Islamic Civilization as a Prolegomenon *to* Occidental Enlightenment and Civilization

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Abstract

By using inductive historical methodological approach, this research article portrays Islamic Civilization as a prolegomenon to the Occidental enlightenment and civilization. It highlights the nature of those forces and contents of the Spanish enlightenment, which were contributed by Muslims centuries ago in Spain, preserved in Spanish literature, and later rediscovered as well as owned by the proponents of Spanish enlightenment. It introduces the enlightening contributions of galaxy of star Muslim philosophers and scientists of Spain – Muslim vanguards of Enlightenment in Spain and Occident. It explains strategic origins, dynamics and advances of progressive open Islamic universal civilization in Spain. It portrays the transmission mechanism of Islamic forces of enlightenment in Spain and Occident as well as highlights numerous aspects of the Spanish and Occidental cultural indebtedness to the Islamic civilization. It sheds light on the strategic end of the Islamic civilization in Spain in light of Ibn Khaldun's theory of rise and fall of dynasties as well as illustrates the historical dynamics as well as the transmission mechanism of the Islamic civilizational forces of enlightenment in Spain and Occident. Finllay, it recommends policies for the govenments of the contemporary Muslim countries to develop and empower the contemporary Muslim Ummah by reviving original progressive Islamic universal civilzation through operationlization of transmission mechanism of the Islamic civilizational forces of enlightenment, development and empowerment once again.

Keywords: *Islam, civilization, Occident, science, enlightenment, industry,*

1. Introduction

Humanity has been aspiring to practically achieve humanitarian ideal of instituting and promoting open universal civilization based on principles of mutual cooperation and peaceful coexistence of all humans on global level. In light of the Golden Age of Islamic civilization, this research article portrays strategic origins, dynamics and advances of Islamic Civilization as an open civilization, which was conditioned by distinctive enlightening contributions of Muslims, Berbers, Christians and Jews.

It depicts transmission mechanism of Islamic progressive forces of enlightenment, which eventually culminated in zenith of open Islamic civilization.

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Actualization of intertwined goals of human enlightenment and development, originating from light of the universal knowledge disseminated by the unique knowledge-power-house of Islam, has been a unique accomplishment of the Islamic civilization especially in the universally acknowledged golden age of Islam. In this context, it is important to note that in the second and seventh centuries after *Hijrah* (Migration of Holy Prophet [Peace Be Upon Him (PBUH)], Islamic world took lead in originally instituting a development-oriented movement of enlightenment which was flag-bearer of rationalism. The movement was product of existence of inherent harmony between science and revelation due to the scientific approach of Islam which encourages scientific use of reason, science and scientific method for discovering universal physical and metaphysical truths.

But the Occident has been reluctant to generously acknowledge the well-known pioneering role of inherently progressive and enlightening Islamic civilization in instituting a prolegomenon to the process of Spanish-cum-Occidental enlightenment and development in Occidental Dark Ages. This truth was confirmed by Watt[1]:

"We sometimes belittle the extent and importance of the Islamic influence in our heritage, and some times overlook it altogether. We must acknowledge our indebtedness to the full. To try to cover it over and deny it is a mark of self-pride."

Ever-continuing reluctance of especially Occidental academia to generously acknowledge the undeniable historic contributions of Islamic civilization in heralding the movement of enlightenment has been eclipsing the fact that radiating floodlights of Islamic civilization illuminated the then undiscovered path of enlightenment for Spain in particular and for Occident in general in their Dark Ages.

By using inductive historical methodological approach, this research article highlights the nature of those forces and contents of Spanish enlightenment which were contributed by Muslims centuries ago in Spain, preserved in Spanish literature, and later rediscovered as well as owned by proponents of Spanish enlightenment. First, it introduces the enlightening contributions of the galaxy of star Muslim philosophers and scientists of Spain, including especially the pioneering contributions of Khaldun, as vanguards of Enlightenment in Spain and Occident. Then, it explains strategic origins, dynamics and advances of the Islamic civilization in Spain. In addition, it portrays the transmission mechanism of Islamic forces of enlightenment in Spain and Occident as well as highlights numerous aspects of Spanish and Occidental cultural indebtedness to Islamic civilization. Finally, it explains strategic end of Islamic civilization in Spain in light of Khaldun's theory of rise and fall of dynasties as well as documents historical dynamics of Spanish and Occidental enlightenment[2].

Section 2 presents aim of research on the subject. Section 3 introduces methodology of this article. Section 4 reviews pertinent literature and showcases original universal Islamic common market-based paradigm of open civilization. Section 5 portrays enlightening contributions of galaxy of Muslim philosophers and scientists as vanguards of enlightenment in Spain and Occident. Section 6 illustrates dynamics of open Islamic civilization in Spain. Section 7 exhibits historical dynamics of

enlightenment in Spain and Occident. Section 8 highlights transmission mechanism of Islamic civilizational forces of Spanish and Occidental enlightenment. Section 9 contributes conclusion and policy recommendations for governments of contemporary 57 Muslim countries to embrace and promote open Islamic universal civilization for actualizing sustainable development of Muslim *Ummah*.

2. Aim of Research

This articles aims at inferring and portraying a transmission mechanism of Islamic civilizational forces of Spanish and Occidental enlightenment from actual historical facts and dynamics of revolutionary Islamic philosophical, academic, scientific, civilizational, agricultural and industrial development accomplished in Islamic Spain, which historically proved to be prolegomenon to the Occidental enlightenment and civilization, from the point of view of highlighting the current policy imperative of replicating it once again now in modern times for enlightening, developing and empowering the current Muslim Ummah.

3. Methodology.

Contents, progressive Islamic civilizational forces of Islamic Spanish Enlightenment as well as their dynamic transmission mechanism, conclusion, and policy recommendations are inferred from a comprehensive study of pertinent Islamic and Occidental historical facts by using inductive historical methodological approach, which involves inductive reasoning based on historical facts.

4. Literature Review: Overview of Open Original Islamic Universal Civilization

There exists a lot of old and latest literature highlighting Islam and its open civilizations' roles in shaping Occidental enlightenment and civilization [*(Thatcher and Schwill, 1899),* (Briffault, 1919), (Russell, 1945), (Watt, 1972), (Bosworth, 1984)[3], **(**Savory, 1984), (Wickens, 1984)[4], (Wickens, 1984)[5], (Ali, 1985), (Herbert, 1991)[6], (Banaboud, 1991)[7], (Marin-Guzman, 1991)[8], (Suleri, 1994), (Kohsul, 1995), (Islahi, 1996), (Akhtar, 1996), (Huntington, 1997), (Ekelund and Hebert, 1997), (Chapra, 2000), (Findlay and O'Rourke, 2007), (Salma and Hassan, 2008), (Akhavi, 2003), (Al-Rodhan, 2012), (Garcia, 2012), (Irwin, 2018), (Dupont, 2017), (*Jacobson, 2018),* (al-Ghazali, 2021), (Shah, 2022), (Akhtar et al., 2022)]. *Ali (1985) portrayed progressive* global nature, landscape, composition, diversity, forces and historical dynamics of evolving success story of world-level Islamic civilization in Orient and Occident[9]. Koshul (1995) objectively critiqued literature on the subject. He highlighted Europeanization of Islamic educational and Waqf (Islamic endowments) institutions, Arabic literature, and elements of Islamic civilization[10]:

"The life history of leading early medieval European scholars, of whom Gregory, Adelard, Aquinas, and Bacon are representative, presents ample evidence of the Islamic influence on the West. In almost all cases, this connection was the result of the European scholar having spent substantial time in Muslim countries/colleges. And in all cases, without exception, this connection was established by the European scholar's familiarity with Arabic Islamic sources."

Chapra (2000) presented Khaldun's theoretical explanation of rise (growth) and

decline (recession) of dynasties in terms of factors such as application of Islamic law (Shari'ah), justice, state's political authority and governance, role of people, progressive environment, and development and equitable distribution of wealth[11]. Akhavi (2003) termed the period 711–1236, "Golden Age of Tolerance," which reflected by progressive persistent peaceful persistence of Muslims and non-Muslims in Islamic Spain[12]. Garcia (2012) contributed historical narrative of Islamic contributions to English and Occidental radical discourses on enlightenment amidst Glorious Revolution and French Revolution. He acknowledged Islam's role in conditioning English enlightenment[13]:

"Radical Protestant accounts about the Islamic republic – in which the Prophet Muhammad, the wise legislator, restored constitutional rule – captured the political imagination of many eighteenth-century and Romantic-era writers who rejected, or were troubled by, the democratic principles that were implemented in Georgian Britain, its overseas empire, and revolutionary France. Although writers such as Edmund Burke, Samuel Taylor Coleridge, and Percy Bysshe Shelley eventually abandoned their commitments to Islam, their short-term infatuation with this faith reminds twenty-first-century readers that our secular predecessors often hailed the Prophet an Enlightened Promethean hero."

Irwin (2018) portrayed Khaldun as discoverer of ideas, theories and laws of history, politics, economics, and sociology[14]. Jacobson (2018) regarded Khaldun as precursor of Machiavelli, Marx, Weber and Durkheim[15]:

"Later, as knowledge of Ibn Khaldun's work improved in the 19th and 20th centuries, he would be retrofitted and appropriated as the founding father of modern economics, sociology and historiography, a precursor to illustrious European thinkers including Machiavelli, Marx, Weber and Durkheim. In 1981, Ronald Reagan quoted Ibn Khaldun in support of his view of "supply side economics.""

Vast Islamic historical literature presents a narrative of revolutionary open progressive Islamic civilization and its original contribution to modernity, sciences, social sciences and modern civilization [*(Thatcher and Schwill, 1899)*[16], (Briffault, 1919), (Russell, 1945), (Wickens, 1984)[17], (Ali, 1985), (Herbert, 1991), (Suleri, 1994)[18], (Kohsul, 1995), (Islahi, 1996)[19], (Akhtar, 1996), (Chapra, 2000), (Faruqi, 2006)[20], (Findlay and O'Rourke, 2007), (Salma and Hassan, 2008), (Al-Rodhan, 2012), (Dupont, 2017), (*Irwin, 2018)*, (Al-Ghazali, 2021)[21], (Shah, 2022)[22], (Akhtar et al., 2022)[23]]:

After creating, educating and appointing Adam (PBUH) as His Vicegerent and first Holy Prophet PBUH on earth, the God Allah Subhanuhu Wa Ta'ala (SWT) created from him PBUH his female and male descendants of different colors on earth for developing an Islamic universal civilization and guided humans of different times and places by appointing a large number of His SWT Holy Prophets such as Holy Prophet *Moses* (PBUH) and Holy Prophet Jesus Christ PBUH and the Final Holy Prophet Muhammad PBUH. Consequently, there emerged Islamic, Mesopotamian, Egyptian, Cretan, Classical Byzantine, Middle Eastern, Andean, Chinese, Japanese, Indian, and Western civilizations.

The then open Islamic universal civilization resulted from practices of original Islamic civilizational principles of global unity, integration of humanity, free mobility, dignity, mutual respect, reciprocal socioeconomic security, cultural pluralism, perfect inclusiveness, and protection as well as development of universal environment. These divine teachings envelope all diverse humans into a unified whole of all humans living in harmony with their universal natural world and acting as trustees of universal resources appointed by Allah SWT for actualizing moderate environment-friendly efficient employment of all the entrusted universal natural resources in order to optimize multidimensional universal sustainable human development, prosperity, and welfare as well as preserve environmental balance (Akhtar, 1996)[24]. Environmentally sustainable socioeconomic development of humanity is actualized by implementing Islamic civilizational scheme of universal brotherhood, simple life styles, trusteeship of all resources, accountability of humans in both this world and the world-hereafter, and ideally harmonious relationship between humans and their universal environment (Akhtar, 1996).

As compared to competitors of the Islamic civilization, open universal Islamic civilization continues to grow since its inception as a pioneering civilization and develop itself by interacting with its competitor civilizations by positively impacting members of other civilization by means of both its naturally appealing universal humanitarian world view/beliefs, values, institutions, practices and capability of absorbing, refining and developing the Islamically acceptable good elements of other civilizations for benefit and development of entire humanity. This historical fact is reflected in great facilitative contribution of higher Islamic civilization towards rise of Occidental civilization[25]:

"Between the eleventh and the thirteenth centuries, European culture began to develop, facilitated by the "eager and systematic appropriation of suitable elements from the higher civilizations of Islam and Byzantium, together with adaptation of this inheritance to the special conditions and interests of the West."

Ekelund and Hebert (1997) highlighted several dimensions of Islamic civilizational revolution in the Golden Age (**700A.D.-1200A,D**.) of global Islamic leadership in power/organization/social refinements and standards of living/literature/ scholarship/science/medicine/philosophy, and its unique revolutionary contributions (Arabs' much more utilitarian system of writing numbers, which displaced the clumsy Roman numerals) to development of Occidental civilization[26].

Dupont (2017) confirmed great glorious Islamic civilizational contributions as a whole and al-Ghazali's as well as Ibn Taymiah's significant personal literary contributions to Occidental literature, enlightenment and civilization[27]:

"The European Dark Ages were not so dark for the Islamic world, which was at the height of its power from about the 8th to the 13th centuries. During this Golden Age, Islam preserved and extended the mathematics and science of the ancient Greeks, while the Islamic empire aggressively extended its borders from the Southern Europe all the way to China. The most important contributor to the

economic thought of the Islamic world was Abu Hamid Al-Ghazali (1056-1111), who drew on Aristotle's work to build a set of economic principles which were consistent with his religious beliefs. Al-Ghazali wrote about voluntary exchange, the evolution of the market, money and public finances. He argued that markets evolved naturally, while trade created value by making goods an services available to willing buyers at convenient times and places. Al-Ghazali echoed Plato in describing how individuals seeking the mutually beneficial trade congregated in cities to consummate those trades, and he followed Aristotle in stressing the virtue of moderation in all actions. While al-Ghazali recognized the natural order of the marketplace, he advocated a tighter connection between the state and the economy than did many Western writers who would follow him. He also linked the state and religion, calling them jointly the "inseparable pillars of an orderly society."

In the Golden Age of Islam, great scientific contributions of Muslim scientists [Jabir, Khawarazmi, Razi, Masudi, Wafa, Biruni, Avicena, Ibn al-Hathamand, and Umar Khayyam during 750-1100AD as well as Ibn Rushd, Tusi, and Ibn Nafis during 1100-1300AD (Khan et al., 1995)[28]] developed and reinforced comprehensive scientific foundations of Islamic universal civilization, which in turn enriched and reinforced the scientific basis of Occidental and global civilizations. This is a well-acknowledged glorious contribution of Islamic universal civilization, which reflects potential complementarities of distinct civilizations and prospects of alliance of truly open civilizations[29]

"All of these cities and areas of the Islamic world, from Spain and North Africa in the West to Afghanistan and India in the East, were in constant touch with each other, with apparently no restrictions at all on the free flow of people, ideas, techniques, fashions, goods and capital,…The Hajj of course was a major unifying factor…The prosperity and tolerance of the Fatimids and Umayyids in the West served as a magnet to ambitious soldiers, intellectuals, bureaucrats, poets,.. to "go West and grow up with the country"…The material and cultural products of the East stimulated not only imitation, but also transformation and development in the West to enrichment of the entire civilization…a priceless legacy for the West and the rest of the world."

Salma and Abul Hassan (2008) highlights drivers of rise and fall of Muslims' knowledge power and the scope of of its revival[30]. Al-Rodhan (2012)[31] contributed an "Ocean model of civilization.". He lamented that European scholars did not acknowledge their academic debt to Muslim scholars, for the most part. He highlighted remarkable similarities between works of Al-Ghazali's and Descarates, between al-Ghazali's theory of causation and Hume's theory of causation, works of Ibn Rushd and Thomas Aquinas etc.. He found that works of Islamic scholars were copied almost verbatim in some instances.

Later Khaldun's book entitled *Muqaddamah*, which elevated his esteemed academic stature to a level of a globally acknowledged father of science of sociology, effectively became an academic bridge between open Islamic universal civilization and other

civilizations (Occidental civilization). In this setting, his inter-civilzational relationships-oriented scholarship can be viewed as a reflection of potential constructive role of open universal Islamic civilization in realizing the humanitarian ideal of alliance of civilizations.

In contrast with other open civilizations, open universal Islamic open civilization has been inherently more open, receptive, and accommodative to both the universal Islamic spiritual values and the modern scientific and technological knowledge for ensuring balanced (harmonized) spiritual and material success of all humans without causing their mutual socioeconomic and political exploitation, alienation and tensions irrespective of their statuses as indigenous natives, migrants, men, women, whites, blacks, Arabs, non-Arabs, developed, underdeveloped, rich, and poor in the framework of universal Islamic common market.

5. Enlightening Contributions of a Galaxy of Muslim Philosophers and Scientists as the Vanguards of Enlightenment in Spain and Occident

Islamic enlightenment of Spain (715-1492), that was contributed by a galaxy of Muslim philosophers and scientists, heralded the later Western Enlightenment (late 17th and 18th centuries' European intellectual movement) which emphasized both reason and individualism instead of placing emphasis on tradition. In contrast to progressive pro-religion dimension of earlier Islamic enlightenment experience, later Western enlightenment movement has been hostile toward religion[32], and, therefore, it contributed atheist science and its distinct epistemology which enthroned reason as the supreme judge of truth, rejected metaphysical beliefs, and refuted any role of religion and intuition in human affairs[33] .

Since the first *Qur'anic* revelation (96, 1-5)[34], Islam originated as a way of life perfectly conditioned by comprehensive knowledge based-enlightenment. By enjoining rational thinking, Holy *Qur'an* has inspired the Muslim believers to use reason for scientifically observing and understanding universal phenomena created by Allah (SWT). Thus, enlightening Islamic way of life instituted rational pursuit of knowledge relying on revelation and reason. Consequently, Islam has promoted a positive attitude toward philosophy, science and scientific method. Therefore, there is not found any conflict among revelation, philosophy, and science. Due to Islamic emphasis on rational thinking and rationality, the then newly formed Islamic *Ummah* shone like brilliant moon in firmament of universal knowledge, produced a galaxy of Muslim philosophers and scientists, and, ruled the the then Islamic world stretching from Kashghar to the South of France.

Global spread of Islam and its rule made rational approach more important for intellectually influencing materially more advanced peoples of the conquered territories of Sassanian and Byzantine civilizations. In this setting, Muslim rationalists tried to scientifically determine nature and causes of numerous phenomena of human life and physical universe and, thereby, constructed foundation of science in framework of Islamic religious paradigm. There emerged several great Muslim rationalists, scientists and social scientists [al-Kindi[35](d.866), al-Farabi[36](d.950), Abul

Mutarrif of Toledo born in 977, Abul Qasim al-Zahrawi (Abulcasis) of Cordova (d.1013), Ibn Sina (Avicenna) (d. 1037), Ibn Hazm al-Qurtubi (d.1064), Ibn Al-Wafid (d.1074) of Toledo, al-Zarqali of Toledo (d.1087), Abu 'Ubayd Al-Bakri (d.1094) of Cordova, al-Ghazali (d.1111), Abu Bakr Muhammad Ibn Bajjah (d.1138) of Spain (Avempace), Ibn-e-Romia of Spain born at Ashbela in about 1142, Ibn Zuhr (d.1161) of Seville (Avenzoar), 'Abdullah Mohammad Al-Idrisi (d.1166) of Cordova, Abul Qasim Maslamah al-Majriti (d.1126) of Cordova, Ibn Tufayl (d.1185) of Spain, Ibn Rushd (Averroes) (d.1198) of Cordova, Ibn al-Nafis (d.1288), Ibn 'Ali Al-Mahasin of Spain born at Aleppo in 1256, Ibn al-Khatib of Granada (d.1374), Abu Ishaq Al-Shatibi (d.1388) of Granada, and Ibn Khaldun (d.1406)]. These Muslim scholars are part of galaxy of numerous prominent Muslim intellectuals, who were well-recognized authorities in sciences (mathematics, physics, chemistry, biology, agronomy, astronomy, geology, geography, medicine), philosophy, law, political science, sociology, history and economics. Muslim philosophers, who lived at different places and times, have irrefutable similarity and unity in themes of their written works due to their same starting point having origin in *Qur'anic* truths and every day Islamic teachings, due to their consideration of philosophy as continuation of wisdom of ancient times, and due to their belief in oneness of knowledge crowned by metaphysics.

After passage of a lot of time since introduction of Islamic civilization in Middle East in times of Holy Prophet Muhammad (PBUH) and his rightly guided Caliphs, Islamic civilization and science started to flourish during Abbasid regime (758-1250). Because of liberality and patronage of enlightened Muslim rulers, Islamic science progressed to such a climax that every new scientific contribution accomplished between the second and seventh centuries after *Hijrah* emanated only from thoughts of Muslim scientists.

Later, Khaldun (d. 1406) – a native of Tunis, served as a diplomat for Muhammad VI, lived in Spain, and shone on brilliant horizon of the Islamic world. As a great Muslim rationalist and proponent of reason, he presented cause and effect analysis in "*Muqaddamah*" while explaining dynamics of advancement of civilizations in terms of socioeconomic, psychological, political and environmental factors. His *Muqaddamah* has been globally acknowledged as original contribution to sociology, economics and political science. Being a true vanguard of enlightenment, he assumed position of a pioneering adherent of economic system based on principle of *laissez-faire* because he was against state's interference in economic life as he perceived natural forces as the causes of the social change.

In his positive theory of five stages of dynasties, Khaldun theorizes that a dynasty passes through five distinct stages (success[37], ruler's complete control on his people through exclusive empowerment and glorification of his family and its members through operationalization of a sense of *asabiyyah* (group feeling), leisure and fame through acquisition of property and creation of lasting monuments through taxation, contentment and peacefulness, and waste and squandering) encounters new

conditions, and has a life span of one hundred years exactly corresponding to an individual's life span of one hundred years. Khaldun's cause-effect analysis was later applied by al-Maqrizi (d.1441) in his economic analysis of relationship between money and rise in prices.

6. Dynamics of Open Islamic Civilization in Spain

Time of end of the seventh century, when Mediterranean became a Muslim lake, was accompanied by the total strategic control of Muslims on whole southern shore of Mediterranean from Anatolia to the Straits of Gibralter. Within few years after after conquering Gibralter in 711AD, Muslims crossed *Pyrenees* after overrunning Iberian peninsula. After their defeat in the battle of Poitiers against Christians, Muslims allowed both Christians and Jews to live with them for three and a half centuries. In the 9th century, Muslims also conquered Sicily, islands of Corsica and Sardinia. Historically, it was region of Spain where civilization of Muslims and Christians had been most effectively interacting. In this setting, dominating Islamic civilization kept flourishing, realized its climax, and enriched every aspect of life in Spain.

Under Islamic civilization, which had been thriving since Islamic invasion of Spanish Peninsula in 711AD, urbanization progressed in Cordova and long distance trade developed. Under administration of Arab Muslims, Cordova evolved into a beautiful a city of gardens and palaces. Cordova had 113,000 homes, 21 suburbs, 70 libraries, several bookshops, mosques, 800 public schools imparting education to Muslims, Jews and Christians[38], and Universities of Cordova, Granada, and Seville having enrollment of thousands of students whose scholarship contributed voluminous treatises not only in sciences of medicine, surgery, chemistry, astronomy, architecture, geography and natural history but also in arts and literature.

Resulting Islamic civilization of Spain was unique because it was conditioned by the distinctive contributions of Arab Muslims, Berbers, Christians and Jews. One of numerous manifestations of this fact is the fusion of Arab and Byzantine architectural styles which enabled Spanish Muslims to produce several matchless masterpieces (Great Mosque at Cordova, Alcazar at Seville and Alhambra at Granada). In the process of spectacular advancement of Islamic civilization in Spain, in contrast to then overwhelmingly rural character of Christen society, semi-rural and semi-urban Muslim society of Spain became the most highly urbanized and sophisticated society of the then existing Islamic world.

Even after passage of several centuries after occurrence of marvelous developments in Islamic Spain, London and Paris lacked civic amenities (Draper, 1910)[39]:

"Seven hundred years after this time there was not so much as one public lamp in London, and in Paris, centuries subsequently, whoever stepped over his threshold on a rainy day stepped up to his ankles in the mud."

Wickens (1984), while highlighting civilizatory[40] achievements of Islamic Middle East, acknowledges that Islamic Middle East's almost infinite enduring contributions to the West lie not only in material things but also in their names having origins in Arabic, Persian and Turkish languages. These Islamic contributions, irrespective of their being

disguised in their modern forms, could be almost infinite. According to him, channels of transmission of these Islamic Middle contributions[41] to the West were either those of commerce and education or those of war. While highlighting the Islamic Middle East as the world centre of science and medicine, he admits that the Occident took over, sometimes through Spain, bodily virtually all the achievements of the Islamic Middle East in science, medicine and mathematics, and left them unchanged for centuries. He deplores that many modern scientists and historians are unaware of these facts.

Thus, intellectual light and progressive march of Islamic civilization instituted Spanish Islamic enlightenment, which culminated in Spanish socioeconomic development and ushered regeneration, renaissance, enlightenment and development in the Occident. Despite expulsion of Muslims from Spain in 1492AD as a result of Crusades which ironically ended with the result that whole of Eastern Christendom became under Muslim rule, enlightening and progressive Islamic philosophical and scientific influences of Spanish Islamic civilization continued in Spain and Occident.

These historical facts imply enlightenment of the 17th and 18th centuries was made possible through effectively gainful creative, constructive and and progressive civilizational contact and interactions of Spain and Occident with enlightening Islamic ideas and ideals of the Islamic Middle East. Especially, Islamic Spain's culture, society, and economy thrived due to spectacular agricultural and industrial development contributed by Spain's Muslims in the following industries:

Mechanical Metal Treatment

They excelled in scientific treatment of metals. They proved to be skillful in casting of bronze and producing vases, beautiful Arabic lamps[42] of different metals (gold, copper, bronze), censer, cups, knives etc.

Armament

They were regarded as matchless manufacturers of highly reputed and excellently designed swords (swords of Seville embellished by the finest efforts of the arts of enamellers and jewelers), guards, armor and other armaments.

Engraved Jewelry

They were masters of excellently encrusting metals with different crystals and artificial stones. They made single grain of gold beaten into a sheet, which could cover an area of 50 square inches. They engraved gems and produced earrings, rings, belt plaques, diadems and turbans made in silver filigree-enameled or set with pearls, turquoises, rubies, catseyes and carnelians.

Ceramic

In Europe, the Islamic Spain was the only region where the ceramic art was perfected and excelled in terms of materials, design and execution. Spanish city Malga was ranked the 1st among eight Spanish places, which were noted for the lucrative ceramics industry. The multi-colored[43] pottery of the Islamic Spain possessed extraordinary brilliance of enamels resulting from the mixing of one or more metals (silver and copper) in a such way that preserved transparency as well as realized not only

improved glaze through the application of silicates but also more beautiful reflection from metallic surfaces.

Goat Leather Tapestry

They manufactured goat skin's colorful leather tapestry.

Weaving

They developed industries of weaving carpets, textiles and silky garments having permanence of dyes of fabrics so much that after the 11th century silky garments were used by all classes of society.

Medallion and Portrait Calligraphy

They realized climax of perfection in calligraphy (medallion and portraits) by using durable brilliant colorful inks and dyed skins, which reflected light like mirror such that the ground was of gold or silver.

Stationery and Book

Islamic Spain founded and promoted paper industry in Spain. Arab Muslims, who produced paper in Baghdad in 974AD, transferred technology of manufacturing writing-paper from Morocco to Spain, Sicily, Italy, France, and rest of Europe in middle of the 12th century. This fact is reflected in transfer and transformation of Arabic word *rizmah*, via words *resma* and *Rayme* in Spanish and old French respectively, to word "ream" in English. Khaldun (1958) explains the Islamic Spain's thriving book production industry as the catalyst for growth in book production industry, which accelerated development and enlightenment in Spain and Europe:

"In Islam it had formerly reached tremendous proportions in the Iraq and in Spain. Scholarly works and writings were numerous. People were desirous of transmitting them everywhere and at any time. They were copied bound. The craft of book producers thus made its appearance. These craftsmen are concerned with copying, correcting, and binding books, and with all other matters on books and writings. The craft of book production was restricted to cities of a large civilization."[44]

Musical Devices

They promoted music industry by introducing new musical instruments (lute having Arabic name *al'Ud*, *Guitar* having Arabic name *Quitar*, rebeck having Arabic name *Rabab*, tambourine having Arabic name *al-Duff*, *Taber* having Arabic name *Tabl*, naker having Arabic name *Naqqara etc.*) in Europe. Arab Musician Ziyab taught music in Spain in a school of music at Cardova to students coming from entire world.

Glass

They pioneered manufacturing glass in Spain.By instituting imperial industrial workshops for promoting production of quality products, Spain's imperial dynasty of *Ummayads* reinforced inherent tendency of progressive Islamic civilization to scientifically develop industry and commerce in Spain for accelerating development in Spain. This fact was acknowledged by Thatcher and Schwill[45]:

"In manufactures, they surpassed the world in variety and beauty of design and perfection of workmanship. They worked in all metals—gold, silver, copper, bronze, iron, and steel. In textile fabrics,

they have never been surpassed. They knew the secrets of dyeing, and they manufactured paper. They had processes of dressing leather, and their work was famous through out Europe, They made tinctures, essences and syrups. They practiced farming in a scientific way, and had good system of irrigation. They knew the value of fertilizers, and adapted their crops to the quality of ground. They excelled in horticulture, knowing how to graft and how to produce new varieties of fruits and flowers. They introduced into the West many trees and plants from the East. Scientific treatises on farming were written by them. Their commerce attained great proportions. Their caravans traversed the empire from one end to the other, and their sails covered the seas. Great fairs and markets were held at many places, some of which were visited by merchants from all parts of Europe and Asia. Their merchants had connections with China, India, and the East Indies, with the interior of Africa and with' Russia, and with all the countries lying around the Baltic. Their commerce covered all parts of the known world."

For accomplishing agricultural development, Spanish Muslim government surveyed and graded fields, sent talented botanist to Egypt, Mesopotamia, and India for bringing back selected useful seeds as well as plants, and experimenting with their cultivation in their royal palaces. In this way. Spanish Muslim government enabled Spanish Muslims to excel in knowledge of Spanish soil and its resources, provided tillers of land with official patronage for improving agricultural production, employed Arab engineers who introduced excellent hydraulic system[46], enforced strictest economy in usage of water through effective role of an official tribunal of water as well as strict economy in use of land through the manure/dust-based fertilization and through division of land into small tracts which were thoroughly tilled by tillers, established numerous zoological and botanical gardens for scientific study and entertainment, and transformed barren valleys as well as arid areas into blossoming orchards of olives, oranges, figs, and pomegranates.

Spanish Muslim agricultural scientists promoted sciences of agronomy and botany. For example, Ibn-al'Awwam of Seville contributed a treatise on agriculture in the 12th century wherein he introduced 585 plants, explained cultivation of more than fifty fruit trees, presented new observations regarding both grafting and properties of soil as well as manure, and discussed symptoms as well as cures of several diseases of trees and vines. Such lasting progressive agricultural contributions of Arab Muslims toward development of economy of Islamic Spain were highlighted by Russell (2004)[47]:

"One of the best features of the Arab economy was agriculture, particularly the skillful use of irrigation, which they learnt from living where water is scarce. To this day Spanish agriculture profits by Arab irrigation system."

Spanish Muslims' marvelous lasting agricultural contribution in the form of development of agricultural resources of Spain became mainstay of the spectacular industrial development in Islamic Spain. Christian European countries practically imitated (established paper mills and textile industries) Spanish Muslims' strategies of industrialization-based development as well as agricultural and industrial policies.

In short, prolific Islamic civilization enhanced range of available production and consumption choices for consumers and producers, which are important current criteria of judging the development progress of a country.

7. Islamic Civilization in Spain as a Driver of Dynamics of Enlightenment in Spain and Occident

Crusades and the resulting Reconquesta of Islamic Spain, which were followed by physical elimination of Muslims from Spain, ended the Golden Age of thriving Islamic civilization in Spain and led to anarchy and steep decline in Spain.

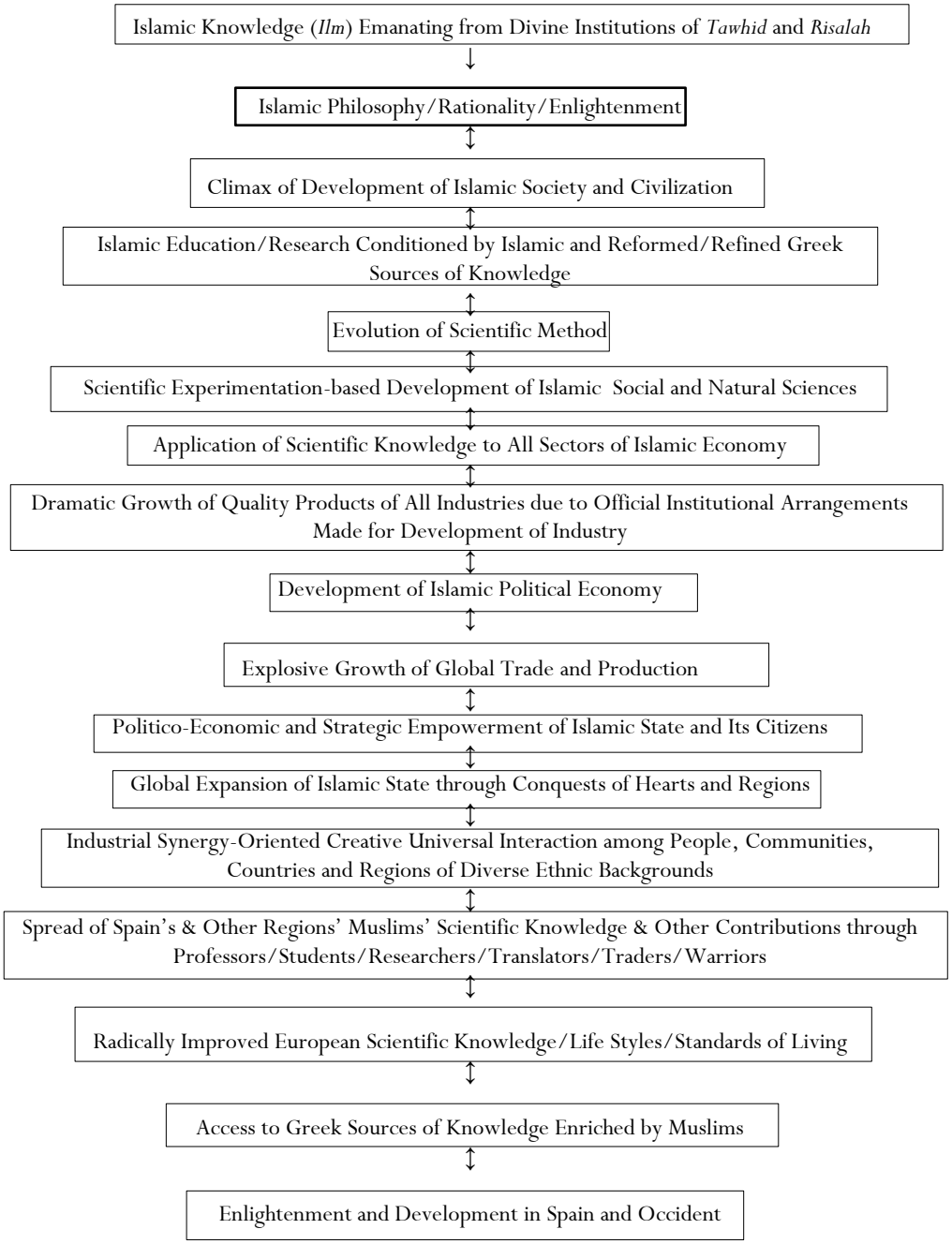
However, end of physical presence of Muslims in Spain proved not to be the end of Islam's historical tendency of conditioning Spanish and Occidental civilizations partly through its past lasting academic and cultural contributions and partly through continuation of Muslims' trade of goods, which was accompanied by diffusion of Islamic traditions, manners and customs among Christians, in the post-Reconquesta Spain and Occident. The aforementioned transmission of Muslims' civilization, science and technology continued through three major places of contact namely Spain, Southern Italy and Syria. While Spain's position as the most important place of contact is already well-known, it is important to note that Southern Italy became and remained the second most important place of contact where Spain's Muslim scholars and scientists were welcomed, appreciated and patronized by Sicily's Christian rulers Roger II and Frederick II (1127-54), who had already appointed Muslim scholars, officials and counselors belonging to Syria and Baghdad. Syria, which had been frequently visited by Christian pilgrims to Jerusalem, also became and remained an important place of contact for a period of more than one century.

Here it is pertinent to highlight the historical fact that the philosophical and scientific contributions of Muslims, who were pioneering humanists, positively influenced the Western thought by initiating humanistic movement in the West, by introducing historical sciences, by contributing and promoting the scientific method, by helping the Western Scholastics in accomplishment of the task of harmonizing philosophy with faith, by inspiring and stimulating the Western mysticism, by laying foundations of Italian renaissance [for example, influence of Avempace (Ibn Bajjah) continued in Italy down to the 16th century], and by leading the European thought, up to the era of Immanuel Kent, toward enlightenment.

8. Transmission Mechanism of the Islamic Civilizational Forces of Enlightenment in Spain and Occident

On the basis of the aforementioned historical facts, Figure 1 illustrates the mechanism of interaction of Islamic civilizational forces of enlightenment, which led to the zenith of Islamic civilization in its Golden Age:

Figure 1: Transmission Mechanism of Islamic Civilizational Forces of Spanish Enlightenment



9. Conclusion and Policy Recommendations

Uniquely progressive Islamic universal civilization and its transmission mechanism culminated in high levels of socioeconomic development and empowerment of humanity in the Golden Age of Islam. Its enlightening philosophical, civilizational, academic, technological and scientific contributions were drivers of Spanish as well as Occidental renaissance, enlightenment, progress and empowerment.

Occidental enlightenment evolved as an intelligent progressive response to fast deteriorating Spanish socioeconomic conditions, since the time of Crusades-driven defeat of Moors, which ultimately culminated in overwhelming stagnation, anarchy and decadence in Spain. This Spanish decline and stagnation triggered by the exodus of human capital of especially enterprising Muslim Moors, who were philosophers/scientists/social scientists/entrepreneurs/agriculturists/architects, became self-obvious in forms of monopolies, restricted labor mobility, ban on the working of foreigners in Spanish industries, impoverishment of feudal lords, dwindling food production, decelerating growth, growing intolerance toward politico-economic and academic reform-oriented freedom of expression, and persisting inter-regional internecine campaigns for political power due to high monarchical taxes and due to the practice of mercantilist policies, which were instituted for serving the vested interests of monarch, aristocracy, and Catholic church.

In the above centuries-long post-1085 scenario of stagnating Spain during her Dark Ages, liberalism, economic societies, economic education and educational reforms, in forms of Botany Garden at Madrid and Academy of Fine arts which were quite similar to those existing in time of the Islamic Spain, emerged as forces of enlightenment. However, origins of these forces of enlightenment can be traced in undisputable enlightening contributions of Muslim Moors, who ruled Spain for seven centuries and made significant progressive contributions to Spanish agriculture, education, civilization, urbanization, labor migration, architecture, industrialization, global trade, economic growth, and human development characterized with high self-esteem, greater economic freedom, and larger range of choices for both producers and consumers. It is pertinent to note that the Muslim rulers of Spain were broadminded to such an ideal extent that they purified the Spanish society from religious prejudices and intolerance. The resulting religious harmony, peaceful coexistence, and progressive cooperation among people of different religions (Islam, Christianity, and Judaism) created development-oriented synergy among the mutually reinforcing entrepreneurial and enterprising roles played by Muslim, Jewish and Christian citizens of Islamic Spain. This scenario culminated into the Golden Age of the Islamic civilization which had a tremendous everlasting enlightening-cum-developmental impact on the future destiny and glory of Spain and Occident in numerous fields of life — a fact echoed by Briffault (1919)[48]:

"It is highly probable that but for the Arabs modern European civilization would never have arisen at all; it is absolutely certain that but for them, life would

not have assumed that character which has enabled it to transcend all previous phases of evolution. For although there is not a single aspect of European growth in which the decisive influence of Islamic culture is not traceable, nowhere is it so clear and momentous as in the genesis of that power which constitutes the paramount distinctive force of the modern world and the supreme source of its victory ? natural science and the scientific spirit."

Policies of peaceful revival of progressive Islamic universal civilization along with Islamic politico-strategic, socioeconomic and academic institutions through operationalization of historically successful transmission mechanism of the Islamic civilizational forces of enlightenment are recommended to be implemented by all governments of contemporary Muslim countries. Implementation of these policies can culminate in peaceful Islamic enlightenment, development, enrichment, and empowerment of Muslim *Ummah* and humanity.

https://brill.com/fileasset/downloads_products/Author_Instructions/ISJ.pdf

Endnotes

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36 Al-Farabi (the second outstanding representative of Muslim Peripatetic School of Philosophy) was the greatest Muslim philosopher according to Ibn Khaldun. For al-Farabi, supreme role of reason draws its *raison d'etre* from the rational God (SWT) Who manifests rationality in all creation.
Isham P. Ahmad, "Al-Farabi's Epistemology: The Role of Reason in the Discovery of Knowledge," *Annual Journal of the International Islamic University Islamabad* 12 (2004), 21-37.

37 Overthrow of all opposition and the appropriation of royal authority from the preceding dynasty.

38 A Christian writer, who was contemporary of Archbishop of Seville who got translated Bible into Arabic in era of Islamic Spain, expressed his disgust at the then prevailing situation: "Where is the layman who now reads the Latin commandments on the Holy Scriptures, or who studies or who studies the Gospels, prophets or apostles? Alas! All talented young Christians read and study with enthusiasm the Arab books; they gather immense libraries at great expense; they despise the Christian literature as unworthy of attention. They have forgotten their language. For every one who can write a letter in Latinto a friend, there are a thousand who can express themselves in Arabic with elegance."
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40 Wickens (1984) wrote:

"The Middle East has of course been, since the remotest past, the main source of all civilization and to it we owe such fundamental inventions as those listed in the opening paragraph of Chapter 11…The Islamic Middle East was most active in all arts, crafts and sciences of premodern civilization and in many of them it made permanent and unique contribution to the world stock. Some of these achievements were original, many were obviously developments of earlier inventions or discoveries either made on the spot or imported from further to the east…Still in realm of mind and spirit, the Islamic Middle East was long the home of a vigorous tradition of religion and philosophical speculation. If much Islamic theological speculation parallels that of Christianity, it is rather because essentially similar people were tackling similar problems with almost identical tools. The tools were derived from Greek and general Middle Eastern thought, but they were certainly sharpened and developed by the thinkers of Islam before they were passed to the West in the 12th and 13th centuries… As a transition from the abstract to the concrete, we may instance science, medicine and mathematics. Here again, the ultimate source was Greek or general Middle Eastern, but the Islamic input is a very clear one…In astronomy and chemistry their work went as far as man could go without the telescope on the one hand, and a clear grasp of chemical structure and of true scientific method on the other. In medicine, the great achievements were in diagnosis, treatment with drugs and diets, and surgery of the eye: prejudice against dissection hampered general surgical progress….In mathematics the development of the decimal system of reckoning, though ultimately of enormous practical significance, was overshadowed by their brilliant work in algebra (the very word is Arabic) and in trigonometry… Many of those not known at the time (e.g., logarithms, fractions, work on optics, cholesterol, and so on) were only discovered much later, in the West by painfully long independent research. Many modern scientists and historians are unaware of this."

George M. Wickens, "Introduction to Middle East," in *Introduction to Islamic Civilization*, ed. Roger M. Savory (Melbourne: Cambridge University Press, 1984), 8-10.

41 Contributions in architecture (domes, alcove, and various types of arch), military affairs (introduction of position of commander in chief, techniques of fortification, weapons, Arabic horses, objects of horse-harness, cavalry tactics), commerce (large-scale warehousing, textiles categorized as cotton, muslin, satin, damask, taffeta), administration (terms/institutions such as tariff, custom-house, tare), furniture (sofa, mattress, divan, carpets, ceramics), foods/drinks (sherbet, yoghurt, kebab, saffron, rice, jar, lemon, coffee, pilaf, halva, Turkish delight), plants/fruits (oranges, apricots, tulips, lilacs, limes, dates), industries (paper-making, windmills, talk, Turkish baths and towels, Morocco leather, carpets, ceramics, Persian slippers, Arabic gum), and leisure (music, chess).
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