Computing and Management- A Philosophical Outlook

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ABSTRACT
It will not be an exaggeration to say that management as a discipline draws maximum applications from computing. Management always strives for precision in decision making and modern day computing techniques are of great help to this end. It is almost an established fact that decisions converted into quantifiable form get easily understood and implemented. Though most of the body of management thoughts and practices are a saga of abstract manifestation of human activities ranging from leading to following, still conversion of these abstract features into numbers has been the major development in management sciences. Computing is a broad version of computation and modern day business management heavily relies on numerical computation of various activities. Let us consider an example to put forth the point more vividly. If a general manger goes to production department and guides the personnel there to increase the production levels as in foregone month, company could not match the market demand. This plea of him will not make a serious point on production department personnel, if it is not backed by quantitative figures. The other version of the same story can be that the manager goes to the production department with the data of production and marketing demand of the last few months and clearly indicates towards the gap in production levels and market demand in quantitative terms.

This paper attempts to explore some philosophical linkages between modern day computing and their applications in management techniques. Author will present some of his observations in this regards. The basic notion which will back the author is his believe that numbers are the most honest and simple creations of god. These are only the clever tactics of human beings which deploy them cruelly in almost all of his misdeeds. It will still take human mind to develop to an extent so as to quantify abstract things into numbers till then it is not illogical to rely on computing and scaling techniques.

General Terms
A philosophical linkage between the concepts of computing and their applications in management

Keywords
Management, Computing, Scaling techniques, Human centered computing

1. INTRODUCTION
Computing as a term conveys something in close proximity with computer and calculation. Over the years in modern era of technology, two vital developments have taken place- technological advances and their reflection in managerial applications. Technology has gifted man more powerful means of calculation with great precision on one hand and management as a discipline and profession has realized the importance of quantification particularly of various abstract things. Author has been a teacher and student of both technology and management. This paper is an attempt by the author to assimilate all his experience and observations to advocate the linkages between computing and management within a philosophical backdrop. As nouns the difference between computation and computing is that computation is the act or process of; calculation; reckoning while computing is (literally) the process or act of calculation.[1]

The effort and deliberations of the author will be more tilted towards ever broadening encompass of behavioural sciences with the advent of management as a discipline of learning rather than on the technological and engineering aspects. It will not be an exaggeration to say that management as a discipline draws maximum applications from computing. Management always strives for precision in decision making and modern day computing techniques are of great help to this end. It is almost an established fact that decisions converted into quantifiable form get easily understood and implemented. Though most of the body of management thoughts and practices are a saga of abstract manifestation of human activities ranging from leading to following, still conversion of these abstract features into numbers has been the major development in management sciences. Computing is a broad version of computation and modern day business management heavily relies on numerical computation of various activities. Let us consider an example to put forth the point more vividly. If a general manger goes to production department and guides the personnel there to increase the production levels as in foregone month, company could not match the market demand. This plea of him will not make a serious point on production department personnel, if it is not backed by quantitative figures. The other version of the same story can be that the manager goes to the production department with the data of production and marketing demand of the last few months and clearly indicates towards the gap in production levels and market demand in quantitative terms. Author has made an attempt to put forth various examples from modern business management to advocate that computing techniques are going to have their own valuable stake among various stakeholders of the business.

2. BUSINESS ACCOUNTING AND COMPUTING
Business accounting is no more just the debit- credit game anymore. It encompasses in it far more bigger domain than before. It will not be an exaggeration to say that modern business management particularly its accounting related activities have emerged as the biggest customer of modern computational techniques. What has made the scenario more challenging as well as full of opportunities is the fact that many hitherto untouched areas of business are also forming part of business accounting where computing techniques can be of great help. Human resource accounting has brought human beings and issues related to human capital into the central focus of all business activities.

A close scrutiny of traditional accounting reveals that accounting is an attempt to prepare a summary of actions of business. Now the question arises that external environment of business has undergone a sea change during last one century. Not only external but internal environment of business is also witnessing fast changes. Automation of internal operations can be cited as an example. In such circumstances when rampant changes are taking place in external environment of business, it becomes self explanatory that now business accounts for far more than it traditionally used to do a few decades ago[2]

To precisely do the accounting of human resource, computing techniques can provide a great help. Accounting is considered as the most basic and fundamental activity in business and in a sense it can be said that this particular activity provides a valuable input to all other higher level decision making in business. When this fundamental activity is slated for a revolutionary change, we are bound to experience much wider computational challenges in higher level decision making. Conversion of human capital into the currency and its proper accounting in financial statements is going to be one of the most complex tasks in business management in coming years which will result into further growing friendship in computing and management.

3. ENVIRONMET AND BUSINESS THEIR COMPUTING LINKAGES

To put forth his views in a more lucid manner author is presenting an excerpt from one of his papers- During the days of less population on earth, earth's environment has its happiest days but as the number of human beings on earth increased, it became almost sure that happy days of earth's environment are over. Developmental economics in the past least bothered to consider environment as a valuable input in overall decision making in relation to socio- economic development of mankind. In modern times the cost of product is not merely the cost involved in its production and supervision but also the cost of environmental degradation, it has contributed to. If an unbiased analysis of world's balance sheet is carried out then the head of environmental degradation alone will tilt the readings towards irreparable and irreversible losses. Nature has its own tolerance limit and man has already crossed it. The presumption that the nature has the infinite capacity to zero in the misdeeds of the human beings is based on false notions. Even if nature attempts to achieve it, the day may come when population of human beings on earth will become zero [3]

Environmental accounting has been a development of far reaching impact on all activities related to business management. In a true sense proper environmental accounting is the most effective tool to foster sustainable development. To quantify the losses to the environment in monetary terms due to the pollution and other higher degree hazards like global warming, computing techniques can be of vital assistance to business firms. Growing emphasis on environmental issues across the globe and a need to quantify them in terms of measures like green GDP of different nations establishes that computing techniques will be developed and needed for such quantifications. All major developmental theories of Economics were developed at a time when environmental degradation was not a big threat so its imprints are not as dominantly visible in those theories as the modern day deteriorating environment has made it. Author once raised this issue in one his papers where title in itself conveys a lot- Developmental Economics needs an environmental review. This environmental review will off course can draw a lot of guidance as well as aid from modern day computing techniques.

Human centered computing is yet another development which can be viewed in parallel with the human resource accounting. Human resource accounting is in a way nothing but human centered accounting. Various definitions to human centered accounting were suggested at the US National Science Foundation supported workshop on Human Centered Systems where in 51 researchers from various stream presented their work. The discussion their resulted in diagnosing human centered accounting from various angles.[4] Out of the various definitions proposed by the participants there few of the relevance for the present paper are being presented here:

(1) "It is a philosophical-humanistic position regarding the ethics and aesthetics of the workplace"

(2) "An HCC system is "any system that enhances human performance"

(3) "An HCC system is "any system that plays any kind of role in mediating human interactions" [5]

This further establishes the growing mesh between computing and management as human centered computing is bound to have managerial insights with human orientation.

4. FORECASTING TECHNIQUES- ARTIFICIAL V/S NATURAL SATEELLITE

Author here presents yet another example where scientific thinking of modern times seems to fit into a synchronism with ancient Indian believes and practices. This section can be treated as very much close to the title of the paper. The ideas put forth in this section by the author are his original views. Proper forecasting is of great help to a business. Every owner of the business always dreams to have exact forecasting related to its business affairs. Computers are already in use for this purpose with more and more sophisticated technologies emerging every now and then. However, here an attempt is being made to throw light on some scientific connectivity and superior features of our traditional approaches which we know since time immemorial.

4.1 A Scientific Explanation

The practice of forecasting based on relative positions of sun, planets and moon is not new for India. These types of practices are popular in India since ancient times. There is an urgent need to research on their scientific bases rather than dumping them as baseless. Many people including Indians doubt the effectiveness and applicability of forecasting techniques based on the positions of heavenly bodies. However, a little thought will reveal that even the Physics suggests the possibility and validity of such type of forecasting. Author is making an attempt to explore such linkages. Physics knowledge provides a formula-

$$F = G (M_1 M_2)/ r^2$$

Where, M_1 and M_2 are the masses of the two objects; 'r' is the distance between them; G is a constant and F is the force of attraction between the two objects with the masses M_1 and M_2. So, there exists a force of attraction between every two objects or bodies of universe. We do not experience this physical force in our day to day life because our masses are too small. Moreover, G is a very small constant. For this force to be meaningful, M_1 and M_2 have to be heavenly bodies like earth, sun and moon etc. In a nutshell, we can say that Physics tells us for sure that there is a force of attraction acting among

all the heavenly bodies. It can be easily seen that the changes in relative positions of the planet 'r' will bring about the changes in relative forces of attraction among them.

The science of forecasting or foretelling based on the relative positions of planets works on the principle that events on earth are governed by its relative position with respect to sun, moon or other planets at one point of time. It will not thus be unfair to say that the practice of forecasting based on natural heavenly bodies has a strong scientific base. There is a definite relationship between relative movements of planets and happenings on earth. This ancient science can be effectively used to predict the variation in prices of various commodities and movements of share prices in different share markets in the world.

In India traditional calendars called Panchangs are extremely popular and in use. These contain the dates of various festivals and other rituals. They also mention the possible price variations of various commodities along with other economic, social and political conditions which will prevail throughout the year. There is a need of two pronged strategy. Firstly an effort must be afoot to unearth the scientific bases of the forecasting techniques based on relative movement of heavenly bodies. Secondly, the effective use of computing techniques can be attempted to understand as well as implement the scientific approach based on such forecasting.

5. STATISTICAL JUSTIFICATION OF SUPERIORITY OF FORECASTING TECHNIQUES BASED ON RELATIVE POSITIONS OF PLANETS

Modern computing techniques are being deployed in various activities including forecasting. However, inputs in terms of their observations are to be provided from outside. These techniques can just process these. A statistical justification of superiority of forecasting techniques based on relative positions of planets is being presented here. Forecasting needs collection of data as discussed above. This data is then processed through various sophisticated tools including computers and other hi- tech sources. In business, it is mostly the past trends and information which are processed to forecast the future. Share price predictions are one such application. This technique draws data only from earth or the sources stationed at earth only. This technique fails to take into account the variations in relative positions of planets as a possible valuable input data.

Statistics is concerned with analyzing entire population with the help of a small portion of it which is known as sample. The characteristic of sample is known as 'Statistic' whereas that of population is known as parameter. Statistics as a discipline is nothing but an attempt to know the parameter as accurately as possible with the help of sample characteristics known as statistic. If one can cover entire population, it is known as census in statistical terminology. It is a well known fact that time and money constraint did not allow man to go for census in all situations even though most accurate results come out through census only. Sampling reduces our time and money requirements but some accuracy also we are bound to lose due to vary nature of statistics and its working principles.

On the other hand forecasting or foretelling based on relative positions of heavenly bodies is a science which includes every planet also into the population while analyzing activities on the earth so as to forecast them with accuracy. In a way, it is an approach which is closer to census. Computer aided forecasting techniques forecasts events on earth by taking data from earth only whereas forecasting based on planets takes data (or includes) from heavenly bodies (their relative positions) also. So, author asserts that the forecasting based on relative positions of planets is superior to all other methods on earth. There are all possibilities for the application of this ancient science of forecasting in business. In fact it will be wise to deploy modern computing techniques to further validate the credentials of this age old Indian science of computing.

6. MODERN COMPUTING TECHNIQUES AND SHUNYA (ZERO) V/S ANANT (INFININTY) – BLS PUZZLE

The ideas discussed by author in this section are mostly taken from his book- 'Restructure Business Education- Says Sandeep Shandilya'[6]. Indian mythology treats shunya and anant as the same. Shunya here stands for zero and anant for infinity. It is an Indian mythological believe that god has both the shapes- zero as well as infinity. Adhyatmic literature considers both zero and infinity as same. During 1998, while delivering a lecture on Quantitative Techniques, author came across a unique synthesis of two ideas which he knew as two isolated ideas since his childhood which led to the birth of entirely new school and line of thinking to him. He was teaching a simple concept of mean. Mean lies exactly in between the two extreme points. Author realized that there are infinite points between any two points which we all know. The realization came that if there are infinite points between any two points, the movement of any type between any two points like the movement of hands from one point to other point must not take place due to the simple fact that there are infinite points between these two positions of hands and infinity is never reached. In other words no movement, however small or big can take place in this physical world within the premises of physical knowledge. The realization that his every movement is involved in an infinite activity, led the author to a clue that perhaps it is a true Adhyatmic believe that Shunya and Anant are same. Even a slightest (Shunya) of movements is displaying an Anant (Infinite) character because even slightest of movement will be between two points (A,B) and the displacement between two points will involve infinite points C,D,E, ….. to be travelled. If Indian mythology is to believe, the obvious disadvantages of the modern day computing starts coming to fore. It is interesting to cite here about the debates on the issue of whether big is beautiful or small is beautiful going on these days in the west. This war sometimes seems to intensify a bit disproportionately. Author's version to this ongoing tug of war is that big v/s small tangle is a materialistic realization of an Adhyatmic phenomenon. If we learn to take small to zero and big to infinity, this puzzle may also declare its solution as Shunya and Anant are same. Modern day computing techniques need to learn that spiritualistic aspect of computing possibility too.

7. HUMAN CENTERED COMPUTING- A FAR REACHING DEVELOPMENT

The emergence of human centered computing is a development of far reaching impact as perceived by the author. Author is of the view point that human resource is and will become the most vital resource at the disposal of business in the years to come. The same was emphasized while discussing changing face of business accounting which is now more human centric than ever before. Computing in

management will have to account for human resource from multiple angles. One of the most significant considerations of designing or implementing HCC systems is understanding people. That is why human beings should be the core component of the system in a HCC environment. [7] Any business activity is bound to be human centric such is the dominance of human presence in all spheres of business. Obviously its proper accounting will also require computing efforts of HCC systems. It will not be an exaggeration to say that the human resource accounting and human centered accounting, popularly known by human resource accounting have lot to share with each other in order to strengthen each other.

8. CONCLUSION

It can thus be seen that there are enough evidences of the growing linkages between modern day computing techniques and management techniques. There has been an impetus to quantify the decisions in business management because numerical quantification gives precision as well as easy understandability to the abstract notions, business is full of. Indian mythological believes give special importance to numbers and even beyond. Zero and infinity are the same- this belief is more than enough to puzzle modern day computing. Even traditional forecasting systems prevailing in India seems to have a reliable scientific base which needs to be further explored. Computing is not only just a tool to modern business management; it can become a vital means to scientifically establish our own age old computational methods capable of forecasting the future like Panchangs. Development human centered computing is also of far reaching impact and it will go a long way in further establishing the philosophical linkages between computing and management which author has advocated all trough out his attempt.

9. ACKNOWLEDGEMENT

The credit to the original thoughts put forwarded by the author in this paper goes to his father late Prof Shiv Kumar Shandilya, Dept of Hindi, Aligarh Muslim University, Aligarh. His scientific thinking and grasp on human values which he lived along with intense understanding of Indian mythology has been an unconscious source of such line of thinking and writing for the author. The author owes a lot to his mother Mrs. Shyam lata Sharma whose spiritual insights reflect in this work

10. REFERENCES

[1] http;//wikidiff.com/computing/computation

[2] Shandilya S,2014 ,Changing face of business accounting, Gyan Arth, Journal of commerce and Economics, Vol. 1

[3] Shandilya S, 2012, Environmental economics needs an environmental review. In Resource Development and Environmental Change, Volume I RegionalEconomics,Editor, Prof Abdul Muneer, Geography department, AMU, Aligarh, Publishers, Concept Publishers

[4] J. Flanagan, T. Huang, P. Jones, S. Kasif (eds.), 1997 "Human centered Systems: Information, Interactivity, and Intelligence," Report, NSF

[5] Jaimes A, Sebe N, Perez D G , 2006, Human centered computing: a multimedia perspective in proceedings of the 14th international conference on multimedia, ACM New York, NY, USA

[6] Shandilya S, 1999, Restructure Business Education-SaysShandilya, Aditi Publications, Aligarh, 1999.

[7] Choi S, 2016, understanding people with human activities and social interactions for human centered computing, Human centered computing and information sciences, Springer Berlin Heidelberg