

INSIGHT: Thinking Issues

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What's Driving Uber? Values in computing and the 'sharing economy'

The strongly technical focus of computer science as a discipline means that the underlying values behind the development and use of technology often become obscured. Hidden biases inherent in systems, based on AI and algorithmic processes, making important decisions affecting people's lives [16] illustrate the need to more openly reveal these values. Debates such as the recent spat between Elon Musk and Mark Zuckerberg, around AI and the need to regulate software systems which critically influence the lives of many [18], will only intensify, and our students will need to be better prepared to address the issues involved.

A critical question then, is can we reveal what values are driving our technology and the businesses based upon it? Disruptive new business models created by tech ventures and aggressive Silicon Valley start-ups, are driving the so called 'gig economy' [22] and new forms of 'platform capitalism' [14]. But the tensions are now becoming more obvious. This column takes the case of Uber as an example, highlighting the dubious choices that software developers for the company have been implicated in. It asks, to what extent we should expect our graduates to have an innate concern for the human, moral and legal aspects of their actions? Yet exercising such professional judgement is not easy. A myopic view of the system code may predominate, the company culture can be oppressive or even toxic and sometimes the cumulative effects of systems can be hard to discern.

A panel session at the Global Software Engineering conference in May 2017 [5], discussed the topics of *Systems-of-Systems, Software Ecosystems and Distributed Software Development*. In an interesting aspect of the debate, Jon Whittle noted the unpredictable outcomes emerging from such groups of systems. He argued the need to consider the values embedded within each component system, to highlight core incompatibilities between systems and address the implications. Computer Science often masquerades under the cloak of technology as value neutral, so this struck me as an important insight that we need to be aware of ourselves, and to share with our students. Jon referred to an intriguing model of 'universal values' [19] as a way in which to think about what values drive our systems. This model by Schwartz identified several value groupings which can be used to categorise a value system whether held by a human or (as Jon argues [7]) embedded within a hardware/software system.

As a company Uber provides a good example of a technology driven start-up business, albeit now undergoing some growing pains. It represents a case of 'platform capitalism' [14, 11] where the enabling technology provides a base for an aggressive tech start-up employing a new business model, muscling into markets, disrupting of other businesses, and with the ability to rapidly scale – a venture capitalist's dream! Yet, I have been particularly struck by the case of this company which has recently been in the news for all the wrong reasons, leading up to the release of the CEO Travis Kalanick from the firm, (but not the board since he was a major stockholder of this \$70B company)! [24]. Several compounding factors led to Travis' departure. In early

2017 the company reputation had suffered from the explosive revelations of the sexist treatment of female employees at the company in the blog post by former employee Susan Fowler [8], and also from the #DeleteUber backlash against the company's perceived support of President Trump's 'Muslim ban' [20], resulting in a reported 200,000 accounts being deleted. The pressured Uber board subsequently commissioned and released the results of "an investigation into allegations of sexual harassment, gender discrimination, and a toxic work environment" [9], as a response to the apparent condoning of practices unbefitting a major listed company. A Company Board meeting held in response to the damning report, discussed strategies to develop a more diverse workforce. Ironically, while Board member Ariana Huffington reportedly *"said that data showed that once a company had one woman on its board, it was more likely to have a second... [venture capitalist David] Bonderman interjected: "Actually, what it shows is that it's much more likely to be more talking"* [24]. In acknowledging the inappropriateness of his own sexist behaviour, and the level of the company to which such attitudes had penetrated, Bonderman then had the sense to resign from the board. Resulting action has included the sacking of 20 employees for sexual harassment and other forms of discrimination [4]. Is this cultural distortion then a uniquely business phenomenon, a Silicon Valley anomaly, or a result of deficient diversity in the education that young Computer Scientists and Engineers often receive?

Then at a technical level, how might a 'toxic work environment' [12] and accompanying value system manifest itself? What work might a developer in such a company be assigned to carry out? One example can be seen in the "Greyball" system [10, 17], *"that analyzed credit card, device identification, location data and other factors to predict whether a request for a ride was legitimate"* [17]. While ostensibly aimed at preventing fraud and protecting drivers from harm, it was also used to screen for local officials in jurisdictions where Uber was operating without approval, who might *"fine drivers, impound cars or otherwise prevent Uber from operating...For example, it mined credit card information to see if the owner was affiliated with a credit union used by police and checked social media profiles to assess the likelihood that the person was in law enforcement."* [17]

So did the employees asked to write software to evade the authorities have any qualms about their actions? Or had they adopted the company's values in deliberately flouting the law as part of their 'disruptive' business model? Were they members of the ACM, and if so would the code of ethics have had any impact on their behaviour? For instance, section 2.3 of the code states that: *"ACM members must obey existing local, state, province, national, and international laws unless there is a compelling ethical basis not to do so"* [1], and section 1.7 requires members to *"Respect the privacy of others"* [1]. Did concern for the welfare of Uber drivers operating illegally then, constitute such *"a compelling ethical basis"*, and was such a blatant breach of the privacy of law enforcement officers justifiable?

An interesting insight into the core competencies expected of Uber employees was provided by Shontell [21] who noted the following set of values: *"Vision, Quality Obsession, Innovation, Fierceness, Execution, Scale Communication, Super Pumpedness"*. Disturbingly, how could a young programmer caught up in the bizarrely cult-like atmosphere of such a company, safely say no to writing unethical code?

In an attempt to chart these characteristics of the company I have mapped my own perception of their values, based on the background research for this article, to the model proposed by Schwartz [cf. figure1]. Uber's core value groupings are highlighted and their boundaries delineated by a red dotted line.

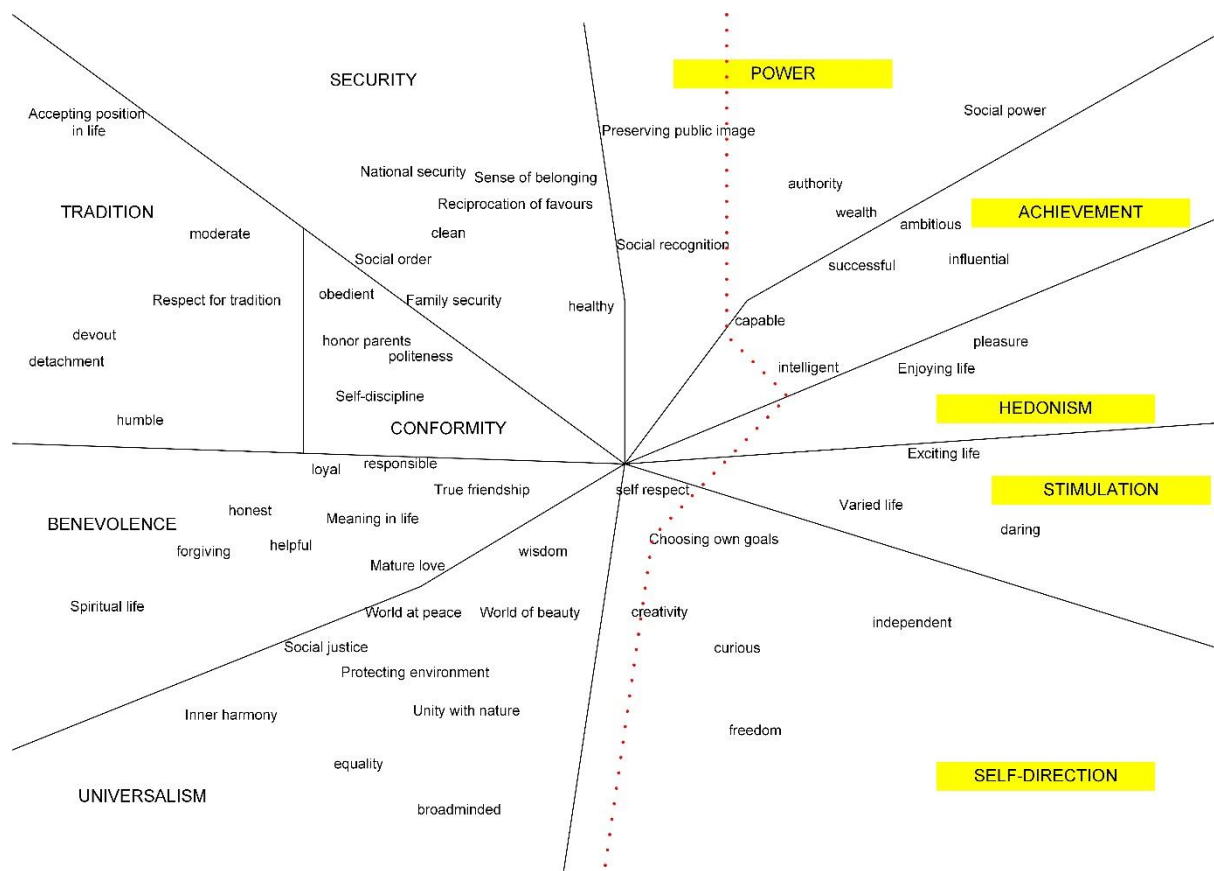


Figure 1. The 'Driving' Values of Uber? (Adapted from Schwartz, 1992) [19]

Could we use this model with our students then to discuss the values of the organizations they may end up working for? Might it help to confront the dilemmas they could be faced with in the tasks they may be assigned, and the sorts of organizations they may not wish to work for? We could pose scenarios such as the above and have students map the driving values behind them. Similarly, we could note the implications of such behaviors through the health costs of the Volkswagen fraud, where software was written to conceal emissions test failures, with an estimated “*value of life lost of at least 39 billion US dollars*” [13]. We could also discuss the challenges for employees of ‘whistle blowing’, as recommended in section 1.3 of the ACM code.

The overwhelmingly individualistic, power, status and money orientation in the values portrayed in figure 1 are striking. Perhaps this value set explains the contrasting view in the recent reaction of Transport for London, who have refused to renew Uber's license to operate, declaring “that Uber was not sufficiently ‘*fit and proper*’” [22], a test which assesses a company's honesty, transparency and competence. That decision will impact some 40,000 drivers and 3.5 million customers per month [22]. The Uber value system also explains some German Taxi driver's rejection of an invitation to join Uber.com as registered drivers, given the tight German regulation

of the taxi system, the valuing of “consumer protection, safety and training” [23] in the industry, and banning of Uber with its model of self-employed independent free-lancers [23].



Figure 2. Where are we heading? *Outsourcing Made Easy* [ex. 23]

Such globalized models of wealth generation are lampooned in figure 2. But that hands-off, exploitative model underlying much of the ‘platform economy’ is increasingly under challenge in the courts [15, 2, 6, 22]. Termed “applotation” [3] by Callaway, he depicts a brutal technological straightjacket enforced by systems that marginalise their workers. Do such systems written by myopic hordes of narrow ‘coders’, really constitute a ‘great leap forward for mankind’! We need to wake up to the serious downside posed by these ‘shiny new advances’ in platform technologies. Maybe more durable systems will result from making our students aware of a less fashionable value system: one that manages to incorporate a more balanced focus on security, conformity, tradition, benevolence and universalism.

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