' defection-likelihood scores put the MyTelco's customer care department in a position to design appropriate interventions (e.g., phone calls from customer care, coupons, discounts) that might change customers' sentiment towards MyTelco, reinforce their loyalty and ultimately retain them. The customer care team was able to manually adjust the defection-likelihood score based on their interactions with the customer and his/her response. However, all amendments to the score had to be accompanied by a short explanation that was captured in the system. These data would also be retained for future reference.

Bill Baxter also envisaged that a customer's defection-likelihood score would 'depreciate' with time. Satisfied customers tended to stay with the company. The longer the temporal distance from a significant member of the customer's network departing from MyTelco, the more the defection-likelihood points attributable to that relationship were discounted.

For submission to the ECC, Bill prepared a document in which he outlined the business case for the project, the proposed solution, and what the anticipated benefits and risks. With regard to ethical considerations, he noted that his churn prediction BA solution relied only on metadata (i.e., not the content of communication), which were not considered sensitive. Furthermore, the data would be used only internally by MyTelco. For these reasons, he asserted that the project fell outside of the FCC's new consent regime.

*Project B: developing cyber profiles of social media users*

Mary McMannis proposed this project. She had a background in Communications and PR but had found her way into MyTelco's IT department where she had worked on an exciting project that monitored and analyzed social media data. Like most companies, MyTelco needed to keep an eye on the proverbial 'blogosphere' to find out what was being said about them. The social media monitoring solution they had just completed building, provided MyTelco with a comprehensive dashboard about the number of mentions (e.g., tweets or Facebook posts) they had received in a given period of time and what the sentiment of these mentions was (e.g., positive, negative, neutral). The same

<sup>9</sup> <https://www.linkedin.com/pulse/20130604134550-284615-15-statistics-that-should-change-the-business-world-but-haven-t>.



information was provided for MyTelco's competitors thus making the monitoring dashboard a powerful, real-time benchmarking tool.

However, this active monitoring and responding to social media posts brought with it new challenges, for which the project Mary proposed now was expected to provide a solution. Two key concerns with MyTelco's current approach to managing social media content were (i) its limited scalability and (ii) the risk of creating an escalating "complaint–reward cycle."

MyTelco was applying much of the advice available about how to deal with customers in the public and viral social media space: they responded to negative comments quickly (especially when the poster had a high Klout score),<sup>10</sup> offered apologies and solutions when warranted, and took a conciliatory tone to avoid public confrontations.<sup>11</sup> This was time-consuming work and as MyTelco's subscriber base increased and social media became an increasingly important communication channel, the size of the communications department would need to keep growing if MyTelco continued to manage its image in the blogosphere on a message-by-message basis.

Furthermore, by appeasing complaining customers with coupons or gifts of various kinds, MyTelco was also concerned that these rewards might set in motion a "complaint–reward cycle," and thereby provoke more public criticism. Additionally, others who saw that complaining paid were likely to engage in copycat behavior.

While the Klout score helped MyTelco prioritize its response to negative posts, it did not provide sufficient insights into the poster's personality and preferences to help them determine how to respond in the most effective manner. Their goal was to convert the dissatisfied customer into a satisfied one as quickly as possible, and also to break the complaint–reward cycle. The holy grail was turning a highly influential social media user from a MyTelco detractor into an advocate for the company.

To address this challenge, Mary outlined a BA application whereby a cyber profile would be developed for MyTelco customers with high Klout scores. Developing such a cyber profile entailed aggregating a user's actions on various social media platforms and linking them to the user's MyTelco's customer record. Such a profile would

allow the communications team to gain insight into the individual who was complaining and to identify an optimal solution, i.e., one that maximized customer satisfaction in the long term at minimal cost to MyTelco.

One of the key challenges with designing effective interventions for social media users was that many users' online identities were not tied to their actual identities. For example, many social media users did not use their real-life first and last names as their Twitter handle and increasingly people relied on fake user names on Facebook to protect their privacy. Furthermore, they might use different user names on the various social media networks (e.g., their Instagram ID was different from their Facebook ID), and they might have more than one identity on a given network. This made it difficult to develop a comprehensive cyber profile for a user and associate it with a MyTelco customer ID.

To develop as complete and comprehensive a profile as possible, Mary's proposed solution relied primarily on an open source graphing and visualization tool called Maltego.<sup>12</sup> One of its features was that it searched the Internet for instances of an individual's name or email address. In this way, social media accounts associated with a given email address could be identified and tied to a specific customer. Additionally, image-matching software could be used to search for an image of a user on different social media platforms. A user could thus be tied to a cyber profile by using the same email address when opening social media accounts and posting the same image on multiple accounts.

After tying the cyber profile to a MyTelco customer ID, it could be pulled up in a dashboard, which Mary had mocked up as part of her proposal. The dashboard included a given individual's identities across all social media platforms, the size of their network, the company and product names that the individual mentioned in his/her posts together with their frequency (i.e., message counts), and their valence (i.e., % positive, negative, and neutral).

Additionally, all messages posted by the user about MyTelco on social media sites were aggregated and his or her sentiment analyzed. Furthermore, any interventions made by MyTelco's customer service became part of this cyber persona dashboard. This allowed the communications and customer service teams to analyze how the customer had reacted to inducements in the past.

Since Mary was aware that the ECC was particularly concerned about the ethicality and legality of proposed BA solutions, she specified in her proposal that she did not deem it necessary to seek customers' consent to create cyber profiles as the social media posts, on which these

<sup>10</sup> The Klout score (Klout.com) is a number between 1 and 100 that represented an individual's influence across social networks. It is calculated based on the number of followers, fans, retweets, mentions, etc., a social media user was able to generate and thus serves as an index for the number of people he/she could potentially mobilize into action.

<sup>11</sup> <http://www.socialmediatoday.com/content/12-principles-responding-negative-online-comments>; <http://www.seeksocialmedia.com/respond-negative-social-media-comments/>.

<sup>12</sup> <https://www.paterva.com/web6/products/maltego.php>.





individual profiles were based, were public. Furthermore, the profiles were largely based only on the user's online activities in the last six months, making them rather dynamic and reflective of recent behavior only. However, the part of the cyber persona related to content specific to MyTelco (e.g., posts made and customer service's interventions) was retained indefinitely.

### *Project C: selling customer personas to third parties*

Lynn Barnes proposed this project. He had been recruited to MyBA because of his extensive background in marketing. "I have made the right career move," he thought to himself once he became familiar with the massive amounts of customer data that the company collected and archived. All of these data were now readily accessible in the company's databases. Lynn's business philosophy centered on a belief that the more you knew about the company's current and potential customers the better you could target the company's products and services to meet customers' needs and interests. This was the way to improve sales and retain customers and, hence, increase profitability.

Lynn's battle cry became "A company cannot devise an effective market strategy without market segmentation." MyTelco's data presented a rich and credible source for identifying such market segments. While companies like the ratings and measurement company, Nielsen, were well established in the area of customer segmentation, Lynn fervently believed that third parties such as consumer packaged good (CPG) firms would be willing to pay for more detailed personas. Such personas could be built on actual consumer behavior—e.g., Internet browsing and searching, TV recording and watching, app usage on various mobile devices, moving between locations—rather than on the commonly used stated preferences method. In short, he saw great opportunities for monetizing MyTelco's customer data through more fine-grained segmentation, which would then allow MyTelco and third parties to craft increasingly targeted marketing messages and product/service offerings.

A key variable on which Lynn's proposal hinged was geographic location, that is, relying on MyTelco's location-based data as the basis for developing customer personas. For instance, a CPG firm might want to know what customer segments were passing their billboard. A restaurant might be interested in determining key characteristics of people in the vicinity of their establishment during lunch time. A company sponsoring a large sports event might want to know what the largest customer segments were within those located in the stadium or arena.

Lynn formulated a three-phase plan that would be implemented by means of a program he labeled with the alliterative title *Personas of People in Place* or PPP. First, all of the considerable data MyTelco had about people whose cell-phones located them in a given place during a specific time window (e.g., day of the week, time of day, week, or month of interest) would be assembled and clustered to produce customer segments. Because so much fine-grained data were available about MyTelco's customers, he anticipated that the cluster analysis software he planned to use would generate a relatively large number of segments. In fact, he predicted that a large number of very small segments (consisting of less than 100 people) would emerge. In his proposal, Lynn provided a hypothetical example of the persona that might describe one such customer segment:

English-speaking female, single, between the ages of 26 and 30, living in the city of Frisco, TX, with a credit score >650. Has a medium to high interest in hockey and recently visited the Fox News channel.

Second, the relevance of the potentially hundreds of segments produced by this clustering to the client (e.g., CPG firm, restaurant, or event sponsor) would then be assessed in order to prioritize which personas would be part of the insights generated by PPP. In other words, the segments that appeared to be most promising to the client would be identified and their presumed marketing "hot buttons" would be hypothesized.

In addition to providing their clients with the size and description of each relevant customer segment, MyBA would also make available the customer records that constituted each cluster for an additional fee. These data would however be anonymized, meaning that PII would be hashed.<sup>13</sup> In this way, data fields such as phone numbers could neither be read nor linked back to the original, but could be used to join data from other MyTelco data sources provided these data had been de-identified with the same hashing algorithm and key.

With respect to the new FCC rules, Lynn noted that PPP required no consent from consumers since the data were de-identified. Nevertheless, in its privacy statement MyTelco would have to include information about PPP, i.e., the data it used and what anonymized data were sold to third parties.

<sup>13</sup> Anonymization through hashing implies the use of a *one-way* hash function, which relies on a commonly available algorithm and a secret key to convert data of an arbitrary size into a fixed size. Hash functions can be used for cryptographic purposes provided the hash digest (i.e., fixed size message) they produce cannot be reversed to bring the data into its original state. .



## Getting ready for the meeting

In his capacity as committee chair, Craig was setting up the conference room for the ECC meeting. As a number of his colleagues would participate virtually, he was logging into MyTelco's teleconference system on his laptop and connecting it to the projector. He also opened the PPT presentation that he had created for the meeting. Even though all ECC members were expected to read the individual proposals, Craig gave a quick summary of each project to kick off the committee's deliberations. For this he used the PPT slides.

The slide deck also contained a representation of the ethical framework that the ECC used to evaluate each proposal. The framework was taken from the Markkula Center for Applied Ethics at Santa Clara University<sup>14</sup> and emphasized five approaches to ethical decision making: the utilitarian, rights, justice, common good, and virtue approach (see Appendix in Fig. 1 for a schematic of the Makkula framework). It was the ECC's custom to assess each proposal's ethicality by applying each approach to the proposed BA solution.

Craig typically took copious notes during these deliberations. He would then rely on these notes to present a summary of their deliberations towards the end of the hour-long meeting. This summary was followed by a little more discussion typically, as committee members clarified arguments that they believed had been misunderstood or misrepresented in Craig's concluding remarks. They also tended to draw comparisons across the projects.

The meetings concluded with a vote on whether to approve, deny, or invite a revision of a given project. A simple majority determined a proposal's fate. However, in the event of a tie, Craig typically cast the deciding vote.

After recording the final vote tallies and adding details from their deliberations, Craig typically

completed his meeting minutes and distributed them to the committee members. He also notified the analysts who had proposed the projects of the ECC's decision, which fell into one of three categories: approval, denial, or invitation to revise the proposal subject to recommended amendments.

## Discussion Questions

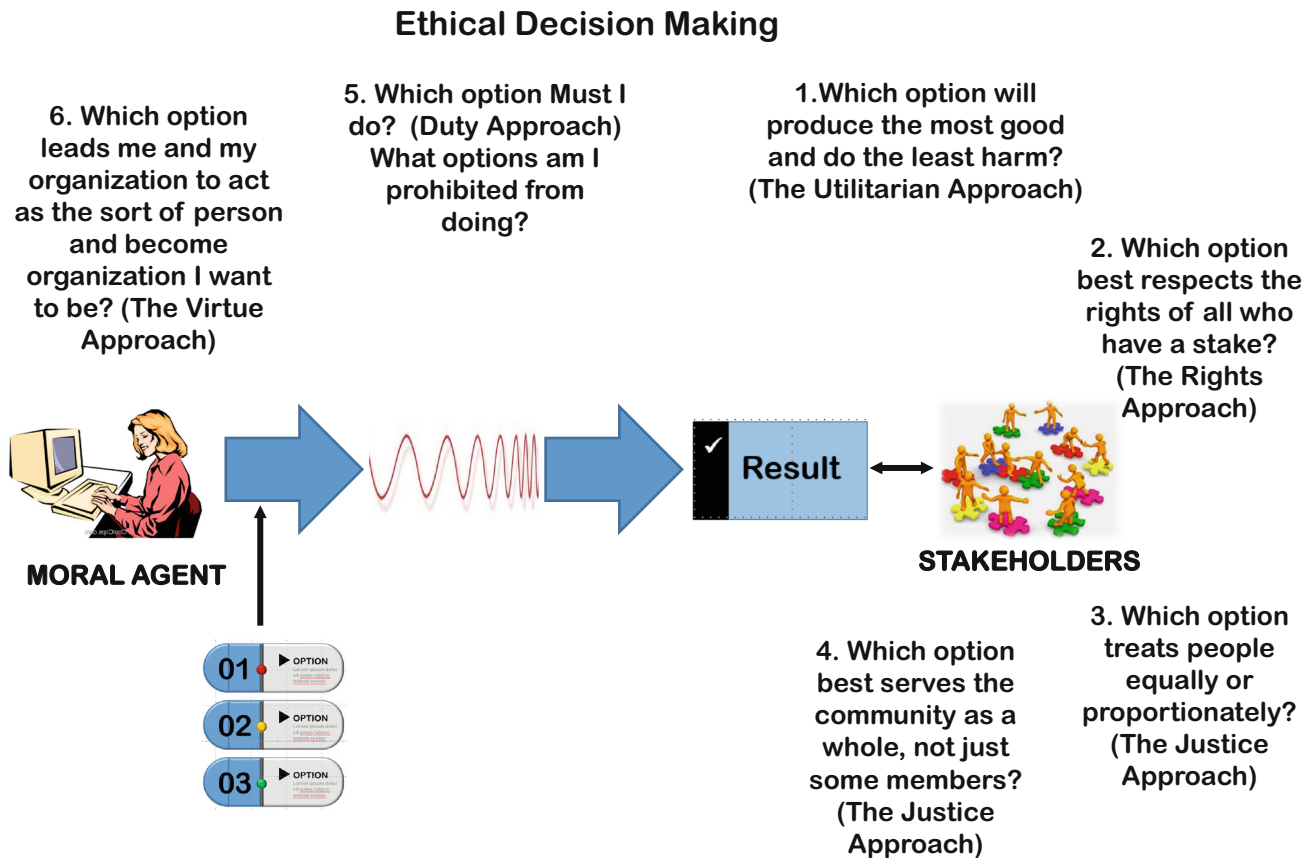
1. Analyze each of the three project proposals in order to answer the following questions:
  - (a) Is the proposal legal under the consumer protections the FCC passed on October 27, 2016?
  - (b) Is the proposal legal under the consumer protections currently legislated in the US?
  - (c) Applying the utilitarian, rights, fairness, common good, and virtue approach to ethical decision making, respectively, what are the benefits and risks associated with the proposal?
  - (d) Based on your assessment would you accept, reject, or request a revision of the proposal? Explain.
2. Given the competitive environment in which MyTelco operated, it was problematic that the ECC had a backlog and processed only three proposals every other week. Craig therefore began exploring ideas for using a decision support system that could help the team streamline the evaluation of proposals from an ethical standpoint. He was also hoping to move the ECC meeting from a bi-weekly to a monthly event.
  - (a) What might a process involving a DSS in the ECC's deliberation look like?
  - (b) What are the pros and cons of such a process?

<sup>14</sup> <http://www.scu.edu/ethics/practicing/decision/framework.html>.



Appendix

See Fig. 1.



**Fig. 1** Schematic of the Makkula Framework. Please note that there are six ethical perspectives depicted on this schematic. This is because the “duty approach” (#5), which is typically combined with

the “rights approach” (#2), is shown separately. The reason for combining duty under the rights approach is because with a given set of rights come certain obligations (or duties)

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