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Teaching Multi-Stakeholder Sustainable Innovation

Higher education has a crucial role to play in the global transition sustainable devbelopment. A shift from an educational paradigm that teaches linear and unsustainable innovation activity, to one that teaches circular and sustainable innovation activity, is a fundamental requirement if global sustainable development goals are to be met through future innovation. The educational model currently forming the foundation for most MBA programs remains primarily focused on teaching maximization of shareholder profit within a private, for-profit business context. A 'sustainable' business is usually defined as one that has successfully met purely financial goals for the benefit of shareholders, often ignoring other vital stakeholder interests, most importantly: natural, human and social capital. On the base of UACU we grounded that today models of business instruction must focus student innovation activity on the design and implementation of multi-stakeholder innovations. Innovations that meet a need or solve a problem within foundational sectors of civilization. Innovations that are adaptable and applicable to widely divergent sectors, from private for-profit business to social charities. Business education must be built upon a foundation of analytic skills, an ethical framework, and a commitment to promoting 'sustainable' innovations.

Keywords: education, sustainable development, MBA, innovations.

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Introduction

Higher education has a crucial role to play in the global transition from non-sustainable human activities to those based on sustainable models of organization and operation. A shift from an educational paradigm that teaches linear and unsustainable innovation activity, to one that teaches circular and sustainable innovation activity, is a fundamental requirement if global sustainable development goals are to be met through future innovation.

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At UACU, an innovative educational curriculum for Master of Business

Administration students has been developed that centers skill-based coursework around a three-semester Keystone Course, wherein students apply what they've learned in the various skill-specific courses to develop their own sustainable innovation activity. A student's innovation can be designed for implementation into whichever sector of human activity the student may choose to work within. It could be a start-up company operating as a sustainable for-profit business; or it could be a new government program designed to promote transition to micro-scale renewable energy; or a new social-sector program designed to improve access to affordable housing for low-income citizens; or an NGO-supported program to improve some aspect of public health or access to education; the opportunities for innovation are endless.

Theoretical Foundation

The theoretical foundation supporting how sustainable innovation is taught at UACU starts with the causal recognition that social change drives technological change, not the reverse. Technological change spurs iterative innovations to meet individual needs and solve societal problems. Some successful innovations disrupt existing markets, as well as disrupt existing societal relationships. The process continues as societal decisions, behaviors and demands continue to evolve and technology and innovation respond.

For example, a growing societal understanding of the environmental, economic and social costs of unchecked climate change created demand for carbon-neutral products and services. This is turn spurred technological change in power generation and transportation fuels. Numerous technological improvements in renewable energy power generation, electric vehicles, alternative transportation fuels, etc. have resulted from this societal change in behavior and demands.

Successful implementation of technological change through sustainable innovations in products and services related to renewable energy and transportation fuels, have disrupted existing power and transportation markets: for example, sales of gasoline-powered vehicles have declined relative to electric battery-powered vehicles; and solar and wind power generation have increased relative to fossil fuel power generation.

A Model of Sustainable Innovation

Sustainable innovation is defined very broadly to include design and implementation within:

- Businesses, either for-profit or not-for-profit.
- Governments, all levels and functions.
- Non-governmental entities.
- Social sectors, both tangible and intangible subsectors.

The educational approach includes study of current innovations, both successful and unsuccessful, and understanding ongoing sustainability challenges, unmet consumer needs, and unresolved problems in foundational areas of civilization, including for example:

- Green energy.
- New materials.
- Mobility.
- Food.
- Buildings.
- The circular economy of reuse, repair, repurpose and recycle.

Particular attention is given to designing and implementing sustainable innovations that contribute to meeting global sustainability goals. A core principle is that to be sustainable, economic profit from successful innovation must be shared equitably amongst fundamental sustainability stake-holders. These include:

- Natural Capital: air, water, soil, above-ground and below-ground resources.
- Human Capital: all people directly or indirectly involved with or affected by innovation activity.
- Social Capital: both tangible assets such as transportation infrastructure, schools, etc. as well as intangible social systems (e.g. community organizations, government regulatory bodies or public opinion) directly or indirectly affected through interaction with an innovation activity.
- Produced Capital: all tangible and intangible assets that support, or are a product of, an innovation activity.
- Financial Capital: including all forms from cash to debt to equity to receivables, prepaid expenses, etc.

For an innovation to be sustainable, it must be designed and implemented in such a way as to create and maintain a positive feedback system that incorporates all of the five major stakeholders into a single, coherent,

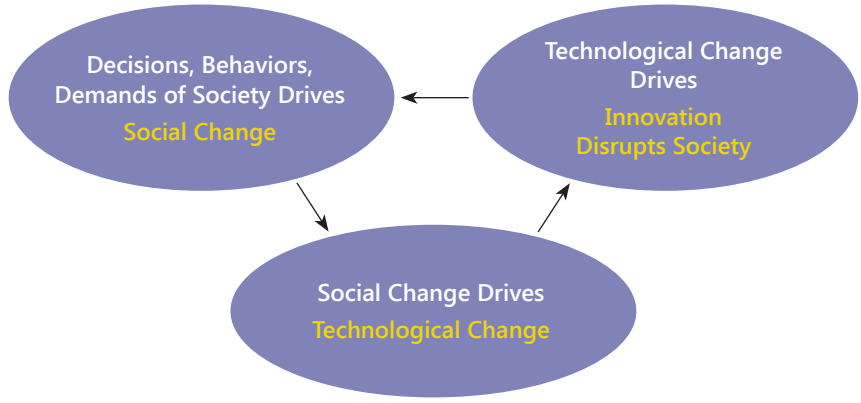

Fig. 1. Social change, technological change, innovation and market disruption

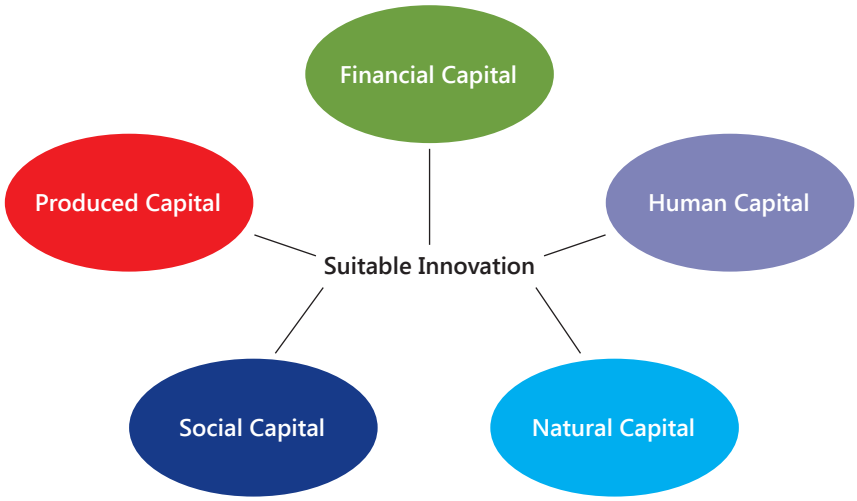

Fig. 2. Sustainable Innovation Within a Multi-Stakeholder Paradigm

self-reinforcing paradigm of contributions and remunerations.

Whereas current record-keeping systems (for example, financial statements,) measure production and consumption of financial capital (for example, sales, net profit, etc.) and also produced capital (physical products of all types), but with little to no measurement or recording of the consumption (or maintenance or enhancement of value) of natural, social or human capital. A holistic educational approach incorporates design and implementation planning for sustainable innovation activities that includes a full accounting of contributions and costs attributed to all stakeholders.

Educational Model

The educational model for sustainable innovation is systematic, based on four analytic stages of identification and design of sustainable innovation activities, development of optimal implementation plans, and identification and compensation of all contributions and claims of multi-stakeholders.

A sustainable innovation is one that meets an identifiable human need or solves an individual or societal problem, while meeting all legal, technical and financial requirements. Scholars of innovation recognize that a consumer does not need a drill, rather the consumer 'needs a hole' and goes to the market to find the optimal solution that will best meet the need or solve the problem – this is referred to as the 'job to be done'; see for example (Christiansen, 2016).

Skill-specific coursework focusses on technics for in-depth analyses of the positive and negatives effects of the innovation on the most important, but often overlooked, components of multi-stakeholder innovation: human, social and natural capital. Work in these areas draws upon a wide variety of case studies of successful and failed innovations, and ongoing developments within the foundational sectors of the economy as listed above.

Conclusion

Today's business students are tomorrow's innovators. Business school programs, particularly MBA programs, need to teach sustainable innovation within a paradigm that rejects the outdated, myopic focus on maximizing shareholder profit. Sustainable innovations, and the meeting of global sustainable development goals, requires new educational models.

Models of business instruction must focus student innovation activity on the design and implementation of multi-stakeholder innovations. Innovations that meet a need or solve a problem within foundational sectors of civilization. Innovations that are adaptable

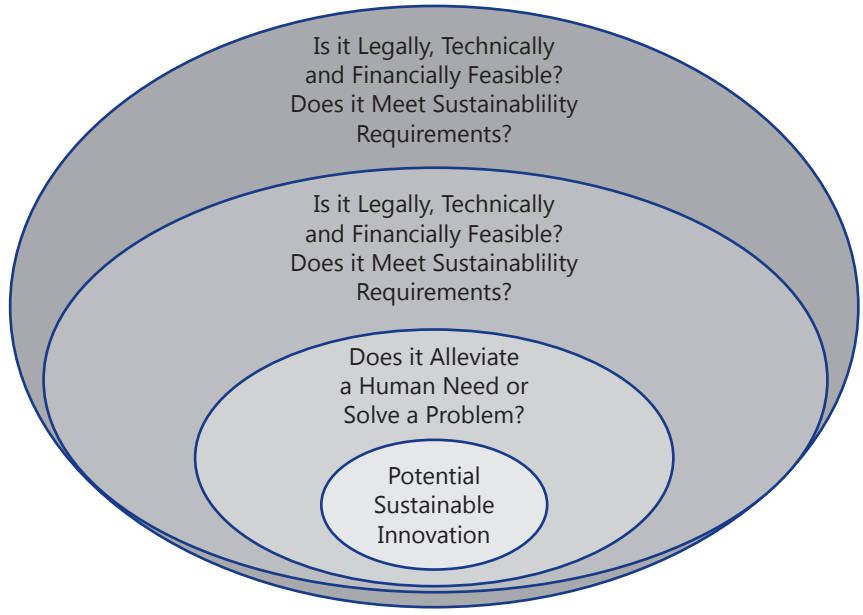

Fig. 3. Sustainable Innovation, Analytic Approach

and applicable to widely divergent sectors, from private for-profit business to social charities. Business education must be built upon a foundation of analytic skills, an ethical framework, and a commitment to promoting 'sustainable' innovations.

Пол Р. Томас

Навчання стійких інновацій з багатьма зацікавленими сторонами

Вища освіта відіграє вирішальну роль у переході до сталого розвитку. Перехід від освітньої парадигми, яка навчає лінійної та нестійкої інноваційної діяльності, до тієї, яка навчає циркулярної та стійкої інноваційної діяльності, наразі є фундаментальною вимогою для досягнення цілей глобального сталого розвитку через майбутні інновації. Освітня модель, яка в даний час формує основу для більшості програм MBA, залишається переважно сфокусованою на навчанні максимізації прибутку акціонерів у приватному комерційному бізнес-контексті. Зазвичай "сталий" бізнес визначають як такий, який успішно досяг суто фінансових цілей на користь акціонерів, часто ігноруючи інші життєво важливі інтереси зацікавлених сторін, зокрема, природний, людський та соціальний капітал. На прикладі УАУК ми продемонстрували, що сьогодні моделі бізнес-навчання повинні зосереджувати студентську інноваційну діяльність на розробці та впровадженні багатосторонніх інновацій. Інноваціях, які відповідають потребі або вирішують проблему в основних секторах цивілізації. Інноваціях, які можна адаптувати та застосувати до різних галузей, від приватного комерційного бізнесу до соціальних благодійних організацій. Бізнес-освіта повинна будуватися на основі аналітичних навичок, етичних рамок та прихильності просуванню „стійких" інновацій.

Ключові слова: освіта, сталий розвиток, MBA, інновації.