International Journal in Management and Social Science
Volume 09 Issue 11, November 2021 ISSN: 2321-1784 Impact Factor: 7.088
Journal Homepage: http://ijmr.net.in, Email: irjmss@gmail.com
Double-Blind Peer Reviewed Refereed Open Access International Journal

IDENTIFYING THE STUDY OF SUSTAINABILITY INDEX AND ITS AFFECTED FACTOR

JAYESH RAVIKANT PATIL
RESEARCH SCHOLAR SUNRISE UNIVERSITY ALWAR

DR. MANJEET SINGH
ASSOCIATE PROFESSOR SUNRISE UNIVERSITY ALWAR

ABSTRACT

Learning mathematical modeling need not be difficult. Unlike other books, this book not only lists the equations one-by-one, but explains in detail how they are each derived, used, and finally assembled into a computer program for model simulations. This book shows how mathematics is applied in agriculture, in particular to modeling the growth and yield of a generic crop. Topics covered are agriculture meteorology, solar radiation interception and absorption, evapotranspiration, energy and soil water balance, soil water flow, photosynthesis, respiration, and crop growth development. Rather than covering many modeling approaches but in superficial detail, this book selects one or two widely-used modeling approaches and discusses about them in depth. Principles learned from this book equips readers when they encounter other modeling approaches or when they develop their own crop models.

Keywords: - Sustainability, Mathematical, Model, Equation, Factor.

I. INTRODUCTION

SUSTAINABILITY INDEX

Sustainability index states total value of five indicators namely user satisfaction which is indicated by Impact/New change, direct benefits, system availability, required functionality and revenue (income) generation from the system (Y_5, Y_6, Y_7, Y_8, Y_9) as listed in equation 7. Value of each indicator is based on the assessment criteria that have highest possible value of 1 and the lowest value of 0. Thus, value of sustainability index may range from 0 to 5. This may be classified into three intervals i.e. high, medium and low sustainability.

This classification is made by considering the following: Results of simulation using the model shows that maximum and minimum value of sustainability index that may occur are 3.1562 and 0.0312 respectively (equation-7) the average value of sustainability index in the study area is 0.6312 & standard deviation (SD) of sustainability index in the study area is 0.3735. Also

Minimum & Maximum SD ranges between 0.2577 and 1.0047 which is within the sustainability index and hence no standard errors as such.

Computation of Sustainability

The decision-making methodology for computing sustainability of Aadhaar based DBT, Authentication (e-KYC) and AEPS project relies on its planning, implementation methodology, reliability of stake holders, satisfaction of beneficiaries, benefits accrued etc. Broadly this may be segregated into three aspects i.e. Economy, Society and Environment and their relationship (Morelli, John, 2011).

II. REVIEW OF LITERATURE

Chandra Shekhar and Aggarwal (2011) presented on e-world forum that many NeGPs are at the stage of design, development and few are under implementation or at rollout stage. Also, he pointed out the major challenges in India for implementation of NeGPs are 1.25 billion populations, more than 6 lacs villages, 70% rural population, language diversities, multi-party and multi-tiered democracy, digital divide, literacy rate and only 100 million internet users. Audit report of e-Governance projects: According to the vigilant auditors, e-governance success revolves around the factors like identification of requirements, business process, re-engineering, appropriate technology, systematic implementation approach, committed government-intent, and public participation besides that there should not be vested interest of any individual and the approach should not be 100% vendor driven.

Pradeep and Vijay (2011) The factors which broadly lead an e-governance project towards failure or success may be Political will, business factor, technological factor, public awareness, adoption problems and funding issues. Grimsey and Lewis (2002) identified some more factors like self-sustainability, vendor driven (BOT, BOOT, BOO model), change management as explored by Burnes (1996, 2004) that participation of stakeholders, poor scope defining, user requirements and not adhering to activities time schedule and last but not least is no pilot run etc. The success of e-governance depends largely on the interplay between man and machine but always man is behind the machine.

E-Governance success factors by Sanjay (2011) presented that for each successful project, one can count an equal if not higher number of failed IT projects. He further added that success entails 99% perspiration and 1% inspiration, e-governance projects are not technology projects as miuch as they are governance projects. Indeed, the ‘e’ in e- governance is only a small element.

A survey of e-governance projects by a Professor in Development Informatics in the University of Manchester in developing and transition economies revealed that as many as 85% e-Governance projects are either partial failures for not having attained intended goals, or totally fails soon after implementation.

Ndukwu and Asoegwu (2011) formulated a Mathematical model for predicting the cracking efficiency of vertical-shaft palm nut cracker was presented by using dimensional analysis method based on the Buckingham's πtheoem. A high coefficient of determination of 94.3% between the predicted and measured values showed that the method is good. The model was validated with existing data of palm nut cracker, no significant difference found between the experimental cracking efficiency and predicted values at 5% level of significance. The physical quantity affecting the cracking process includes both crop's physical properties and machine parameters.Crop properties include crop species, age, nut moisture content, bulk density, nut geometric mean diameter. The machine properties feed rate, diameter of the cracking chamber, shaft speed, and throughput capacity.A functional relationship between cracking machine and crop parameters was established using the mathematical model and the model was validated with data from existing palm nut cracker.

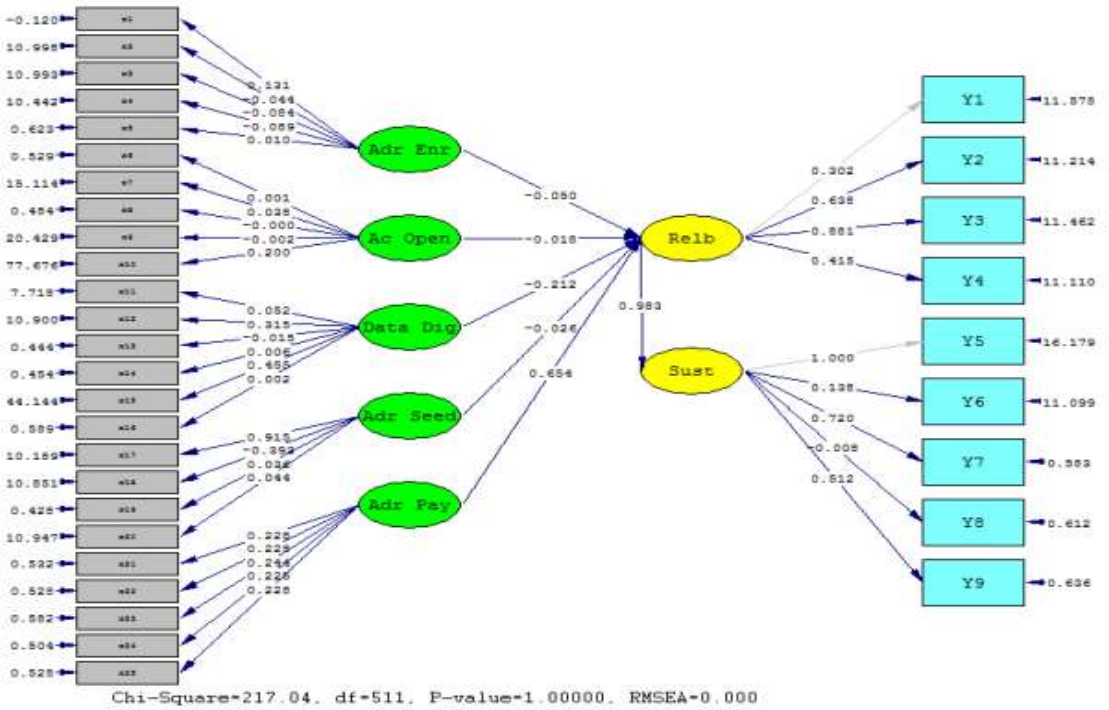

Figure 1. Path Diagram of Basic Model obtained using LISREL 9.3 (Automated diagram of Fig 2) It shows Factor Loadings & Regression weights of LVs and errors of manifest variables

III. FACTORS AFFECTING SUSTAINABILITY

The mathematical model has been derived using SEM. The SEM shows the factors that influence sustainability as illustrated in Figures:1. Magnitude of the influences is shown by the regression weight and loading factor values as listed in Table:1, also on the path diagram is the output of LISREL 9.3. Error of model that is expressed as Root Mean Square Error of Approximation (RMSEA) is zero.

Mathematical Model of Sustainability

Model has been described for Aadhaar based DBT depicted in Figure:6 is illustrated again in Figure:7&8 that how relationship between observable and Latent variables are illustrated and corresponding mathematical equations are constructed, where λ is loading factor of relationship between observed and independent latent variables, γ is regression coefficient between exogenous (independent) variables and endogenous (dependent) variables, and β is regression coefficient between endogenous variable reliability and other dependent variable namely sustainability.

IV. QUALITATIVE AXIOMATIZATION OF MATHEMATICAL MODELING RESEARCH OUTPUT

Collected participant interview data inductively axiomatized four mathematical modeling research output categories and are formulized as mathematical modeling novelty. The axiomatization and formulization statements are:

i. for every modeling output, existing process of theorizing a specific system (natural or artificial phenomenon) in the form of a mathematical expression;

ii. Existing mathematical model for simulation of a specific system;

iii. Existing innovation in mathematical modeling in the tangible or intangible form;

iv. Existing patent for commercialization from mathematical modeling output, and formulization statement: existing novelty in mathematical modeling research output. The emerging axiom categorization with these elements were supported by evidence in the form of documents published as article journals. Generally, the mathematical modeling research output depends on the modeling goal to solve real world problems, but the novelty factor is the axiom that they are trying to develop. Meanwhile, patents and commercialization are the paths for new technological development. The interpretations for axioms and their elements are shown below:

V. CONCLUSION

It is concluded that the Chapter discusses about the implementation status of "Digital University framework" across the 14 state aided Universities. Study of the system reveals that lot of duplication of efforts are there in development & implementation of redundant application by all the Universities, neither data securities nor uniformity has found to segregate the data across the Universities, also students and parents are deprived from the benefits of single windows system for admissions to universities on merit and also not getting various required services online. Therefore, sustainability of the single window system needs to be tested prior to development, implementation and replication. Results of the study are formulation of data model using SEM and deriving the mathematical equations to compute and predict sustainability and its range intervals. The sustainability index varies between 1.6601 and -0.0413 (against the interval 5- 0) It is also pertinent to mention that digitalization in the Universities are ranging from 9% - 53%, which is to be increased to near 100%. This methodology includes the steps that must be taken before a project plan is implemented. Also for decision making, recommendations like validation of Mathematical model using separate sample of dataset, selection of robust technology, core team for DUF design, capacity building, security of database, hiring of system integrator and establishment of help-desks etc may be followed for improved sustainability. This Chapter discusses about the computing and predicting the sustainability of the "Aadhar Based DBT System " for the beneficiaries of social security pensions schemes in the state of Haryana. The scheme is highly beneficial for de-duplication of beneficiary databases and uniquely identifying them for credit their benefits to their accounts. The scheme requires only Aadhaar number as financial address to credit the Aadhaar linked accounts of beneficiaries without confirming their respective Names, Account numbers and IFSCs of bank.

REFERENCES:-

1. NPCC. (2016). National policy on climate change. Lusaka: Ministry of National Development Planning

2. Ojomo, E., Elliott, M., Amjad, U. & Bartram, J. (2015). Climate change preparedness: A knowledge and attitudes study in southern Nigeria. Environments, 2, 435–448.

3. OrgSync. (2014). Your campus engangement network. http://www.orgsync.com, visited 4 January 2016.

4. PBL. (2016). Trends in global carbon dioxide emissions: 2016 report. The Hague: PBL Nertherlands Environmental Assessment Agency

5. Robin, R., Potter, S. & Yarrow, K. (2002). Factoring sustainability into the higher education product service. Journal of Sustainable Product Design, 2, 105–117.

6. Robin, R., Potter, S. & Yarrow, K. (2008). Designing low carbon higher education systems: Environmental impacts of campus and distance learning systems. International Journal of Sustainability in Higher Education, 9, 116–130.

7. Smyth, S., Fredeen, A. & Booth, L. (2010). Reducing solid waste in higher education: The first step towards 'greening' a university campus. Resources, Conservation and Recycling, 54, 1007–1016.

8. Stir, J. (2006). Restructuring teacher education for sustainability: Student involvement through a strengths model. Journal of Cleaner Production, 14(11), 830–836.

9. Tenhunen, M. &Penttinen, E. (2010). Assessing the carbon footprint of paper vs. electronic invoicing. Associated Information Systems.

10. UCS. (2013). Union of Concerned Scientists. http://www.ucsusa.org/global_warming/solutions/stop-deforestation/deforestation-global-warming-carbon-emissions.html#. WZ11n42Qy02, visited 17 August 2017.

11. UNESCO. (2009). Learning to mitigate and adapt climate change. Paris: United Nations Educational, Scientific and Cultural Organization.

12. UNFCCC. (2007). Climate change: Impacts, vulnerabilities and adaptions in developing countries. United Nations Framework Convention for Climate Change.