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Pamela McCauley
University of Central Florida, USA

International virtual space innovation clusters to support space missions & exploration

It is well established that innovation exhibits strong geographical clustering in locations where specialized inputs, services and resources for innovation processes are located (Asheim & Gertler, 2005). Given the disparate nature of the international space community, it is logical to explore opportunities for creating this "innovation clustering" that is normally restricted to geographical clusters as a "virtual innovation cluster". Thus, location and spatial concentration of firms that stimulate flows of knowledge between firms and between universities and firms and interactive learning are critical aspects of collaborative innovation efforts that generate new knowledge and innovations however much of this knowledge continues to be tied to certain physical locations (Liu, Chaminade & Asheim, 2013). Multinational firms take advantage of this by locating in those concentrations (clusters) in the world that have accumulated specific competencies and knowledge that is difficult to acquire elsewhere (Lewin, Massini & Peeters (2009), which gives opportunities to fully exploit the interaction between intra- and inter-firm knowledge networks (Coe, Dicken & Hess, 2008). The question is whether or not this can be accomplished with a virtual innovation cluster and this presentation makes a case for the establishment of science focused innovation clusters comprised of multinational companies, universities and governmental space agencies. To achieve this vision, one must understand the importance of local input factors and of local inter-firm dynamics for a firm's ability to innovate and to gain competitive advantage is well documented in the literature on innovation and regional development (Wolfe, 2009). This understanding must then be translated and modelled in secure virtual, on-line or social media collaborative environments. This keynote presentation shares the importance of space collaboration advancing towards virtual clusters and explores the use of collaborative innovation models to achieve the goal of international virtual space innovation clusters.

Recent Publications

1. McCauley P (2016) Essentials of Engineering Leadership and Innovation. CRC Press. ISBN 9781439820117.
2. McCauley Bush P ()Transforming Your STEM Career Through Leadership and Innovation: Inspiration and Strategies for Women. Academic Press. ISBN:97801239722613.
3. Li Z et al. (2015) Multi-source information fusion model in rule-based Gaussian-shaped fuzzy control inference system incorporating Gaussian density function. Journal of Intelligent and Fuzzy Systems. 29(6):2335-2344.

Biography

Pamela McCauley is PhD in Industrial Engineering, University of Oklahoma, May 1993. She pursued her Master's and Bachelor's Degree both in Industrial Engineering at the same university in December 1990 and May 1988 respectively. She is an internationally recognized Innovator and Industrial Engineering Researcher in the development of mathematical models, human engineering, and engineering leadership in the Department of Industrial Engineering at the University of Central Florida, USA. She is the author of over 80 technical papers, book chapters, conference proceedings and the best-selling ergonomics textbook, Ergonomics: Foundational Principles, Applications, and Technologies and her research-based book: "Transforming Your STEM Career Through Leadership and Innovation: Inspiration and Strategies for Women". The US State Department awarded her the prestigious Jefferson Science Fellowship for the term 2015-2016.

Pamela.McCauley@ucf.edu