

Chapter 3

Academic Entrepreneurship, Bioeconomy, and Sustainable Development

Oluwaseun James Oguntuase

 <https://orcid.org/0000-0003-2225-7766>

Lagos State University, Lagos, Nigeria

ABSTRACT

The potential of academic entrepreneurship towards achieving sustainable development has been established. Likewise, sustainability is an inherent characteristic of the bioeconomy. Academics are expected to play significant roles in the successful implementation of bioeconomy through scientific research and entrepreneurship. This chapter takes academic entrepreneurship as a process that creates value from research and technology commercialisation in a bioeconomy towards achieving sustainable development in the society. The chapter employs a systematic literature review approach to identify the opportunities at the intersection of academic entrepreneurship, bioeconomy, and sustainable development. The framework of technological innovation systems (TIS) will guide this study. The chapter will conclude that the future of sustainable development in our resources-constrained planet lies in plethora of academic entrepreneurial opportunities and embracing such in the implementation of bioeconomy, an economic system that is viable for the future.

INTRODUCTION

Bioeconomy has gained scientific and political attention in recent years to shape developmental efforts in many countries. Bioeconomy is a knowledge-based innovative economy (Kargytė, Värnik, & Aleknevičienė, 2018; Lainez, González, Aguilar, & Vela, 2018; van Lancker, Waulters, & van Huylbroeck, 2016; Morris & Ecuru, 2016; Pyka & Prettnner, 2018), in which sustainably produced biological resources replace fossil fuels in the production of various products for final and intermediate consumption in several economic sectors.

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Academic entrepreneurship (AE) is becoming an increasingly important engine in technological development and economic growth for both developed and developing countries (Meng, Li, & Rong, 2019). It has evolved in recent years to encompass activities beyond academics' traditional roles of teaching and basic research to include any activity which recognizes opportunity, is innovative, comprises an element of risk and leads to financial rewards for the individual, group or institution (Huyghe & Knockaert, 2015). Academics are expected to play significant roles in emerging bioeconomy through scientific research, innovation and entrepreneurship (Bonge, Preschitschek, & Bröring, 2016; Gómez-Garay et al., 2015; Pipirigeanu, Zaman, Strasser, Aramă, & Strasser, 2014).

A large continuing body of works has highlighted the importance of bioeconomy in achieving sustainable development (Ipate, David, Ipate, & Bogdan, 2015; Oguntuase, 2018; Pfau, Hagens, Dankbaar, & Smits, 2014; Philippidis, Shutes, van Meijl, M'barek, Ronzon, & Moghayer, 2018; Ramcilovic-Suominen & Pülzl, 2018), and the crucial role of entrepreneurship in the success of a bioeconomy (Hansen, 2016; Jernström, Karvonen, Kässi, Kraslawski, & Hallikas, 2017; Kircher, 2019; Kuckertz, Berger, & Morales Reyes, 2018; Vargas-Hernández, Pallagst, & Hammer, 2018).

Furthermore, the demands for high-skilled professionals are growing in the bioeconomy sectors (Lask, Maier, Tchouga, & Vargas-Carpintero, 2018; Patermann & Aguiler, 2017). Jonsson (2017) as well as Kangas, Tikkanen, Leskinen, Kurttila & Kajanus, 2016) opined that these demands will have an impact on modes and agendas of education, training and research.

From the foregoing discussions, it is important to examine the existing notions of academic entrepreneurship, bioeconomy and sustainable development, paying specific attention to the triangular relationship between the three notions, practices of academic entrepreneurship in bioeconomy and education for academic entrepreneurship in a bioeconomy. These are the objectives of this chapter. The chapter will also identify entrepreneurial opportunities in the bioeconomy sectors and make recommendations that will serve as basis for next discussions and research.

BACKGROUND

The combination of a changing global climate, environmental concerns, natural resource shortages, fossil resource limitation, geopolitical tensions and the need to exploit the economic opportunities inherent in biotechnological advancements has projected bioeconomy as the new economic model (Leitão, 2016; Staffas, Gustavsson, & McCormick, 2013).

Bioeconomy is a relatively new phenomenon, an alternative to our present fossil-dependent economy (Ionescu, 2013), therefore meeting the radicalness or discontinuity criterion of innovation (Driessen & Hillebrand, 2002; Oguntuase, Adu & Obayori, 2018). Bioeconomy like other emerging applications of biotechnology operates at the threshold of technological innovation (Starkbaum, Braun, & Dabrock, 2015).

This chapter takes bioeconomy as biobased technological innovation offering a plethora of entrepreneurial opportunities and academic entrepreneurship as a process that creates value from commercialization of innovation within technological innovation system framework, in obtaining information that answers the research objectives.

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