The Valuation of Disruptive Technology Using Real Option Analysis

Sarah Yoder | Judson Russell, Ph.D.

Inventing disruptive technology is timely and painstaking, as is valuing it. Professor Clayton Christensen coined the term disruptive technology, which means “a new technology that unexpectedly displaces an established technology.” Valuing something, for example a stock, means trying to find a combination of the prices assigned by the buyer and seller. The problem is how does one value a new product, or even more complex, how does one value a new idea? There are numerous ways to value such things, yet experts have differing opinions on which method is most appropriate. Theoretically, by using the real options method, we can set a standardized framework while leaving some factors adaptable to best fit the company’s needs. In the real options method, investors make one decision to invest or not to, which results in more decisions. Often those decisions include opportunities to expand or cease projects; thus it requires calculations to determine the value created given each option.

Current literature on valuing disruptive technology, like radio frequency identification (RFID) scanners, explains how one particular product can be evaluated, but fails to explain how it can be manipulated to value other, new ideas. The first step to my thesis will be studying multiple types of valuation methods. Then, I will review twenty-first century valuations on technology to determine what factors are consistent throughout all of them. Once I can determine if and why the real options method is preferred when valuing disruptive technology, I can use it as a calling card to attract inventors who will let me use their work in a case study. This thesis will be beneficial to inventors in ensuring their technology is valued appropriately, and thus they will continue creating products and ideas that better our society.