Article

The Emerging Role and Trends of UAE Education Sector in Circular Economy- a change management prospective

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Abstract: The Circular Economy is matter of recent discussions and quite popular, however the meaning has not been understood by most Business stakeholders. This Case study proposes to illustrate the Circular Economy importance and its status now. The contribution that UAE education sector can make to the Circular Economy is immense and is the focus of this study. Circular Economy awareness and its inner meaning can be only spread by the education sector and the author emphasizes the role of the education can play in implementing the Circular Economy. The study shows the way for the future Managers and Business stakeholders to participate in this crucial endeavor of Businesses to follow the Circular Economy. The ADKAR change management can be adopted to inspire the CE initiatives of the UAE Education sector.

Keywords: circular economy, eco-design, business education, economics education, competencies, Management Education, ADKAR.

1. Introduction and Background

The Circular Economy (CE) is fast emerging as the new shift from the old linear economic model of take, make and dispose to the maximize the use of products, materials, and resources if possible. This will minimize the waste generation, disposal efforts and enhance the sustainable, green, low carbon, green, resource-efficiency, and make the economy competitive. The endeavor for Circular Economy to really take off, calls for changes in individual, collective (Society), Industrial, Governance focus at all levels [1]. The ADKAR change management model is ideal for these changes to happen in the society. Since the change is imminent, the ADKAR change management model can be used to show the way to implement the changes. The education sector is major contributor to the CE till now and continue to be the future major contributor. Every individual involved in the CE acquires education over a period before he/she becomes a leader, contributor to the future of CE in any way. So, it is logical that the education, the curriculum needs to include the sustainability and CE topics and studied, researched in depth for the innovations to happen in the future [2].

The CE needs firstly the awareness for the youth to quickly adopt to this concept. The awareness must be at the individual level to understand the danger human beings are to the nature by our action. The awareness of the wasteful activities like cutting trees, throwing food, wasting water are the main contributors to the natural waste generated and leading to shortage of resources. This has led to climate changes and led to floods, melting of the ice, erosion of the soil, rise in temperature and are some of the man-made hazards. CE promises to simultaneously accomplish economic performance, environmental resilience and social inclusiveness thereby benefiting the current and future generations [3]. The current models of production, sales are aiming more at cutting cost and to enhance profits and not at the impact on environment. This can be addressed by the CE in advanced and innovative form. The 2021-2031 circular policy document does not even mention education as one of the sectors which can contribute to the circular economy. One of the high-ranking government officials said

"The policy has created a comprehensive framework for identifying sectors to be prioritized for a shift towards a circular economy. The sectors identified were infrastructure, transportation, manufacturing, and food production and consumption. Although this policy applies to the UAE economy, the principles can also be applied to individual projects to create sustainable communities which minimize their environmental impact, reduce their carbon footprint, and contribute towards the UAE's circular economy objectives".

This research foresees that the UAE Education sector circular economy contribution has been underestimated and it should take the lead in the future endeavors of the UAE [4]; [5].

2. Statement of Problems and Prospects

How can the circular economy make life sustainable?

How can the UAE higher education support circular economy?

The UAE Education sector is heading the way to Smart Universities and to Smart education system spearheaded by the Smart Government initiatives of various Emirates like Dubai and Abu Dhabi. Paperless offices, administration, Smart platform in recording and issuing certificates and usage of emerging technologies is making the UAE Education sustainable and the future will lead the way for Circular Economy. The Smart Government initiatives of UAE is leading the Smart Education initiatives to use Blockchain for the Education records, use modern technologies like Cloud-computing, Virtual Reality, AI, Machine learning in Education to further sustainability and to standardize education curriculum in the UAE. This can be easily extended to Circular Economy initiatives [6]; [7].

3. Circular economy – present and future scenario

Circular economy is a newer concept and not so known till now to most people. Most people are still caught in the linear sustainability economy. Circular economy (CE) model considers reduction in the negative impact on the environment thus moving away from the traditional linear business model, where the final product is value creation after reaching its highest consumption point. In the CE, the main goal is to enhance life span of the product, create goods with a long-life cycle and focusing on services rather than products. The focus should be on the change management for the shift from linear to circular economy, to happen. The ADKAR model is a perfect application for this chance management and as discussed below. The Circular economy has primarily three pillars shown in the figure and the fourth can be use innovations through R & D to achieve the other three [8]; [9].
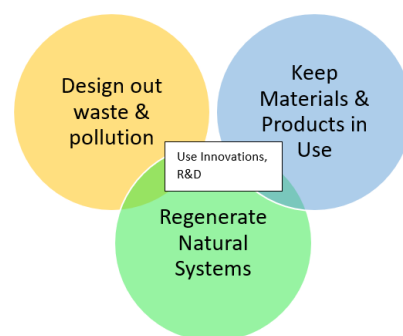

Figure 1. Pillars of Circular Economy
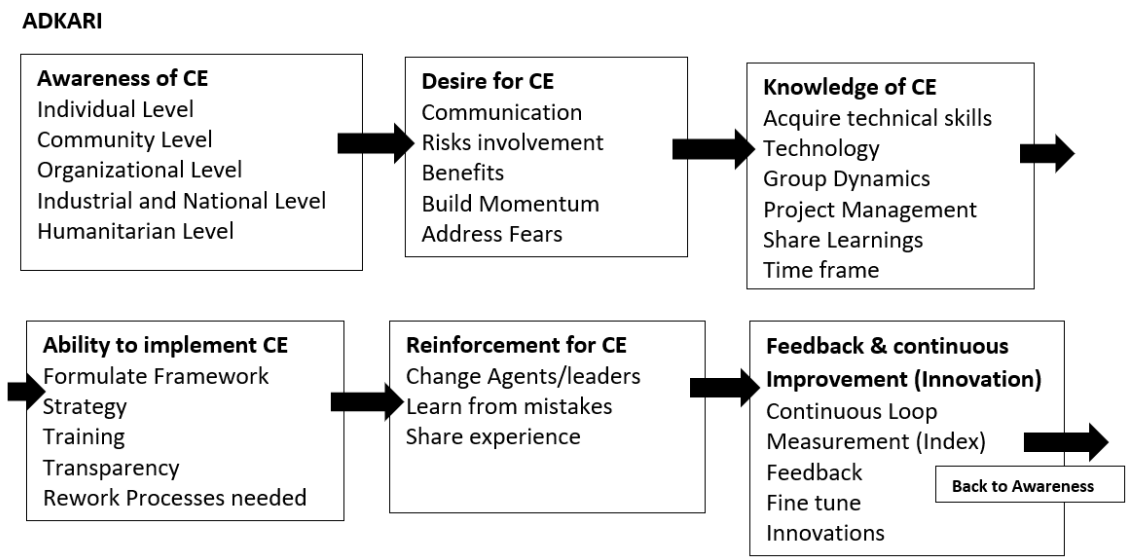
(Developed by the Author)

ADKARI

Figure 2. ADKAR Model with addition (Developed by the Author)

Awareness of CE

The awareness of CE should be at individual, community, organizational level, Industrial and National Level and finally at the humanitarian level. The Humanitarian level can be supported by the UNEP programmes by linking the sustainable development goals to the CE. The individual Government should formulate polices and support CE. They should device incentives to shift to circular economy by tax breaks, price support through supply subsidiaries to the industry so the industry can take lead in these initiates by making investments in CE. The industry can use advertisements, social media, news media to spread the CE initiatives of the Organization. The Community level awareness can spread through word of mouth and through community channels, you tube, social media, community newsletter regarding the CE and its benefits, impact on humanity. The individual level awareness will improve by these exposures to the media, social communities, and organizational initiatives, through mindset shifts. The personal resistance and the interest to achieve CE goals is the main contributor for these initiatives to be successful [10].

Desire for CE

The desire for CE can be promoted by communication to the masses through popular channels and the exposure will lead to more people following these initiatives. The benefits and the risk involved in case these CE goals are not met will ensure the desire to implement CE. The Government, organizations should build the momentum for the CE initiatives to be implemented and to address any fears the people will have about these initiatives [11].

Knowledge of CE

The knowledge is the major contributor to CE successful implementation and for this the participants need to acquire technical skills, technology knowhow, Team dynamics skills, project management skills, collaborate with others to share learnings and within decided time frame [12].

Ability to Implement CE

The ability to implement the CE successfully will happen with proper framework in place at the national and organizational levels. A Strategy for the long-term implementation of CE needs to be formulated and same aligned to, at various levels. The training of the

manpower to handle the needed technologies must imparted at all levels. The policies and laws on CE should be clear and transparent and the various processes reworked as necessary [13].

Reinforcement for CE

It is crucial that once the changes are started, they need to monitor and seen to the logical end, make the changes permanent and not allow to slip back. At the same time the change leaders/agents should monitor the changes, learn from the mistakes, and share the experience to others to follow suit. The CE parameters should be measured to keep track the progress and any deviation should be identifiable and rectified [14].

Feedback and Continuous Improvement through Innovations

The last step that has been suggested and added by the researchers as Improvement in terms of Innovation which is the continuous development using R &D. The feedback can be given based on the measurement using CE index which is introduced below whether the implementation is going as expected or fine tuning is required to set it on track. The new innovations will start the whole cycle again, spreading the aware to measuring the effectiveness of implementation [15].

CE Index

The measurement index of CE should include indicators that consider technological cycles with a Life Cycle Thinking (LCT) approach and their effects on environmental, economic, social, actual implementation reality dimensions of the identities, can be applied to organization and individual. The CE index can support the tracking of the projects and measure the progress in CE by the Organizations and even individuals [16].

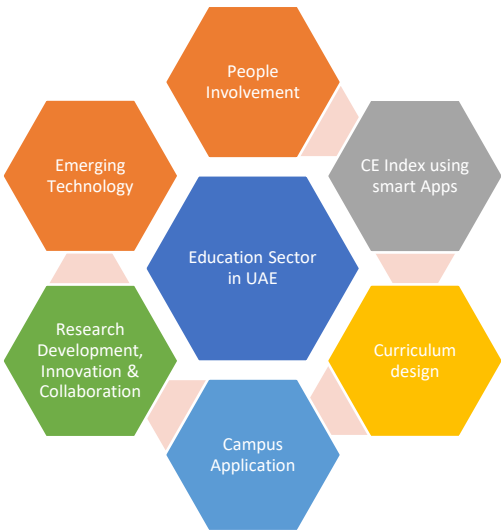4. **Alternative solutions to problems by leveraging the prospects**

Figure 3

Figure developed by Author

Education Sector in UAE can contribute to the CE prospects by leading a lot of initiatives. Some of the above illustrated initiatives are already work in progress and some are suggestions from the industry to the sector to contribute more.

Curriculum Design for the CE

The curriculum needs to be continuous updated to match the industrial and societal needs to accommodate new innovations in the CE. Most curriculum developers are not agile, and the Education sector does not match the speed of the industrial sector. This gives them a tag of being outdated. The efforts should be to include ideas of eco-efficiency and eco-effectiveness in the course content. Usage of biodegradable natural materials like wood, cotton, renewable source of energy like solar, wind should be encouraged and be part of the curriculum. At the same time, the content should include the nuisance value of plastics, and other non-biodegradable material and the cost of disposal, environment deterioration [17]; [18].

Campus Applications

The UAE Campuses can be live examples of applying CE in electrification using renewable energy and using LED low consumption lamps, recycling the water and reduce wastes. This gives the learners the feel of the CE in the real conditions and the Universities can collaborate with the industries to display these gadgets and appliances on the campus (Mendoza et al., 2019). Masdar City in UAE is an example of such sustainable urban communities, a low-carbon development made up of a rapidly growing clean-tech cluster. More such CE initiatives in the education sector will spread awareness of the CE concept [19].

Research & Development, Collaborations & Innovations

The UAE education sector must invest in R & D and collaborate with the local, global industries to take on CE projects. These collaborations will be the future for the UAE to lead the way on CE to other Middle East countries. The UAE government can announce policies to support these initiatives of collaborations [20].

Emerging Technology Usage

The CE initiatives must use the emerging technologies like AI, Machine learning, robotics, cloud computing, Virtual reality to make the projects effective and better received by the public. The innovations will support the usage of these technologies and enhance digitalization of processes, saving time, effort, and money in long term [21].

People Involvement

The implementation and success of the CE project depend on the People involved and their wholehearted participation. First the people need to convince on the need of the CE requirements, importance and benefits which can be augmented by proper training and workshops on the topics. The People involvement can be consolidated by introducing extrinsic and intrinsic rewards to motivate them [22].

CE Index using Smart App:

The CE Index development can be major contribution to the area of existing knowledge and help in measuring the Organization's current initiatives on a standardized scale compared to the other Industrial initiative and can make suggestions to implement more projects. The Index will induce competitiveness among the various Organizations and help the cause of CSR and CE [23].

Figure 4 SDG′ s displayed

Figure developed by the Author

Sustainability Development Goals (SDG) Table 1

SDG No.	Description of how the UAE Education sector can develop this SDG
1.	Eradicate Poverty by Education, which UAE Education sector can contribute
2.	Make Learners employable and as Entrepreneurs
3.	Train People on Well-Being and Health and spread awareness and run Research Projects.
4.	Standardized Common Circular Economy Curriculum
5.	Gender Equality exemplary practices at the UAE Education sector organizations
6.	Awareness and Experimental learning at the Campus
7.	Implement Projects on campus & Collaborate with Industry, Design Curriculum for these projects
8.	UAE education can develop Research, encourage innovativeness in renewable energy, tie-up with Industry to partner more projects
9.	UAE Education is recognized as economic contributor as education Hub for the Middle East and the many collaborations with the industry, is leading the way forward
10.	UAE Education lead Research & Development initiatives and implement Innovations that will contribute to CE and to build Infrastructure for such future initiatives.
11.	UAE Education can spread awareness and initiatives for building Smart cities and communities like Dubai and Abu Dhabi.
12.	The Collaboration with the Industry the UAE Education sector can lead initiatives towards responsible consumption and production of goods, products, services to CE and away from the linear economy.
13.	The UAE Education can build Ecological, Economical Curriculum to spread awareness of the Human action on Nature and the subsequent climate changes.
14.	The UAE Education can spread awareness of the impact of Human activities affecting Ocean lives and actions to avoid such impact.

15.	The UAE Education can spread awareness of the impact of Human activities affecting lives on Land and actions to avoid such impact.
16.	Institutes like UNEP, WHO should educate the people in collaboration with Government like UAE, involving the Education sector to spread Peace & Justice.
17.	The UAE Education collaborates with the Public and Private Companies to achieve CE goals leading to sustainability in Business.

Table developed by the Author

The SDGs of the UN shown in Table 1 can be extended to be the Circular Economy initiatives for the UAE Education sector. The above table shows the contribution of UAE education sector towards the SDGs making them CE goals and can be reworked as Circular Economy Development Goals (CEDGs) in the future [24].

Barriers that need to be overcome for Successful CE projects implementation

The United Nations should recognize the CE development programs; the UN support will force governments to follow suit. The UAE government must announce policies that exempt, give concessions to Organizations develop CE initiatives. The individual mindset can be shifted by spreading awareness on the benefits, importance, and individual rewards for the employees. The participation of the employees, people in implementing these CE projects will accelerate and ensure its success. The major barriers are cultural, lack of knowledge, lack of resources, lack of priority for organization to implement CE projects. The UAE Education sector should navigate these barriers successfully [25].

4.   Conclusion

The SDGs of the UN can be extended to be the Circular Economy initiatives in the various sectors as the study has shown for the UAE Education sector. The objective of suggesting CE initiatives to be implemented by UAE Education sector has been met. The main contribution has been the management change prospective used in ensuring successful implementation of the CE initiatives. The suggestions and recommendations will help Managers to implement CE initiatives successfully with the government policy support. The contribution of this study is the addition of innovation and continuous feedback loop added to the ADKAR management change model.

Quantitative and Qualitative studies can confirm these findings in future research and use other change management models to spearhead these CE initiatives of the Education sector and other sectors.

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