**Selections from Thomas L. Friedman’s *Thank You for Being Late:***

***An Optimists Guide to Thriving in the Age of Accelerations, 2016***

“One of the hardest things for the human mind to grasp is the power of exponential growth in anything—what happens when something keeps doubling or tripling or quadrupling over many years and just how big the numbers can get. So whenever Intel’s CEO, Brian Krzanich, tries to explain the impact of **Moore’s law**—what happens when you keep doubling the power of microchips every two years for fifty years—he uses this example: if you took Intel’s first generation microchip from 1971, the 4004, and the latest chip Intel has on the market today, the sixth-generation Intel Core processor, you will see that the Intel’s latest chip offers 3,500 times more performance, is 90,000 times more energy efficient, and is about 60,000 times lower in cost. To put it more vividly, Intel engineers did a rough calculation of what would happen had a 1971 Volkswagen Beetle improved at the same rate a microchips did under Moore’s law.

These are the numbers: Today, the Beetle would be able to go about three hundred thousand miles per hour. It would get two million miles per gallon of gas, and it would cost four cents! Intel engineers also estimated that if automobile fuel efficiency improved at the same rate as Moore’s law, you could, roughly speaking, drive the car your whole life on one tank of gasoline” (37).

“If you look back over human history, only a few energy sources fundamentally changed everything for most everyone—fire, electricity, and computing. And now, given where computing has arrived with the cloud, it is not an exaggeration to suggest that it’s becoming more profound than fire and electricity. Fire and electricity were hugely important sources of mass energy. They could warm your home, power your tools, or transport you from place to place. But in and of themselves they couldn’t help you think or think for you. They could not connect you to all the world’s knowledge or all the world’s people. We have simply never had a tool like this that could be accessed by people all over the world at the same time via a smartphone” (83). For this reason, Friedman renames the cloud “the **supernova**.”

“What [John F.] Kelly [IBM’s senior vice president for cognitive solutions and IBM research] and [Craig] Mundie are talking about is how this thing we call the cloud, and I call the supernova, is creating a release of energy that is amplifying all different forms of power—the power of machines, of individual people, or flows of ideas, and of humanity as a whole—to unprecedented levels” (86).

“If you want to be a maker, a starter-upper, an inventor, or an innovator, this is your time. By leveraging the supernova you can do so much more now with so little. As Tom Goodwin, senior vice president of strategy and innovation at Havas Media, observed in a March 3, 2015, essay on TechCrunch.com: “Uber, the world’s largest taxi company, owns no vehicles. Facebook, the world’s most popular media owner, creates no content. Alibaba, the most valuable retailer, has no inventory. And Airbnb, the world’s largest accommodation provider, owns no real estate. Something interesting is happening” (96-97).