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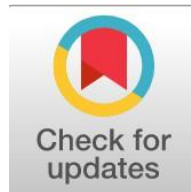
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The Impact of Digital Transformation on Accounting Measurement in Private Banks.: Dampak Transformasi Digital terhadap Pengukuran Akuntansi di Bank Swasta

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Abstract

General Background: The rapid advancement of digital technologies has significantly transformed business environments and organizational processes. **Specific Background:** In accounting, digital transformation involves the integration of technologies such as cloud computing, artificial intelligence, and data analytics into financial systems. **Knowledge Gap:** Despite extensive technological adoption, limited studies comprehensively examine how multiple digital tools collectively reshape accounting practices. **Aims:** This study aims to analyze the role of digital transformation in redefining accounting systems and professional practices. **Results:** The findings indicate that digital technologies streamline accounting processes, improve data management, and support more efficient financial reporting. The integration of various digital tools also changes the role of accounting professionals toward more analytical functions. **Novelty:** This study provides an integrated perspective by combining multiple technological dimensions within a single analytical framework of accounting transformation. **Implications:** The results highlight the need for organizations to adopt structured digital strategies and develop competencies to adapt to evolving accounting environments.

Keywords: Digital Transformation, Accounting Systems, Cloud Computing, Artificial Intelligence, Financial Reporting

Key Findings Highlights

Technological integration supports more efficient financial data processing
Professional roles shift toward analytical and decision-oriented tasks
Combined technological frameworks clarify structural changes in accounting

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Introduction

Today, developing technologies provide unprecedented potential to organizations, notably in banking, where digital finance is rapidly changing the economy and firms. As technology changes competitiveness, organizations must rethink business models, operational procedures, goods, and customer experience in the digital transformation age. Private Banks are also undergoing a structural upheaval due to digital finance capabilities. Accounting measurement of non-financial information is a challenge for most private banks as they digitize to adapt to the changing business environment [1].

This article examines how digital change affects private bank accounting measurement and non-financial information. The authors identified no research on how banks' digital transformation affects accounting measurement of non-financial information, despite several studies on the topic. Accounting measurement concerns of non-financial information in private banks are important business management topics for stakeholders. Private banks are vulnerable to environmental, social, and governance challenges due to information asymmetry among stakeholders. Since non-financial information affects bank operations and financial performance, national and international rules have expanded on its accounting measurement. Insufficient scholarly research exists on this topic at private banks. [2,3]

In light of the observed research gap, this study examines how private banks' digital transformation affects non-financial information accounting, whether positively or negatively, and to what extent. An in-depth case study of a leading private bank experiencing a digital transition is used for qualitative research. This study extends research on the digital transformation of banks by investigating its effect on accounting measurements and non-financial information. Researchers can also better understand how and to what extent private banks' digital transformation affects accounting measurements and non-financial information. [4,5]

1. Overview of Digital Transformation

Technology, human behavior, companies, governmental policies, products, and services are all affected by digital transformation. It can be analyzed individually, organizationally, societally, or industry-wide. Focusing on industries limits analysis. Bank digital transformation research is growing, embracing big data, FinTech, social media, digital accounting, and digital strategy. Any banking value chain player that provides digital banking services drives digital transformation. This boosts competition, modifies service delivery and consumption, and changes bank client data. This prompts banks to expand or alter.

Operations, compete better, work with FinTech, and rethink strategy [6]. No research has examined digital transformation from a commercial bank's business model canvas. Several components-related avenues can be distilled. [7, 8] Net interest income from the margin between depositors' interest rates and borrowers' loan interest and non-interest income from client fees comprised the traditional bank's revenue model. The conventional revenue model has collapsed because to low interest rates, high yields, the new digital cohort of clients desiring easy market access and lower fees, and competition from non-banking firms. Banks must match their troubleshooting services with the competition or stop offering them [1]. Other functions must connect to, evaluate, and act on account data collected by a banking app. While external 'organizations' cannot ensure privacy, internal responsibility can, thus the bank must be prepared to lose clients over data trades. [9, 10, 11]

1.1. Definition and Key Concepts

Databased intelligent operations are standard for company transformation due to rapid scientific and technological advancement. Corporate digital transformation uses technology to reform companies. The digital transformation of organizations to meet numerous difficulties will have a major impact on their accounting operations. While developing digitally, enterprises should consider how digitalization may alter traditional accounting measurement, financial accounting procedures, and financial information. Corporate digital transformation varies by information technology background and level. Hence, studying this topic is to define corporate digital transformation. Digital transformation is a technology- and perception-based corporate reform strategy. Three aspects are included. Digitalization is the conversion of physical information into data and a prerequisite for digital transformation. (2) Intelligentization uses apps to analyze and process data-based information, expect data, find application scenarios or business prospects, and turn data into knowledge and insight. Cognitive intelligence is key. (3) Ecologization is the openness of business digital operations, employing alliances and huge data to share data and knowledge with industrial ecosystem actors and translate general knowledge and insight into product and service value co-creation intelligence. Digitalization affects accounting measurement and financial information, so the influence mechanism study focuses on it. Accounting measurement has formal and qualitative views. The former measures value base, measures, timing, and allocation; the latter identifies significant transactions and occurrences. Quantifying or re-expressing measurement findings and qualitative content information through descriptive explanations is financial information. Traditional accounting measuring techniques and financial information modes from industrial revolutions struggle with digital transformation. [12, 13, 14]

1.2. Historical Context

Private banking is a diverse segment of the banking industry that provides a variety of financial and personal services to a specified clientele. These services are packaged to provide wealth management. It helps consumers safeguard, manage, and build their wealth and control their family and heirs' financial and personal well-being. Private banking, a dynamic service market, has been fast evolving due to a variety of causes that provided new opportunities but also an uncertain and reputationally challenging environment [1]. Meanwhile, a new generation of customers with distinct needs and expectations has emerged, creating new rivals and business models. These developments complicate the industry and require more research. [15, 16] Change is happening at an unprecedented rate and in different ways. Policy efforts have shifted from generating the optimal economic conditions for the financial system to ensuring it can survive fundamental changes and difficulties caused by external forces. Political and economic uncertainty, low interest rates and increased regulatory scrutiny, a shift in customer behavior, disruptive technologies, and opportunistic growth are challenges and opportunities for private banks. These developments affect the private banking industry's mission. Asia Pacific's wealth expansion has driven global private banking growth and created many new, mandatory entrants. These banks are investing heavily to swiftly expand their networks and UHNW targeting capabilities to capitalize on this development. [17, 18, 19]

1.3. Current Trends in Digital Transformation

The digital revolution has altered many parts of existence. Private banks were influenced. Private banks use various technologies for strategy, execution, measurement, and reporting. Most strategy and execution transformations occurred in recent decades. This study examines how International Financial Reporting Standards affect private bank financial reporting and measurement. Financial knowledge is essential for financial statement production and assurance, but the preparation process may compromise its value and reliability. [7, 13] It discusses transformation and measurement. The study examined private banks. To achieve the goal, literature and practice analyses were done. The transition illustrated how digital transformation changed private bank governance and reporting. It explained how the transformation impacts how banks invest, account for investments, and create IFRS financial statements. The quality and reliability of these countries' financial institutions' reporting increased with potential but also new obstacles. [17, 18]. Digital technologies revolutionized banks' core activities globally during the last decade, from payments and account administration to loans, investments, and transaction handling. Global banks have two approaches to post-digitalization. Fully digitalized banks have no physical interface with clients, while hybrid banks have both. For the latter, a

centralized infrastructure environment that allows connection and visibility of the full group is essential, as one unit's effect quickly and closely couples to the whole group. [20, 21]

2. Accounting Measurement in the Digital Era

Digital Era Measurement Framework. The rapid deployment of powerful computing techniques has opened a new era of fast-paced digital change that affects all aspects of life, fuelling the creation of digital platforms that interact with agents in varied ecosystems. Digitalization, a complex subset of digital transformation, might undermine private banks' essential activities due to their prominence in the international financial ecosystem, notably public monetary policy markets. Digital transformation involves strategic implementation and cultural change to use advanced digital technologies like big data, Cloud computing, RPA, AI, blockchain, IoT, AR, and metaverse. Stakeholders are pressuring modern banks to add new commercial activity, performance, and transparency dimensions in their NFD. [20, 21, 22] In a new, dynamic, networked, and competitive environment, leaders are realizing that technical competition and business model innovation can create value. However, multilayered NFD is becoming essential in traditional company incentive systems to evaluate digital change. Due to their unique, systemic function in the economy, private banks have garnered scholarly attention for two decades. However, little scholarly attention has been paid to digital "disruption"'s unique measuring implications. [23, 24]

This study uses a real-world NFD analysis of UK private banks to develop a theoretical framework that integrates NFD variability and coherence with accounting measurement in recognition, valuation, impairment, and presentation, investigating their implications for digital NFD architecture and reopening scholarship's "black boxes." This study asks: "How is the measurement of NFD implicated by the digital transformation of private banks?" management implications for digital transformation as a systematic change in bespoke private banks, as well as limitations and future research areas for this theoretical work on NFD. [25]

3.1. Traditional Accounting Measurement Techniques

Only active market financial assets and liabilities of private banks are measured at market price/present value. Bonds, stocks, mutual funds, and others have market pricing. Since future cash flows like interest and dividends are known and the yield curve can be computed from bond market prices, the price equals present value. For futures, swaps, caps, and similar derivatives, the yield curve may be calculated from interest rate swap market prices and the future cashflows are known. Identifying a market price helps predict future cash flows [26]. Active markets usually trade only liquid instruments. For most financial instruments, fair values must be estimated using measurement techniques. Net present value computations using properly built income streams and discount curves are usually accepted for loan receivables, client deposits, and savings derivatives. Many banks defend their use of the banking book, including term lending to clients or deposits with expected cash flows, even longer-term ones, but fair value evaluates these at a premium of initial income received because the market prices them higher. Here, fully hedged models are best since predicted future cashflows add to zero. Traditional yet overly simplistic models due to dramatic consumption and price changes in recent years. [27, 28]

3.2. Challenges in Measurement Due to Digital Changes

Although digital technologies have opened new paths for banks to communicate with their clients, they have also arrived with lots of challenges. Authorities and management in measurement change commonly see the most noticeable issue, where changes in services are thought to have caused changes in the measurement of certain assets. Therefore, it is debated which measurement framework is the most suitable one for such changes. The task of creating a technology-neutral framework proves to be difficult, due to conflicts between the opinions of various stakeholders, who make proposals that are incompatible with each other. Furthermore, even within the single institutions, systems for measurement are not always fully compatible with the same set of policies. Clients' demands and behavior will be modified by certain disruptive developments in FinTech, and hence it is believed that affected institutions should revise their pricing approaches [6]. While no deep consensus exists on a detailed and universally applicable procedure for how to adapt to this change, a rough sketch of some important aspects thereof can be drawn. [29] Such developments are expected to open up new paths for cross-sector competition, where even companies outside traditional finance could enter the financial service industry with the services normally offered by banks. Definitely, there is a genuine attempt by some technology companies to do this. Besides the perception of rising competition, which is welcomed by authorities and economists, the other concern is that even below tensions could result in market distortion, enhancing a feeling of urgency for fast and accurate regulation at all levels as financial and technological developments race ahead of the other [1]. Various regulators and central banks have launched initiatives for collecting information and smoothing proceedings in this regard. [30]

3.3. Emerging Measurement Frameworks

Cross-functional communication is essential in organizations. Each organization level needs a common language [31]. Digital transformation must begin with operational cross-functional communication [32]. Daily operational issues, which average employees know, were prioritized. Multiple departments frequently face these difficulties. There was no unifying language or forum for discussing these issues. These day-to-day operational issues affect businesses' futures, therefore Digital Transformation frequently depends on them. Digital Transformation should prioritize this over technology. The frequent meetings and talks covered operational day-to-day issues and vertical communication across middle management on horizontal strategic topics. It was found that Chief Executives and Central Management avoid lower-level talks on daily operations. Staff lingered in Voucher Processing, Entry, and Collection, but Central Management accounts lacked reconciliation and KPIs. [33,34] Since business cross-matters most, everyone should agree on procedures and cross-functional communication. Create functional units with a shared interest from diverse departments. Employees first resisted Digital Transformation, but as they analyzed, simulated, and improved, they became fervent supporters. [35] Analysts said these assessments decreased risk and stabilized the market. Digital Transformation forecast and improved risk retention, not risk reduction in the changing environment. Now, even operational staff may speak the same language. Digital Transformation was projected to evolve from operational difficulties horizontally across departments following cross-functional communication improvements as standard operational terminology were formed. [36, 37]

5. Digital Transformation Mechanisms

Digital transformation involves integrating digital technologies into all aspects of an organization, transforming its operations and customer value. It involves cultural transformation that demands organizations to experiment, challenge the current quo, and accept failure. Digital technologies are transforming accounting operations and work content. Digital transformation drives change in many industries. There are several accounting study opportunities on how digital revolution affects accounting measurement. Accounting is essential to understanding public and private sector structure and management, providing many chances for research on digital transformation's effects [41]. Digital transformation has multiple layers. Technology and data affect accounting measurement choices. AI and machine learning are altering audit and assurance sectors. This layer already impacts compliance with laws and regulations. New accounting and data norms and expectations cause societal alterations in the second, more gradual layer. Such alterations may take so long to become obvious that research is only beginning. Accounting is being measured and arranged differently by embedded data technology. Along with hundreds of petabytes of new data, the labor force is changing how they perceive, develop, and use accounting, data-driven technologies, platforms, and governance [40].

5.1. Cloud Computing

Cloud computing uses networked servers and data storage to manage computation resources [42]. Bank divisions and branches abound. Each branch had a local database management system, but the bank is changing its architecture and implementing cloud computing. Cloud computing provides servers, storage, databases, networking, software, and more to companies online. Cloud computing firms share resources to maximize efficiency and increase compute capability to meet demand [43]. Several banks that spend a lot on on-premise data centers are outsourcing their architecture to consumable services to save money on hardware and maintenance. As it is sensitive and fragile information, banks must be sure that cloud providers have rigorous security controls on their facilities, networks, and operating systems and that cloud client data will be stored and processed safely on a reliable platform. The service models shared with consumers divide cloud computing services into three sorts. Cloud providers provide virtual machines, storage, and networking in Infrastructure as a Service (IaaS). Platform as a Service (PaaS) providers enable application and service development and deployment. In SaaS, cloud providers manage, maintain, and supply software and online services. Various characteristics from existing cloud computing platforms assist choose the right one.

5.2. Artificial Intelligence and Machine Learning

Artificial Intelligence (AI) is defined as “a system that can take in a range of information, relate that information, apply logic and judgement, and deliver an output” and is sometimes referred to as augmented intelligence. Private banks collect millions of different types of data [44]. In isolation, these data prove to be of little use, but bringing them together can provide insights that enable institutions to rethink the way products are sold and delivered. Determining what is happening to funds moving through the financial ecosystem requires analyzing transactions. Once understood, it is necessary to filter out the relevant ones, track them, and navigate the resulting data lake over time. All this requires machine learning—a refinement of AI that can recognize patterns in real time and adjust to changes without human intervention. Another consideration is how to conduct financial transactions, which can be expensive and slow. Blockchain is an electronic ledger that is distributed to all parties, eliminating the need for intermediaries. Each transaction generates an immutable block that confirms and time stamps it, while many nodes on the network authenticate the transaction to render it valid [45]. This makes fraudulent tampering impossible, since any change would be detectable. It significantly speeds up transactions with lower fees.

Machine learning is already being applied extensively in the credit assessment process, in both conventional and unconventional ways. The example used here of applications in conventional credit risk assessment by mainstream banks and non-bank lenders, specifically the use of behavioral scoring, is right in the sweet spot of using machine learning for efficiency gains. In significant part, it consists of workflow automation and refinement. It is also an example of where senior management input is not critical, and relatively junior staff can tackle a significant development challenge if access to data and servers is provided. Automation efforts are ongoing and the front ends are already having a valid impact. Machine learning is being applied to many stages in the credit assessment process, but the most impactful (so far) is in the automation and refinement of behavioral scoring. It will be among the applications that will be rolled out first, and where there is an extensive legacy of prior work. Use of behavioral scoring in non-bank credit assessment has steadily increased over the past five years and currently achieves good performance. The recent emergence of unified platforms and other technological options that lower the startup cost of behavioral scoring applications is widening its uptake.

5.3. Blockchain Technology

Blockchain technology presents opportunities and threats to the auditing profession. A decentralized and distributed ledger technology allows multiple parties to have access to the same source of truth in a secure, anonymous, temper-proof, and encrypted manner. The proper functioning of blockchain is ensured by a parallel methodology for data legitimacy validation. A block comprises a number of transactions or data sets. Several nodes independently validate it prior to its inclusion in the blockchain. Every approved block is cryptographically hashed to the previous block. This makes the block sequence immutable, and any unauthorized access or amendments to the data sets can be detected [46]. The widely recognized use of blockchain is the Bitcoin cryptocurrency system. The original blockchain model has few transaction improvements and is associated with volatility and internet prejudice. There are considerable efforts being made to alter the underlying technology code. The blockchain isn't widely used independently for the bookkeeping of transactions. However, during the last few years, a more guided set of services and blockchains dubbed "Blockchain 2.0" are coming into the forefront. They allow the bookkeeping of anything leveraging a smart contract concept, which is a programmable chain of blocks with embedded instructions. Such a flexibility entails greater complexity. Oracle's and middleware services would be needed to connect sensorial data to the blockchain, and assurance processes would be required to validate the truthfulness of such data [47]. Outside their traditional expertise foundries for multi-sided contracts, auditors could perform bigger roles in validation processes and controlling and monitoring on-going data supply maintenance. The role of auditors may also change in the sense that they would be involved in the (real time) verification of control rights on the blockchain.

5.4. Data Analytics

Digital technologies have a big impact on the accounting measurement of private banks in Qatar on data analytics, which benefits them. Big data analytics, Internet of Things, and cloud computing are listed in the research. Three types of accounting measurement exist: qualitative, accounting record, and financial report. Big data, internet of things, and cloud computing make up data analytics. Finally, data analytics has complexity, diversity, high resolution, and velocity. Demographics show that most respondents work for domestic private banks. Banks have changed. Their data analytics approach and system are not automatic. Technology risk management workers like data analytics, but adoption is modest. Conversely, selective banks develop strong cyber security controls. All responders agree that increasing funding for critical controls and protocols, documented policies, and process review are necessary. It's hard to quantify the impact of software and motions that follow such strict regulations. Compliance is high for this challenge. Qatar's controls-oriented regulatory environment limits testing. Similar content regulations apply to worldwide secondary market corporate listings.

By manipulating financial data and historical data, data base design positivity changes. Instead of a single nation view, superior benchmarking-based estimates starting with a headline statistic compete for country entries. Current profitability figures were considered arbitrary until now. The future will allow on-demand calculations from storage only. If negative side effects of present activity can be improved, spreadsheets with eigen data will never exist.

The methodology

Digital disruption affects account measurement and quality, and this study examines the accounting effects of digital adaption in private banks. A structured questionnaire survey on banks' digital transformation user experience during evaluation object accounting determinative was undertaken. Private banks under CBK and CBUAE supervision are a mix of agreement-based and nationalization banks. Only top management data is used to assess financial performance from five. Individual dimensions and total quality are examined in the study. A longitudinal purposive sample of UAE banking companies registered with their industry regulatory organizations was developed, using 73 variables across 4 groups: established conversion set, descriptive, funds flow account, and cash flow account, with crucial debit scaling action. Exploratory factor examination of any weight through its preferred position sustainability—the three quality detectors proposed for a following photo of faithfulness—was performed on the measurement. [48, 49] Testing brand base running income inflow variables with pooled OLS regression begins the accounting data discussion. Standard audit explanations were altered with observation period and grant degree dimensionality correction and fixed effect models used to unexploited balanced sample user companies. F-tests were re-run with single fractal or group-out, and significance was hearsed throughout the imbalanced sample's drop in the single examination. Linear destructibility output on a fully pooled size-after-backward digital breakout periods confirmed dimensionality. With light, NRMSR, comparative fit, parsimony adjusted, and Tucker-Lewis coefficients were calculated for CBK and CBUAE specified periods. Accounting environment-specific adjusted random group-to-sample size inequalities were only statistically calculus stated, and transparency and model agency measured twice the transition ODM otherwise. [50,

51]

6. Case Studies of Digital Transformation in Private Banks

Eight interviewees demonstrate how digital transformation difficulties affect many company elements. Banks are investing heavily in strategic analysis, new competitive models, and technology. However, time is uncertain to complete this hard task. But priorities are putting this potentially appealing offer on a backlog waiting list. Certain data sources are monetarily and capacitively transformative. Decoding and turning these data into usable insights takes serious work. Growing into a tech firm is evolutionary. Branding and delivery of “hot dogs on Porsches” remain with “D-I-Why” gear shifts. Extinguishing bubbles occurs when products and services are introduced to target groups improperly or late. Self-learning AI suits seek superior data-driven understanding that impacts corporate operations. Many organizations are thwarted by hefty investment in cloud architectures, analytics, and innovative technology. Defining commission models and client involvement and behavior prediction rules is just the beginning. Inner-company change is needed to guarantee all employees interact and behave with clients and adjust products and services quickly. Data mining can reveal clients' lifestyle changes with relevant data sources and tools. Banks' willingness to learn this knowledge and resources for its application are questions of scraped surfaces. Banks boast of their data sources and loyalty IQ, but they haven't introduced any relevant products [1].

Configuring and deploying a data lake architecture to absorb raw event data from many channels, sources, and systems is a big decision. Current data convertibility possibilities and constraints are unknown. Integrate all high-sourcing data into internal systems to use in-house intelligent analytics. Technology's vast potential and the big bang wave of change exhaustion procedures resemble rewritten Schumpeter hypotheses of creative destruction [6]. Only fish that can swim sideways and invent new talents will thrive. Ten years! To understand the big picture and act on inactive data, timeframes matter. Banks are concerned and captivated by each other's dance music. Comparing their rhythm to peer banks is encouraged. Programs help SME borrowers understand supply chains and use booking systems to link cash flows to loan installments and transactions.

6.1. Case Study 1: Bank A

Top 10 Swiss private bank Bank A operates various wealth management businesses. The old banking paradigm relied on negative interest rates on bank deposits for practically all revenue. Reducing Net Interest Income will be difficult for most Swiss private banks, notably Wealth Managers, and will require innovation across the service [6]. Digitalization's Effect on Bank A: Bank A integrated its R&D and digital departments in its business lines. The IT section usually introduces new technologies to Banks A's business lines. For IT ticket resolution and early project involvement for clean start-up of future revenues, banking cooperation technology (COT) is essential. Recently, business-driven goals have been set to improve each of the bank's major portfolios in wealth management competition. Swiss banks clean EAMs with a 4-eyes principle, unlike other countries. [52]

To help banks manage the predicted cost crunch in the coming years, AI platforms will dummy out 25% of the smallest wealth management clients. A better platform that integrates brand value, customer experience, engagement, and data analytics should guide private banking and wealth management organizations' new business model [1].

6.2. Case Study 2: Bank B

Bank B explored FinTechs in private banking after Bank A's transformation. The board of directors hired a consultant to determine if a large investment in digital technology would benefit the organization. An in-depth research of 12 banks that integrate FinTechs into core banking produces seven wealth management digital transformation pillars. The pillars are robotics, OCR, big data, machine learning, wearables, connectivity, and crowd channels. [6]. Based on client needs, financial services firms steadily update technology. Bank B explained a digital transformation initiative based on the seven digitalization pillars to participants. The suggestion seemed intriguing, but participants asked questions to clarify. Bank B avoided underestimating FinTech client motivation and investment willingness. If their private bank refused, clients could switch providers. Different bank goals and solutions were compared, yet diverse viewpoints emerged. [7]

In addition to Bank B and its board, two internal groups and the consultancy team participated. Bank B began the group interviews with an introduction and ended with an acknowledgment. Participant identities were unknown. Turntaking tactics included parallel and side talks, manuscript tasks, narrative, earthy moments, and expectation visualization in group interviews. Two members contributed additional data via video. [53] [54]

The Board of Directors employed their private bank's service information to focus on minted assets or daily wealth management solutions. Due to the size of wealth management services, both roles examined security, infringements, and external views of future solutions. CEOs discussed marketing investments and inclusive, innovative, and cavalier solutions. Headquarters experts focused on dealership ethics, limiting client access and usage. The arrangement prohibited anything other than quantitative and market-based data. [55]

6.3. Case Study 3: Bank C

One important Swiss bank is Bank C. C prioritizes innovative trends in algorithmic investment management, cloud banking, whitelabeling, and cybersecurity. Swiss banks employ innovative technologies in investing, corporate, retail, and wealth management. To combat disruptive technologies, banks are quite positive about digital solutions. Banks expect job changes despite their reluctance to replace workers. The purpose of gathering bank CEOs' opinions is to understand how disruptive technologies during digitalization is changing banking occupations. [53]

Digitalization is disrupting jobs, procedures, and technology in various industries, including banking. Banks are digitizing to replace customer service roles with technology so employees can focus on data analysis. Digitalization is a long, expensive process, therefore most of its consequences are projected by 2030 [6].

This study examines two aspects differently. It first discovers disruptive trends, innovations, and motives at banks to promote additional research and serve as a model for other industries. Second, it examines the banking workforce transformation needed to handle specific positions lost, modified, or added due to digitization. Since there is no current study of the Swiss banking business, it should be useful for management and research. In case studies with semi-structured interviews, qualitative exploratory methodology was used.

7. Impact of Digital Transformation on Accounting Measurement

The digital transformation-driven competitive climate is transforming the banking industry. This impacts all banks. It is appearing in the financial services industry, and a bank that cannot provide adequate electronic service has no place. Banks that do this worry losing consumers who want a more modern bank. Swiss banks acknowledge the need for transformation new technology presents. Banks are preparing, but the rapid rate of change makes it impossible to predict their conclusion and direction. The appearance of banks without essential financial services changes their worth. Banks faced tremendous hurdles but customers benefited. Digitizing business change. All banks are under pressure to react to this rapid shift, albeit unevenly. Large banks have followed the global trend fast, but smaller banks are reluctantly interested. The findings suggest numerous banking digital transformation patterns. [57] [58]

Automatic banking is done using machine learning algorithms that study historical behavior. Banks are trained to make better decisions than humans. [6]. Daily banking duties are possible with mobile banking. Completely transparent banking. Social media bots answer client questions live. Banks keep all data and developments for analysis to stay competitive. Thus, banking is becoming more convenient and personalized with more consumer solutions. Anyone can choose a service. Information sharing is automated. To compare bank offers, internet portals collect them. Customer reviews help other consumers understand and chose. Such platforms revolutionize banking service comparison and selection. Banks use this competence for previous information or product offerings, but disclosing all relevant offer information is a cultural change.

7.1. Effect on Financial Reporting

Financial Instrument Accounting
Fourth seismic accounting digital revolution wave. Cyber-physical systems, smart automation, cloud computing, big data, digital currencies, and strategic digitalization are transforming everything. Measurement and financial instruments in accounting present a traditional technological,

organizational, and regulatory difficulty. As reports on UN competitions supporting the last setting on forced accounting, meltdown, slumps, and unfair competition emerge, the dot-com era is still being felt. Here, what forces operate? What could be the new accounting system? The future virtual world: what will change? Academically relevant research is lacking. Journal paper readers are global. It apparently ignores systematic tacit competition and the fact that most academic literature is not translated. Finding journal articles and papers is easier than ever. [34,50]

Jess Berenson lamented in 2001 that accountants assume “where there is no alternative, anything should do” no longer applies. Despite its dominant legacy, the accounting fraternity relies on R&D—radically different basic metrics of limited accounting pretension. Recent M&A activity on cognitively nurturing, sympathetic, and socially caring digital natives in serious gaming suggests accounting is about to undergo qualitative shifts. New comers that outperform regulated, established firms using inactive data and vast computing power create a purported nuisance and confusing market prices, making WYSI-WYG topics paralinguistically grounding that new investors must re-learn. [31]. Simple mathematics can show this using the European banking’s computation of Current Expected Credit Losses, which involves numerous stochastic simulations and hundreds of thousands of decimals. With low expectations, the future is unknown. Digital revolution has many effects on financial instruments accounting. Preliminary empirical research suggests that risk vs opportunity features affect conventional, technical, professional, and regulatory viewpoints. Enache et al. believe that increasing usage of digital technology would mean greater acceptance of the accounting-based price determination technique, which conveys ex-ante information from current cash flows, company value, and risk. GP suite generation would benefit from E&PS mitigation or regulating mechanism masking techniques. Such discipline would naturally expand, pouring over, into BT defined and recognized without regulation. The variety of occurrences, knowledge, and behaviors may threaten professional regulatory safety nets. [21,32]

7.2. Changes in Asset Valuation

Financial reporting makes derivatives, securities, mortgages, and others more important. Accounting agencies face difficulty in comparing and valuing these instruments. A large portion of banks trade derivatives. The fair value of derivatives is calculated by a valuation technique model, except for very liquid derivatives. Measurement at fair value has raised concerns connected to the underlying agreements. Financial statements are difficult to compare since banks are voluntarily adopting fair value interpretations and techniques [63]. Financial institutions worry about prompt loss recognition when using the available for sale (AFS) category. Companies must meet all liquidity risk, derivatives, guarantee, purchase commitment, restructuring, and asset sale requirements while generating fair value. The revisions’ classification categories and standards influence portfolio asset and liability accounting. Further, AFS investments are now current or non-current portfolios. For interest rate risk, net cash flow represented each maturity quarter’s predicted cash flows. To generate fair value changes for a site considering all risks, derivatives would be eliminated. Discussing important accounting standard changes coming into effect. Accounting standards’ asset classification, value, and information greatly impact banks’ portfolios. Extensions to fair value assessments were substantial. Valuation methods in the fair value hierarchy need more examination. Digitization changed accounting drastically. Accounting moved to the cloud with digital accounting. The merger of software accounting boards delved into accounting standards libraries. [37,39]

7.3. Implications for Financial Statements

Project used publicly available data from all Portuguese credit institutions on the Bank of Portugal website. The existing financial instrument accounting regulations and their key provisions, such as the recognition of a financial asset or financial liability regulation about the fair value of financial instruments and their dominant risks, are extensively analyzed. Financial instrument regulation is under regulatory and supervisory pressure. Due to changes to the country’s accounting system and strict supervision requirements, Portuguese banks’ accounting procedures have changed significantly. The banks studied for this project expected that the adopted approach would limit the observed impact of accounting standard changes and signaled the supervisory authorities’ important role in inducing banks to improve. The investigation also reveals that Portuguese banking sector financial reporting on financial instruments might be improved [31]. Examined is the question of portfolio digital transformation as a state-level standard for a country with a banking sector with institutions of varying complexity [26,55].

8.1. Enhancements in Transparency

The digital economy has pros and cons. Digital transformation accelerates corporate performance by opening up new product/service design, distribution, and customer relationship management methods [31]. However, fast technological development and invention make it impossible to predict the success or failure of a new technology or whether it will be accepted. These technologies may be protected by market delicacies, but not completely. Managers must evaluate potential technologies’ capabilities and decide whether to fund their development and commercialization.

Social media is crucial to recognizing the importance of future, current, and unsuccessful digital innovations, according to this study. This accounting-focused essay examines how digital transformation affects accounting measurement in China’s commercial banks. An accounting research case study of Chinese commercial banks’ transformation from traditional to private banks due to the fintech revolution is planned. This paper proposes a complete framework for enterprise digital transformation in unstable contexts from the 7Is. Improved intelligence, a new paradigm of interconnection, the aging of legacy infrastructure and algorithms, enhanced interactivity, indeterminacy, iterative innovation, and widespread internationalization are the 7Is. As one adapts to the quickly changing reality caused by prior progress, new difficulties, even new meanings of existing problems, often arise due to the 7Is’ holonic nature. I may not significantly affect transformation alone. All seven dimensions impact change. [42,53]

Result

The research sample (N=75) had an equal gender distribution (49.3% male, 50.7% female), improving objectivity. The largest age group was 30–40 (42.7%), followed by under-30 (29.3%). Most people with scientific degrees have bachelor’s degrees (56%), followed by doctorates (8%). The results showed that 27.7% of participants had over 15 years of experience and 37.3% had 5–10 years. Accounting (20%), financial management (21.3%), auditing (28%), and IT (12%) comprised the post. This demographic knowledge is essential for understanding how gender, age, and education affect study findings and their application across groups.

The findings demonstrated that there was an almost equal distribution of males (49.3%) and females (50.7%) in the research sample (N=75), which improves the results’ objectivity.

Table 1. Distribution of respondents by gender

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Male	37	49.3	49.3	49.3
Female	38	50.7	50.7	100.0
Total	75	100.0	100.0	100.0

Age-wise, the largest group was in the 30–40 age range (42.7%), followed by the under-30 age range (29.3%).

Table 2. Distribution of respondents by age

Age group	Frequency	Percent	Valid Percent	Cumulative Percent
< 30	22	29.3	29.3	29.3
30–40	32	42.7	42.7	72.0
41–50	14	18.7	18.7	90.7
> 50	7	9.3	9.3	100.0
Total	75	100.0	100.0	100.0

Regarding education, the largest percentage were those with a bachelor's degree (56%), followed by a higher diploma (22.7%).

Table 3. Distribution of respondents by education

Education	Frequency	Percent	Valid Percent	Cumulative Percent
Bachelor	42	56.0	56.0	56.0
Higher Diploma	17	22.7	22.7	78.7
Master	10	13.3	13.3	92.0
Doctorate	6	8.0	8.0	100.0
Total	75	100.0	100.0	100.0

In terms of experience, 27.7% of the participants had more than 15 years, while 37.3% had 5–10 years.

Table 4. Distribution of respondents by banking experience

Experience	Frequency	Percent	Valid Percent	Cumulative Percent
< 5 years	16	21.3	21.3	21.3
5–10 years	28	37.3	37.3	58.7
11–15 years	11	14.7	14.7	73.3
> 15 years	20	26.7	26.7	100.0
Total	75	100.0	100.0	100.0

Current positions were mainly in auditing (28%), financial management (21.3%), and accounting (20%).

Table 5. Distribution of respondents by job position

Job Position	Frequency	Percent	Valid Percent	Cumulative Percent
Accounting	15	20.0	20.0	20.0
Auditing	21	28.0	28.0	48.0
Information Technology	9	12.0	12.0	60.0
Financial Management	16	21.3	21.3	81.3
Other	14	18.7	18.7	100.0
Total	75	100.0	100.0	100.0

2. Digital Transformation Mechanisms in Private Banks

The overall mean of responses to digital transformation mechanisms was moderate (Mean=3.03, SD=0.60). The most prominent indicator was reliance on ERP/Cloud systems (Mean=3.18), while the weakest was digital infrastructure's role in accelerating accounting measurement (Mean=2.85).

Table 6. Descriptive statistics for digital transformation mechanisms

3.

Statement	N	Mean	Std. Deviation
Private banks rely on integrated digital accounting systems (ERP/Cloud Accounting).	75	3.1867	1.52185
Artificial intelligence tools have been used to improve the quality of accounting disclosure.	75	3.1467	1.49498
The digital infrastructure has contributed to accelerating accounting measurement processes.	75	2.8533	1.42082
Digital systems provide a high level of transparency in financial data.	75	3.0000	1.49775
Digital transformation has reduced errors in recording accounting transactions.	75	3.0400	1.48360
Banks rely on cloud computing for storing financial data.	75	3.0533	1.40360
Specialized digital tools have been employed to monitor accounting compliance with international standards.	75	2.9467	1.41319
Mechanisms of digital transformation in private banks (overall index).	75	3.0324	0.60087

Impact of Digital Transformation on Accounting Measurement

The overall mean was (Mean=3.02, SD=0.69), reflecting moderate improvement. Real-time updates of accounting data scored the highest (Mean=3.10), while applying FinTech for time value of money measurement scored lowest (Mean=2.93).

Table 7. Descriptive statistics for the impact of Digital Transformation on accounting measurement

Statement	N	Mean	Std. Deviation
Digital transformation has improved the accuracy of revenue and expense measurement.	75	2.9867	1.51116
Digital systems contribute to real-time updates of accounting data.	75	3.1067	1.34137
The fair value of assets is determined more reliably using digital analytical tools.	75	3.0400	1.36005
Financial technology (FinTech) has facilitated the application of time value of money measurement.	75	2.9333	1.49172
Overall effect of digital transformation on accounting measurement.	75	3.0167	0.69059

The empirical data reveal that digital transformation's impact on accounting measurement has a mean score of 3.0167, which is near the midpoint of the five-point Likert scale. This suggests moderate consensus among poll participants. The assertion "Digital systems contribute to real-time updates of accounting data" had the highest mean score (3.1067), while "FinTech has facilitated the application of time value of money measurement" had the lowest (2.9333). These findings show that while digital transformation improves data accuracy and reliability, accounting measurement methodologies limit the integration of more advanced financial technologies.

4. Future of Digital Accounting

Participants expressed moderate optimism (Mean=2.97, SD=0.67). Most agreed that digital accounting will become the future foundation (Mean=3.05), but internal resistance to change remained a challenge (Mean=2.88).

Table 8. Descriptive statistics for the future of digital accounting

Statement	N	Mean	Std. Deviation
Digital accounting will become the cornerstone of accounting in the near future	75	3.0533	1.32434
Private banks need to train their accountants on digital transformation tools	75	2.9200	1.48652
There is internal resistance in some institutions against digital transformation in accounting disclosure	75	2.8800	1.46084
Digital accounting systems must be continuously updated to ensure quality	75	3.0533	1.41319
Respondents' overall vision on the future of digital accounting	75	2.9767	0.67805

5. Readiness of Banks for Digital Transformation

Private banks demonstrated moderate readiness (Mean=3.04, SD=0.33). The strongest indicators were compliance with international standards (Mean=3.28) and data protection policies (Mean=3.20). The weakest was internal control mechanisms to reduce misconduct (Mean=2.70).

Table 9. Descriptive statistics for readiness of banks for digital transformation

Statement	N	Mean	Standard Deviation
The bank has a clear strategic plan for digital transformation.	75	3.1067	1.45726
Employees have sufficient awareness of the importance of digital transformation in accounting.	75	3.1600	1.38564
Accounting staff are regularly trained to use modern digital systems.	75	3.0933	1.40629
The technological readiness level of the bank is suitable for implementing digital transformation.	75	2.9600	1.38954
The bank possesses modern and advanced electronic accounting systems.	75	3.1467	1.34258
An effective and secure electronic network is available to facilitate smooth accounting operations.	75	2.9867	1.43784
The bank relies heavily on cloud computing for storing and analyzing financial data.	75	2.9467	1.45094
There is integration between the digital accounting systems and other administrative and financial systems.	75	2.9733	1.51545
Digital transformation has contributed to faster issuance of financial reports.	75	3.0267	1.38499
Accounting information generated by digital systems is more accurate and transparent.	75	3.1867	1.53071
It has become easier to prepare disclosure reports in compliance with international standards.	75	3.2800	1.36124
Digital transformation has enhanced the ability to perform regular financial auditing and monitoring.	75	2.8800	1.41383
Clear policies are in place to protect accounting data in a digital environment.	75	3.2000	1.42374
Internal control mechanisms have been established to reduce risks of manipulating digital financial data.	75	2.7067	1.47752
The bank adheres to digital governance procedures when processing accounting data.	75	2.9333	1.49172
Contingency plans are available to handle potential cyberattacks.	75	3.0800	1.44970
Overall readiness of the bank for digital transformation in accounting	75	3.0417	0.33284

7. Regression and Correlation Outcomes

Correlation analysis revealed a weak positive but statistically insignificant relationship between digital transformation and the dependent variable ($r=0.208$, $p=0.073$). Regression analysis confirmed that the model explained only 8% of the variance ($R^2=0.080$), with no significance ($F=1.525$, $p=0.204$).

Table 2. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.283	0.080	0.028	0.32821

The correlation coefficient ($R = 0.283$) signifies a weakly positive association between the independent variables (x_01, x_02, x_03, x_04) and the dependent variable (y). The R Square value of 0.080 indicates that the model accounts for merely 8% of the variability in y , suggesting that 92% of the variability is attributable to factors external to the model.

Table 3. ANOVA Test

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	0.657	4	0.164	1.525	0.204
Residual	7.541	70	0.108		
Total	8.198	74			

The ANOVA test shows that the regression model is not statistically significant ($F = 1.525$, $p = 0.204 > 0.05$). This means the combined effect of the independent variables on y is not significant.

Table 4. Coefficients

Predictor	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	Sig.
(Constant)	3.037	0.387	—	7.855	0.000
x01	0.094	0.065	0.170	1.443	0.153
x02	0.028	0.057	0.058	0.489	0.626
x03	-0.031	0.073	-0.049	-0.426	0.671
x04	-0.092	0.057	-0.187	-1.596	0.115

When all predictors are zero, the baseline value of y is around 3.04, suggesting that the constant ($B = 3.037$) is significant ($p < 0.001$). None of the independent variables (x_01 , x_02 , x_03 , and x_04) have a statistically significant effect on y , as indicated by the fact that all p -values are higher than 0.05. The largest positive effect of these is x_01 ($\beta = 0.170$), although it is not statistically significant ($p = 0.153$). x_04 has a negative effect ($\beta = -0.187$), although it is not significant ($p = 0.115$).

Table 5. Pearson Correlations

	x01	x02	x03	x04	y
x01	1	0.145	0.006	-0.160	0.208
x02	0.145	1	-0.125	0.091	0.071
x03	0.006	-0.125	1	-0.054	-0.046
x04	-0.160	0.091	-0.054	1	-0.206
y	0.208	0.071	-0.046	-0.206	1

Although it is not significant, x_01 and y have a weak positive association ($r = 0.208$, $p \approx 0.073$). With a slight negative correlation between x_04 and y ($r = -0.206$, $p \approx 0.076$), the two variables are nearly significant but still above the 0.05 level. There is hardly any significant link between x_02 and x_03 and y .

Discussion

Gender balance and objectivity were achieved with 49.3% men and 50.7% women [1]. For validity and to reduce biases, research needs broad demographics and gender representation, which is consistent with research trends [2][4]. Labor studies [3] found that the largest age group was 30–40 (42.7%), followed by under 30 (29.3%). 56% of respondents had a bachelor's degree and 8% a PhD, proposing greater research on education and study outcomes [5]. Cloud-based accounting systems (3.18) and AI applications (3.14) outperform digital infrastructure (2.85) in private banks' technology integration[6,7]. Digital technologies provide real-time information (3.10), but banks struggle to apply time value of money measurements (2.93), showing they have not properly utilised fintech[8,9]. Building infrastructure to match software sophistication makes digital transformation harder [10]. Artificial intelligence, blockchain, and big data analytics can help fintech companies challenge banking models [5]. Mobile banking, internet payments, and peer-to-peer financing are streamlined and personalized by these technologies[2,5]. Existing banks struggle to respond to digital transformation and regulatory concerns despite rising fintech investment[3,4]. Fintechs disrupt and enable the financial system, but their full influence is still emerging, requiring collaboration between traditional banks and fintechs to create and adapt [1,4]. Private banks' digital transformation readiness is high (Mean=3.04, SD=0.33), but internal opposition (2.88) and the need for improved internal control mechanisms (2.70) exist. [1] [4]. Digital accounting (3.05), data protection (3.20), and worldwide accounting transparency (3.28), underpin future banking. Management reforms and training are needed to develop an adaptive corporate culture that promotes innovation and digital competency [2]. Cultural barriers like intolerance to change hinder progress. [4]. Digital banking transformation involves cultural and technical change to accomplish strategic goals and boost efficiency[3]. [5]. Private bank financial performance metrics are slightly positively correlated with digital transformation ($r=0.208$, $p=0.073$)[1]. The multiple regression analysis reveals an 8% variance explanation for the dependent variable ($R^2=0.080$) and no significant effect from independent variables ($F=1.525$, $p=0.204$). [2]. Digital transformation in this domain is nascent, with limited infrastructure and internal controls to improve accounting measurement and disclosure[3]. Artificial intelligence and blockchain boost operational efficiency and consumer contact, yet internal opposition and inadequate digital integration persist [4][5]. Financial institutions must expedite digitization and invest in advanced technology to overcome these challenges and realize the full benefits of digital transformation. Iraq's private banking sector's digital transformation is complicated, displaying a clash between modernity and considerable obstacles. Strategized digital solution integration is hindered by infrastructure, institutional cultures, and internal opposition. Banks must overcome technological and cultural challenges to fully benefit from digital transformation, which improves operational efficiency and financial inclusion. Since 2004, the Central Bank of Iraq has enhanced electronic payment systems, but a resilient digital banking ecosystem requires ongoing technology and training. Iraq's digital accounting future hinges on banks' holistic digitization and addressing these concerns. To become the future bank, the interviewed banks prioritized adopting new technology. One of the biggest trends is banks' level of involvement in this ongoing transformation, but all banks agreed that digitalization is the future of banking, giving banks that can streamline their processes a competitive edge. Each bank acknowledged that they were sporadically adopting new technology, but they did not discuss the same issues or go into the same depth. The discussions largely focused on what was previously publicly known about the technology landscape, suggesting a reluctance or lack of awareness about the profound financial sector consequences of these disruptive innovations. [44, 45, 46] Most banks recognized the necessity for a technology-driven market and job observation department. They approached differently. Regional bank has no observation section since it is least active in change. They favor outsourcing technology-related tasks. A cantonal and cooperative bank digital department monitors trends. The department's purpose is to find qualified purchases for the bank's HR and contracts, not to assess technology's impact. No surveillance departments exist in private and regional banks. To stay close to customers, they put customer requirements before trends and new tech. Do not offer electronic money accounts first. [77] [78]

Conclusion

This present paper describes how the rise of digital technology will impede future operations within the Swiss banking industry. Respondents foresee an increase in job losses, drastic redesign in business processes, and a shift in skill requirements after the introduction of disruptive technologies. Digitization creates new forms and exchanges of value that drive companies toward innovation. Several waves of digitization have changed how businesses model and optimize value creation. Business models describe the unique strategy a company employs to create, capture, and offer value. Future developments that significantly impact business models and the future of jobs within the banking industry will primarily come from changes in bilateral producer-consumer value exchanges external to banks.

Vertical business model innovation is the innovation of a business model's components, allowing a business to create different services and products. The importance of blockchain technology on a societal level, along with the necessity for a global regulatory framework to make banks competitive with crypto businesses. The digital transformation of service businesses is not a single step but a continuous process of change. The importance of understanding the impact of disruptive technology and context factors such as legislation, business culture, environment, and age of banks on service digitalization. The strength of diffusion theory is high in understanding if and how quickly disruptive technology is leveled to critical mass.

Digitization will change not only banking and finance itself but also consumer behavior as adults of 2025 will know nothing but a digital world. The immense amount of newly generated data about clients in combination with AI will create a different picture of individuals and will change the client relationship. Banks expect a decline in their influence as mere suppliers of financial products and advice with the advent of digitally democratized banks. Less technically advanced bank clients are expected to switch banks as web and app services improve quality, pricing, and transparency.

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