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# Entrepreneurship in knowledge-based services: Opportunity and challenges for new venture, economic, and workforce development

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#### ABSTRACT

Businesses and professions known as knowledge based services (KBS) are a large and growing portion of the economy, add high value, create more than 79% of all nonfarm jobs in the US, and are highly exportable. They are highly leveraged opportunities for new venture creation and investment. Yet little attention has been paid to them in economic and workforce development or entrepreneurship research and education. They have significant differences from other firms. This article argues for greater focus of entrepreneurship research, education, and investment in knowledge based services. It presents initial research exploring unique differences, challenges, and opportunities for new venture development in KBS and suggests future research and investment. The article also proposes a framework and suggestions for research into entrepreneurship in KBS.

#### 1. Introduction

The importance of entrepreneurship to economic growth and job creation is widely accepted and publicized. Job growth in the US is driven almost entirely by startups that reach the rapid growth stage. According to Kane (2010), "Without startups, there would be no net job growth in the U.S. economy. This fact is true on average, but also is true for all but seven years for which the United States has data going back to 1977." "On average and for all but seven years between 1977 and 2005, existing firms are net job destroyers, losing 1 million jobs net combined per year. By contrast, in their first year, new firms add an average of 3 million jobs." And the importance of startups and entrepreneurship to economic growth and job creation has not been lost on government organizations, economic development organizations, business and investment communities, and academic researchers and educators.

But economic and workforce development efforts at the federal, state, and local levels, as well as academic research and education in entrepreneurship have overlooked a significant current and future opportunity for economic and workforce development and balance of trade improvement: businesses, industries, and occupations known variously as knowledge based services (KBS), knowledge intensive services (KIS), and technical professional services (TPS). They are the heart of the so-called "knowledge economy." They represent a significant majority of future opportunities for new venture, workforce, and economic development. However, these businesses, both in early and later life cycle stages, differ in a number of respects from those involving physical products or services.

We explore the opportunity presented in new venture development and entrepreneurship in economic development programs and academic research and education by KBS. We illustrate differences by means of a comparison of financial data for approximately 7300 firms in all three sectors and for various ranges of revenue. We also analyze the entrepreneurial venture data in the Panel Study of Entrepreneurial Dynamics (1998–2012), Reynolds and Curtin (2008), Reynolds (2017) to identify differences and similarities in

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Table 1			
Knowledge based	businesses	by Major	NAIC code.

NAIC	Business Type
51	Information
52	Finance and Insurance
54	Professional, Scientific, and Technical Services (including legal, accounting, engineering, and management consulting)
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation

the development of new ventures between KBS and physical product or service businesses. We point out the limited investment in entrepreneurship and new business development in these industries and professions in economic development programs, research, and education. In addition, we suggest the opportunity presented by greater research and investment. We identify some specific areas for further research and development of entrepreneurship in KBS industries. We focus on this opportunity from a US perspective because of the data available; but the findings should apply equally globally. All data files used in the analysis are provided in Mason (2018).

#### 2. Definition of knowledge-based service industries and occupations

We define KBS businesses by the North American Industry Codes (NAIC) in Table 1. KBS jobs include a parallel set of US Bureau of Labor Statistics (BLS) occupation codes shown in Table 2.

We base this definition on the general categorization of occupations and industries set forth by Swyt (1988). This approach classifies industries and professions into four broad categories. Physical production (PP) includes manufacturing, mining, construction, and agriculture. Physical services (PS) includes such areas as food service, wholesale and retail trade, facility maintenance, and janitorial services. Managerial administrative (MA) includes three occupational classes, managerial, clerical, and sales. Technical professional (TP) includes engineering, medical, scientific, financial, accounting, technical, and law professional occupations and businesses. TP is distinct from PS. KBS is synonymous with TP services as we define them.

#### 3. Analysis of the opportunity in knowledge-based services

Fig. 1 shows KBS businesses represent approximately 44% of all non-farm business establishments in the US. They generate 30% of all non-farm revenue, employ 46% of all non-farm workers, and pay 54% of all non-farm payroll (Statistical Abstract of the United States, 2014).

#### Table 2

Knowledge-based occupations by BLS code.

BLS	Occupation
13	Business and Financial Operations
15	Computer and Mathematical
17	Architecture and Engineering
19	Life, Physical, and Social Science
23	Legal
25	Education, Training, and Library
27	Arts, Design, Entertainment, Sports, and Media
29	Healthcare Practitioners and Technical



Fig. 1. US Businesses by Type (NAIC). Note: Based on Statistical Abstract (2014).

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