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## **Variability versus Stability: How the Modes of Technological Recombination Matter for New Product Development?**

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### **Abstract**

This study examines how distinctive modes of recombinant activities affect new product introduction rates. We describe firm's recombinant activities in terms of the extent to which it exploits prior technological combinations, recombines existing technological knowledge and explores new combinations using existing technologies. In addition, we posit that firms are heterogeneous with respect to how quickly they embed new technology in their existing recombinant activities. We explore the effects of 1) different modes of recombinant activities and 2) the time taken by firm to integrate new technological knowledge into existing recombinant activities on the level and variability of new product development. The results show in our sample (consumer electronic) combination reuse and recombination have a curvilinear effect on new product development. However, the two modes differ in their effects on variations in new product development. Specifically, while combination reuse reduces the variability of new product development outcomes, recombination exhibits a curvilinear relationship with new product development variations. The third mode of recombinant activities, new combinations that employ new technologies, has a positive effect on both the volume and variability of product innovation. Additionally, we find that firms that integrate new technologies into their existing technological combinations relatively quickly obtain higher levels of product development but outcomes that are subject to greater variability. Our findings contribute to the organizational learning and knowledge-based literature by demonstrating the importance of experience in supporting the continuous generation of innovative products and by highlighting the key role of rapid incorporation of new technology into existing knowledge.



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