FinTech

Article

Islamic Fintech Adoption Readiness in Pakistan

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Abstract

iFintech is termed as an Islamic alternative banking and financial services approach to that of existing, Fintech digital, Western democracies banking and financial systems. This Pakistan Islamic digital banking and financial services technologies (iFintech) study engages a qualitative NVivo study, and a quantitative covariance based structural equation modelling (CB-SEM) study to assess how young, tech savvy, capital city respondents likely approach their readiness to adopt iFintech. Study data engages qualitative assessments and quantitative framework modelling. Research findings show a competencies and capabilities framework enlists three major pathways (economic worth, social acceptance, plus technical transfer associated risks) that can influence iFintech adoption readiness. This empirical study presents a new, robust, iFintech adoption readiness approach which predominantly Islamic countries like Pakistan may choose to consider when encouraging their young, tech savvy, capital city residents towards adopting digital banking and financial services within their nation.

Keywords: Islam; digital Fintech; banking; financial services; qualitative NVivo; quantitative CB-SEM

JEL Classification: D53; G53

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1. Introduction

By 1967 the term Fintech encompassed venture capital and industry expertise provided to startups in the financial technology industry in the US. In the banking and financial services sector Islamic Fintech (herein termed iFintech) is differentiated to integrate the ethical deep rooted Shari'ah law approaches with relevant innovative technological digital solutions [1]. Table 1 compares different Fintech banking and finance systems.

Figure 1 shows key banking and finance industry progressions away from local banking and highlights key financial milestones within the Islamic world. By 1977 the United Arab Emirates introduced Islamic banking. By 2010, blockchain digital technologies, and supporting subsequent banking and finance instruments emerged. By 2010, iFintech described linkages between emerging financial instruments plus emerging digital technologies, with ethical and moral foundations of Islam. Today, iFintech is a recognized banking and finance approach that seamlessly transacts Islamic nations banking and finance and also interconnects with traditional Western banking approaches. Figure 1 summarizes a general progression beyond national Islamic state borders, and into the global banking domain.

Table 1. iFintech versus western fintech banking and financial services Systems. Adapted from [1].

Economic Approach	Islamic Economy Systems (iFintech)	Western Economy Systems (Fintech)
Transactional	Asset-backed, plus Profit/Loss sharing	Interest-structured
Religiosity	Islam compliance	Non-religious compliance
Ethical	High (Shari'ah Law compliance)	Honesty, Agreed, Documented, Legally compliant
Risk Sharing	Emphasized	Embedded interest-structuring
Financial Inclusivity	Strong institution-consumer focus	Strong consumer responsibility
Social Welfare	Integral with Shari'ah Law compliance	Secondary, Business compliance

This study captures Pakistan's young, educated, IT literate community and their survey respondent opinions concerning the adoption of 'Islamic financial technologies' (herein termed iFintech). iFintech offers an alternative Islamic digital financial services system to the existing digital Western democracies financial systems. iFintech combines Shari'ah compliance requirements with digitally actioned financial technologies and transactional solutions [2,3]. These changes, linked with the ongoing global digital revolution, typically add blockchain applications, blended with compliant Islamic behaviors across transactions, and these are also accepted across global mobile or online markets. Being digital, they involve short completion spans, and they deliver sustainable impersonal trading exchange outcomes [4,5].

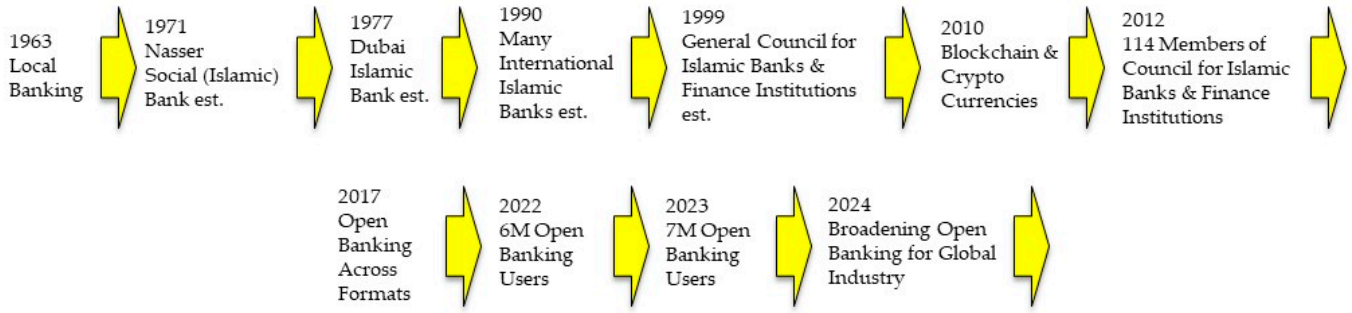

Figure 1. Banking, Finance, and Fintech progressions within Islamic nations over recent decades.

iFintech involves legally documented terms and conditions, and these need to be executed as specified to ensure proper compliance. iFintech also offers new digital and rapid execution opportunities that transactionally can advance the individual's social and/or economic goals [5]. Thus, iFintech can facilitate banking, financial services, investments, and mortgages approaches that offer a more acceptable format to practicing individuals in Islamic faith countries.

From a national and Pakistan perspective, iFintech encompasses banking, financial services, and associated blockchain technologies [6–8]. In iFintech banking some researchers [9] recognize the digital success of iFintech adoption as dependent upon Shari'ah Law. This differs from Western banking approaches as it involves efficient, reproducible, streamlined, personal, peer-2-peer, automated real-time analytics, and intelligent data interpretation. Other researchers [2] see iFintech financial services as fostering financial inclusions, as harmonizing the Islamic finance industry, and as navigating intricate coherence and uniformity intersections across management, technologies, AI, Islamic finance, and sustainability towards aligning with future Islamic targets.

As many contributing factors exist towards broadening adoption of iFintech, this study considers responses from tech-literate individuals in Pakistan's capital city Islamabad, regarding their perceived iFintech adoption readiness. The study propositions that a suite of competencies frame necessary precursors then support suites of agile and actioning capabilities, and these together conjointly influence iFintech adoption.

This study researches mechanisms by which young tech savvy respondents in Pakistan's capital city may structure their iFintech adoption of banking and financial services, and how Pakistan's banking and financial services system may help drive approaches towards iFintech adoption.

2. Literature Review

Both negatives and positives towards iFintech adoption can arise from an individual's perceived competencies factors. iFintech does not yet meet contemporary financial services industry needs, along with necessarily meeting the Islamic rules, legalities, and ethical goals beyond profit [10]. Nor does Islamic finance uniformly align with Islamic financial economic values, inclusivity, innovative financial services strategies, digitization, social finance, and iFintech sustainability [2,10]. iFintech incorporates digital financial competencies and service capabilities that enlist AI and blockchain approaches, and may also deliver more uniform Islamic finance practices, along with unique sustainability advantage solutions [2]. Thus, iFintech is yet to be properly harnessed as a powerful suite that also achieves an ethical, equitable and sustainable financial system.

2.1. iFintech Competencies to Capabilities to Adoption Readiness

As depicted across Figure 2, iFintech as an Islamic digital finance development suite, moves from possessed competencies to applied capabilities and then to providing a sustainable competitiveness advantage [11]. This competencies-capabilities-competitiveness progression arises in both the competitive business and the competitive software development context [12]. and this staged progression likely applies to the iFintech domain. This study propositions (P) that iFintech competencies relate to iFintech capabilities and that this, as a combined transitional system is further propositioned (P2) as a combined pathway towards understanding how iFintech adoption as a unique sustainable advantage guide to competitiveness is best delivered.



Figure 2. iFintech Competitiveness Framework. Adapted from [13].

Considering iFintech, competencies capture the enlisted suite of contributing components to initiate and support an iFintech system of capabilities deliverables. These agile and actioning capabilities, as delivery components, capture the requirements of the iFintech business suite. These engage and help support an iFintech overall sustainable competitiveness advantage (or net competitiveness position). This framework links Islamic financial capacities inclusions, ethical investments, sustainable economic worth investments, leveraging technologies, and social acceptance services, towards each unique sustainable investment solution [14].

2.2. Research: Theory and Research Propositions

This research theoretically frames around several theories. Stakeholder theory [15] also applies across the iFintech banking and financial services domain. It brings the financial services industry and its stakeholders together, it draws on economic, governance, social ethical, environmental, and performance domains [16,17], and it complies with Shari'ah principles. Stakeholder theory [15] coupled with agency theory [18] supports alignment between participants and the financial services industry and its application towards the corporate governance of Islamic banks. These two theories support iFintech and provide

general support for this financial services industry as it pursues unique sustainability developments, and as it accelerates towards global financial inclusion, and unique iFintech sustainable advantage [19,20].

The financial services industry, including iFintech and its banking and financial services, is also a resource-based theory concept [21], drawing upon a transitional stagewise development process blending competencies and capabilities and advancing these towards a digital and artificial intelligence (AI) dynamically supported, unique sustainable advantage, or net competitiveness position [12,22].

Thus, stakeholder theory plus agency theory, and resource-based theory, linked with a process framework towards delivering a unique sustainable advantage helps frame this iFintech research. Further, model precision theory [23], bringing process precision across time intervals, linked with the theory of planned behavior [24], bringing an individual's behavior into prediction their intentions, along with real time action research theory, building frameworks that challenge future assumptions, also help set this iFintech research towards real time data capture and deployment.

This iFintech study enlists core competencies theory [25] to deploy unique skills and resources towards delivering competitive advantage. It develops a framework that defines, cultivates, and collectively exploits iFintech core competencies as a success initiator in the global marketplace. These core competencies establish the core components from which a unique sustainable advantage or ongoing net competitiveness can be derived. Competencies and capabilities theory [26] adds the agile and actioning skill, knowledge toolkits and feedback revisions that deliver the desired productive components to deliver a unique sustainable advantage. Competition and competitiveness theories [27] add a multidimensional capture concept that encapsulates the overall ability to comparatively compete in the chosen marketplace.

Thus, in line with theory and Figure 2 a literature stagewise framework towards iFintech adoption is interlinked across two key propositions. Proposition (P1) suggests a suite of competencies frame the necessary precursors to support the suites of agile and actioning capabilities, and proposition (P2) suggests competencies and capabilities when conjointly actioned may exert an ongoing net competitiveness.

2.3. iFintech Competencies

Currently, iFintech competencies contributing towards engaging a sustainable adoption readiness position encompass both a convenience perspective, and a literacy perspective. Convenience can capture as: speed-of-service, availability, ease-of-use, simplicity, appeal, and better-than-alternatives [11,28]. The individual's literacy competencies offer multiple angles of understanding. First, financial literacy likely includes understanding of blockchain, and smart financial contracts, digital banking, crowd funding, big financial data analytics, robo-banking advisors, IoT device knowledge and integrations [29]. Second technical literacy likely includes familiarity, skill, control, and opportunity with Fintech, its services, activities, and transactions [30]. Third, digital literacy typically encompasses understanding and exposure to Fintech services, transactions, and activities, and being interested in digital financial actions [30]. Thus, a measurable individual competencies framework for iFintech adoption establishes as shown in Figure 3 and with literature supported measurement items presented in Table 2.

2.4. iFintech Capabilities

Some [12,13] show, for different industries, digital competencies link through to action digital capabilities and these together can network and deliver overall unique sustainable advantage or ongoing net competitiveness. This general framework is now extended into

the iFintech action capabilities domain. In this technologies–engagement domain, Booth and Philip [14] group capabilities under four distinct areas: technical architecture, reputation, financial innovation, and strategic assets. Kay [31] suggests capabilities group as advantage cost/price positioning, action initiatives, marketing initiatives, and initiatives that exploit supply side strategic advantages. Capabilities are considered related to competitiveness as learning, operational-flexibility, AI, innovativeness, and performance against future uncertainties [32]. Thus, capabilities is also a measurable multidimensional agility and actioning domain [32].

Other researchers [14,31,32] consider capabilities domains coalesce for iFintech capabilities as (1) smooth technical transactions (technical architecture, action initiatives, and AI), (2) reputation (latest economic benefits and cost/price positioning and learning), (3) latest social acceptance (innovativeness, marketing initiatives and operational-flexibility), and (4) latest risks mitigations (strategic assets, exploited supply side strategic advantages, and performance against future uncertainties). Thus, a measurable individual capabilities framework for iFintech adoption establishes as shown in Figure 3 and with literature supported measurement items presented in Table 2.

Other researchers [11–13,33] highlight a general framework of technologies-based competencies to capabilities to competitiveness. This framework extends across Fintech and iFintech domains. Within these digital domains, a suite of capabilities actioning technologies transfers arises. Again, these capabilities can measure as: smooth, easy, accurate, instantaneous, peer-to-peer, financial transfers, across selected digital financial services, risks, and technologies [34]. This study summarizes the above capabilities discussion above for iFintech as capturing smooth technical transactions, latest economic benefits, latest social acceptance, and latest risks mitigations. Again, as shown in Figure 3, a measurable individual competitiveness outcome (iFintech adoption readiness) establishes with literature supported measurement items presented in Table 2.

2.5. iFintech Adoption Readiness

Within technological or digital domains competencies represent: 'acquired experiences, acquired and/or developed, and/or improved know-how' over-time. Further, the more unique and idiosyncratic are the competencies, the stronger and more sustainable is the advantage. These competencies also frame a motivational precursor suite from which subsequent agile and/or activation capabilities can be suitably supported [14]. This suite of capabilities and supporting competencies can enable an overall unique sustainable advantage or net competitiveness [12,13,31], and this equates to a degree of iFintech adoption readiness.

Similarly, in the Fintech digital domain, other researchers [35–37] show relative available competencies including technological invention advantage, enlisted firm strategic capacities, and existing competitive pressures can influence both Fintech adoption readiness—especially when related towards ongoing financial performance. Researchers [38] assess adoption readiness using organizational readiness theory. They assess competencies including strategic resource readiness, IT readiness, and contextual readiness inclusions positively support multiple digital financial innovation capabilities. They find this overall system then ultimately influences overall financial performance and ongoing Fintech robustness as two measures of unique sustainable advantage, whilst helping to overcome Fintech capabilities negatives and risk system shocks.

Some [39,40] suggest iFintech is both disruptive and transformative, and it is forcing existing financial institutions and banks to adapt into becoming deliverers of such tailored convenient and affordable digital financial services. Hence this study is motivated to

investigate iFintech and its contributing components. Thus, a transitional left to right framework is proposed for SEM investigation.

Thus, a literature supported framework of different competencies to different capabilities to competitiveness is established as a pathway towards delivering iFintech adoption readiness. The literature supported components of this transitional framework are detailed as Figure 3. This approach links the competencies to capabilities as proposition 1 (P1) and second considers competencies and capabilities together as a proposition 2 (P2) linkage towards the financial services iFintech adoption readiness features.

However, in Islamic financial services, iFintech capabilities negatives also exist, and these contribute a negative solution towards iFintech adoption readiness. These capabilities negatives are risk associated and are measurable as: not-yet user friendly (or sufficient helpful) technical knowledge, services, and consumer products, uncertain and unclear security and privacy services and products, plus the general user-friendliness when trying to reliably use iFintech to lower costs, win trust and achieve financial services inclusion [41]. In this study iFintech capabilities negatives towards iFintech adoption readiness are included.

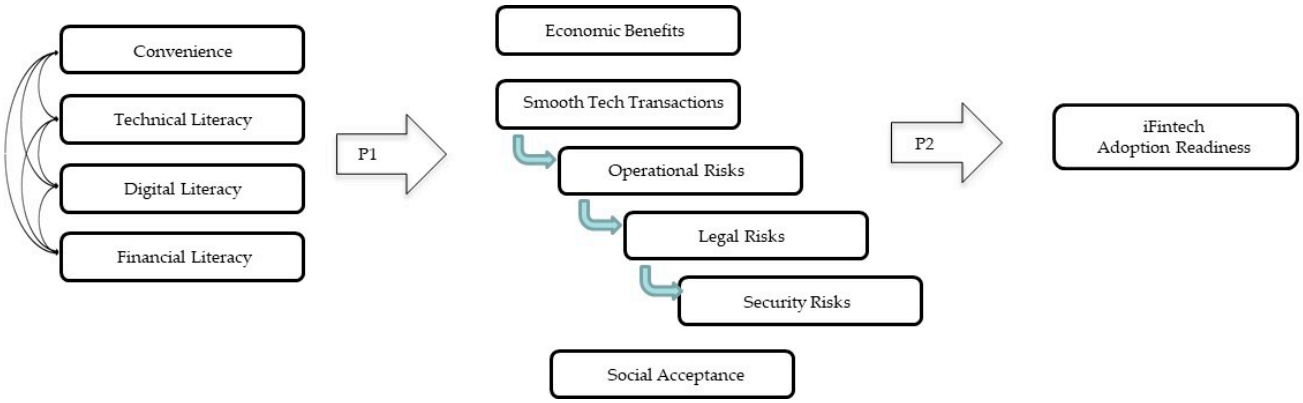

Figure 3. Transitional Research Framework towards iFintech Adoption. Adapted from [3].

This study pursues mechanisms by which young tech savvy respondents in Pakistan's capital city perceive their adoption banking and financial service as an iFintech approach, and how Pakistan's banking and financial services system may drive approaches towards iFintech adoption.

This study seeks new understanding around how to generate, or to refine, latest iFintech approaches encompassing emerging or developing digital ideas. It captures open–ended respondent comments from Pakistan's digitally literate and educated young tech savvy community regarding their opinions on how to overcome the digital capabilities negatives associated with iFintech and its adoption readiness outcomes. A literature supported model (Figure 3) is quantitatively studied via SEM path analysis. This measurement study approach maps new understanding of the combined effects of iFintech's digital negatives in hampering iFintech adoption.

2.6. Research Direction

This study jointly pursues a theoretically supported and a literature supported transitional framework across a Figure 2 'digital competencies to digital capabilities to digital competitiveness' framework, but only within an iFintech specific digital domain, and it uses this approach to pursue the transitional stagewise processes that can deliver a unique sustainable advantage whilst providing a unique ongoing net competitiveness.

3. Methodology

Mixed methods (theory/literature, qualitative and quantitative) triangulation is deployed to gain broader exploratory and confirmatory understanding and help validate findings around this new investigative field of iFintech adoption readiness. Combining written and surveyed data perspectives aids in understanding strengths and/or weaknesses across the qualitative and quantitative data sets deployed. The authors note there is currently a lack of similar research studies in the literature, and this again supports a diversified mixed methods triangulation.

iFintech and High-Tech Digital Solutions

Figure 3's transitional framework across the eleven (11) constructs of Figure 3 was developed further into suites of 5 literature refined Likert scale (1-strongly disagree to 5 = strongly agree) questionnaire items per construct. The Qualtrics online survey contained 66 quantitative responses, five demographics responses, and one extension open-ended qualitative questionnaire item written response. Across October–December 2024, three hundred and thirty-nine (339) young, tech literate individuals from across Pakistan's leading global high tech industry center (Islamabad) provided useable online questionnaire item response sets. Ten (10) respondent cases were deemed outliers and were removed leaving three hundred and twenty-nine (329) respondent cases as the final data set.

A transitional stagewise model progression was expected for the substantive iFintech data set. A quantitative SEM path analysis was applied to investigate each construct's effects across the overall model. The extended open ended qualitative responses were qualitatively NVivo thematic word cloud and word tree investigated for individual opinions and depth of understanding regarding iFintech.

4. Analysis and Results

4.1. Survey Demographics

This quantitative 339 respondent Qualtrics data capture occurred across October–December 2024. It captured 71 Likert scale (1 = strongly disagree to 5 = strongly agree) responses, plus demographics, and one broad qualitative open-ended additional feedback response—each from different young, educated, IT literate community individuals in and around Pakistan's capital Islamabad.

Respondent demographics split as 270 males, 67 females. All respondents are experienced and possess appropriate solid educational level (249 (Batchelor), 4 (Master's) 2 (PhD), and 84 (other). Respondent age ranges are predominantly under 40 with 304 (21–30 years), 34 (31–40 years), and 1 (>41 years). Respondents are mostly working within the IT/IS/Engineering and digital AI domains 146 (IT), 41 (IT/IS), 95 (IT/engineering), 12 (AI), but have limited working experience—11 (under one year), 245 (1–2 years), 72 (2 to 5 years), 7 (6 to 10 years). Thus, respondents possess suitably skills to wisely answer all questions across the full online Qualtrics questionnaire.

4.2. Qualitative Analysis

NVivo 12.0's word cloud and word tree thematic investigation of eighty-six (86) respondent open-ended qualitative written feedback information shows individual opinion regarding iFintech. Open ended questioning captured whether their bank is likely to (or can) adopt or expand into offering digital Islamic banking (and why), and how (digital) negative perceptions associated with iFintech, and its adoption might be overcome to help deliver iFintech adoption readiness.

Written responses around this general open-ended qualitative question are segmented into individual phrases and excel grouped as competencies, or capabilities, or competitive-

ness/adoption readiness. This excel list is collectively imported into NVivo and collectively word cloud plus word tree analysed.

Respondent word cloud feedback (Figure 4a) indicates these tech savvy individuals understand that iFintech complies with Islamic financial law regulated and involves digital financial technologies activities related to changes to Islamic individuals and their work life balance within Pakistan. Figure 4b's exact 100 thematic word cloud (3-word min) shows these respondents also understand where and how iFintech is positioned in Pakistan.

The word tree, shown as Figure 5, is restrictive due to the limited open-ended data provided from only 86 respondents. However, it provides separate phrases regarding their combined individual and considered opinions about Islamic Fintech as related to finance, to business, and to the country Pakistan.

Figure 4 suggests respondents see digital fintech activities/financial/services as being closely associated with Islamic regulatory banking and potential government-friendly applications.

Unzipping the word tree vertically at column level three this feedback is considered as activities, digital, changes, and individuals' sections. Level 4 assessment captures regulatory and legal positives, and institutional work. Associated with level 5 operations, potential, transactions, provision, needs and products for the level 6 whole of banking conditions, and easy community developments. At level 6 these actions make and retain, traditional compliant useful transference services of informed accessible, and available. Levels 7 to 9 provide reasoned opportunities, along with increasing evaluations of both challenging and supporting solutions that generate a clear technological ability to frame and address social benefits, skills, and knowledge, and incorporate advantageous openings. Thus, Figure 5's vertical column unzipped thematic word tree shows the tech savvy respondents and their written NVivo responses represent a solid understanding of the banking system and its iFintech possibilities.

(**a**)

Word Cloud Individual Thematic Perceptions Regarding iFintech
(Top 100 words—3-word length generalizations)



(**b**)

Word Cloud Individual Thematic Perceptions Regarding iFintech
(Top 100 words—specific and exact 3-word length groupings)



Figure 4. NVivo open-ended word cloud thematic responses.

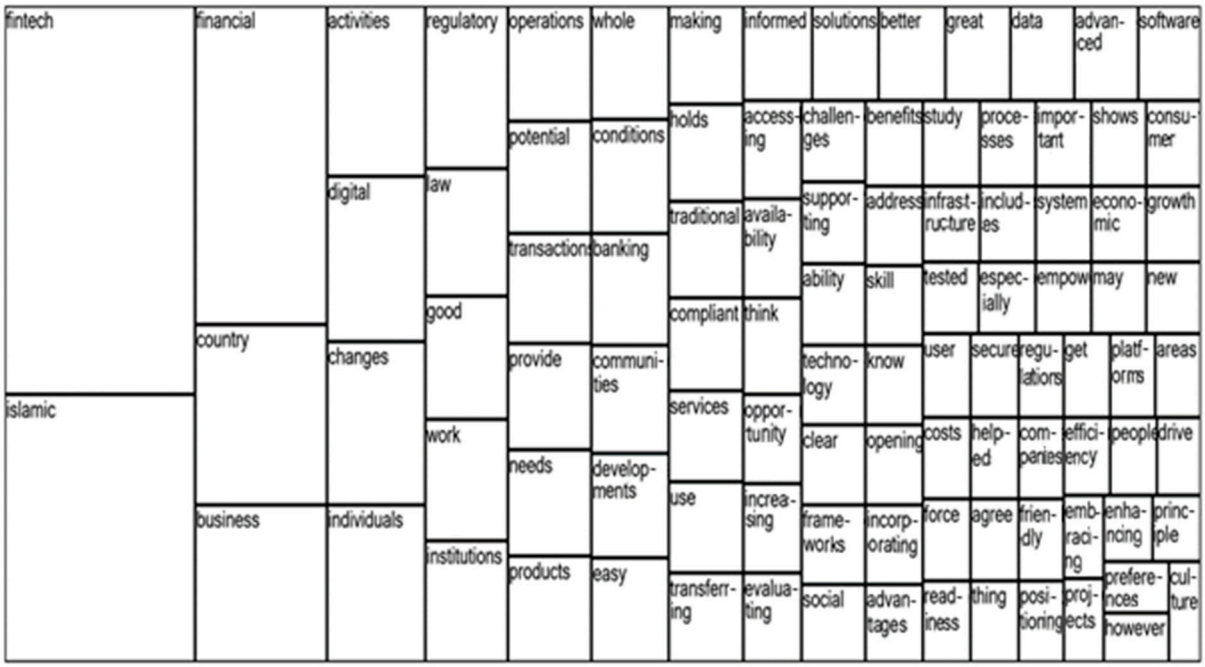

Figure 5. NVivo open-ended word tree thematic association responses.

Unzipped in horizontal row sections, Figure 5's word tree feedback presents 'Fintech' first as financial activities around regulatory operations that facilitate full informed solutions via better great data and advanced software. Second the word tree feedback suggests Fintech is also financial, digital, legal, meeting potential conditions, providing an accessible and challenging benefits study offering important processes for consumers. Third the word tree feedback suggests Fintech country changes bring good transaction banking that supports traditional banking and addresses available supporting infrastructure and economic growth. This also brings community compliant knowledge and tested skills and abilities that may empower new approaches. Islamic business unzips similarly. The above open-ended word tree feedback suggests today's individual respondents understand the digital dimensions and requirements of iFintech and are well qualified as suitable quantitative respondents too.

From an 'Islamic' perspective a similar Figure 5's word tree feedback row unzipping process can be followed. For example, 'Islam' in business is seen as individualistic, across work and institutions, and providing needed products for easy banking, communities developments that are traditional and compliant, and applying across useful transference services. Again, this horizontal unzipping shows today's tech savvy individual respondents in Pakistan's capital city see Islam as likely thematically reaching towards a part blended integration with Fintech at various application levels throughout this study.

Overall, the qualitative study confirms young tech savvy respondents in Pakistan's capital city clearly understand the necessary connections and likely requirements of IFintech and its adoption. Hence, their ability to provide in-depth quantitative assessments of questionnaire items is also considered suitably reliable.

4.3. Quantitative Analysis

Key construct item measures drawn from the theoretical and literature developed framework as described above was first tested against a carefully developed Likert scale (1 = strongly disagree to 5 = strongly agree) pilot survey in Sindh Pakistan. After adjustments to simplify and refine questions, and to correct three questions, the final Qualtrics

survey was deployed across Islamabad, Pakistan A final useable dataset of 339 tech industry employees was obtained.

Data cleaning removed cases with excessive missing data (<10%). Missing value average replacement, plus correction back to whole numbers 1 to 5, framed the final data set. An EFA varimax principal components rotated pattern matrix maximum likelihood solution checked for factors (now termed constructs). This process removed cross loads, low loads below 0.3, and very poor factors. The remining eleven well defined constructs, and their varimax EFA pattern matrix item measures, were matched against the dataset's literature supported constructs and item measures. In each case the literature sourced, and carefully developed construct item measure questions, matched the varimax EFA pattern matrix construct solution.

Next, a CFA construct item measures reduction process was undertaken [42–44]. With all items being suitably near normal, the maximum likelihood, oblim, rotational approach to CFA dimension reduction delivered step-by-step or stagewise removal of poor fitting construct item measures finalized with each final construct retaining between 5 or 4 or 3 items, and with each remaining construct item possessing all residuals below 0.05. Thus, high quality fit constructs and their items were delivered. As shown in Table 2 (column 2) all final item loadings (bar one) meet a 0.7 or better standard. This indicates suitability to attempt CB-SEM modelling [42,43,45].

Quantitative analysis of Likert scale questions sectioned as constructs and their items is summarized in Table 2. The first grey row of each construct represents the compiled measures of its collective construct indicator items. Column 1 presents each Figure 3 factor reduced construct and its final measurement items. Column 2 presents the factor loadings for each measurement item. These are above 0.6 as required for experimental research [42]. Column 3 is the construct's acceptable average variance extracted due to measurement error—with all exceeding 0.5 as desired [42,43].

Columns 4 and 5 are the slightly positively skewed construct and item means and standard deviations. These are within acceptable range for a maximum likelihood SEM approach, and deliver small model skew (0.1 to 0.5, c.r. 1.0 to 4.0) and small model kurtosis (0.2 to 1.0, c.r. < 2.0). Column 6 is each construct's Cronbach alpha value. All are strong (>0.7) indicating each construct is has strong internal consistency and scale reliability [42,43].

Columns 7 to 9 provide the SEM single indicator composite measures for each construct. This reduces complexing latent variable effects and enables an experimental path analysis approach to focus on relationship analysis between constructs in the proposed literature developed model [46]. Path analysis enables assessment of multiple constructs in Figure 3's transition model via multiple pathways onto the outcome construct 'iFintech adoption readiness'.

A SEM single indicator composites approach is applicable when the constructs items are closely related and possess similar loadings and when pathways across complex model structures are under investigation. Thus, columns 7 and 8 calculate Munck's [44] load and error computations and so delivers the composite single indicator construct's load and error terms and Hair et al.'s [45] composite reliability measure (>0.7 and <0.95) provides a guide to good reliability and indicates 30% to 5% of the variance in the composite single indicator construct being due to its overall error variance.

Table 2. SEM path model data for iFintech adoption readiness.

		Construct Measures						
329 Survey Questionnaire Cases (Constructs and Indicator Items)	**Item Load (λ)**	**AVE $(\Sigma\lambda)^2/n$**	**Mean**	**Std. Dev. (SD)**	**Cronbach Alpha (α)**	**Single Composite Loading SD ($\sqrt{\alpha}$)**	**Single Composite Error SD^2 (i − α)**	**Composite Reliability $(\Sigma\lambda)^2/[(\Sigma\lambda)^2 + \Sigma(1-\lambda^2)]$**
Convenience		**0.533**	**4.179**	**0.630**	**0.770**	**0.55**	**0.09**	**0.77**
I can use digital financial services easily	0.767		4.190	0.721				
Digital financial services transactions are easier than conventional methods	0.727		4.210	0.741				
I can use digital financial services anytime, anywhere	0.694		4.140	0.816				
Digital Literacy		**0.584**	**3.496**	**0.954**	**0.846**	**0.88**	**0.14**	**0.85**
I am not interested to use Fintech services	0.839		3.320	1.264				
I am not concerned about using Fintech services	0.750		3.600	1.103				
I do not know much about Fintech services	0.739		3.480	1.187				
I have been exposed to the types of Fintech services transactions	0.724		3.580	1.044				
Financial Literacy		**0.485**	**3.751**	**0.797**	**0.734**	**0.68**	**0.17**	**0.74**
I know about crowd funding	0.767		3.690	1.004				
I have knowledge about robo-advisors in banking and finance industries	0.696		3.780	0.964				
I am familiar with Block chain contract applications to financial transactions	0.618		3.780	0.990				
Technical Literacy		**0.514**	**3.965**	**0.693**	**0.807**	**0.62**	**0.09**	**0.81**
I have enough technical knowledge to use Fintech services	0.770		3.920	0.912				
I know it is better to use Fintech in conducting my banking activities	0.720		3.990	0.837				
I am usually interested to know more about Fintech services transactions	0.704		4.010	0.870				
I am familiar with the term Fintech	0.669		3.940	0.863				
Economic Worth		**0.513**	**4.175**	**0.610**	**0.758**	**0.53**	**0.09**	**0.76**
I can complete transactions digitally	0.727		4.180	0.772				
I can perform various financial services transactions at lower cost	0.713		4.150	0.770				
I can save money	0.708		4.200	0.684				

Table 2. *Cont.*

		Construct Measures						
329 Survey Questionnaire Cases (Constructs and Indicator Items)	**Item Load (λ)**	**AVE $(\Sigma\lambda)^2/n$**	**Mean**	**Std. Dev. (SD)**	**Cronbach Alpha (α)**	**Single Composite Loading SD ($\sqrt{\alpha}$)**	**Single Composite Error SD^2 (i − α)**	**Composite Reliability $(\Sigma\lambda)^2/[(\Sigma\lambda)^2 + \Sigma(1-\lambda^2)]$**
Smooth Tech Transactions		**0.548**	**3.998**	**0.683**	**0.784**	**0.60**	**0.10**	**0.78**
Digitally I have been very careful, that's why I use very accurate technologies	0.760		3.750	0.996				
I can have direct person-to-person digital transactions without middleman	0.740		4.140	0.846				
I can use various digital financial services as a one stop processing system	0.720		4.110	0.829				
Operational Risks		**0.650**	**3.533**	**0.883**	**0.809**	**0.79**	**0.15**	**0.85**
Fintech companies respond too slow if financial losses or info. leaks happen	0.839		3.550	1.093				
Fintech companies are reluctant to solve issues if financial losses or info. leaks happen	0.825		3.500	1.145	0.846			
I worry about how Fintech companies respond to financial loss or info. leaks	0.751		3.540	1.133				
Legal Risks		**0.638**	**3.622**	**0.930**	**0.838**	**0.85**	**0.14**	**0.84**
Is uncertain due to many rules and regulations	0.858		3.660	1.052				
Is not easy due to government regulation	0.805		3.540	1.131				
Brings a legal uncertainty for users	0.728		3.670	1.025				
Security Risks		**0.552**	**3.590**	**0.894**	**0.858**	**0.83**	**0.11**	**0.86**
My financial information is not secure in I-Fintech	0.789		3.420	1.198				
I worry that someone can be able to access my financial information	0.786		3.630	1.122				
I would never make a high-risk investment	0.774		3.650	1.125				
I worry about possible abuse of my financial info. (e.g., transaction or privacy info.)	0.734		3.680	1.104				
I would never make a low-risk investment.	0.617		3.580	1.042				

Table 2. *Cont.*

		Construct Measures						
329 Survey Questionnaire Cases (Constructs and Indicator Items)	**Item Load (λ)**	**AVE $(\Sigma\lambda)^2/n$**	**Mean**	**Std. Dev. (SD)**	**Cronbach Alpha (α)**	**Single Composite Loading SD ($\sqrt{\alpha}$)**	**Single Composite Error SD^2 (i − α)**	**Composite Reliability $(\Sigma\lambda)^2/[(\Sigma\lambda)^2 + \Sigma(1-\lambda^2)]$**
Social Acceptance		**0.452**	**3.885**	**0.703**	**0.711**	**0.59**	**0.14**	**0.71**
My friends and family would value the use of Fintech	0.692		3.900	0.926				
I will use Fintech services and products if these help me gain peer group acceptance	0.672		3.930	0.836				
I can make a more informed decision about using Fintech because I know quite a lot about Fintech	0.652		3.820	0.886				
I-Fintech Adoption Readiness		**0.494**	**3.982**	**0.684**	**0.743**	**0.59**	**0.12**	**0.72**
I will continue to use Fintech in the future	0.746		4.020	0.856				
It provides me better control over regular transactions	0.687		4.030	0.788				
Today I positively choose Fintech for my banking & financial services	0.673		3.900	0.878				

Overall, Table 2 provides an excellent suite of numerics for SEM path analysis. In addition, Table 2 builds the model-required metrics necessary when conducting a CB-SEM path modelling procedure.

The one measurement weakness in Table 2 is where composite error measures are large. This lack of precision contributes towards a weak p value < 0.05 (0.02). However, a strong 758/1000 bootstrap fit and Bollen-Stine bootstrap p = 243 validation still delivers a highly acceptable chi-square, degrees of freedom and probability level SEM path analysis minimum. Initial modelling indicated 10 Mahalanobis d-squared case outliers needed removal, leaving a final dataset for analysis of 329 cases.

All standardized model covariance relationships and model transitional pathways shown in Figure 6 are significant at either $p < 0.05$ = * or $p < 0.01$ = ** or $p < 0.001$ = ***. Hence, the resultant model is strongly representative of the data and its linkages.

Figure 6 models Table 2 and shows three main transitional model pathways to iFintech adoption readiness exist. First a social acceptance pathway is driven by technical and financial literacy competencies. Second an economic worth pathway is driven by a convenience availability competency. Third a negative risks pathway is driven collectively by the convenience, digital, and financial literacy competencies deployed, along with the smooth tech transactions capabilities. Collectively these differing risks capabilities

encompass operational, legal and security risks. Thus, iFintech adoption readiness is dependent upon minimizing the associated capabilities risks, maximizing the social acceptance within Pakistan's capital city, and maximizing the economic worth of the iFintech related processes.

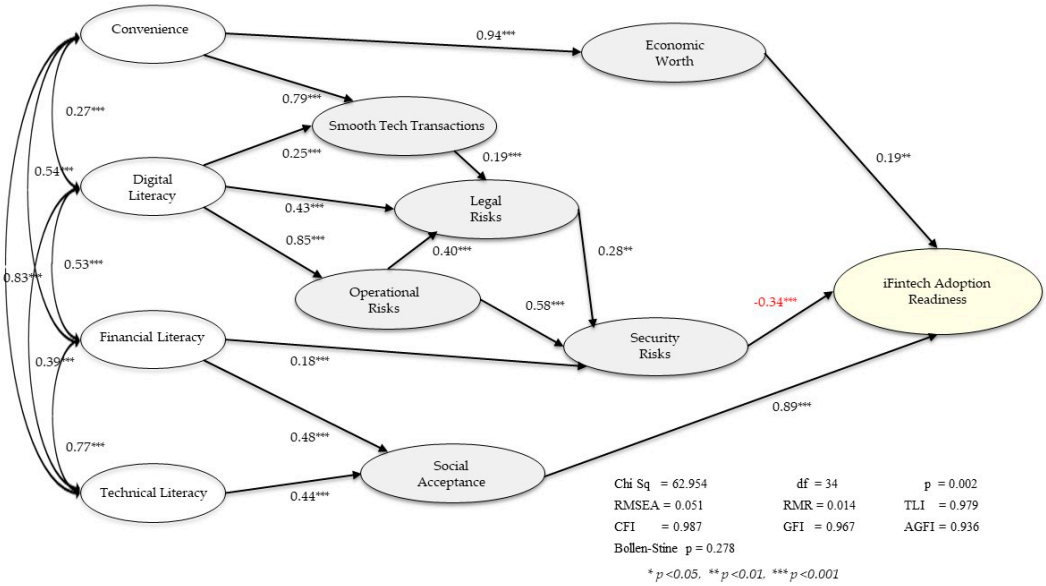

Figure 6. SEM iFintech adoption readiness model and goodness of fit measures (standardized estimates).

Figure 6 shows a strong model with a minimum achieved at $\chi 2/DF = 1.852$ $p = 0.02$ and p(Bollen-Stine) = 0.278 (1000 bootstraps). The excellent Bollen-Stine Bootstrap p value validates the model fit is better in 722 samples of the applied 1000 bootstrap samples. Model fit is excellent, with the RMSEA (root mean square error approximation, CFI (comparative fit index) TLI (Tucker-Lewis Index and RMR (root mean square residual) measures all within Hu and Bentler's [47] cut-offs. The GFI (goodness of fit) and AGFI (adjusted goodness of fit) difference and values also indicate an excellent fit [43].

All four competencies significantly, covary and contribute to the capabilities to iFintech adoption readiness model. All paths across the model are significant at $p < 0.05$ or better, and all standardized path strengths are substantively above zero.

We refine the Figure 6 composites only path model to include the full exogenous construct items and use these additional parameters to increase the scope and reliability of the confirmatory factor analysis study. Adding these additional exogenous parameters is advisable when conducting optimal path analysis studies with endogenous single indicator composite constructs [42]. This approach reduces the possible underestimation of loadings and errors, which are set against the best information available, and include minimal measurement error terms (1.0 minus the reliability estimate).

This CB-SEM study of exogenous full parameter combined with endogenous composite constructs engages 210 distinct sample moments, estimates 54 parameters, and delivers 156 degrees of freedom, delivering a Chi-square of 313.280 and a chi-square degrees of freedom ratio of 2.008. Again. compared to Figure 6, an excellent model still exists, and as expected has slightly lower, but still excellent, individual fit measures. The model captures both the negative and positive drivers of iFintech adoption readiness, and all pathways are significant at $p < 0.01$.

Model 7 eliminates the italic cross loading digital literacy item in Table 2. Model 7 shows three main driver blocks of iFintech adoption readiness exist. A positive economic worth driver where individuals see a convenience and value dimension exists, a positive social acceptance driver where individuals see iFintech as a trending technical and

financial social norm of relevance to those of an Islamic faith, and a negative digital and technologies related risks suite that retards the individual's tendency and readiness towards iFintech adoption.

Model 7 suggests there is a likely structured suite of transitional stagewise pathways that may be followed when banks and/or the financial services sector choose to introduce iFintech into major tech savvy Pakistani cities, and particularly when specifically targeting its young, educated, tech savvy communities.

Table 3 shows the degree of multicollinearity across exogenous constructs of Figure 7 as shown by the variance inflation factor (VIF = $1/1 - r^2$) is very low, and the sample moments correlation condition number (41.6) is very low for a complex CB-SEM model. These both indicate the CB-SEM statistics are a good representation of the model and its pathways. However, for future studies, the exogenous construct technical literacy could be considered for refinement, as it currently appears most influential in delivering model multicollinearity.

All model constructs significantly correlate (Table 4) with standardized correlations showing all constructs significantly correlate above 0.15 and below 0.85. All Table 4 constructs are suitably significantly related, and in line with literature model development projections. In addition, all literature developed constructs influence iFintech adoption readiness, and so each construct is appropriately included in this SEM path modelling study. All non-risks focused constructs show strong moderate relationships.

Table 3. SEM exogenous construct correlations and VIF multicollinearity determination.

Correlations			r^2	VIF
Convenience	<-->	Technical Literacy	0.829	3.20
Digital Literacy	<-->	Technical Literacy	0.418	1.21
Technical Literacy	<-->	Financial Literacy	0.755	2.33
Digital Literacy	<-->	Convenience	0.284	1.09
Convenience	<-->	Financial Literacy	0.532	1.39

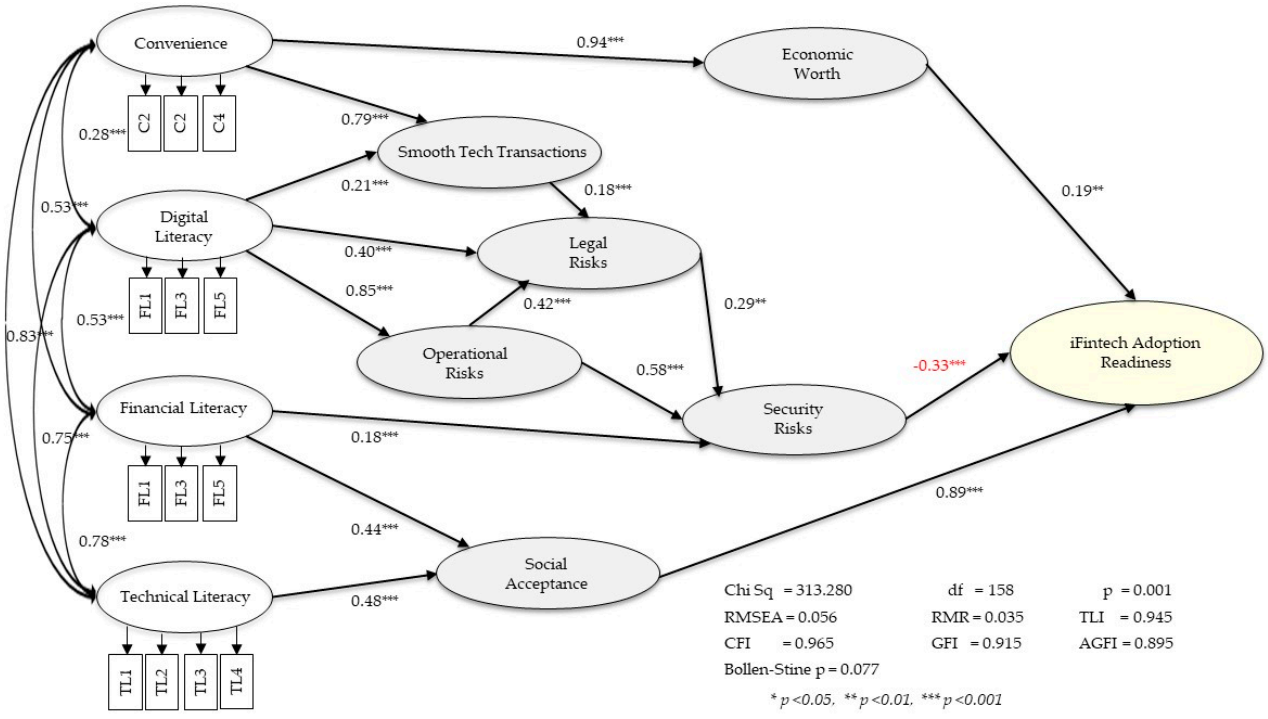

Figure 7. SEM iFintech adoption readiness path model including exogenous construct items, and goodness of fit measures (standardized estimates).

Table 4. Standardized model correlations (for Figure 7).

Model Correlations	**Digital Literacy**	**Financial Literacy**	**Technical Literacy**	**Convenience**	**Tech Transactions**	**Operational Risks**	**Legal Risks**	**Security Risks**	**Economic Worth**	**Social Acceptance**	**iFintech Adoption Readiness**
Digital Literacy	1										
Financial Literacy	0.53	1									
Technical Literacy	0.42	0.76	1								
Convenience	0.28	0.53	0.83	1							
Tech Transactions	0.44	0.53	0.74	0.85	1						
Operational Risks	0.85	0.45	0.35	0.24	0.37	1					
Legal Risks	0.84	0.50	0.45	0.37	0.51	0.83	1				
Security Risks	0.82	0.58	0.47	0.34	0.46	0.89	0.85	1			
Economic Worth	0.27	0.50	0.78	0.94	0.80	0.23	0.35	0.32	1		
Social Acceptance	0.44	0.81	0.81	0.63	0.59	0.37	0.44	0.48	0.58	1	
iFintech Adoption Readiness	**0.17**	**0.63**	**0.71**	**0.62**	**0.52**	**0.08**	**0.17**	**0.16**	**0.61**	**0.84**	**1**

As desired, digital literacy, operational risks, legal risks, and security risks show the weakest correlation relationships in the Figure 7 iFintech adoption readiness model. These risks constructs are areas where iFintech developers likely should consider incorporating maximum mitigation processes.

5. Discussion

This mixed methods theory/literature, qualitative study and quantitative study offers both exploratory (qualitative) and confirmatory (quantitative) approaches based against a theory/literature framework. This cross-checking or triangulation approach helps verify the research propositions and also offers support towards the relevance of the combined theories applied to frame the Figure 3 research model and to advance understanding of iFintech adoption readiness processes amongst young tech savvy capital city individuals in Pakistan.

NVivo word cloud studies show those educated, tech savvy, and under 30 in Islamic countries likely understand relevant Fintech activities in their financial and business worlds, and that they likely see this process provides good digital financial services.

CB-SEM Figure 7 modelling of iFintech adoption readiness is shown to be achievable. This CB-SEM modeling also makes sense and offers useful transitional and progressive information of ongoing benefit to researchers, managers, and the Islamic financial services industry.

iFintech continues to advance. It is adding further digital, religion-based, and Shari'ah law compliant financial services capacities, ones particularly relevant to the specific requirements of the Islamic population across Pakistan. This process is adding digital skilling capacities with simple, quick, anytime, anywhere latest technologies availability options. As iFintech continues to develop, in Pakistan it also frames towards closer integration with existing financial services widely available across the 'Western' worldwide financial industry.

5.1. Implications of Research: Measurement

This study links together theory and literature across a transitional Figure 2 framework Figure of digital competencies to digital capabilities to digital competitiveness, specifically within an iFintech and digital domain. This approach follows a transitional stagewise process towards a unique sustainable advantage—one that advances a unique ongoing net competitiveness.

Table 5's standardized total effects measures capture the individual and combined net indirect and direct effects of relationships between constructs involved. Thus, a one-unit change in the initiating construct exerts a lesser change on the subsequent constructs involved. For example, a one-unit positive change in financial literacy (with its covarying contributors) exerts a 0.18 positive change in security risks, a 0.47 positive change in social acceptance and an overall 0.36 positive change in iFintech adoption readiness.

Hence, financial literacy, technical literacy, convenience, economic worth, and social acceptance exert positive (and overall larger) influences on iFintech adoption readiness, through the negative drivers of digital literacy, tech transactions, operational risks, legal risks, and security risks. Hence, to grow iFintech adoption readiness within Pakistan's digitally alert under 30's age group, and across Pakistan's major cities, two approaches should be conjointly followed—grow and optimize the positive engagement influencing constructs and also reduce and/or minimize the negative engagement influencing constructs.

Table 5. Standardized total effects (for Figure 7).

Model Standardized Total Effects	**Digital Literacy**	**Financial Literacy**	**Technical Literacy**	**Convenience**	**Tech Transactions**	**Operational Risks**	**Legal Risks**	**Security Risks**	**Economic Worth**	**Social Acceptance**
Tech Transactions	0.21			0.79						
Operational Risks	0.85									
Legal Risks	0.80			0.14	0.18	0.42				
Security Risks	0.72	0.18		0.04	0.05	0.70	0.29			
Economic Worth				0.94						
Social Acceptance		0.47	0.45							
iFintech Adoption Readiness	**−0.24**	**0.36**	**0.41**	**0.16**	**−0.02**	**−0.23**	**−0.10**	**−0.33**	**0.19**	**0.89**

Thus, strongly developing financial literacy and technical literacy competencies, along with enhancements to social acceptance capabilities likely offers the strongest total effects pathway into further promoting iFintech adoption readiness. A second positive pathway for iFintech adoption readiness passes from convenience to economic worth. This pathway should also be optimized. At the same time and particularly associated with digital literacy (and to some extent convenience), the negative total effect pathways should also be conjointly risks reduced.

5.2. Implications of Research: Practical

This Pakistan capital city study shows those under 30 years of age, and who are digitally alert, likely can be moved towards iFintech adoption readiness. This demographic of young individuals can likely be reached by offering and promoting to them: (1) new knowledge and capacities that can further enhance their iFintech financial, technical and digital literacies around emerging agile online financial services activities; (2) economically

worthwhile (cheaper and/or beneficial) financial packages; (3) promoting iFintech as a normative and socially acceptable form of online financial transactions that are compliant with Shari'ah law; (4) simple technological and visually-tracked transaction solutions; (5) reducing operational risks by making digital iFintech transactions direct through peer-to-peer blockchain operations, and (6) reducing external legal and security risks by providing private key peer-to-peer blockchain and government supported financial services. These six toolkits are each in need of development, and all offer additional research and implementation opportunities.

NVivo thematic word clouds help validate the general thematic content of the SEM approach and some of its constructs. For example, the convenience, tech transactions and economic worth constructs are seen as closely related. The NVivo qualitative technical, financial, digital, adoption and readiness themes are similarly associated to those found in the SEM quantitative technical, financial, and digital literacy, and iFintech adoption readiness constructs. Several NVivo thematic associations are similar to SEM construct relationships of Figure 7. For example, digital literacy has close thematic associations with compliant population and products (social acceptance); finance (economic worth) and Shari'ah finance inclusion (legal risks), growth and enabling needs (operational risks); secure research knowledge, and institution transaction readiness (smooth tech transactions); adoption (iFintech adoption readiness).

Figures 6 and 7 show three transitional pathways operate across the model. Each of these can be used to enhance iFintech adoption readiness. First, the vast majority of Pakistani individuals have mobile phones, and so have digital connectivity. These individuals roughly section into three significant groups (1) educated city dwellers, (2) less-educated rural dwellers and (3) remote poorly educated dwellers. Hence, banks and financial services providers can likely strategize differently towards developing and providing such typical consumer markets with economically worthwhile, digitally accessible financial products. Second, these institutions can strategize their new digital products as socially acceptable and particularly Shari'ah law compliant. Third, they can ensure they adopt marketing and communications strategies that develop and promote digital and financial competencies across their consumer markets, whilst also developing and ensuring their required new digital financial technologies remain both simple to use, and as risk free as possible.

5.3. Implications of Research: Theoretical

A Figure 2 competencies to capabilities to unique sustainable advantage framework has theoretical support and offers a framework to quantitatively and qualitatively study iFintech adoption readiness. Before addressing iFintech adoption the financial services industry in Pakistan, and its target market population should both learn and possess a suite key enabling starter competencies. Competencies theory emanates from a framework of specific (iFintech) constructs and their measurement items.

Competencies theory represents how individual businesses or individuals themselves can competently participate with the specific (iFintech) abilities they possess. This requires the ongoing development of both latest digital up-skilling along with competent-knowledge-based user abilities. and engaging these abilities helps to support the delivery of dynamic and/or agile capabilities changes.

Capabilities theory, in terms of iFintech, is a dynamic business theory. It focuses on financial services and their agile abilities to adapt to changing requirements whilst also focusing towards improving overall net competitiveness. Thus, the theoretical and transitional linkages of Figure 2 have literature support.

In terms of iFintech, a competencies to capabilities to competitiveness (measured as unique sustainable advantage) theoretical research foundation links these theories

and offers a complex pathways process towards developing, and assessing, iFintech adoption readiness. These three pathways each offer differing practical solutions for iFintech adoption.

In 2018 other authors [48] see competitiveness as a gap bridge between competitive advantage and comparative advantage. They present competitiveness as enhancing productivity via human-related and productive capital-related input factors, and conversions towards combined competitiveness outcomes.

This iFintech study adds to such competitiveness theoretical literature [48]. It extends understanding towards competitiveness as overarching competitive advantage and comparative theory, and with a multiple pathways precursor deliverance system. It suggests, from a theoretical approach, competitiveness across the iFintech digital industry forms through precursor linkage processes starting from current competencies or possessed inputs support developing capabilities activities and may combine towards the delivery of competitiveness outcomes. This iFintech study also adds into the theoretical literature competitiveness across the iFintech digital industry is created via a three stage, multi-step network of pathways coalescing into dynamic multi-construct (or dynamic multi-component) net of competitiveness outcomes.

5.4. Implications of Research: Social Aspects

The 2023 Pakistan census shows a population of 241.5 million and the Muslim population percentage as 96.35%, with Islam is the official state religion. Pakistan is the second largest Muslim population nation. Sunni Muslims represent over 85% of the population, and the remainder are predominantly Shi'a Muslims. Hence, this iFintech study has wide implications for Pakistan's financial services.

However, the population shows substantive rural and city differences. At present to introduce iFintech beyond the major cities is likely difficult, but this study offers an introductory pathway that can be followed. Over time, and as technologies and financial services become more widespread and understood into the future, and across the nation, education around financial services and iFintech adoption can be transitionally stagewise addressed nationwide in line with the stage across Figure 7. Thus, for Pakistan as a nation, iFintech adoption readiness remains a slow progression towards completion.

5.5. Future Research: Measurement Aspects—Capabilities

To enhance iFintech adoption readiness in Pakistan, other researchers can widen and repeat this study both within Pakistan, and into other Islamic societies. Expansion studies can capture other age groups, other different location and different sized cities, other work and/or cultural groups, other education groups, other demographics, and other religious groups (such as Christians or Hindus). Together, these inclusions provide a more comprehensive measurement and overall understanding of the population's perspectives concerning iFintech, and of their overall current state of iFintech adoption readiness.

5.6. Future Research: Measurement Aspects—Modelling

Figure 2's framework, confirmed under Figure 7's CB-SEM path analysis, suggests both Figure 2 propositions are significantly and structurally model supported. Thus, a three-stage modelling approach is appropriate to highlight ongoing iFintech related studies and their constructs (or factors) (plus their standardized total effects) as they directly, or indirectly, exert contributing effects towards further understanding the successful deliverance of iFintech adoption readiness in Pakistan.

Future iFintech adoption readiness studies can reconsider the extent of influence of the constructs applied herein. They can modify or vary each construct's items to capture a wider spread of respondent information. They can also add more constructs to Figure 7—such

as expanding convenience into several constructs—possibly technological capacities, skill capacities, innovation capacities and/or adding a 'financial risks' capabilities construct.

5.7. Future Research: Theoretical Aspects

Core competencies theory and capabilities and competence theory' and competition and competitiveness theories [48] together frame a theoretical shell for competencies to capabilities to competitiveness studies within iFintech and more generally into other business domains such as AI, and digital business operations. as they add a multidimensional capture and strategic process structural concept that encapsulates the overall ability to comparatively compete in the chosen marketplace.

5.8. Future Research: Management Aspects

Managing both adoption and development of iFintech in Pakistan requires ongoing high-tech instantaneous, precise data retrieval and monitoring systems. The iFintech risks constructs considered in this study should also consider a financial risks construct, and this likely fits into the net risks pathways across the model. All iFintech risks need to be minimized. These future research areas likely can incorporate into Islamic financial services blockchain peer-to-peer systems on smart digital platforms [49].

6. Conclusions

This research study presents a new, robust introductory iFintech adoption approach. It shows a mixed methods theory/literature, qualitative study and quantitative study can coalesce and triangulate around the same iFintech perspectives. The use of both confirmatory and exploratory questions based on theory/literature and presented to the same tech savvy individuals links this research study across multiple perspectives, thereby presenting another strong degree of study validation.

This study likely remains of benefit when Pakistan and/or possibly other Muslim countries choose to adopt iFintech as their nation's Islamic digital banking and financial services alternative to existing digital Western Fintech approaches provided by global, digital, Western democracies and their financial systems.

This study supports a complex three stage digital measurement model that the Pakistan banking and financial services industry can successfully stagewise adopt for, and apply to, its predominantly Islamic population as it progresses towards delivering its positive digital iFintech adoption readiness solution.

The CB-SEM quantitative study across Pakistan's capital city shows a suite of four iFintech competencies precursors can significantly support a suite of six agile and actioning iFintech capabilities. These can collectively coalesce towards delivering an iFintech adoption readiness for Pakistan's capital city-based young tech savvy population.

This study suggests young, tech savvy, individuals in other Pakistan's larger cities are probably ready to accept and adopt iFintech processes—provided the Pakistan government, religious leaders, and the banking and financial services industries reach agreement on implementing necessary Shari'ah law compliant processes across this industry.

This study exposes three new research pathways exist from competencies to capabilities to iFintech adoption. This claim can be further tested and/or modified through other future research studies. It also indicates future alternate religious, banking, financial services, digital, and consumer (city, rural, remote) studies can expand this study's findings. It suggests ongoing research into emerging digital technologies and their financial deployments into areas like blockchain [49], can be evaluated. Such studies typically add weight to, or modify, or transform this study's current transitional stagewise iFintech adoption readiness modelling.

Future business and/or academic studies can encompass individual or consumer behavior, business behavior, new digital competencies, new digital capabilities, competitiveness or sustainabilities studies, new connectivities research, consistencies between Islamic countries, global Islamic banking, and financial services, ongoing iFintech servicing and profitability, and the like.

This research team now focuses on Islamic banking as a branch of iFintech in Pakistan. Firstly, from a tech savvy cities and financial services perspective, second from a rural services perspective, and lastly from a remote services perspective. This trisection is projected to provide a market relevance approach for wide iFintech adoption readiness in Pakistan.

7. Contributions to Research

This study successfully frames opinions and ratings of Pakistan's young, educated, IT literate community into iFintech pathways, and along with their relevant contributing competencies and capabilities constructs (and embedded item measures) offers useful and measurable contributors towards building unique sustainable advantage for financial services industries in Pakistan. It also balances digital and technological risks considerations against economic worth and social acceptance.

The study captures original CB-SEM research. It deploys a 1-to-5 point Likert scale opinions survey to expose how digital iFintech adoption may proceed. Amongst young, technically alert, and well-educated capital city respondents in Pakistan. NVivo thematic analysis adds understanding and potential cross-over integrations linking Islam and Fintech as an iFintech solution. The study offers transitionally linked measurement components that generate further understanding of how future Pakistan iFintech banking and financial services may be transitionally stagewise developed. This study suggests these contributions can even optimized by choosing banks or financial services before any full iFintech adoption system is introduced nationwide.

The Figure 2 framework is an important contribution as it offers a transitional stagewise structure through which Figure 7's iFintech adoption may proceed in the future. NVivo thematic studies help validate that several deployed SEM constructs are related.

8. Limitations of Research

Only Pakistan's young, educated, IT literate, capital city community respondents are significantly studied herein. Additional research studies across more representative gender mixes of age groups, and of other diversities of Pakistan's (1) city populations and (2) its rural populations, await both development and further evaluation.

Repeat iFintech adoption studies should engage much larger nation-wide respondent data sets which can then group section into expert, tech hub location centers, city, and rural data subsets. This approach should specifically capture the iFintech model and its contributing constructs for each group and so elucidate for each group its likely requirements for iFintech banking and services adoption requirements.

A financial risks construct was developed as: likely financial losses, financial and payment fraud, interoperability with other services, mobile app failures, and personal losses. However, this construct did not significantly model fit with the other eleven constructs of Figure 7. This construct may be significant in future studies as the population becomes more digitally attuned to emerging and existing online financial services options. The questionnaire items used for measures across Table 2 could be reworded slightly to deliver even more normal distribution Likert scale responses. For example, in social acceptance, the item 'my friends and family would value the use of Fintech' could be reworded as 'by using Fintech my friends and family should find worthwhile value.'

The qualitative NVivo open ended question needs revisiting—possibly as four semi-structured open-ended questions—one pursuing competencies and digital construct considerations, one pursuing digital and agile capabilities construct actions, one pursuing unique sustainable advantage(s), and one pursuing iFintech as a general approach into the future.

The timing of this study and its data collection necessarily coexists with external environmental change factors developments. These may affect a young tech savvy respondent's propensity to provide stress-free thoughtful answers regarding iFintech adoption. Across this study the external knowledge, government, technological, economic, environment remained consistent and stable.

However, future research studies should again consider the many externalities that may affect, or mediate their iFintech modelling, its transferability, and the general application of this study's model (Figure 7) solution. These externalities include

1. a different time and new general knowledge capabilities factor
2. a different location capabilities factor
3. a different population capabilities factor
4. a different governmental or political policy factor
5. a different or changing technological capabilities advancements factor—such as AI assisted iFintech
6. a different economic capabilities driver shift factor—such as sudden inflation changes
7. a different calamities health or warfare crisis or situational factor

Hence, researchers modelling in this domain should proceed with caution when applying this research model across time, across different localities, or across different nations as the Figure 7 iFintech model and its internal paths may alter in relative path strengths and model outcome total effects. In exceptional circumstances, further environmental-specific constructs may be included. For example, future iFintech studies could include a 'religiosity Islamic finance' construct as this may advance and broaden the model to further incorporate the indoctrination of individuals or nation(s) when choosing to move towards adopting Islamic banking and financial services over conventional digital Western banking and finance approaches.

Likewise, a new AI software bringing advanced AI technologies could alter young tech savvy survey respondents' perceptions driving their demand for iFintech availability and pushing financial services industries to deliver enhanced iFintech solutions. This too changes modelling constructs, relative model pathways, and could even alter the current model understanding.

Similarly, a global economic spike delivering an international inflationary cycle could promote community demand for further financial assistance and so promote iFintech adoption. Again, Figure 7's internal path strengths may alter.

Thus, for future iFintech adoption researchers, there remains a necessary astute externalities model validity, mediation, and/or inclusion assessment when investigating across the chosen iFintech adoption domain.

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