Volume 4 Number 1 (2024)
January-June 2024
Page: 35-62

E-ISSN: 2808-1102
DOI: 10.37680/ijief.v4i1.5366

Indonesian Journal of Islamic Economics and Finance

Tawhidi Scientific Research Program (TSRP): Islamic Socio-Scientific Inquiry

Masudul Alam Choudhury

Cape Breton University, Canada; masudc60@yahoo.ca

Received: 09/03/2024 Revised: 12/05/2024 Accepted: 15/06/2024

Abstract

A process model is derived from the *Tasbih-Shura* nature of the *Shuratic* process (discursive process). The *Tasbih-Shura* dynamics are consultative and participatory, hence discursive in the light of the *Qur'an*. The imminent *Shuratic* process is thus a methodology associated with the meaning of the embryonic *Shura* as a discursive medium that spans all domains of socio-scientific inquiry. Such inherent and pervasive discursive dynamics are to be found in all realms of the natural and human order, in the abstraction of the seen and unseen worlds about which the *Qur'an* speaks. The latter world system may be revealed only in time or remain permanently hidden. Yet, under all conditions, the monotheistic law makes all such domains profoundly interactive and integrative, in the sense of knowledge-inducing human discursive experience and the world system's participative, complementary nature. This exercise (*Ijtihad*) is used to discover the conscious learning nature of all things (*Tasbih*). We will highlight the nature of the learning process that emerges from interaction and leads to integration, marked by different kinds of consensus, equilibrium, balance, and convergence towards the moral purpose. Finally, the evolutionary processes of extensive learning in the continuum arise from such emergent interactive and integrative processes. Such an evolutionary epistemology carries the attained ontological and ontic (evidential) scale of the knowledge-centered *Qur'anic* universe into higher stages of moral consciousness. We note that although the *Shuratic* process, the participative complementary process of organic unity, is intrinsic in everything, the conception needs human comprehension for reflection and use. Thus, analytical formalism is invoked.

Keywords *Tawhidi Scientific Research Program (Tsrp);* Islamic Socio-Scientific Inquiry

Corresponding Author
Masudul Alam Choudhury
Cape Breton University, Canada; masudc60@yahoo.ca

1. INTRODUCTION

The Glorious *Qur'an* declares (24:35): "Allah is the Light of the Heavens and the Earth." This light enriches the entire domain of knowledge and life in every aspect of abstraction, thought, cognition, and application. Thus, the fundamental root of knowledge and life is the all-embracing message of the

© 2024 by the authors. This is an open access publication under the terms and conditions of the Creative Commons Attribution 4.0 International License (CC BY NC) license (https://creativecommons.org/licenses/by-nc/4.0/).

Qur'an: Tawhid, the precept of the Oneness of Allah, encompassing the unity of divine law and, thereby, the unity of the world system that the monotheistic law builds upon generality and specifics.

Contrary to *Tawhid* is rationalism. Rationalism is the subject of Ghazali's criticism in Tahafat al-Falsafah (trans. Marmura, 1997). But above all, on the contradiction of truth (unity of monotheistic law) and falsehood (rationalism), the *Qur'an* (30:7) declares: "They know but the outer (things) in the life of this world: but of the End of things they are heedless."

Understanding this contrast and distinguishing the two areas of our understanding of the world is a deeply epistemological question. Indeed, such an epistemological originality of returning to the *Qur'an* to rediscover science is to invoke the central praxis of the *Qur'anic* epistemological question, *Tawhid*, and its explanatory socio-scientific power. For this reason, the *Qur'an* (41:53) invokes the following verse for deep reflection, cognizance, and application: "Soon will We show them Our Signs in the (farthest) regions (of the earth), and in their souls, until it becomes manifest to them that this is the Truth. Is it not enough that your Lord does witness all things?" On the matter of epistemology and depth of belief wrote Ghazali (trans. Marmura, 1997, p.217):

> *Allah exalted be He said: Whoever purifies it (his soul) has achieved success and whoever corrupts it fails (Qur'an 91:9-10). Whoever combines both epistemological and practical virtues is the worshipping 'knower,' the blissful one.*

On the issue of science and epistemology, Einstein (Bohr, 1985) remarked that there is no science without epistemology. Kuhn wrote on the nature of scientific revolution (1970, p. 154): "those non-cumulative development episodes in which an older paradigm is replaced in whole or in part by an incompatible new one.

These reflections highlight the importance of rediscovering Islamic epistemology, its socio-scientific formalism, and its application grounded in the unique and universal message of the Qur'an—*Tawhid*. To rediscover such an understanding of Tawhid for knowledge and life is the primary objective of this paper. At the same time, the *Tawhidi* worldview is epistemologically and constructively different from the epistemology of rationalism and its construction of the world system. Hence, *Tawhid* forms the core of the scientific revolution *à la* Kuhn. This is true for all socio-scientific inquiry, not limited to any particular area per se. This paper will examine the derivation and development of such a worldview for the entire socio-scientific order, as well as its application.

2. METHODS

In this paper, a formalism of the methodology of the 'circular causation and continuity model' of unified reality is undertaken. The interactive, integrative, and evolutionary (IIE) nature of the underlying model is explained while deriving it from the methodology of the *Qur'an*. The alternative term for the IIE methodology is the evolutionary learning process of the *Shura* (consultation, broadly

used here to convey learned discourse leading to consensus) with human consciousness (*Tasbih*). We refer to this mind-matter participatory and complementary experience as the *Tasbih-Shura* dynamics of the socio-scientific system.

Thus, the IIE-learning process model, equivalently the *Shuratic* process (or the *Tasbih-Shura* discursive process), is the basis of the socio-scientific understanding of the unity of knowledge *a la Tawhid* and its application to the world system in various issues and problems. Such a precept of *Tawhid* is the unity of knowledge, used to understand and apply it to the social, moral, and scientific construction of the world system. *Tawhid* is thus referred to here as *functional* ontology. It explains the methodology of unity of being derived from becoming in 'everything' (Barrow, 1991), encompassing the general and particular areas of human inquiry.

The paper is in three parts. Part One is on the theory of the *Tawhidi* Scientific Research Program (*TSRP).* Part Two deals with some applications of *TSRP*. Part Three is the Conclusion. These parts together establish the epistemological foundation of the *Tawhidi* methodology in 'everything.' The three parts combined demonstrate how scientific knowledge and its moral patterning of the world system can be formed, and how analytics, models, and inferences are derived from the *Tawhidi* methodological worldview.

3. FINDINGS AND DISCUSSION

3.1. Theory Of *TSRP*

The conceptual formalism of the knowledge model of unity of knowledge (*Tawhid*): the IIE or *Tasbih-Shura* process

To start, the focus of attention is on deriving and formalizing a process model of generalized systems of unity of knowledge, as delineated in Figure 1:

$$\Omega \to_{F} \{\Phi\} \to_{f^*} \{\Phi^*\} \to_{f1} \{\theta\} \to_{f2} \{\mathbf{X}(\{\theta\})\} \to_{\downarrow\to f3} \text{New } \{\theta\} \to \quad \text{continuity} \to \ldots \Omega{=}H \qquad (1)$$

$$W(\theta, \mathbf{X}(\theta)) \quad \text{in repeated}$$

s.t. circular causation processes

relations between variables

Primal→Derivation→Process of→Post-evaluation→Evolution→….Continuity→…… Closure

stock of primal knowledge	deriving knowledge: knowledge-flows	deriving similar = discursion	of similar processes	of the very scale universe

Figure 1: The *Tawhidi* String Relation by the episteme of unity of knowledge and the world-system

In Figure (1), called the *Tawhidi* String Relation, ◎ denotes *Tawhidi* epistemology. In it, ◎ explains the fundamental *Qur'anic* axiom of monotheistic oneness. It can thus be understood as the super cardinal yet creative and governing origin of full and perfect knowledge. Hence, we intend to treat ◎ as a mathematical topology. ◎ thus comprises the essential completeness of the universal stock of knowledge in the *Qur'an*, which in the *Qur'an* is called *Lauh Mahfuz*.

◎ denotes the *functional* ontology derived from ◎ in the form of the monotheistic law of everything (*Sunnat Allah* in the *Qur'an*). ◎ is thus the knowledge domain of the revealed *Qur'an* in its order of completeness and absoluteness.

F denotes the spontaneous and pervasive unveiling of monotheistic oneness in 'everything.'

◎* denotes a further *functional* ontological comprehension of the monotheistic law in ◎ through the *Sunnah* of the Prophet Muhammad. The mapping f denotes this medium of presenting the monotheistic law in living experience*.

{◎} denotes knowledge-flows derived from the epistemology of unity by the exercise of *Shuratic* discourse embedded in *Tasbih* (consciousness) at the level of deriving the *usual* and *maqasid* (fundamentals, purpose, and objective) of the *Shari'ah* arising from the *Qur'an*, the *Sunnah*, and learned discourse.

The medium of *Shuratic* discourse is denoted by the symbol f1, in respect of stage 1 of the *Shuratic* process.

The primordial origin of knowledge is ◎. Learning from ◎ to {◎} through the mentioned mediums represents the stages of *functional* ontology, unraveling the *Qur'anic* episteme through laws, guidance, rules, and learned discourse.

The learning process from ◎ to {◎} in the epistemological and ontological meaning of the *Qur'anic* theory of knowledge is brought out in verse (4:69):

> *All who obey Allah and the Apostle are in the company of those on whom is the Grace of Allah,*
> *-- of the Prophets (who teach), the sincere (lovers of Truth), the Witnesses (who testify), and the righteous (who do good): Ah! What a beautiful Fellowship!*

The above verse establishes the confirmation and certainty of the Tawhidi foundation of the world's affairs, extending from the *Sunnah* of the Prophet Muhammad to the companionship of righteous people and, thereby, to the creation of a good society on earth. The combination of these attributes of companionship and certainty within the relational order presented here implies the attributes of monotheistic guidance and mercy that enter through the enactment of knowledge-flows, {◎}, concerning the scheme of things by which the socio-scientific domain is defined.

Such knowledge flows at the epistemological and ontological levels are primordial. They can

include essential social policies and their instrumentation while avoiding details at this initial stage of discourse. Only the general overarching principle is involved.

Examples of such fundamental instruments connected with the *Qur'an* and the *Sunnah* are the institutions of prayer, charity (*Zakah*), spending in a good cause, and avoidance of interest in all its forms (*Riba*). Institutional details, such as *mudarabah*, *musharakah*, and similar financial instruments, are optional at this primal level of guidance, rules, and laws. These require specific investigations. Policies are based on enacting primal instruments in social action as specific issues.

Likewise, it is important to understand the quintessence of *Tawhid* as the fundamental epistemology (Al-Faruqi, 1982). The other pillars of Islamic epistemology are built upon this: the *Sunnah*, *Ijtihad, and Tasbih-Shura*, the learned ones in Islam with social participation. The learned ones are not solely clerics. Rather, they constitute a wide mix of people who participate with commitment, motivation, and a sense of justice as their purpose and balance. These attributes are belief-forming virtues of the *Shar'ees* (learned experts of the *Shari'ah* who participate in the *Shura*). The *Qur'an* is clear in its stand on such points of its fundamental epistemology premised on *Tawhid* (42:52):

> *"And thus have We, by Our Command, sent inspiration to thee (Muhammad): You knew not (before) what was Revelation, and what was Faith; but We have made the (Qur'an) a Light, wherewith We guide such of Our servants as We will; and verily you do guide (men) to the Straight Path…"*

More on the quintessence of *Tawhid*

Furthermore, the *Qur'an* declares (24:35),

> *"Allah is the Light of the heavens and earth."*

One can find the three levels of causality in the above verses, with respect to the Qur'anic theory of knowledge, relating ◎ (including ◎) to ◎* and {◎} in expression (1). In expression (1), bold variables denote vectors.

In expression (1), {**X**({◎})} denotes the ontic (evidential) order of knowledge-induced cognitive and experiential entities. Its occurrence in the socio-scientific order is due to an extensively complex but orderly system of complementary interrelationships. These emanate from understanding and applying the laws, guidance, and rules established through instrumentation in the ontological stage, grounded in epistemology. This medium toward realizing knowledge-induced ontic forms is denoted by f2.

In expression (1), W(◎, **X**(◎)) denotes the evaluation of wellbeing in terms of the complementary variables, relations, policies, and rules included in {◎, **X**(◎)}. The evolutionary learning from ◎ to the end of post-evaluation, using W(◎, X(◎)) in the first process, marks the completion of one level of knowledge formation. It denotes the passage from the epistemological to the ontic levels via the functional-

ontological medium. In this regard, the *Qur'an* declares (13:2),

> *… He does regulate all affairs, explaining the Signs in detail so that you may believe with certainty in the meeting with your Lord.*

Furthermore, there is the verse (4:59) on the principal cause of all causation:

> *….Not a leaf does fall but with His knowledge: There is not a grain in the darkness (or depths) of the earth, nor anything fresh or dry (green or withered), but is (inscribed) in a Record clear (to those who can read).*

On the matter of unseen events that are brought into the same processual order of their understanding, we have the verse (11:123). Here, too, is the reflection of universal causality:

> *To Allah do belong the unseen (secrets) of the heavens and the earth, and to Him goes back every affair (for decision): Then worship Him, and put your trust in Him: and your Lord is not unmindful of aught that you do.*

The evaluation of W(◎, **X**(◎)) based on the confirmation, affirmation, or revision of the earlier sets of ontic (evidential, formal) relations, including the rules and relations so formed, gives rise to New{◎}. Sen (1990) has used a similar concept of social well-being in the deontological sense in ethics and economics. The medium for realizing a new emergent process is attained by once again referring, continuously, to the epistemology in relation to the ontological and ontic rules thus formed for deriving experiential results and guidance from the application of the monotheistic roots. This medium is denoted by f3. In this regard, relating to the systemic re-origination of the creative order as processual causality, the *Qur'an* declares 27:64):

> *Or who originates Creation, then repeats it, and who gives you sustenance from heaven and earth? (Can there be another) Allah besides Allah? Say, "Bring forth your argument if you are telling the truth!*

Also refer to the verse (29:19):

> *See, they do not know how Allah originates creation, then repeat it: truly, that is easy for Allah.*

The affirmation of continuity of the circular causation process into creative evolutionary learning can be derived from the explanation of the verse (10:4):

> *…. It is He who begins the process of creation and then repeats it, that He may reward with justice those who believe and work righteousness…*

In these verses, the re-originative process is universal across the unity of knowledge, space, and time. This overarching domain is pervasive. Within this domain, the power of the monotheistic law enlightens the world-systems. Indeed, as the Qur'an declares, *Allah* is the Beginning and the End, the End and the Beginning.

In this way, a second *Shuratic* process emerges and completes itself. It is followed further by many

more of the same kind. The continuous sequences of onward-moving, knowledge-centered processes that relate epistemology to functional ontology, and thereby to ontic forms, emerge and recur with the advancement, confirmation, and revision as required in the emerging experience of realizing unity as complementary relations among entities of organic diversity. The end of these continuous processes of knowledge flows is the return to *Allah* in the Hereafter (*Akhira*) as the Great Event (*Naba ul-Azim*). In this respect, the *Qur'an* declares (78:1-2):

> *Concerning what are they disputing? Concerning the Great News.*

Furthermore, the Great News is equivalently explained to mean the Hereafter in the verse (78:39):

> *That Day will be the sure Reality: Therefore, who so will, let him take a (straight) Return to his Lord!*

This cosmic and worldly experience of the seen and unseen aspects of total creation is a cumulative process towards the completion of knowledge in the Hereafter, as in the primal *Tawhid*, which is brought out in various parts of the *Qur'an*. Here are a few of these verses (57:3; 10:11):

> *He is the First and the Last, the Evident and the Immanent, and He has full knowledge of everything. (57:3).*
>
> *… But We leave those who expect not their meeting with Us, in their trespasses, wandering in distraction. (10:11).*

The blissful event of the Hereafter as the completion of knowledge is narrated in a *Hadith* (saying) of the Prophet Muhammad, wherein *an-Najwa* is explained as the confidential talk between *Allah* and His devotee on the Day of Judgment (Sahih Al-Bukhari, Vol. 3, *Hadith* No. 621). Another saying of the Prophet Muhammad (*Hadith*) declares (Sahih Al-Bukhari, Vol. 6, *Hadith* No. 105),

> *During the lifetime of the Prophet, some people asked, 'O Allah's Messenger! Shall we see our Lord on the Day of Resurrection?' The Prophet said, 'Yes; do you have any difficulty seeing the sun at midday when it is bright and there is no cloud in the sky?' They replied, 'No.' He asked, 'Do you have any difficulty seeing the moon on a full moon night when it is bright, and there is no cloud in the sky?' They replied, 'No.' The Prophet said, '(Similarly) you will have no difficulty seeing Allah on the day of Resurrection as you have no difficulty seeing the moon on a full moon night.*

The culmination of the processes of knowledge flows into the Hereafter is expressed in the *Qur'an* in its metaphysical, cognitive, and sensorial meanings. In terms of its metaphysical meaning, there is the narrative of meeting Allah in Heaven, which is indeed the highest felicity for the believer and thus can be characterized as the fullness of knowledge. The *Qur'an* speaks of this union with *Allah* in the Hereafter as the event of the highest achievement.

The above verses highlight the integral role and, hence, the complementary relations among knowledge-induced entities, as expressed in the criterion of supreme felicity: 'Removing from their

hearts every lurking sense of injury' signifies the soul's liberation to the height of supreme freedom. This is what complete knowledge endows the believer with. In such a state of highest felicity, the salutation, 'Praise be to *Allah*…' (*Alhamdulillah*) marks the height of cognitive attainment in meeting with *Allah* with perfect spiritual rendering. Among these messages, the *Qur'an* encompasses the message of Islam sent to the Prophet Muhammad as the supreme one (48:28):

> *He has sent His Apostle (the Prophet Muhammad) with Guidance and the religion of Truth to proclaim it over all religion, and enough is Allah for a Witness.*

Relational correspondences between *Tawhid* and the Hereafter (*Akhira*) through the medium of the universal complementarities between good things of life

Sensate knowledge-induced fulfillment will be the supreme felicity (*faux al-Azim*) of the Garden of Bliss (*Jannah*), which is also the optimal realization of knowledge through the medium of correspondence between all things that have attained such perfect knowledge in and of them. Indeed, we note that here, too, the principle of the 'paired' universe, which we treat as the basis of the principle of complementarities within diversity in the ontic (sensate) phenomenon of knowledge-induced things of life, is shown to abide in the Garden of Bliss as well.

The principle of universal complementarities, arising from the Qur'anic principle of creation in 'pairs', is often reiterated in the *Qur'an*. For an explanation of this deep precept of the 'paired' universe of 'everything,' we turn to the following verses:

> *"… and fruits of every kind He made in "pairs," two and two: He draws the Night as a veil o'er the Day. Behold, verily in these things, there are Signs for those who consider!"(13:3).*
>
> *"Glory be to Allah, Who created in "pairs" all things that the earth produces, as well as their own (human) kind and (other) things of which they do not know."(36:36).*

In the *Qur'anic* Chapters 91 to 93, we find the allegory of 'pairs' in creation reflected in physical phenomena between Night and Day, the Sun and the Moon, etc. The meaning here is the purposeful essence of the interaction and coexistence of such complementary events, which bestows balance in the natural order and blessings upon the world systems. The most picturesque understanding of the nature of this 'paired' reality is found in Chapter 55 (*Rahman*, *Allah* Most Gracious). Note, for instance, the verse (55:46-47):

> *"But for those who fear the time when they will stand before (the Judgment Seat of) their Lord, there will be two Gardens – then which of the favors of your Lord will you deny?"*

Furthermore, the multiplicity of such 'paired' blessings in Heaven is pointed out in the verse (55:62-63):

> *"And besides these two, there are two other Gardens, -- then which of the favors of your Lord will you deny?"*

The permanent confirmation of the eternal principle of universal complementarities among the diversity of blessings in life and in Heaven is established by the verse (55:60):

"Is there any Reward for Good – other than Good?"

Transmission functions in the circular causation and continuity model of a unified reality

Finally, one notes the centrally important role played by the transmission functions, F and f ', in the *Shuratic* process or circular causation and continuity worldview of unified reality existing in organic unity. As explained earlier, these are the sources of the Shari'ah and its functionality in light of the *Qur'an* and the *Sunnah*. In the *Qur'an*, these transmission mappings can be derived from the explanation of the following verse (42:51):

"It is not fitting for a man that Allah should speak to him except by inspiration, or from behind a veil, or by the sending of a Messenger to reveal, with Allah's permission, what Allah wills: For He is Most High, Most Wise."

Here, we have all the transmission mappings, namely, F = revelation; f* = deriving epistemology (*Usul*) and Purpose and Objective (*Maqasid*) of the Islamic Law (*Shari'ah),* thus *Maqasid as-Shari'ah*; f1, f2, f3 = functionals for deriving knowledge-flows and the origination of knowledge-induced entities in the *Shuratic* process.

The same message is emphasized in the following verse. It confirms the absolute importance of the *Tawhidi* episteme and its completeness in the functional ontological order of the laws over all other components of Islamic epistemology together with the principal causation of these other components (42:52):

"And thus have We, by Our command, sent inspiration to you (Muhammad). You knew not (before) what was Revelation, and what was Faith; but We have made the (Qur'an) a Light, wherewith We Guide such of Our servants as We will; and verily you do guide (men) to the Straight Way."

The extension of the *Usul* and *Maqasid* of the *Shari'ah* is then proven to hold its domain over all world systems according to the *Shuratic* process. In this regard, the *Qur'an* declares (42:52-53):

"… and verily you (Muhammad) guide (men) to the Straight Way, -- The Way of Allah, to Whom belongs whatever is in the heavens and whatever is on earth."

Finally, the cumulative evolutionary 'straight path' of monotheistic knowledge is shown to self-reference the Tawhidi episteme at every juncture of the circular process of causation as it evolves, culminating in the final return to *Allah* in the Hereafter. The *Qur'an* declares in this regard (42:53):

"Behold (how) all affairs tend towards Allah!"

The appropriateness of the term *Shuratic* process as derived from the *Qur'an*

We have now shown in verses 49-53 of Chapter 42 that *Shura* (Consultation or Participatory

Discourse) is a prime *Qur'anic* premise, establishing the overall meaning of the Shuratic process as a circular-causal, continuity-based worldview of unified reality, as thus derived. Other verses of the *Qur'an* likewise present this Shuratic methodology in its comprehensive sense of intrinsic interaction, integration, and creative evolution (IIE-learning process) within a pervasively knowledge-centered worldview. We have used the terminology *Shuratic* process interchangeably with the **IIE**-learning process because the deepest meaning of the organically relational worldview in this regard comes out of the concluding section of the *Qur'anic* chapter named *As-Shura*, meaning consultation, which can be human discourse or interaction and integration among all kinds of entities in diverse world-systems (*Tasbih*).

Elsewhere, the *Qur'an* tells the reader about communities among birds, as many dimensions under the earth as above it, and the conscious communion of such worlds with *Allah's* law. We learn about the Prophet Sulaiman conversing with communities (*umamun*) of the bird and insect worlds. This was an expression of consciousness and submission of such communities to *Allah*. Hence, the meaning of knowledge-induced conscious learning is spread out in all forms of world systems. Thus, the principle of embryonic learning through complementarities and participation, as Shuratic processes, is found in all kinds of world systems (thus, the *Tasbih-Shura* process in evolutionary learning).

The methodology of the *Shuratic* process as an interactive, integrative, and evolutionary process (IIE-learning process)

We have mentioned earlier that the methodology of the *Shuratic* process is equivalent to the interactive, integrative, and evolutionary process in the mathematical language of the stock and flow of knowledge. In this worldview of unifying relations, we have deep references to epistemology and ontology, as in the philosophy of science. We will now investigate this methodological formalism. We begin with essential definitions.

The stock of complete knowledge (treated as primal topology) $\curlywedge$.

We will treat $\circledcirc$ as a 'universal' mathematical topology defined by the completeness of monotheistic knowledge referred to here as the stock of knowledge. In the mathematical-topological sense, the stock is understood as a topological domain of primal origin. From it emanates an endogenous flow of non-diminishing knowledge as law and guidance. The stock in such a non-material domain cannot be of a diminishing category, for laws and guidance are not diminished and exhausted by use. Likewise, since such laws and guidance are unchangeable, they do not get augmented at this primal level, as this remains exogenous to all ontological and ontic phenomena. Such an exogenous nature of the stock of knowledge is also self-referencing (Choudhury & Zaman, 2009). The functional ontology of *Tawhid* thereby induces the ontic (material) reality at every juncture of a process re-originated from the previous one. Hence, in the very large-scale universe -- '$\circledcirc$ in the primal to $\circledcirc$ in the Hereafter' -- the permanence

of the impact of ◎ on the forward knowledge-centered movement of the IIE-learning processes abides.

Therefore, the cumulative power of knowledge-flows caused by ◎ on the ontic world regenerates itself in the Hereafter as the Great Event (*Naba ul-Azim*). When understood in this sense of the unraveling of monotheistic power (knowledge), first in the form of knowledge-flows in a small-scale universe, and then, by its full impact on the events of a very large-scale universe, the meaning of completion and absoluteness is comprehended. The completeness of the stock cannot be the accumulation of knowledge flows in ontic things used to recreate the stock in the Hereafter. Rather, it is the unraveling of the full power of ◎ on the very large-scale universe that repeats the primal stock as the terminal stock.

The process explains this idea:'☜ *in the primal to world-systems, and onto* ☜ *in the Hereafter (Akhira).*' This correspondence is, most importantly, a complexity of the causal relation of "◎ onto ◎" between *Tawhid* in the primal and *Tawhid* in the Hereafter, mediated by a knowledge-centered unifying universe.

The above concept of the topology of a stock of knowledge in terms of its identity between primal and terminal forms is derived from the *Qur'an* (42:49):

> *"To Allah belongs the dominion of the heavens and the earth. He creates what He wills (and plans)…"*

The exegesis of this verse is centered on noting the equivalence of 'dominion' with the concept of *Tawhidi* topology (Choudhury, 1995b). The topology of complete and absolute knowledge is inferred from the portion, 'He creates what He wills.' The nature of the *Tawhidi* topology being premised on monotheistic law is inferred from the verse, 'He creates what He wills' according to His plans (*Sunnat Allah* or *Kalimat Allah*). The transition from "primordial ◎ to ◎ in the *Akhira*" through continuous self-referencing to ◎ along the IIE-trajectory is inferred from the verse (42:53):

> *"Behold (how) all affairs tend towards Allah!"*
>
> *Also, note the verse (92:13),*
>
> *"And verily unto Us (belong) the End and the Beginning."*

From the following *Hadith* of the Prophet Muhammad, we understand the role of divine mercy as the offshoot of monotheistic knowledge of the world system and its relationship with the stock of terminal mercy. The point here is that the divinely loaned mercy to the world-systems accumulates to fullness in the Hereafter. It then combines with the fullness of the stock of monotheistic knowledge. A loaned substance does not cause a diminution of the stock, for the loaned part is off and from the stock in the complete system.

> *"Verily Allah created Mercy. The day He created it, He divided it into 100 parts. He withheld with Him ninety-nine parts and sent its one part to all His creatures. Had a disbeliever known of all the Mercy which is in the Hands of Allah, he would not lose hope of entering Paradise, and had a believer known of all the punishment which is present with Allah, he would not consider*

himself safe from the Hell-Fire." (Sahih Al-Bukhari, Vol. 8, hadith No. 476).

The topological super-cardinality question of the monotheistic stock of knowledge

Although ◉ is exogenous because of its primal nature, it is nonetheless centrally functional. However, to establish this correspondence between absolute and complete knowledge and flows of knowledge meaningfully, we need to define the topology of the stock in terms of its cardinality (Maddox, 1970). It must be understood that we are simply conceptualizing here the cardinality of a non-dimensional entity, that of the topology of knowledge. This does not imply a cardinal value assigned to the divine being. Rather, the result of cardinality here is to define the *ontological relational* nature of mappings well, as given in expression (1). Certain *Qur'anic* verses and a *Hadith* testify to the correctness of such an approach. First, concerning the need for defining a meaningful correspondence between ◉ and ontic world systems, we take the broad implication from the verse (42:49):

"… He bestows (Children male or female according to His Will (and Plan), or he bestows both males and females, and He leaves barren whom He will: For He is full of knowledge and power."

Such a relationship can occur only through divine will (law), without any human manifestation of *Allah* in ontic events, implied or otherwise. Without this understanding, any such correspondence between *Allah* and the world system would be pantheistic and would be rejected by the *Qur'an*. Regarding the impossibility of manifesting *Allah* in any shape and form, the *Qur'an* declares (7:143):

"…. He (Moses) said, 'O my Lord! Show (Yourself) to me, that I may look upon You.' Allah said, 'By no means can you see Me (directly); but look upon the mount; if it abides in its place, then shall you see Me.' When his Lord manifested His glory on the Mount, He made it as dust, and Moses fell in a swoon…."

Thus, Moses was not able to see *Allah* directly. A saying of Ayesha, the pious wife of the Prophet, states:

"If anyone tells you that Muhammad has seen his Lord, he is a liar, for Allah declares, 'No vision can grasp Him.'(6:103). And if anyone tells you that Muhammad knows the Unseen, he is a liar, for Allah declares, 'None knows the Unseen but Allah.' (Sahih Al-Bukhari, Vol. 9, Hadith No. 477).

One *Hadith* declares (Ghazali trans. Buchman, 1998):

"Allah has seventy veils of light and darkness; were He to lift them, the august glories of His face would burn up everyone whose eyesight perceived Him."

In the absence of the non-corporeal presence of *Allah* in the world system, it must simply be the medium of monotheistic law and guidance alone that makes *Allah's* monotheistic presence possible in all relations of world systems. The same medium of transcendental relationship explains the manifestation of the complete stock of monotheistic knowledge in the Hereafter. On this matter, verse

(40:15) maintains:

> *"Raised high above ranks (of degrees), (He is) the Lord of the Throne (of authority = arsh): By His Command does He send the spirit (of inspiration) to any of His servants He pleases, that it may warn (men) of the Day of Mutual Meeting…"*

Al-Hilali and Khan (1990: Vol. III, p. 118) write about this aspect of *Tawhid* and the universe as explained in the *Qur'an*: "*Allah* Himself (*Dhat*) is not present with us, but He is present with us by His Knowledge."

Thus, we define cardinality in *Tawhidi* topology as a concept of generating explainable mappings for the emergence of *Qur'anic* world systems (*A'lameen*). We will call such a universal cardinality of the stock of monotheistic knowledge 'super-cardinality,' denoted by SC(◎) of ◎ (Choudhury, 2000a). It is unnecessary to measure such a topological space or identify any elements in this set. Only the stock of knowledge embodies the primal topology. From this emanates the causation of all ontic (cognitive) domains while establishing the nature of knowledge flows amid universal complementarities across diversity. This principle and its manifestation and confirmation alone are the sure signs of the unity of monotheistic knowledge among interacting entities as agents, variables, their relations, and world systems.

Thus, ◎ contains the accumulation in the super-cardinal sense of all truth statements and their opposites comprising falsehood. That is, true ◎ false; truth ◎ falsehood. By this 'mathematical complementation (opposite)' property, ◎ contains the null and universal sets. The 'mathematical complementation' (opposite) of the null set defines the latter. The null set is defined by◎◎ = {} in expression (1). Here, {◎} denotes the complete class of all true statements. {'} denotes the complete class of all falsehoods.

Regarding the universality of the monotheistic law, both events are explained in their primal forms. These comprise the truth of the oneness of *Allah* as the episteme and the principle of universal complementarities in the ontic sense of the unification of knowledge. {◎}◎{◎'} then denotes the complete monotheistic law explaining the totality of the truth and the falsehood. We also call the disjointed categories {◎} and {◎'} the primal stock of knowledge and the primal domain of de-knowledge.

The nature of the interactive, integrative, and evolutionary process at the level of the knowledge flows.

The analytical nature of Qur'anic epistemology

We define knowledge flows by deriving laws, rules, and guidance from the tenets of the monotheistic law at the epistemological level. Thus, knowledge flows commence at the *functional-ontological levels* F and f* in expression (1). This statement needs explanation.

At the level of F, one notes that within the created world, knowledge was fully bestowed on the

Prophet Muhammad when he was taken across the realm of worldly knowledge into the mysteries of truth. In this regard, the *Qur'an* declares (53:14-18):

> *"Near the Lote-tree beyond which none may pass: near it is the garden of Abode. Behold, the Lote tree was shrouded (in mystery unspeakable!). (His) sight never swerved, nor did it go wrong! For truly did he see of the Signs of his Lord, the Greatest!"*

Yet no mortal has been given the complete knowledge, which is *Allah's* alone. This was explained earlier by appropriate *Qur'anic* verses and *Hadith*. Consequently, F does not make monotheistic law explicit in its *primordial* form. Rather, it derives laws for socio-scientific ontology as guidance, as well as subsidiary laws that carry the monotheistic essence.

There is no doubt among *Qur'anic* scholars that *Hadith* literature exists in two forms (Azami, 1978). These are divided into inspirational types and are believed to have been transmitted to the Prophet Muhammad by the angel Gabriel. Such *Hadith* are termed Hadith al-Qudsi, which are sacredly inspired *Hadith*. Such *Hadith* draw their source directly from Allah Almighty through the angel Gabriel (Ibrahim & Johnson-Davies, op. cit., pp. 7-23). On the other hand, the *Hadith* ascribed to the Prophet himself through the chain of narration (*Sanad*) is addressed to the Prophet in the first person. According to the second form of Hadith, the Prophet's knowledge of the divine mysteries encompassed the full range of *humanly* possible domains of knowledge. The privilege of acquiring all the stock of humanly possible knowledge of the divine was thus conferred on the Prophet Muhammad alone. Yet this needed to be *complete*d knowledge of the *Tawhidi* knowledge stock, the super-cardinal measure. Despite this qualification, all *Hadith* remain as strings of ontological knowledge flows from which posterity is to derive a broader, deeper, and greater meaning of life, yet firstly in conjunction with the *Qur'an*.

Although the *Qur'an* is indisputably a work of detail and clarity, it is left to human wisdom inspired by monotheistic knowledge to search for and discover the extensive meaning and application of such *Qur'anic* rules. Likewise, the Prophetic sayings (*Ahadith)* corresponding to revelations as they came to the Prophet Muhammad must also be qualified by such a possibility for extension. Consequently, although authentic *Hadith* and *Hadith al-Qudsi* remain precise conveyors of the monotheistic law, they must also be understood in the interpretive sense according to their ontological implication to life's diverse problems. The mapping in expression (1), F, thus remains ontological. The above argument regarding the recording and the authenticity versus dispute over Hadith can be found in Azami's work (1978).

The ontology of the authoritative (*Ijtihadi)* knowledge derivation from epistemological roots

The same may be said, but to a lesser extent, regarding the derived function f* in expression (1). However, given the *Qur'anic* revelation and the acceptance of the inspired prophetic sayings (*Hadith al-Qudsi*) together with other authentic *Hadith*, as explained above, the function of f* is precisely to provide

detailed interpretation and application of the primary body of knowledge. Thereby, diversity in the understanding and application of the fundamental body of *Qur'anic* and *Sunnatic* knowledge for the socio-scientific order increases exponentially across space and time with knowledge induction. This is where a clear delineation is necessary between the core of epistemology (Usul) and Maqasid as-Shari'ah, as the derivation from the monotheistic law and the relativistic development of *Urf* (customs) and *Adah* (practices) into the *Shari'ah* caused by space and time variations of human problems and perceptions (Masud, 1984).

Hence, f* in expression (1) is truly ontological in deriving the rules and guidance for attending to diverse problems of the socio-scientific order. Thus, the actions arising from the medium of f* are intensely discursive, given the diversity of interpretation and application afforded by learned discourse within *Shuras* of socio-scientific groups. This, however, does not necessitate losing sight of the monotheistic moorings of unity of knowledge, law, and guidance that lead to the comprehension and application of monotheistic oneness.

The implication then is stronger. That is, the process of extracting rules by discourse and consensus from the epistemological source, called *Ijtihad*, leads to consensus, i.e., *Ijma*. The inferences and rules that emanate are perfectly changeable at the ontological level, within the substantive requirement for maintaining and sustaining the essence of unity of knowledge. The *Tawhidi* epistemology must permanently govern the creatively dynamic search (*Ijtihad*) and changes by spiritual reflection (*Tafakkur*). Only then can they lead to consensus or integration (*Ijma*) along the paths of search, discovery (Ahkam = rule, and Ayath = Signs of monotheistic oneness), and application (Burhan = proof, argument) at the ontological and ontic stages of knowledge formation.

We have now derived the sequence, {◎ to ◎ to ◎*}, via the mappings F and f* in expression (1) in respective stages. Herein, we find that while the sequence, ◎ to ◎, is a unique one in light of the permanence and immutability of the *Qur'an*, *Hadith al-Qudsi,* and the authentic *Hadith*, the process, {◎ to ◎*}, is a multidimensional one within the *Shuratic* process (i.e., carrying *Tasbih-Shura*) via the **IIE**-learning process. Interactions lead to integration, and these interactions drive the creative evolution of knowledge in the formation of laws, rules, guidance, and instruments at the ontological and ontic (material) levels across the dimensions of knowledge, space, and time. Because of the multidimensional nature of f* in deriving knowledge from the sequence, {◎ to ◎}, this functional form ceases to be linear. Instead, it is diverse and complex within the multidimensional perspective of unity within diversity that characterizes the unity of monotheistic knowledge.

This is the strong implication of the interactive, integrative, and evolutionary (**IIE**) worldview, or the Shuratic process (Tasbih-Shura), regarding the formation of fundamental knowledge of the monotheistic law and guidance at the very first level of the *Shuratic* process. This strong implication has

vast institutional and social contractarian meaning for the world nation of Islam (*Ummah*) along with its intellection. It leads to a unified method for studying, understanding, and applying the Tawhidi worldview across all facets of experience in the *Ummah*. The *Shuratic* process in such a framework gives the *Ummah* its distinctive identity as a unified, organic global entity. The hegemony of groups and clergy is subdued and replaced by the participation of a *Qur'anic*-conscious populace represented by learned and *Allah*-conscious members, the *Shar'ees*. The result of such a conscious representation is the central role of the motivation, commitment, and understanding of the principle of justice as balance among the *Shar'ees*. Various verses in the *Qur'an* testify to the above facts regarding knowledge formation within the **IIE** methodology (Choudhury, 1994b).

About the matter of harmony within diversity in explaining the monotheistic law, we note the verse (17:89):

> *"And We have explained to man, in this Qur'an, every kind of similitude: yet the greater part of men refuse (to receive it) except with ingratitude."*

On the matter of the distinct nature of the *Qur'anic* worldview from all other ones, we have the verse (2:145-47):

> *"Even if you were to bring to the people of the Book all the Signs (together), they would not follow your qibla; nor are you going to follow their qibla; nor indeed will they follow each other's qibla. If you, after the knowledge has reached you, were to follow their (vain) desires, then were you indeed (clearly) in the wrong. The people of the Work know this as they know their sons, but some of them conceal the truth, which they know. The Truth is from your Lord; so be not at all in doubt."*

Here, the meaning of *qibla* is far wider than simply the direction of prayer. It stands for the contrast between Tawhid and other beliefs, notably rationalism and dualism.

From the stage of functional ontology to the stage of the ontic (evidential) determination of knowledge flows

Our next step in establishing the features of the **IIE**-learning process of the *Shuratic* process (*Tasbih-Shura*) in expression (1) is to examine the ontic stage (cognitive) of knowledge flows in light of the *Qur'an* and the *Sunnah*. We now consider the relation, f1, that derives knowledge-flows from ◎* and maps them onto the realm of knowledge-flows, {◎}. Since ◎* is subject to the **IIE**-learning process methodology as explained above within an extensively participatory *Shura* in socio-scientific world systems, the domain of {◎} must also be the same.

At this level, human participation in the social, economic, and other human experiences is combined with the intrinsic nature of systemic interaction, dynamic equilibrium, and knowledge-shared understanding in the *functional* ontological domain (Gruber, 1993; Maxwell, 1962), that is, in the

formalism of (◎ to ◎) towards generating the learning *Tasbih-Shura* process of discourse. The **IIE** methodology is thus carried forward extensively and intrinsically to the level of knowledge flows about the comprehension and reflection of the emanating laws, guidance, and rules that are now derived.

From the stage of knowledge-flows to the stage of evidence in *TSRP*

The next step in formalizing the **IIE** methodology within the general-system framework of the *Qur'an* is to extend the knowledge flows in their primal stage to the ontic world systems of observed and relational forms. Here, we carry the knowledge formation stage from the complex process of IIE-learning in establishing comprehension and reflective conceptual and cognitive power in the human world to its application in experiential world systems. In the world system, monotheistic evidence is generated by the impact of the knowledge flows on induced variables, entities, and relations.

We now define knowledge-induced evidence in *Qur'anic* world-systems (*Ayaths*) by the complexity of such interactive forms, {**X**(◎)}. In this way, the complete first stage of objectification of **IIE**-learning world-systems comprises the entire chain, [{◎} to {◎} to {◎*} to {◎} and onto {**X**(◎)}}], through the relations F, f*. f1 and f2, as shown in expression (1).

We now note that, as the *functional* ontological and ontic formation of knowledge is governed by the primal epistemology of *Tawhid*, the *Qur'anic* world systems are also spanned by knowledge flows. These functional relations carry forward the same complexity of interaction, integration, and creative evolution from the level of primal knowledge formation into the ontic domain of evidence. Such **IIE**-learning processes make relations organically unified across diverse domains of experience *res extensa*.

3.2. Applications Of TSRP

We now take up a few examples of applications of *the Tawhidi* String about socio-scientific world-system issues. The coverage, though, is limited in scope. It is taken up within the conceptual framework of *TSRP*. The author has developed details on these issues from comparative perspectives.

Justice and freedom *a la Maslaha wal-Ihsan*

An example of the social order is a theory of justice and freedom that must govern the formation of social preferences in an Islamic social contract. Imam Shatibi examined this significant topic in his theory of Maslaha wal-Istihsan (preference formation for the public good) (Shatibi trans. Draz, undated). *Al-Maslaha* revealed that the Islamic state's most important function is to transform and realize social preferences through the Maqasid as-Shari'ah, about choices in the economy, institutions, and society, and across the extensive domain of socio-scientific relations.

Human ecology, according to *TSRP*

Human ecology is another example. It encompasses the extensive domain of interactions among human communities, ethics, the environment, and the global order (Hawley, 1986). Since such interactive preferences result from knowledge formation through participation among institutions,

markets, individuals, households, businesses, communities, and the environment, the overarching IIE methodology governs this knowledge formation and the variables, entities, and relations it induces. The creatively dynamic feature of the **IIE**-learning process makes the resulting preference formation dynamic. Such preferences form the extensive basis of Islamic social choice and, thus, of the participatory worldview of *Shura* institutions and *Shura* praxis.

Such is the initiating premise of the Islamic social contract theory in Imam Shatibi's Maslaha wal-Ihtisan (Choudhury, 1993; Masud, 1984). To Imam Shatibi, *Ijtihad* (authoritative epistemic investigation) and *Ijma* (consensus) were premised on the uniqueness of (◎ to ◎), but they evolved dynamically through ◎*. Therefore, the learning process (◎ to ◎) could not be static. The *Shari'ah*, thus, is a dynamic process of understanding and unraveling reality. The evolution of *Shari'ah* in this sense and the formation of social preference within the Islamic social contractarian model mark the phase of deriving {◎}-values and their induction in preferences using the **IIE** methodology.

Economic fundamentals in *TSRP*

On economic matters, it is strange that we know so little about the economy, money, wealth, and choice behavior. We still need to settle on the basic definition of economic behavior and the postulate of economic rationality. The textbooks for the last two hundred years have defined economics as the study of the optimal allocation of scarce resources among competing ends. Yet, in the context of *TSRP*, such a definition needs to be revised and corrected. So, what is the understanding of the economy according to *TSRP*?

The economy, as an independent domain of human needs, actions, and responses in mainstream theory, is replaced by the study of economic problems that can only be understood through interactions among a multitude of forces within the economy and its moral and social embedding, as well as science, morality, and ethics. Behavior is still the starting point of the *TSRP* concept of the embedded economy as a moral and social organism. Yet such behavior manifests as the formation and aggregation of individuals' preferences within the institutional, organizational, governmental, and social domains, rather than as a linear aggregation. Conversely, complex preferences are shaped by dynamic forces that influence the IIE-learning processes at every stage of embedding.

Markets are ethical venues for realizing preferences, forming demand, and menus form supply, but they are not *wertfrei* systems of exchange of goods at market-revealed prices. Thereby, demand and supply appear only as nice concepts. Such a nice concept of markets exists without interactive dynamics that cause embedding to occur and change across systems. Two teasing questions arise: (1) Mainstream economics talks of risk-return behavior in uncertain choices. Yet what is the investor's risk behavior if high risk is associated with uncertainty in choice and increased diversification in the vastness of the embedding field? The answer to risk-return behavior is the opposite of the risk-aversion

characterization of mainstream economic theory. (2) Mainstream economics says demand, price, and quantity are oppositely related even if income increases. Yet, the relationship between price and quantity will not be negative in a demand equation, even when two complementary goods and income affect the quantity of any one good.

For example, take such goods as milk and cheese. If cheese has become expensive because of its production inputs, then milk has become expensive as well. Yet the need for healthy food necessitates the same amount of milk intake. This positive relationship between price and quantity is further enhanced or remains inelastic as income and population increase. The problem is even more subtle if knowledge continuously induces all the variables in this multivariate demand function.[1]

The knowledge-inducing learning processes within an organic epistemic unity such as the *TSRP* establish the following definition of the economy. This is an extension of Debreu's (1959) definition of the economy: E = E(**R,p,q, P, T;** W)[◎], with ◎ ◎ (◎; S) being also recursively determined. Bold symbols denote vectors. **R** denotes resource; **p** denotes price; **q** denotes quantity; **P** denotes policy instruments; **and T** denotes resource mobilizing instruments and technology. Bold variables denote vectors. W denotes the well-being function. These variables are each recursively interrelated according to the unifying relational epistemology of (◎'S) — the *TSRP*- through the knowledge flows along learning processes denoted by {◎}. ☞ derived along the learning processes impact each of the variables and relations of the good things of life in a complementary way. From this generalized characterization, specific cases can be derived. The multitude of examples expands without limit in the whole socio-scientific order.

The scientific multi-universe (*A'lameen*) depiction by *TSRP*

Interesting scientific similarities also arise but with substantively different meanings and interpretations in the *TSRP* explanation of specific socio-scientific phenomena. One of these is the nature of scientific inquiry. In this area, we find Stephen Hawking's characterization of scientific theory. Hawking (1988, pp. 10-11) writes:

The eventual goal of science is to provide a single theory that describes the whole universe. However, most scientists' approach separates the problem into two parts. First, some laws tell us

[1] Let the demand function continuously induced by knowledge-flow θ be $q(\theta) = f(p_1,p_2, Y, P)[\theta]$. Then, $dq/d\theta = (\partial f/\partial p_1)*(dp_1/d\theta) + (\partial f/\partial p_2)*(dp_2/d\theta) + (\partial f/\partial Y)*(dY/d\theta) + (\partial f/\partial P)*(dP/d\theta)$. The complementary effect of θ on each of the variables, shown here in the terms, will be positive. However, the implication of continuity and causality here is this: The **IIE**-relations must exist. Circular causation between the variables is evaluated for estimation and simulation. An example of the system of six equations in the six variables $(q(\theta), p_1(\theta), p_2(\theta), Y(\theta), P(\theta), \theta)$ is this: $P(\theta) = g(q(\theta), p_1(\theta), p_2(\theta), Y(\theta),\theta)$. Finally, in the circular causation system, there is the following well-being function of complementary variables (i.e., positively related): $\theta = W(q(\theta), p_1(\theta), p_2(\theta), Y(\theta), P(\theta))$. Yet it is noted that since θ is formed in the **IIE**-learning process, it results from many moral, ethical, policy, and behavioral effects. Hence, by such endogenous impacts, all the variables have learning bounds in their open spaces in the learning processes of changing θ-values.

how the universe changes over time...Second, there is the question of the universe's initial state. Some people feel that science should be concerned with only the first part; they regard the initial situation as a matter of metaphysics or religion. They would say that an omnipotent God could have started the universe any way he wanted. That may be so, but he could have also made it completely arbitrarily in that case. It appears that he chose to make it evolve in a very regular way according to certain laws. It, therefore, seems equally reasonable to suppose that there are also laws governing the initial state.

Conversely, socio-scientific reasoning in the TSRP universe starts with the sole axiom (and no other) of the oneness of the monotheistic law and its purposeful, explainable, and applicable consequences in the world system, in both detail and generality. Accordingly, the substantive meaning of organic unity of the world system explained by the initial state of fundamental unity is the oneness of the monotheistic law and its functional ontology across multiverses (*A'lameen*) of relational world systems. Hawking's initial condition and law are essentially and infallibly premised on the oneness of the monotheistic law and its organic social reconstruction of science and society.

Thus, the emanating knowledge flow is primal in the *TSRP* characterization of all phenomena. This is the domain of 'everything'. The universe of the *Qur'an* is thereby premised on the knowledge-space-time dimensions. This is unlike Hawking's view and the scientific community's belief that the universe is premised on a space-time structure. In the latter case, knowledge is exogenous to the socio-scientific world system of mainstream science. Any process inside this domain is of the same nature, deeply entrenched in physical and social Darwinism.

The moral and ethical social construction of the socio-scientific order in *TSRP* is multifarious. It comprises vastly interacting, integrating, and evolving world systems spanning science and society. It allows the answer to the question: "How did we get here at a stately point of time in our existence?" *TSRP* answers this question by establishing an epistemic axiom and then analyzing, proving, and explaining that we owe our geometrical coordinates of existence to many learning processes that pass through learning generations of possibilities, all experiencing inter-systemic relational unity. Thereby, learning histories explain our states at given points in time. The *Qur'an* addresses subjects such as comprehension, observation, and reflection.

Hawking & Mlodinow (2010, p. 80) write about such learning (probabilistic general-system) histories: "…for a general system, the probability of any observation is constructed from all the possible histories that could have led to that observation. Because of that (t), his method is called the 'sum over histories' or 'alternative histories' formulation of quantum physics." Yet, for this profound assertion of Feynman's description of the probabilistic learning universe (Choudhury, 2010), there cannot be a linear aggregation of histories in the *TSRP* learning universe. There arises a complex of interrelating and

evolving learning geodesics (Kupka & Peixoto, 1993). The geodesics exist as manifold subspaces of the multiverse and share the same universal and unique law of the unity of being and becoming.[2]

Combining the examples mentioned above into one category of dynamic preferences

Whether it is an economic, social, or scientific problem under study, there is an underlying objective functional to this. As all socio-scientific problems are studied through the Tawhidi evolutionary learning processes within the unity of knowledge, the issues under investigation are driven by distinctive systems and cybernetics. The wellbeing function inherent in the system and cybernetic worldview of *Tawhidi* unity of knowledge is taken as the wellbeing index (*Maslaha)* encompassing economic, social, and scientific domains. This point also establishes the far greater meaning, purpose, and objective of the *Shari'ah* through organic participation and complementary interrelationships among diverse entities across systems. The domain of the *Shari'ah* is now extended to the interactive, integrative, and evolutionary-by-learning domain of 'everything.' Such a domain of 'everything' emerges from the precept of the all-comprehensive meaning of the monotheistic law (*Sunnat Allah)* in the *Qur'an*

In the context of the conceptual and applied perspectives of the well-being function in the worldly evaluation of the applications of *the Tawhidi* monotheistic oneness across diverse systems, the central place of preference formation is essential. Knowledge flows functionally and induces preferences. The idea of dynamic preferences now emerges in every socio-scientific well-being function. Knowledge-induced dynamic preferences are carriers of the organic unity of knowledge among variables and their relations across diverse systems. This is the concept of endogenous ethics and the role of morality in the construction of the world system in its generality and specifics. The unity of knowledge induces both.

We denote such a preference field by {◎(◎)}. The bold symbol signifies the systemic application of preferences. Like the properties of the IIE-learning processes in which all sets of variables, relations, and evolutionary mappings form mathematical topologies, there exist the following relations: For every {◎} ◎ (Ω, S); likewise {◎, X(◎)} ◎ (*Tawhidi* relationship with the world-system), (1) $◎_{interactions}◎_{integration}${◎, X(◎)}◎(*Tawhidi* relationship with the world-system); (2) (d/d◎)(f({◎, X(◎)}) > 0 marks the evolutionary phases of learning processes.

These properties hold for all complementary relations between the organically unified reconstruction of the positive state of the world system towards moral and ethical standards. Such

[2] Such general multilinear relationships of evolutionary nonlinear functionals can be represented as a tensor function (Gel'fand & Shenitzer, 1961). The following is the way to write tensor functionals: $(\mathbf{x(\theta),f(x(\theta));(Fof)(x(\theta))}) = a_{ij}{}^{k}.\xi^{i}\eta^{j}\zeta_{k}$, where, $\mathbf{x(\theta)} = \xi^{i}.e_{i}$; $\mathbf{f(x(\theta))} = \eta^{j}.e_{j}$; $\mathbf{(Fof)(x(\theta))} = \zeta_{k}.e^{k}$. ($e_{i}$; e_{j}) are the contravariant basis vectors of region R. e^{k} are the covariant basis vectors of **(Fof)(x(θ))** in region R^, which is the dual of the covariant vector space of region R, meaning the functionals that are linear combinations of nonlinear functionals in R.

relations comprise evaluating the well-being function through its 'estimation' followed by 'simulation' using the circular causation method. For a detailed coverage of the mathematical formulation of a circular causation and continuity model of the *Tawhidi* genre, see Choudhury (1998a, 1998b, 1999a, 1999b, 2000a, 2000b, 2006a, 2006b).

The above description of knowledge-induced dynamic preferences in economics replaces preferences as a datum in all mainstream economics. Social preferences and choices no longer follow the postulate of transitivity. The social welfare function is undefined in the sense of the 'utilitarian' addition of utility functions (Harsanyi, 1955; Hammond, 1989). The utility functions are undefined, for indifference curves are not smooth and convex surfaces. Likewise, production functions with marginal productivity theory do not exist; neither do production isoquants. The marginal utility and marginal productivity concepts do not determine relative prices.

Instead, preferences are dynamic and learning in evolutionary phases, and optimization and steady-state equilibria are replaced by simulation under perturbation fields of the IIE-learning processes. Only simulation and learning equilibria are the true consequences. Measurements and analysis of the measurement results are carried out in the vicinity of perturbation points. Events and futures are estimated and reconstructed by simulating the objective well-being criteria of *Maqasid as-Shari'ah* at their 'near' intertemporal proximity points.

While the epistemology of unity of knowledge breaks down the competition and conflict, marginalism, and methodological individualism of mainstream social Darwinism in both the natural and social sciences, it establishes an altogether fresh perception of socio-scientific critical realism. Under such critical realism, the wellbeing objective criterion of the *Tawhidi* worldview reflected in the *Maqasid as-Shari'ah* is represented by the extended wellbeing (*Maslaha*) criterion (W(.)) as follows:

$$W(X(\circledcirc)) = W(X_1(\circledcirc),X_2(\circledcirc),X_3(\circledcirc), \ldots, X_n(\circledcirc)) \quad (2)$$

$X_1(\circledcirc)$ denotes the economic system; $X_2(\circledcirc)$ denotes the social system; $X_3(\circledcirc)$ denotes the physical science system; $X_n(\circledcirc)$ denotes other forms of systems.

$$X_{ij} = F_{ij}(X_{i'j'}) \quad (3)$$

(i,j) $\circledcirc$ (numbered vector elements (i) in systems (j)). The prime notation denotes the numbered vector elements (i') in systems (j') excluding (i,j).

$$\circledcirc = F(X_1(\circledcirc),X_2(\circledcirc),X_3(\circledcirc), \ldots, X_n(\circledcirc)) \quad (4)$$

With $W(\circledcirc)$ and '$\circledcirc$' and their positive functions being monotonic positive transformations of each other, the functional properties are as follows:

$$dW/d\circledcirc = \circledcirc(\circledcirc W/\circledcirc X_i).(dX_i/d\circledcirc) > 0 \text{ identically} \quad (5)$$

Thereby, $dX_i/dX_j = (dX_i/d\circledcirc)/dX_j/d\circledcirc) > 0$, for each (i,j) as above, with X_i and X_j as elements of the vector $X(\circledcirc)$ that are complementary in circular causation relations.

By the comparison of 'similar functions,' a monotonicity of relations exists between W(.) and ⊚. Hence, W(.) is the conceptual well-being function of *Tawhidi* unity of knowledge. Its meaning as well-being for public purposes (*Maslaha wa-Ihtisan)* is derived from the organic participative interrelationship between the variables of X(⊚). Non-Maqasid variables are inverted or converted to their corresponding opposite values.

On the other hand, ⊚ denotes the functional form of the measured degree of well-being by unity of knowledge existing in the positive measurements or simulated for moral reconstruction in the normative worldview and its measurements. The system of relations (2) – (4) comprises the circular causation relations. The relations F's can take indefinitely many forms. Yet they cannot be linear due to the dynamic effects of knowledge flows and the endogenous nature of IIE-learning processes. The knowledge-induced simulated coefficients of the circular causal system of relations reflect nonlinearity and complexity arising from endogenous interrelations among variables.

An example of the above implication of the system and cybernetic worldview of IIE-learning processes of the *Tawhidi* epistemological genre in the unity of knowledge is ecology. Markets and the economy form a socially embedded ecology in this system and cybernetic worldview. This is intercausally related to the social order of ethical preferences, which reflects social choices and consciousness. Then, science, with its integrative worldview, examines physical and ecological elements to understand the discursive relationship among interactive, integrative, and evolutionary forms of market preferences, which are interrelated with social preferences and the moral and ethical preferences of science as a process (Hull, 1988). Such unified evolutionary learning dynamics are thus studied in the context of generalized systems and cybernetics within a managed totality as knowledge evolves.

3. CONCLUSION

The universal truth of monotheistic unity and its crystallization in real world-systems has left an abiding legacy for all generations that look up to this praxis. Such a venture has always revealed fresh answers and directions to the question of the unification of knowledge and the resulting world system.

The frontiers of scientific endeavor today center on the question of the universe's initial condition (Hawking, 1988). Such inquiries have resulted in the project on the theories of 'everything' (Barrow, 1991). In social theory, as in the scientific paradigm, the praxis of unifying the premise of markets with institutions and polity has recently proceeded with greater vigor (Henderson, 1999). The endogenous theory of institutions is notable in this area of economic research (North, 1981). However, such scientific research projects have either been purely narrative or have remained entrenched in the neoclassical roots of new institutionalism and social choice theory (Feiwel, 1987). Such developments have yet to help develop a study of social and moral discourse as an endogenous structure governed by polity-

market interaction. Consequently, a dynamic theory of preference formation and change, and its economic, social, and institutional consequences, still needs to be discovered in political economy.

The theory of the unity of knowledge, premised on the oneness of Allah and on its externalization through concrete laws into real-world systems, remains a scientific research project of profound significance. On this basis, a substantive socio-scientific theory can be established. This is the project of *the Tawhidi* Scientific Research Program.

The *Qur'an* states that the above freedom is granted to knowledge formation in stages. We have earlier explained the verses from Chapter 42 of the *Qur'an, entitled The Shura or Consultation (in the extensive sense: moral and social discourse) (particularly note verses 49-53),* embedded in monotheistic consciousness in 'everything' (Tasbih), which yields the *Tasbih-Shura* experience. We further support the explanation of the verses mentioned above with the following one (25:33):

> *"Those who reject faith say: 'Why is not the Qur'an revealed to him all at once? Thus (is it revealed), we may strengthen your heart and gradually rehearse it for you in slow, well-arranged stages. And no question do they bring to you, but We reveal the truth and the best explanation (thereof)."*

The verse explains that the *Qur'an* spreads its fathomless knowledge in degrees according to the magnitude and nature of a problem at the conceptual, cognitive, and practical levels. The effective resolution of such a problem, as it occurs and is addressed by Qur'anic knowledge, instills confidence in believers. The extension of this proof (*Burhan aqli*) proves the universality of the *Qur'anic* methodological worldview.

REFERENCES

Al-Faruqi, I.R. (1982). *Tawhid: Its Implications for Thought and Life*, Herndon, VA: International Institute of Islamic Thought.

Al-Hilali, M.T. & Khan, M.M. (1990). *Translation of the Meaning of the Noble Qur'an in the English Language*, Madinah, Saudi Arabia: King Fahd Complex for the Printing of the Holy *Qur'an*.

Azami, A.A. (1978). *Studies in Early Hadith Literature*, Indianapolis, IN: American Trust Publication.

Barrow, J.D. (1991). *Theories of Everything, the Quest for Ultimate Explanation*, Oxford, Eng: Oxford University Press.

Biraima, A.H. (198/99). "From rationalities to righteousness: a universal theory of action," *Humanomics, International Journal of Systems and Ethics*, Vol. 14, No. 4 and Vol. 15, No. 1, pp. 207-63.

Bohr, N. (1985). "Discussions with Einstein on epistemological issues," in H. Folse, *The Philosophy of Niels Bohr: The Framework of Complementarity*, Amsterdam, The Netherlands: North Holland Physics Publishing.

Choudhury, M.A. (1993). "Towards a general theory of social contract," in *The Unicity Precept and the Socio-Scientific Order*, Chapter 6, Lanham, Maryland: University Press of America.

----- (1994a). "The epistemic-ontic circular causation and continuity model of socio-scientific reality: the knowledge premise," *International Journal of Social Economics*, Vol. 21, No. 1, pp. 3-19, 1994a.

----- (1994b). "Islamization of knowledge, the epistemological question," *Journal of the Faculty of Islamic Studies and Arabic*, Vol. 1, No. 2, pp. 168-215.

----- (1995). "The *Qur'anic* derivation of the epistemic-ontic circular causation model," in his *The Epistemological Foundations of Islamic Economic, Social, and Scientific Order*, Vol. 4 of Six Volumes, Chapter 3, Ankara, Turkey: Statistical, Economic and Social Research and Training Center for Islamic Countries.

----- (1996). "Why cannot neoclassicism explain resource allocation and development in the Islamic economy?" in E. Ahmed, ed. *Role of Private and Public Sectors in Economic Development in an Islamic Perspective*, Herndon, VA: International Institute of Islamic Thought.

----- (1997). "The epistemologies of Ghazali, Kant and the alternative: formalism in the unification of knowledge applied to the concepts of markets and sustainability," in J.C. O'Brien, ed. Special Issue of *International Journal of Social: Economics Lectures in Honor of Clement Allan Tisdell Part III*, Vol. 24, Nos. 7/8/9.

----- (1998a), *Studies in Islamic Social Sciences*, London, Eng: Macmillan & New York: St. Martin's.

----- (1998b). "A theory of renewal and continuity in Islamic science," in his *Studies in Islamic Science and Polity*, Chapter 4, London, Eng: Macmillan & New York: St. Martin's Press.

----- (1998c). "The epistemological premise of reformation," in his *Reforming the Muslim World*, Chapter 1, London, Eng: Kegan Paul International.

----- (1999a). "A philosophical-mathematical theorem on the unity of knowledge," *Kybernetes: The International Journal of Systems and Cybernetics*, Vol. 28, No. 6/7, pp. 763-776,

----- (1999b). "Globally interactive systems," in his *Comparative Economic Theory: Occidental and Islamic Perspectives*, Norwell, Massachusetts: Kluwer Academic.

----- (2000a). " The model of knowledge-centered worldview," paper presented at the Conference of the Society for the Advancement of Socio-Economics, London School of Economics, July 8-10.

----- (2000b). "The nature of Islamic socio-scientific inquiry, theory, and application to capital markets," *International Journal of Social Economics*, Vol. 27, Nos. 1&2, pp. 62-85.

----- (2006a), "Reality and *tawhid* optimal topology embedded in super-manifolds of knowledge" in his *Science and Epistemology in the Qur'an*, Vol. 5 of five volumes, Lewiston, New York.

----- (2006b), "Equilibrium and disequilibrium relationships on the trajectories of the evolution of socio-scientific order," in his *Science and Epistemology in the Qur'an*, Vol. 5 of five volumes, Lewiston,

New York, 2006

----- (2010), "Probabilistic model of learning fields," *Journal of Muamalat and Islamic Finance Research* 7:1, pp. 1-15.

Choudhury, M.A. & Zaman, S.I. (2009). "Self-referencing as a socio-scientific methodology in contrasting paradigms," *Kybernetes, International Journal of Systems and Cybernetics*, 38:6, 2009.

Debreu, G. (1959). *Theory of Value, an Axiomatic Analysis of Economic Equilibrium*, John Wiley, New York.

Feiwel, G. (1987) (ed.). *Arrow and the Foundations of the Theory of Economic Policy*, London, Eng: Macmillan.

Ghazali A.H. [Imam] trans. M.E. Marmura (1998). *The Incoherence of the Philosophers*, Provo, Utah: Brigham Young University Press. Also see Ghazali, A.H. [Imam], trans. D. Buchman. (1997), *The Niche of Lights*, Provo, Utah: Brigham Young University.

Gruber, T.R. (1993). "A translation approach to portable ontologies," *Knowledge Acquisition*, Vol. 5, No. 2, 199-200.

Hammond, P.J. (1989). "On reconciling Arrow's theory of social choice with Harsanyi's Fundamental Utilitarianism," in G.R. Feiwel Ed. *Arrow and the Foundation of the Theory of Economic Policy*, pp. 179-221, London, Eng: Macmillan.

Harsanyi, J.C. (1955). "Cardinal Welfare, Individualistic Ethics, and Interpersonal Comparisons of Utility," *Journal of Political Economy*, vol. 63.

Hawking, S.W. (1988). *A Brief History of Time, From the Big Bang to Black Holes*, New York: Bantam Books, Inc.

Hawking, S.W. and Mlodinow, L. (2010). *The Grand Design*, London, Eng: Transworld Publishers.

Hawley, A.H. (1986). *Human Ecology*, Chicago, IL: The University of Chicago Press.

Henderson, H. (1999). *Beyond Globalization, Shaping a Sustainable Global Economy*, West Harcourt, CONN: Kumarian Press.

Hull, D.L. (1988). *Science as a Process, an Evolutionary Account of the Social and Conceptual Development of Science*, Chicago, IL: University of Chicago Press.

Ibrahim, E., & D. John-Davies. (undated). *Forty Hadith Qudsi*, private publication.

Kuhn, T. (1970). *The Structure of Scientific Revolutions.* Chicago, IL: University of Chicago Press.

Kupka, I.A.K. & Peixoto, M.M. (1993). "On the enumerative geometry of geodesics," in Hirsch, M.W., Marsden, J.E., & Shub, M. (eds.), *From Topology to Computation: Proceedings of the Smalefest*, New York, NY: Springer-Verlag, pp. 243-253.

Maddox, I.J. (1970). *Elements of Functional Analysis*, Cambridge, Eng: Cambridge University Press.

Masud, M.K. (1984). *Islamic Legal Philosophy*, Islamabad, Pakistan: Islamic Research Institute.

Maxwell, G. (1962). "The ontological status of theoretical entities," in H. Feigl & G. Maxwell, Eds. *Minnesota Studies in the Philosophy of Science, Vol. II: Scientific Explanation, Space and Time*, Minneapolis, Minnesota: University of Minnesota Press, pp. 3-27.

North, D. C. (1981). "A theory of institutional change and the economic history of the Western World", in his *Structure and Change in Economic History*, Chapter 15, New York: W.W. Norton.

Sen, A. (1990). "Freedom and consequences," in his *On Ethics and Economics*, pp. 58-89, London, Eng: Basil Blackwell.

[Imam] Shatibi, trans. Abdallah Draz. (undated). *Al-Muwafaqat Fi-Usul Al-Shari'ah*, Cairo, Egypt: Al-Maktabah Al-Tijariyah Al-Kubra.