

DO&IT Seminar Series

Speaker: Sezer Ülkü
Assistant Professor
Georgetown University McDonough School of Business

Date: Friday, April 10, 2009

Time: 2-3:30 pm

Location: VMH 1335

Title: Examining Product Modularity from a Behavioral Perspective: Do Consumers Properly Value Modularity?

Abstract:

In a variety of fields, from strategy to operations management and engineering design, product modularity has been advocated as a design strategy, providing many benefits for customers, firms and the environment. From a customer perspective, modularity would allow adaptation of products in line with technological improvements and changing needs. From the firm's perspective, modularity can translate into lower design and production costs. From an environmental perspective, modularity has the potential to reduce the consumption of natural resources and pollution by extending the useful life of product components. Despite these benefits, modular products, as experienced by customers, are relatively uncommon (think for a moment, what percentage of the products you own are upgraded one component at a time, rather than replaced as a whole?) Motivated by this observation, we examine the customer perspective: Through behavioral experiments, we explore the biases and heuristics that shape customer's valuation of modular products, and their purchase and upgrade decisions. Among the many facets of modularity, we focus on modular upgradeability, which allows the replacement of components, instead of whole product to improve product performance. First, we examine the choice between modular and integrated products: When is a modularly upgradeable product viewed favorably by consumers? How do time between generations, and uncertainty in pricing and technology impact the willingness to pay for a modular platform? Next, we consider products where the customer already owns a modular product (and therefore has the option to upgrade), and examine under which circumstances the upgrade option is exercised. We find that consumers may undervalue (overvalue) modular upgradeability for rapidly (slowly) improving products relative to rational economic value due in line with *hyperbolic discounting*. When compared

to decisions involving cash, hyperbolic discounting is more pronounced in making product choices. Furthermore, when there is uncertainty or replacement effort, the value of modularity is further reduced. These findings provide partial demand-side explanation to why there are few products that are modularly upgraded. Finally, we observe that by providing support or a donation opportunity, customers can be encouraged to choose modular upgrades.

Bio:

Sezer Ülkü is an Assistant Professor at Georgetown University McDonough School of Business. His areas of interest are new product development, operations strategy, supply chain management, outsourcing, and private equity. In his recent research, Dr. Ülkü (1) examines the relationship between product architecture and supply chain design; (2) explores the valuation of modular products by consumers, and the role played by behavioral biases; and (3) investigates how private equity funds generate value through operational improvements in target companies.

Sezer Ülkü teaches courses on Operations Strategy and Operations Management. Between 2005-2008, he was the director of the Foreign Residency conducted by Georgetown's International Executive MBA Program in Istanbul. In this role, he led 24 consulting projects with companies in various industries, such as private equity, health-care, telecommunications, and logistics. He has also worked with SAP, Lucent Technologies, 4R Systems and Allied Signal on research and consulting projects.

Sezer received his PhD degree in Management from INSEAD in Fontainebleau, France, and his BS and MS degrees in Electrical and Electronics Engineering from Bilkent University in Ankara.