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Original Article

Subscription Billing and Revenue Recognition Optimization through SAP Billing and Revenue Innovation Management

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Abstract - Using subscription services is the way business models have transformed the system of making revenues because it generates a recurrent payment scheme, price revenue, varying the conditions of the contract, package of the services and relations with the client. These characteristics create operational and accounting issues, which involve the accuracy of billing, contract interpretation, allocation of revenues, when to recognize revenue, reconciliation and financial reporting. The literature examines the effects of IFRS 15, digital transformation, cloud accounting, continuous accounting, and subscription-based types of business models, but these lines of literature stream do not provide detailed guidelines on how to align the actions in subscription billing with the business operations of contract-based revenue recognition in an enterprise system. The current paper will suggest a conceptual framework to use subscription billing and improve revenue recognition with the help of the SAP Billing and Revenue Innovation Management (BRIM) as the enterprise process context. The framework incorporates subscription lifecycle management, usage mediation, rating and billing, interpretation of contract, performance-obligation mapping, revenue scheduling, part of accounting, reconciliation, as well as compliance monitoring. Its design associates the happenings of usage with accounting choices basing on traceable data affiliation and customizable guidelines and exception management and governance directives. Evidence based appraisal would think about its idea, practicability, accounting practicability and compliance and defined enterprise-system capability, rather than experimentation, based on existing literature and possibility. The paper will add to the integrated process architecture, information-flow control model and literature derived approach to assessment. It is only a research proposal, not empirical research with its proven implementation and efficacy of the framework, which will have to be established in a subsequent study.

Keywords - SAP BRIM, Subscription Billing, IFRS 15, Revenue Recognition, Digital Accounting, Financial Integration, Reconciliation.

1. Introduction

1.1. Background and motivation

By recurring subscription plans, consumption based services, graded pricing, bundling and agreement with variable as well as fixed consideration, online businesses are increasingly increasing the income. These arrangements are inopposite of the traditional transactions and can generate a large amount of billing events yet the recognition of revenue needs to be grounded in the rights and duties of the contract, a pattern of fulfillment, and accounting needs. Substantiating business on subscription should therefore distinguish between total amount billed, amount collected, the value on a contract that has been performed up to the time a reporting period.

International Financial Reporting Standard 15 (IFRS 15) Revenue from Contracts with Customers considers the difference special of special interest. Revenue recognition is done after the transfer of the promised goods or services to customers instead of being based on when invoicing or customer cash receipts aren't made. As a result, a company can be allowed to issue an invoice prior to meeting the actual performance obligation, not to collect a certain sum of money, or put off a portion of an invoiced value as a service is going to be performed in the next period. Such coordination requirements are augmented through complex subscription plans through the implementation of amendments, renewal, cancelling, usage, discounting and service bundling.

The studies by Onie et al. [1] and Kabir and Su [2] substantiate the significance of investigating the financial-reporting implications of adopting IFRS 15 instead of believing that a new accounting standard will automatically have a beneficial impact on reporting. In the meantime, Lindstrom et al. [3] present the business models based on the value proposition, value creation, value capture and performance. Both of these studies together provide two complementary problems: the operations of subscription should be sustainable in circumstances of revenue-generating, and the accounting operations should represent the underlying economic activities respectively.

Digital transformation in the business delivers end-to-end alignment of these problems. Chen et al. [4] examine the correlation between the digitalization of corporations and accounting information in quality, and Kuo et al. [5] examine the amount of the revenue recognition and the channel stuffing of Taiwanese semiconductor industry. The relevance of these

papers goes as far as the quality of information and the nature of behavioural risks relative to revenue are concerned but do not rigidly specify how SAP BRIM must align subscription events and the accounting-recognition decisions.

SAP Billing and Revenue Innovation Management (BRIM) offers an enterprise scenario to handling high volume subscription, usage-rating and billing and related financial operations. SAP documentation outlines the BRIM features of recurring and non-recurring charges, usage transaction, convergent billing process and revenue operations.

1.2. Research problem

The gap in the selected literature that the selected paper seeks to overcome is the inadequate incorporated conceptualization of the interrelationship between subscription events, commercial billing requirements, IFRS 15 decision points, financial postings, and reconciliation controls and a process architecture of SAP BRIM-oriented.

It is a synthesis gap and a design gap as opposed to a statement that the current accounting research has failed to take an appropriate approach to revenue recognition and that SAP lacks the right functionality. The application of accounting standards, subscription business model, digital transformation, and cloud accounting were investigated in domestic studies and accordingly, their various units of analysis lack the operation-accounting architecture that is comprehensively defined to the subject of research in this study.

1.3. Research objectives and questions

The paper pursues four objectives:

- To synthesize research on IFRS 15, subscription business models, digital accounting, and technology-enabled financial processes.
- To identify unresolved coordination requirements between subscription billing events and contract-based revenue recognition.
- To propose an SAP BRIM-oriented conceptual framework linking operational transactions, accounting rules, financial postings, and compliance controls.
- To appraise the framework's conceptual coherence, implementation feasibility, and practical applicability without presenting unperformed experiments as empirical evidence.

These objectives lead to three research questions:

- RQ1: What operational and accounting coordination challenges remain insufficiently integrated across the relevant literature?
- RQ2: How can an SAP BRIM-oriented framework connect subscription lifecycle events with revenue-recognition decisions and financial reporting?
- RQ3: What design principles and control mechanisms are necessary to make the proposed framework auditable, configurable, and practically implementable?

1.4. Research contributions and significance

There are three related contributions made in the paper. It first builds a cross-domain synthesis between subscription business model and compliance with the accounting standards as well as the digital architecture of accounting. Second, it implies a hybrid pattern of a separation between the accounting recognition decision and billing event, but to be connected by a traceable piece of information on a contract and a transaction. Third, it develops evidence-based assessment framework to determine the framework in terms of the accounting principles, the past study, capabilities of the system recorded and implementation provisions.

The merit of the work is that it assists businesses to build subscription-to-accounting businesses without attempting to confuse the invoicing and earned revenues or equate the automation of software with accounting standards. The framework is not meant to be applied as leading to the development of the concepts and implementation planning, it is not meant to be applied as shown improvements in performance.

2. Related Work

The literature is presented in the given order of the references, [1] to [16]. The analysis will differentiate what each of the studies will achieve in terms of contribution, against what the studies will not achieve in terms of establishing an integrated subscription billing and revenue-recognition architecture.

2.1. IFRS 15 and the consequences of revenue-recognition reform

Onie et al. [1] appraise how the adoption of IFRS 15 has impacted on the relevance of financial reporting of Australian listed companies. Their findings indicate that the transition effects were not significant to the majority of firms, yet a few were also greatly hit by loss of earnings or retained earnings. There are also few general results that postimplementation earnings were made more relevant as a result of adoption. It has a huge contribution because it challenges the notion that the

standardization of reporting results is always achieved through regulatory standardization. However, its focus on the operational implications of financial reporting does not focus on the operational architecture that is required to harmonize subscriptions usage, billing modifications and time to recognize.

Kabir and Su [2] talk about the existence of IFRS 15 within Australian and New Zealand companies. They found that 63.38 percent of the sampled companies did not report any or a material impact on their financial statements and 36.62 percent of the companies reported impact. By industry and firm size the implications were varied and had a significant impact on deferral of revenue of affected firms. It emphasizes the importance of outlining how transactions and nature of the contract in which the accounting changes are driven. Nonetheless, the paper fails to develop a system architecture to organize a subscription amendment with a monetary post.

Lindström et al. [3] study technology companies and their business model centered on subscription where they pay special focus on value proposition, value creation, value capture and performance. They devote their efforts to the need of sustainable revenue transfer, operational flexibility and continuing business-value assessment. It helps to explain why business subscription requires: dynamic prices and service packages. It is also not so much interested in the business-model design and not how the subscription events would be translated into the business accounting decision making using IFRS 15.

To evaluate the impact of corporate digital transformation on the quality of accounting information (providing the names of listed Chinese firms) Chen et al. [4] use the regression-based analysis. They recognize a positive Korean relationship between digital transformation and accounting information quality and reported relationships differ with organizational and environmental situations. The paper supports a rationale of why technology-enabled accounting processes need to be researched, but does not indicate that any of the individual enterprise platforms or integration architectures results in a greater accuracy in revenue-recognition.

Kuo et al. [5] research revenue recognition and channel stuffing of Taiwanese semiconductor companies. They compare on the basis of the observations and reports of the firms at the firm level where it is likely that the semiconductor firms will perform channel stuffing to achieve the earnings target, post IFRS 15 adoption. The paper has revealed that accounting regulations grope their way in the organizational system of incentives and are not automatic to prevent opportunistic behaviour. What this means to the proposed framework is that the controls should not only address the transaction processing but also address certain bizarre tweakings, authorization and auditability. Nonetheless, the findings are sector-specific and do not dictate the effectiveness of the controls of subscription-systems directly.

2.2. Disclosure quality, earnings management, and contractual complexity

Coetsee et al. [6] explore the usefulness of the IFRS 15 disclosures in South Africa. The disclosures of revenue are framed in their study, as part of bigger question whether or not the users of financial statements are given information that assists them in making well-informed judgments. The implication to subscription businesses is that, it need only have proper internal treatment so that the external reporting can be read, and have sufficient detail. Similarly, the disclosure requirements can only be achieved automatically using the invoice generation, which does not require adequate accounting judgments and reporting policies.

Morawska [7] examines how the implementation of the IFRS 15 would affect the revenue-based earnings management in Poland. The paper is based on previous studies regarding the behavioural implication of the change of accounting standards. Its applicability is that the management incentives and recognition policies must be considered as a whole. The framework also takes into consideration approval controls and monitoring of any exceptions instead of the belief that a rules engine might be able to prevent manipulation on its own.

Van Wyk and Coetsee [8] establish how the IFRS 15 suffices in revenue recognition in the construction sector. Construction contracts are with long delivery times, have project based conditions and discretion in terms of long term performance. Construction, unlike subscription services is an opposite situation, but again we find in both situations that revenues are recognized on the basis of what is promised in the contract and not billing schedules. Its focus on sectors, however, limits extrapolation of its results to data-intensive, per-use subscription systems.

All three of these studies summarize three areas of concern of framework design: all accounting judgments ought to be supportable, all disclosures of financial position ought to be decision useful, and automated procedures ought to have guarded against cases of inappropriate recognition. They fail to jointly provide a detailed architecture in connecting repetitive subscriptions events, evaluations of the bills, accounting schedule and delivery of reconciliation controls

2.3. Cloud accounting and digital transformation

Hung et al. [9] investigate the efficacy of cloud based accounting, quality of decision and firm performance in Vietnam considering digital transformation and digital leadership. Their study will contribute the data which shows that technology

adoption has to be analyzed in terms of organizational capacities. When subscription revenue business is used, it implies that process ownership and configuration of the platform should go hand in hand, along with the expertise of the staff and well-run governance. The paper however does not single-out SAP BRIM nor discuss the subscription-to-revenue model of integration.

Ma et al. [10] concentrate on cloud-based client accounting and uptake with regard to the small and medium accounting practices. The topic of their paper is the organizational adoption and implications of cloud accounting and offers an insight into technology and accounting-based services. It does not primarily live in big subscription enterprises where the usage, recurring payments, contractual modifications and large volumes of reconciliation might require process integration of a tailored nature.

Diller et al. [11] research on the impact of personality characteristics in digital transformation of tax consulting in Germany. This research focuses on the behavioural and human elements of change in digital. It can be indirectly applicable and important, but it depends on the applicability of employee come-to-pass, well grounded judgments and on the intention to adopt the standard work processes. It, however, does not imply any requirements in the accounting-system design which are specific to the subscription revenue.

In their article, Izzo et al. [12] touch on digital transformation and accounting in real-time due to the case of the digital revolution of Oracle through an interview and internal documentation. They identify the dialogue processes, learning processes, transparency process and more trustworthy data. The article presents a theoretical perspective of the current financial processing which is especially applicable. Coincidentally however, its purpose is continuous accounting and intellectual capital in a given context within an organization through the integration of SAP BRIM subscription events with IFRS 15 recognition decisions.

The authors of the article of Meraghni et al. [13] consider the role of digital transformation in the accounting information systems basing on the evidence exhibited in the Algerian firms. Their article helps to comprehend the impact digital transformation has on accounting-system practices. It promotes thinking of processing the accounting information system as a component of a broader organizational transformation as opposed to a single technology implementation. The study however does not detailed the process-level relationship between subscription lifecycle management and the revenue recognition.

Makhija [14] discusses the use of clouds in accounting information systems in Asia and introduces a perspective of the industry of SOC 2 reporting. The paper is topical to the issues of security, assurance, and trust of cloud-based accounting. The security and control evidence of the financial accuracy is complemented in the case of the proposed framework. Cloud assurance is however, not a full-fledged tool to conclude that the revenue-recognition policies have been made correctly and that all accounting entries are supported by contracts.

All these studies imply that the base of digital accounting is based on the utilization of technology, the organizational readiness, data quality, constant functioning, and governance. The limitations of their study to the current study are operational context-specific: they both lack clarity about how the high-volume subscription events should go through billing, recognition, accounting and reconciliation in an SAP BRIM-oriented architecture

2.4. Subscription innovation and the real effects of accounting standards

Tani et al. [15] report about business-model innovation in the mobile-app market, subscription plans based on behavioural reasoning. Their usage helps to understand the impact of the subscription design on the logic of the customers and the situation on the market. Accounting implications can be seen in changing pricing and plans, but analysis of customer-facing business models alone does not clear up accounting of contract modification or of allocating revenues among performance obligations.

Napier and Stadler [16] present the real-life repercussions of IFRS 15. They discuss further the emphasis in the measurement of accounting towards organizational and economic impacts of a new accounting standard. The article helps to justify the need to study the effects of accounting requirement on business processes and the making of decisions in the organization. It lacks technical design of the automation of subscription billing and revenue recognition in SAP BRIM.

2.5. Synthesis and precise research gap

The reviewed studies can be organized into four overlapping research streams:

Table 1. Summary of Related Work

Research stream	Established contribution	Unresolved issue addressed here
IFRS 15 and reporting outcomes [1], [2], [6]–[8], [16]	Explains adoption consequences, recognition issues, disclosure, and reporting effects	Operational linkage between subscription events and accounting decisions
Subscription business models [3], [15]	Explains recurring value capture, plan design, and business-model innovation	Translation of changing commercial terms into controlled accounting workflows

Digital and cloud accounting [4], [9]–[14]	Examines information quality, technology adoption, continuous accounting, and organizational factors	Integrated subscription-to-ledger process design in an SAP BRIM context
Revenue-related behavioural risks [5], [7]	Identifies risks associated with incentives and earnings management	Traceable controls spanning billing adjustments, recognition judgments, and reconciliation

The parsimony found by the writer of this paper is that no congruent body of literature fits in the narrowed gap filled by an overarching, explicitly stated notion relates contractual interpretation events, mission-based charges and the plurality of subscription lifecycle events to the interpretation of contracts, performance-obligation assessment and posture of revenues in a SAP BRIM-based system. The conceptual relationships among the reviewed research streams, the identified integration gap, and the resulting research contribution are summarized in Figure 1

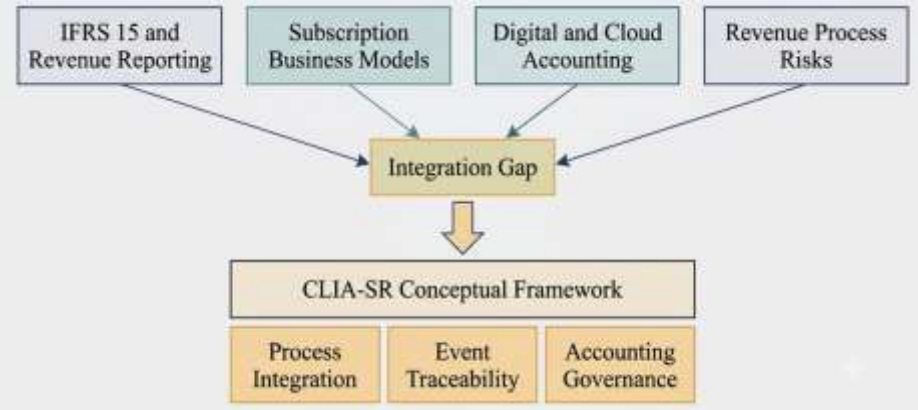


Figure 1. Research Gap and Conceptual Foundation of CLIA-SR

It is the gap that must be distinguished with the general limitations of the individual studies. Small or sector-specific samples, specific national settings and case-studies are methodological or contextual issues. The imperative to synthesize and design a lack between the operational and accounting process is, rather, the need gap in the research. The proposed framework offers this gap, since it defines modules, interfaces, control points and traceability requirements. It also does not claim that similar architecture does not exist in industry and that the existence of the effectiveness of the framework is already established.

3. Proposed Framework: Contract-to-Ledger Intelligence Architecture for Subscription Revenue

3.1. Conceptual foundation and design principles

The Subscription Revenue Contract to Ledger Intelligence Architecture of Subscription Revenue (CLIA-SR) is a prototype of how to conceptualize the manner in which to arrange subscription events and revenue burden accounting in a SAP BRIM business reality. Its general idea is that it must have both commercial billing events and accounting recognition decisions linked using traceable contractual information without considering them to be the same.

Four pillars are combined in the frame. The former is the fact that IFRS 15 provides an accounting basis of locating customer contracts, establishing and ascertaining the price of transactions, identification and allocation of performance obligations and identifying revenue as performance obligations are fulfilled or fulfilled. Second, business-model studies of subscriptions identify whether or not repeat purchases are important, patterns of variable value delivery and harvesting of long-term benefits [3], [15]. Third, there are studies conducted in the field of digital accounting that provokes the steadiness of the stream of data, incessant processing and transparency in the organization [4], [9], [12], [13]. Fourth, support to approval, monitoring and auditability: These are complementary controls which are backed by research regarding the risks of revenue to be realized [5], [7].

The architecture is guided by five design principles:

- Contractual consistency: Billing and recognition rules should derive from controlled versions of contractual terms.
- Event traceability: Every material subscription event should be traceable to its operational source and downstream accounting consequences.
- Accounting separation: Invoice generation, cash collection, and revenue recognition must remain distinct processes.
- Controlled automation: Deterministic, approved rules should handle routine transactions, while ambiguous or exceptional cases require review.

- Reconciliation by design: Differences between operational transactions, billing records, revenue schedules, and financial postings should be identifiable and explainable.

These principles define a design proposition rather than a claim that the framework is already implemented or validated.

3.2. Architectural overview

There are 7 interlinked modules of CLIA-SR and they include subscription lifecycle management, usage-event mediation, rating and billing orchestration, contract and performance-obligation interpretation, revenue scheduling, financial integration and assurance and reconciliation.

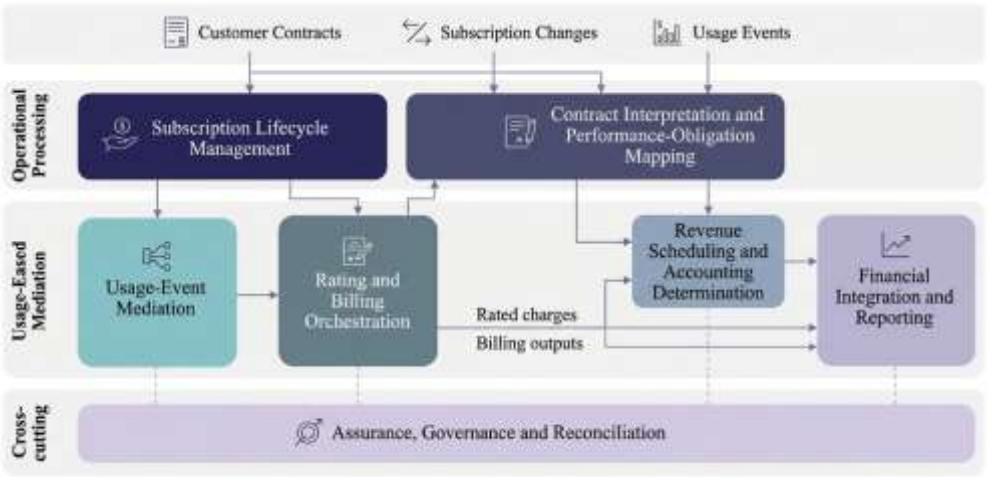


Figure 2. CLIA-SR Integrated Subscription-to-Ledger Architecture

As depicted in Figure 2, CLIA-SR organizes subscription processing and revenue accounting into interconnected functional layers, supported by a common assurance and reconciliation mechanism. Ideal architecture proposed by the writer. These modules are rational commitments, rather than the case that they are old and discontinued products or part and parcel components of SAP with these specific names.

It has the architecture where processing is used in operations, determination in accounting and common information trail. Billing can be subject to commercial regulations but the revenue recognition is performed in accordance with the accepted accounting policy and the evidence of performance. The assurance module works at each of the stages instead of having the appearance on one period-end only.

3.3. Module 1: Subscription lifecycle management

Subscriptions lifecycle framework is a store that maintains the business history of the relationship with the customer. It records the initiation of subscriptions, activation, renewal, upgrade and downgrade, suspension, termination and contract modification.

A material event should have an event identifier, customer and contract reference, an effective date, a source system identifier and a plan version plus its approval status. The system will have to be capable of keeping the historical structure needed to record historical decisions on billing and recognition in which terms differ.

Using the example, a client switching a basic service to a premium service within a specified period (i.e. monthly billing) can be used to bring about a prorated fee. The modification might also impact on contractual rights, outstanding service promise or the accounting of the change. The lifecycle module must henceforth send a controlled change event to the billing and accounting processes instead of the two processes keeping a different set of variations of the contract.

The design of the module is justified by the literature on subscription-model [3], [15]: commercial flexibility is handy but not commanding flexibility results to an organizational complexity. Constant downstream processing is provided on a basis of versioned contracts, authorised change and effect.

3.4. Module 2: Usage-event mediation

Usage-event mediation converts service platform logs into authenticated transaction events, which then can be analyzed to study ratings and accounting. Examples of potential inputs are API calls, consumption of data, usage of telecommunications, activity of digital services and others.

The schema integrity, time stamps, customer numbers, contract numbers, integrity and redundancy is verified by the module. It also maintains a difference in the time of occurrence of an event, ingestion time of an event and processing time as well. Such timestamps are used to find the late arriving transactions and aid cutoff analysis. The workflow in Figure 3 delineates the processing stages through which subscription changes and usage records are validated, converted into billable charges, and managed when exceptions arise.

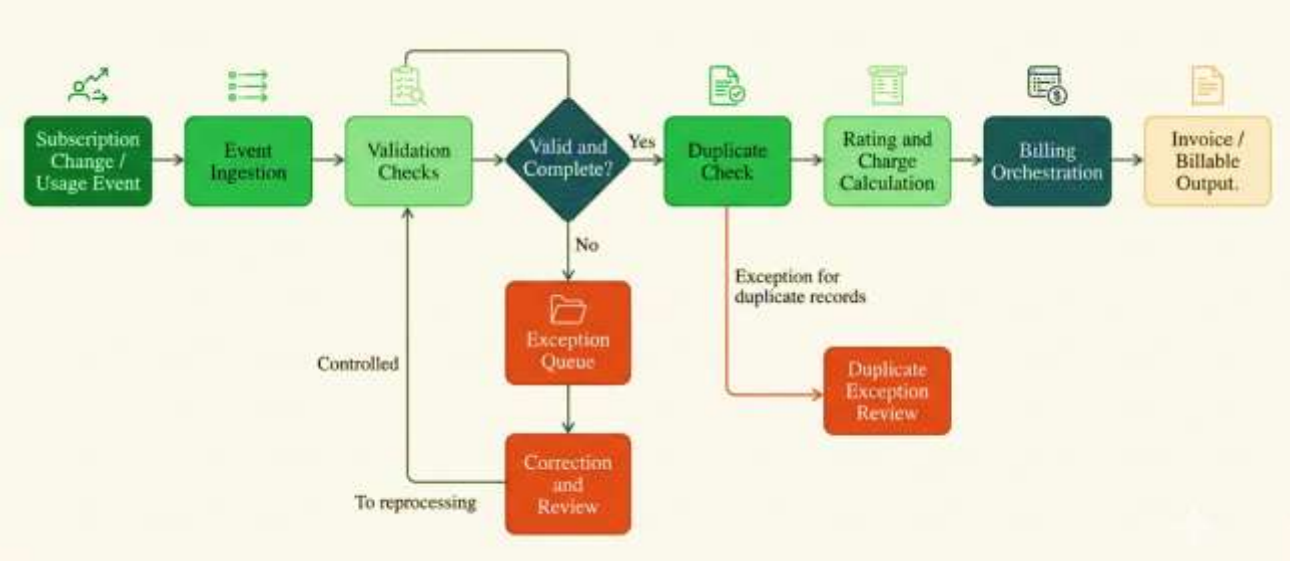


Figure 3. Subscription Event Processing and Billing Workflow

Unsolicited or incompletions are not left unattended but are placed in exception queue where they are overlooked. When reprocessing the event signature, the original event signature should be preserved and the reason behind the correction mentioned. When things are aggregated, but the system needs to save enough detail, to rebuild the aggregate value.

One of the questions, which cannot be answered only with the assistance of billing regulation, is resolved by using this module: an inadequate tariff structure can result in the delivery of a false invoice in case the information upon usage is missing, redundant, or it concerns the incorrect client. Its controls further contribute to the information-quality issues uncovered in digital transformation studies [4], [9], [13].

3.5. Module 3: Rating and billing orchestration

The rating and billing module converts valid commercial and usage events into calculating of charges. It includes recurrent, one-time, usage-pricing, dumping and tiered pricing, discounts, credits, prorations, tax as applicable and invoice adjustments.

All calculations should be tied to the version of the tariff to be relevant, to input quantities, contractual terms, and the time the calculation is carried out, and the charge identifier. This information can be utilized by the finance staff to provide justification to why a particular amount was billed as well as whether the correct commercial rules were used to calculate the amount.

The module should also differentiate an invoice correction and an accounting correction. Credit note may be used to reverse or amend the billed balance; however, this depends on the reason why the correction is being made, the contract supporting the correction, the accounting policy to adopt such correction and whether or not a previously recognized revenue should be adjusted or recalculated.

In SAP BRIM, this logic activity could be the assigned capabilities to create recurring and single-use charges, rating and billing usage transactions.

3.6. Module 4: Contract interpretation and performance-obligation mapping

This module establishes accounting knowledge of contracts with customers. It cannot simply portray the invoice value on a revenue schedule. Rather, it aids in identification of contracts and performance obligations, and establishment of the price of the transaction and where it is necessary, distribution of the price and in determining when the obligations have been fulfilled.

Access to a platform, implementation support, premium support and separately provided services are some of the promises that can be a part of a subscription. There is no need that these promises have the same recognition pattern. The price per month could be related to a service shut down across time and a specific service could require a distinct distinguishing event.

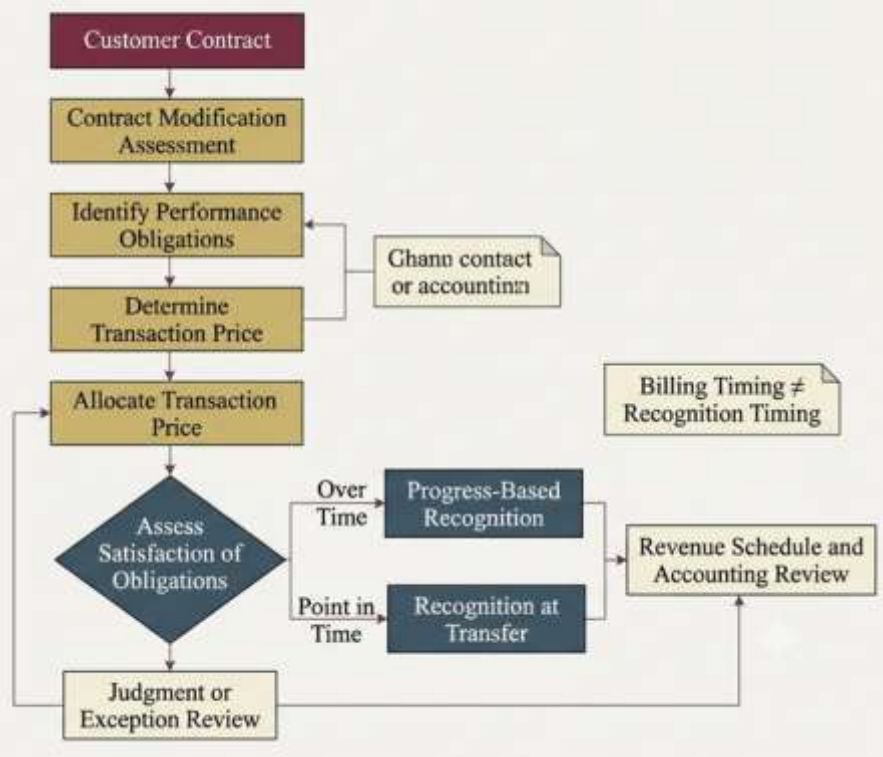


Figure 4. Contract-to-Revenue Recognition Decision Model

The module will have relationships between clauses in the contract, or performance-accepted policies interpretations, performance-obligation identifiers, transaction-price budgeted amounts, internalised performance satisfaction criteria, and internalised accounting regulations. The well-managed decision-making procedures should guide the decision processes that have variable consideration, contract modification, substantial financing and other suitable IFRS 15 judgment. Figure 4 formalizes the proposed accounting decision pathway, showing how contract interpretation and performance-obligation assessment determine the appropriate revenue-recognition treatment independently of billing timing

Preapproved rules can be used in routine cases. Authorized accounting personnel should instigated review whereby on detecting material ambiguity, unusual terms, or unsupported combinations. Decisions should be monitored in such a way that the rationale of the decision that was made in the last accounting treatment is not overridden.

It is one of the modules that focus on the dislinking between business setup and accounting judgment. It foundations on [1], [2], [6]-[8] of the IFRS 15 research outcomes that the recognition outcomes are founded on the basis of the substance of the arrangement and the judgments made in it and not just on the invoicing rules basis.

3.7. Module 5: Revenue scheduling and accounting determination

The revenue-scheduling module transforms approved accounting decision-making into dated recognitions schedules. In obligations that are to be fulfilled over time a schedule can apportion revenue over time by a procedure that accurately portrays the transfer of the service pledged. The recognition is of obligations that are fulfilled at a point in time and is determined by the criteria that apply to a transfer.

Balances, known that are scheduled, deferred balances and adjustments are maintained in the module. It should sign schedules of changes on account of approval of contract amendment, credits, cancellations and corrections without renouncing the preliminary and the computed schedule.

An example of a client paying per annum a qualifying stand-ready service is in paying 12000 rupees up-front. Knowing that the rendering of the service is uniform throughout the year, and that the method sanctioned to make the recognition sufficiently reflects the distribution, 1,000 would be recognized monthly. The first invoice does not substantiate the fact that

the full amount of 12,000 is due. In case the service is later on, they should be recognized after the real contractual service period as opposed to the date of invoice.

It is a reduced version of such a case that illustrates the rationale of the framework, but not an empirical conclusion or a standard rule of accounting. Actual performance is based on the contract, commitment to performance, the price of doing the transaction and facts involved.

3.8. Module 6: Financial integration and reporting

The financial-integration module captures the approved accounting events in the defined subledger and general-ledger processes. It ties the identifiers of operating charges, revenue schedules, the accounting documents as well as the posting and reporting date.

Integration should make a uniform determination of the accounts, organization nomination, currency processing, appropriate treatment of taxes, and the check of the posting-periods. Lost postings should be showcased and editable, along with data regarding errors and reprocessing.

Reconstruction should establish links between at least four different views such as rated charges, issued invoices, revenue schedules and financial postings. These differences must be categorised as explainable which will cover differences in timing, documents not posted yet, credits and late usage events and mapping errors. The outcome of reconcilements cannot be arrived at to resolve only because the totals seem to be in accord, the transactions themselves and the making up of the accounting explanations should also have a standing by themselves.

3.9. Module 7: Assurance, governance, and information flow

The assurance module defines the access controls, role separation, authorization, control level, rule-version control, audit trail, rule ownership and oversight. It is made to facilitate automatically processed cases being checked and will identify those instances where human judgment is needed.

Bidirectional traceability is built based on a shared event identifier and references to documents. An auditor should wade through a recognized entry of revenue on the list to its account, performance requirement, contact form, and delivery on file and proof of utilization or service utilization. Material subscription event, on the other hand, was to trace to the accounting outcomes of event.

In the architecture suggested, there is an automation of transactions and a clear accounting control. Regular implementing, recording, and examining professional judgment is not the quality that should be gained, but a simple content of the subscription action.

4. Evidence-Oriented Framework Appraisal: Analytical Validation of the Subscription-to-Revenue Design

4.1. Appraisal method and evidence boundaries

The framework will be evaluated based on the broad concepts of analytical reasoning, match with the sixteen presented studies, applicable accounting principles, and recorded SAP BRIM functionalities. It fits well in a conceptual paper because it evaluates the possibility of the proposed components to act rationally to the research requirements observed, without the implication that the architecture was in an experimental way, either by implementation or experimentation.

Evidence can be of three types. The one, peer-reviewed work provides evidence on implications of accounting standards, digital accounting, subscription business models and organizational risks. Second, IFRS 15 presents the normative principle of accounting, the recognition principle. Thirdly, SAP documentation proves that the product environment has relevant competencies of subscription, usage-rating and billing. None of these types of evidence can be combined to be certain that the proposed integrated architecture will result in a given reduction in processing time, error rates, or the financial performance.

The appraisal thus takes care of conceptual alignment, operational feasibility, accounting integrity, and implementation dependencies.

4.2. Accounting alignment and transaction integrity

The first appraisal criterion is the framework should retain the difference between billing and recognition. The given design meets this conceptual requirement since it relocates both the rating and billing to the separate logical module than the performance-obligation interpretation, and the revenue-scheduling.

This branch is a reaction to the issue of financial-reports used by Onie et al. [1] and Kabir and Su [2] which they discuss. The results obtained by them prove that the effects of IFRS 15 are varied among different companies and dealings. Based on this, the framework does not expect all the subscription fees to be on the same level of recognition.

The architecture also creates a control relation between the modifications of a contract and accounting schedule. This is of significance since a commercial change could have an impact on billing without necessarily creating the same accounting impact. Appropriate accounting treatment needs to be decided based on the relevant facts of contracts and accepted policies.

The conceptual consistency with IFRS 15 would be the same, but still adjusting the design would have been required to undertake the qualified accounting review, rectify the information related to the contracts, as well as test the presence of numerous situations, in which transactions apply.

4.3. Digital integration, traceability, and organizational feasibility

The second condition is that the architecture is able to make connected processing and explainable accounting results. The identifiers of common events, versioned rules, interlinked schedules and reconciliation controls provide a rational way of tracing transactions, operational and financial, through operational and financial processes.

Current design is an answer to a question of quality of accounting information as it is raised by Chen et al. [4], Hung et al. [9] and Izzo et al. [12] and the digital transformation and continuous accounting. It has also discovered organizational aspect as talked about by Diller et al. [11]. Technical integration is not sufficient should personnel lack the capacity to understand exceptions, maintain the accounting regulations and challenge inappropriate results.

The architecture can in theory be met, but in practice only by the quality of the source-system, the presence of integration interfaces, the volumes of transaction and data to be stored, the existing financial-system set-up and the capacity of its staff. Process mapping and a controlled scope should then be used to start a deployment and not to assume that any two enterprises will be the same when it comes to configuration.

4.4. Risk management and control completeness

The third factor is whether the framework is sensitive towards material operational and accounting risks. Some of the proposed controls are the events of duplication of usage, inappropriate usage of tariffs, improper accounting mappings, non-working postings, unauthorized change and outstanding reconciliation variances.

The emphasis on these decisions that are reviewable is consistent with the risks discussed by Kuo et al. [5] and Morawska [7]. Nevertheless, workflow approvals and automated alert systems cannot ensure that earnings are not managed or done inappropriate accounting. The use of design of control, access control, independent review and level of examined evidence are usually carried upon by them.

Another stipulation is the exceptions should be ranked in terms of materiality and accounting importance. A small implication may arise out of an anomaly in billing, but a misjudged rule of recognition insisted on in thousands of contracts may make a material difference to reported results.

5. Discussion: Bridging Commercial Agility and Accounting Accountability

The two objectives which have been frequently discussed as personal ones are united in the suggested framework: the flexibility of the business-wide in commercial relations, as a subscription is understood, and the responsibility towards the financial reporting. Sub service providers need to adjust plans, prices, service packages and plans as usage changes in a short time. The accounting systems must however, keep the evidence of contracts, use acceptable recognition policies and produce supportable financial records.

According to the literature analysis, these needs cannot be fulfilled with the help of the technological intervention. The implication of recognition, disclosure, and reporting are emphasized in the studies of IFRS 15 [1], [2], [6]-[8], [16]. The recurrent value capture and commercial innovation is dealt with in subscription research [3], [15]. Digital accounting research [4], [9]-[14] refers to technology adoption, quality of information, organizational preparedness and continuous processing. These themes are connected, through the proposed architecture, to each other using an explicit process model.

Its main contribution is the definition of the interconnection of modules and not the claim that the respective modules are novel. The subscription lifecycle management will feed into billing and contract interpretation, validated use records can be used to support the rating, approved accounting decision will fuel the revenue schedules, and financial integration will make entries in the ledger accounts and cross-cutting control will provide traceability and reconciliation.

This structure explains the role of automation also. The controlled rules might be used to make regular well-defined transactions, but the interpretation of contracts under uncertainty and accounting events that are not routine should be conventionalized in terms of professional reviews. Such a difference aids in preservation of uniformity but not as factual of automated results.

Several limitations remain. The architecture is not empirically tested, integration requirements can be varied in SAP landscapes, and literature chosen is not able to prove its performance in comparison to existing enterprise designs. Preferentially, accounting of various contracts, jurisdictions and reporting imperatives can treat their accounting differently.

Based on this, CLIA-SR ought to be a conceptual design proposal. Its contribution is a traceable accounting-oriented synthesis which can guide the implementation planning and additional investigation. Its usefulness following the conclusion of it all depends on the reality of application to reliable processing, conducive recognition, explainable anomaly and improved auditability.

6. Conclusion

Business models that utilize subscription have necessitated the alignment between business transactions, calculation of bills, interpretation of contract, revenue recognition and reporting of it in financial statement. The most important distinction, probably between invoicing and recognizing revenue, is accounting consequences in which there has to be a contractual promise, apportionment of transaction-price, and performance demands needed by IFRS 15. The literature reviewed copies that the application of the accounting standards, subscription innovation, digital transformation as well as cloud accounting each has a considerable contribution to it, which can be considered as serving varied aspects of the entire issue of operational-accounting problem.

This paper revealed a single gap in terms of synthesis and design that can be summarized as follows: The absence of a unified conceptual definition of subscription lifecycle events and utilization transactions to billing, revenue schedules, accounting entries, reconciliation and audit evidences within an SAP BRIM-based environment. This lack will not mean that the current enterprise systems will not have relevant capabilities or that previous research has not tackled revenue recognition.

The paper proposed filling the gap with a Contract-to-Ledger Intelligence Architecture of Subscription Revenue: CLIA-SR. The framework describes seven overlapping modules which comprise subscription lifecycle management, usage-event mediation, rating and billing, contract interpretation, revenue schedule, financial integration and assurance. It has contributed a number of significant parts, which include: built in process architecture, clear separation of commercial billing and accounting recognition, event level traceability and a informal foliage of appraisal requirements that can be applied to demonstrate any prospective validation.

The evidence-based appraisal indicates the architecture should be conceptually consistent with the specified accounting and operational requirements. However, the consistency in concepts must not be equated to proven effectiveness. The structure has not been put into practice and has not been proven to perform empirically and has no empirical performance outcome to brag upon.

The framework proposed should be tested on the framework against representative subscription scenarios and be integrated with representative SAP environments and as well as its impacts using transparent operation and accounting measures in future. This would give information about the capability of the proposed architecture to improve transaction traceability, reconciliation, accounting consistency and auditability when operating under realistic operating conditions.

Lastly, the paper gives the foundation, which can be utilized in further investigation of the aspects of integration of the monetization of subscriptions and financial accounting. It finds value in making explicit and amenable to systematic study the different associations of commercial events, accounting options and financial controls.

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