Technologies, World and Societies Final

SOC 3116 D
Professor Stephan Larose
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Question 1)

While our semester-long ethnography proved to be incredibly insightful in our findings, additional concepts can be applied to improve the breadth of our research. One concept to consider is sociotechnology. This is the intersection between social and technological factors in the development of an artifact. As Bjiker noted, "Society is not determined by technology, nor is technology determined by society. Both emerge as two sides of the sociotechnical coin" (Bjiker, page 274). Factors of society that can influence the development of an artifact are boundless, consisting of anything from economics to education. Alternatively, there are countless technological elements that aid in the creation, adjustment, and maintenance of social systems as well. These elements include hardware, software, wireless internet, cloud computing, and so many other technological facets. An example of sociotechnology would be the development of hydraulic fracturing as a method of well stimulation. As many criticized the method in its early stages for its contamination of fresh water sources and greenhouse gas emissions, political pressure acted as a catalyst to utilize technology as a means to develop more green alternatives. The result was the proliferation of companies like GasFrac, an Alberta based energy company that practices fracking through safer and cleaner methods (Kiger, 2014). Ultimately, the concept of sociotechnology identifies the significant and equal contributions of social and technological features in the development of artifacts, neither being more important than the other.

Another concept to explore is the approach to analyzing the combination of social and technical factors as a sociotechnical ensemble. As a unit of analysis, sociotechnical ensembles offers a wider range of conceptual approaches, analyzing the artifacts of our society. This is typically

done through the analysis of the socially constructed characteristics of machines and the technical relations that go into stabilizing entities. Ultimately, this unit of analysis is utilized to identify the impacts in which certain technologies have on societies and institutions (Bijker, page 274). This concept is one that is incredibly important to leverage in the construction process of artifacts, as it offers a unique perspective on the impacts of technology and society on institutions and artifacts. The union of society and technology is one that is characterized by incredible importance, and this approach further explores their complex relationship.

Finally, there is the configuration model. This is a model that is focused on three separate configurations. The first of which is the model of innovation, in which no dominant technological frame guides interactions (Bijker, page 276). A number of conditions can affect innovation, including economic factors and porter's five forces. A first mover competitive advantage is also necessary for innovation to occur, as something is only innovative in nature if the process or method hasn't been practiced or explored in the past. Technology develops greatly through the interaction between relevant social groups, as their consistent developments push one another to continuously innovate and improve their products and services. The next configuration considers the dominant group that has the capability to identify and adequately respond to problems. This is the most common of the three configurations, too, often known as normal sociotechnology. When considering a dominant group, it is incredibly important to differentiate between high and low inclusion actors. This is important as an actor with high inclusion in a technological frame is incredibly more susceptible to functional failure, which occurs as a result of unsuccessful performance within an artifact. Actors with high inclusion are expected to develop conventional inventions. On the other hand, actors with low inclusion interact to a smaller extent, drawing less

from standard problem solving strategies (Bijker, page 278). The third configuration consists of several dominant technological frames, which inevitably leads to an increase in competition. As mentioned earlier, competition fuels innovation, which thrusts the configuration model into a cyclical pattern (Bijker, page 279).

The ethnography my group and I conducted could have benefited greatly with the application of these three concepts. Our area of focus was to monitor and observe how our peers interacted with their smartphone devices. While he incorporated a number of pertinent concepts into our analysis, utilizing the concepts of sociotechnology, sociotechnical ensemble, and the configuration model would further expand upon our findings while adding an extra dimension of significance to our research. Sociotechnology could be applied to our ethnography to develop our analysis on the historical development of smartphones. As this concept investigates the intersection between social and technological factors, we could discover the motivations of society and capabilities of technology that enabled them to develop as they did. This could include observing the economic climate in the late 90s into the new millennium and the emergence of touch screen technology. Relationships such as these could help provide valuable reasoning behind these artifact's successes. Sociotechnical ensemble could be a valuable asset to our ethnography, too. Sociotechnical ensemble is similar to sociotechnology in the sense that they both support the belief that society and technology work together in harmony to advance the development of artifacts. Where the two differ, however, is that sociotechnical ensemble places focus on socially constructed characteristics of artifacts. Insight into this could provide a valuable take on social characteristics of smartphones. Finally, the configuration model could strengthen our understanding of the smartphone by identifying the number of dominant technical

frames and how they have interacted to generate innovation. An example of the configuration model being applied to smartphones can be seen as industry giants like Apple and Samsung compete for market share, consistently improving their hardware and operating systems in hopes of edging out their opponents. Ultimately, each of these three concepts would be a great benefit, bringing strength and a new perspective to our ethnography and analysis.

Question 2)

Both the I-methodology and the We-methodology are characterized by their goals to assess the interests, preferences, and motives of consumers. However, the two approaches consist of two very different methods. The I-methodology calls for the designers of the artifact to be representative of the consumers (Oudshoorn, Rommes & Stienstra, 2004). While this can sometimes lead to an organic development, it has very evident flaws as the designers of these artifacts are typically unrepresentative of the target consumer market as a whole. On the other hand, the we-methodology calls for practices such as surveys and focus groups to extract user data. Many leaders in the smartphone industry currently utilize these practices as a means to learn the preferences of their diverse consumer base. An example of a leader in the smartphone industry utilizing we-methodology is seen in Samsung's business model. Through their website, they give users the opportunity to give the developers their opinions on what they think of wireless technology and how they interact with it. The survey prompts users for questions pertaining to why they own a smart-device, recycling habits, text message volume, accessibility, and so much more (Samsung.com). As a result, Samsung will develop this raw data into useful information and design their products and services accordingly, with the consumers' preferences in mind. Another example of a successful application of the we-methodology, can be observed

through General Electric's business model. Founded in 1892 by Thomas Edison, the company was built upon innovative electric inventions, including the light bulb. However, as the years passed and General Electric expanded their business model, they began to address alternative consumer needs. These include aviation, capital, business appliances, healthcare, and other facets of business. This development, as a result of consumer need, exemplifies the we-methodology (Sanburn, 2011).

While many organizations underestimate the implications of the I-methodology, Apple has taken a unique approach to the concept. While Apple has stated that they don't necessarily conduct market research, they take the stance that their products should be welcomed by everybody in nature. Infamous CEO, Steve Jobs even said, "It's not about pop culture, and it's not about fooling people, and it's not about convincing people they want something they don't. We figure out what we want." An employee at Apple even coined the term, 'user-friendly' in reference to their easy to use and accessible products (Spillers, 2014). Through the application of this business model, they've cultivated a brand that has become synonymous with the smartphone industry.

Due to the competitive nature of the industry, I believe that the we-methodology would enable organizations to generate a competitive advantage over their adversaries. This is primarily due to the fact that the market currently acts as a level playing field, with no clear dominant device. Even with the growing popularity with vertical innovation as a means to grow the strength of a brand, product differentiation keeps market shares split (Cecere, Corrocher & Battaglia, 2014). With this, organizations within the smartphone industry must utilize the we-methodology to

conduct research on their target consumers. This will enable them to develop their products in a way that would allow them to address demands. Practices such as these are vital in maintaining market share for organizations operating in the smart phone industry, as the level of competition is so immense.

Question 3)

While quite similar, Actor-Network Theory and the Social Construction of Technology theories have a number of differences. Primarily, the Social Construction of Technology method incorporates a relationship between social interactions and technology (Klein & Kleinman, 2002). On the other hand, Actor-Network Theory approaches humans and non human entities as if they were equal factors. In the year 2006, film makers Basil Gelpke and Ray McCormack released the documentary 'A Crude Awakening: The Oil Crash'. The film gives an in depth background of the history of oil as a commodity and the growing dependency that modern society places upon it. The film notes the importance of oil from an economic standpoint, as one barrel of oil cost approximately $100, plus $1 per barrel to retrieve from the ground. Even more impressive, is the fact that this amount of oil can perform the same amount of work that 12 people working for a year would do. With this tremendous value, it's no surprise that functions of oil expanded. Approximately 70% of all oil is used for transportation purposes, while the other 30% is utilized for synthetic products like plastics and chemicals. As oil demand increased over the years, production rose. In the year 1970, oil production in the United States peaked at 10.2 million barrels per day. As of today, around 58 countries have a declining oil production. In order to support our present population growth rate, the middle eastern oil production system would need to produce around 50 million barrels of oil per day (Gelpke and McCormack, 2006). At the

current rate of consumption and population growth, oil is positioned to be depleted as an energy source (thegaurdian.com). In order to correct this looming issue, we must alter our way of life in a way that limits our dependency on oil. This could include pursuing hybrid and electric vehicles, avoid buying plastic products, purchasing clothes made from natural fibers, and many other alternatives. Efforts such as these can hedge our dependency on oil as a society.

The residual impacts of the current oil dependency in society provides an accurate illustration of the breakdown of an actor world. This is due to individual and non human actors being so incredibly reliant on the longevity of oil. These actors and their interactions with oil have shaped so many facets of our livelihood including: transportation, clothing, food, military, and so many other parts of society. With the removal of oil, the preexisting networks between these human and nonhuman actors would cease to exist. The foreseen impacts of peak oil, and the decline of the oil economy will cause a number of changes within our society. As this happens, our actor network will be removed and we will increasingly develop alternatives to fossil fuels. 'A Crude Awakening' provides legitimate insight to the looming issue of oil insecurity, a problem that will be accompanied by a number of impacts that threaten our modern way of life.

Bonus Question:

It would take two techno analysts; Pinch and Bijker, who would obtain the desired outcome regardless as they believed success is the result of the function, not dependent on the machine being a success or a failure.

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Individual Assignment
By signing this Statement, I am attesting to the fact that I have reviewed the entirety of my attached work and that I have applied all the appropriate rules of quotation and referencing in use at the Telfer School of Management at the University of Ottawa, as well as adhered to the fraud policies outlined in the Academic Regulations in the University's Undergraduate Studies Calendar.

Wednesday, April 19th, 2017

Signature **Date**

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