Additive Manufacturing and its Economic Impact on Kentucky

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Abstract

Additive manufacturing has quickly moved well beyond the novel approach of rapid prototyping to become a force of production. New advances in generative design and optimized topology made possible only by the accessibility of additive manufacturing are just a few of the driving factors causing this trend. Yet, many business owners and industry developers are unaware of the financial scale and speed with which this transformation is occurring. Kentucky's export life blood is in both aerospace and automotive production, so the significance of this transition and the opportunities it represents are paramount to decision makers. This presentation will show the current financial impacts of the additive production transition in and around Kentucky and highlight some of the primary reasons for it. The presentation will also include trends and techniques of using low cost additive manufacturing equipment for end use part production and the impressively small startup costs possible to facilitate such transitions. The concept of the "Constant Beta," a production and business methodology made possible only by additive manufacturing, will also be discussed. Kentucky manufacturers, educators, and industry leaders need to know this information so that they can begin to address their potential losses, as well as the opportunities for gains.

Biography of Presenter

Professor Wooldridge is a Registered Architect, a Professional Engineer in multiple disciplines including Architectural, Mechanical, and Manufacturing systems, and holds multiple patents related to consumer cooler technology. A fourth generation cattle farmer, he also owns two private engineering and design firms and has designed buildings and systems all across the central and southern regions of Kentucky. Eric Wooldridge is also licensed by the ATF for explosives, their handling, and detonation, as well as providing consulting design and engineering services for weapons manufacturers. He teaches courses in additive manufacturing, pre-engineering, parametric design, and workforce leadership at Somerset Community College (SCC), where he serves as faculty and PI on NSF, KCTCS TRAINS, and USDA grant projects. Professor Wooldridge created KCTCS' first statewide 3D printing technician certificate program, manages SCC's 3D printing lab, and is developing a variety of new applications and techniques to help Kentucky businesses integrate additive manufacturing into their production and business models.