



GAMIFYING DEBITS AND CREDITS: HOW MOBILE APPS AND ERP SYSTEMS ARE CHANGING THE ACCOUNTING PERCEPTIONS OF NON-PROFESSIONALS

Anvar Ravilievich Deberdiev

Senior Lecturer, Department of Management,
ISFT Institute

Vaxobov O'tkirkbek Ulug'bekovich

First-year student, International Accounting and Finance
ISFT Institute

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Abstract. This article explores the integration of game mechanics (gamification) into modern mobile financial applications and ERP systems to reduce the cognitive barrier to learning the basics of accounting and management accounting for non-collaborative users (entrepreneurs, freelancers, and the self-employed). It analyzes the conceptual transformation of classical concepts of debit and credit into intuitive visual metaphors and interactive elements. Drawing on behavioral psychology methods, the Octalysis gamification framework, and UX/UI design standards, the authors classify key engagement mechanics and mathematically substantiate their impact on reducing operational risks and improving financial discipline in small and micro businesses.

Keywords: gamification, debit, credit, accounting, ERP systems, fintech, behavioral psychology, Octalysis framework, financial literacy, user interface, small business automation.

1. Introduction

The classic accounting system, based on the principles of double-entry bookkeeping, is traditionally perceived by those without a specialized economics education as a hermetic, routine, and cognitively overwhelming discipline. For aspiring entrepreneurs, freelancers, and micro-business managers, the need to understand the concepts of offsetting accounts, debits, credits, and postings is a powerful psychological barrier. This leads to procrastination in maintaining primary documentation, chaos in management accounting, and, consequently, cash flow gaps and regulatory penalties.

However, the macroeconomic realities of recent years (2024–2026) require economic agents to be as flexible as possible and make decisions quickly. With the total digitalization of the commercial environment, manual accounting in spreadsheets or traditional, "heavyweight" accounting programs is becoming ineffective. At the intersection of fintech and behavioral science, a steady trend





has emerged toward incorporating game-based approaches into utility software—a phenomenon known as **gamification**.

The relevance of this study stems from a radical paradigm shift in human interaction with accounting systems. New-generation mobile banking and cloud-based ERP (Enterprise Resource Planning) systems are moving from a representative model (simple recording of numbers) to an interactive one. They strive to demystify accounting, transforming dry mathematical balance sheets into quest chains, progress bars, and visual simulations. Studying these mechanisms allows us to assess their practical potential for optimizing the operations of small businesses.

2. Methods and materials

The methodological basis of the study was an interdisciplinary approach combining principles of gamification theory, behavioral economics concepts, and human-computer interface (HCI) design standards. The primary analytical tool was Yu-Kai Chou's Octalysis framework, which allows user motivation to be decomposed into eight key drivers (incentives).

The research's data and empirical base consisted of:

1. A functional and interface analysis of modern cloud ERP systems and fintech services for small businesses and the self-employed (both domestic platforms such as MyWarehouse, 1C:UNF, Knopka, and Tochka-Bank, as well as foreign equivalents such as QuickBooks and Xero).

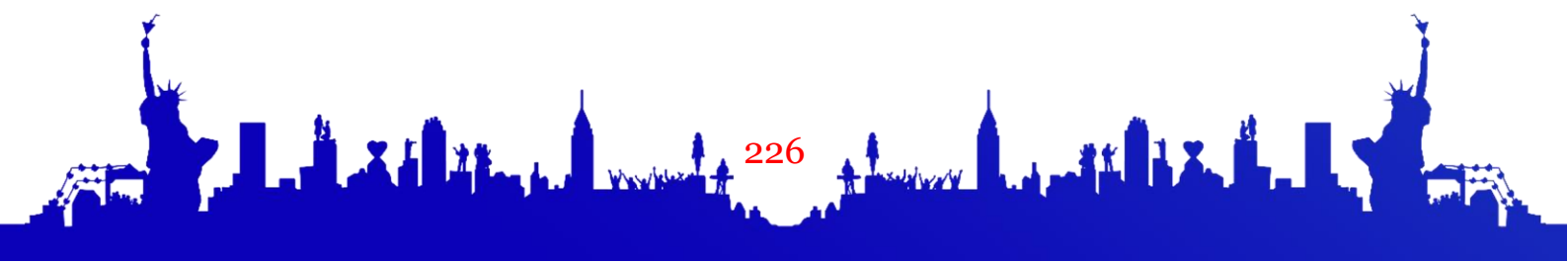
2. Statistical data from software developers on user retention rates and operational error rates after the implementation of game mechanics in fintech application interfaces.

3. Research results and discussion

3.1. Deconstructing debit and credit: moving to visual metaphors

The main cognitive impasse for the layperson lies in the dualistic nature of debit and credit. Depending on the account type (active or passive), increases or decreases in funds are reflected inversely, which contradicts the common logic of the average person (where "credit" is always a debt, and "debit" is a credit on a card).

Modern UX/UI engineers overcome this barrier by completely disguising classic T-shaped accounts (airplanes) and replacing them with metaphors of "physical flows" and "**hydraulic reservoirs**":





"Communicating Vessels" Metaphor: Instead of the accounting entry Dt 41 (Goods) - Kt 60 (Suppliers), the application interface displays an animation to the user: resources flow from a virtual "Supplier" reservoir to a "Warehouse" reservoir. The concepts of debit and credit are replaced by color coding (green/red) and dynamic directional arrows.

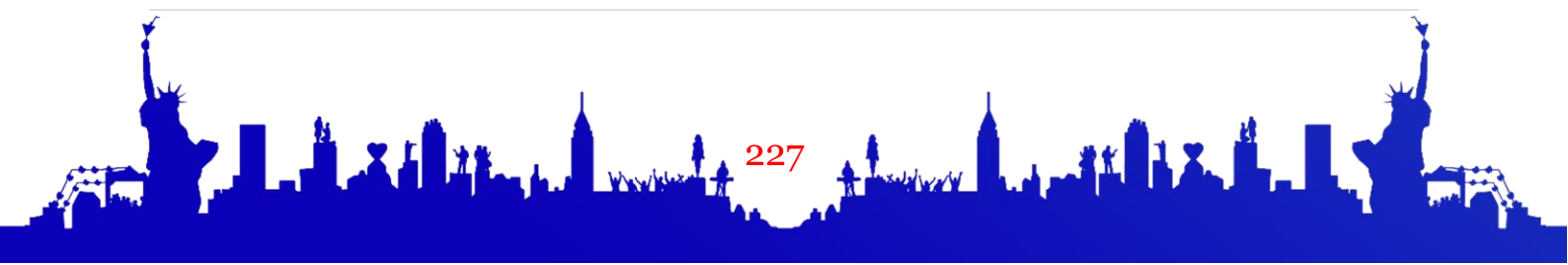
Gamified Balance Sheet and Health Bar: The balance sheet, which often daunts entrepreneurs with its abundance of numbers, is transformed into a unified indicator of the company's financial stability (Health Bar). If the balance is correct, the bar glows green; if an error in the source documents or an outstanding receivable is detected, the system signals a "loss of health" for a specific business unit.

3.2. Analysis of game mechanics using the Octalysis framework

The introduction of game elements into ERP systems isn't a random interface embellishment. It's a carefully calibrated engagement engineering approach that activates fundamental drivers of the human psyche (Table 1).

Table 1. Implementation of Octalysis framework drivers in accounting software for non-professionals

Octalysis Driver	Manifestation in the interface of ERP / Fintech applications	Manifestation in the interface of ERP / Fintech applications
	Psychological effect on the user	Psychological effect on the user
1. Epic Meaning / Mission	Positioning routine accounting as a process for "building a business empire" or "saving a company from a cash flow gap."	The user feels like a strategist rather than a clerk.
2. Development and Achievement	Earning experience points (XP) for each receipt, earning badges of ("Invoice Master," "Accounts Receivable Storm").	Routine becomes a process of personal profile development.
3. Unleashing Creative Potential	Setting up custom dashboards, constructing your own automation chains in the form of blocks.	The feeling of being controlled by rigid standards is reduced.





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| 4. Ownership and Possession | Visual accumulation of virtual assets, filling a "box" of closed documents. | The desire to organize and preserve digital achievements is enhanced. |
| 5. Social Influence | Ratings of the "most disciplined companies in the industry," the ability to share successes in business communities. | Healthy competition among entrepreneurs is fostered. |
| 6. Scarcity and Impatience | Time-limited "quests" for reporting with countdown timers. | Immediate action is encouraged, procrastination is reduced. |

3.3. Practical Cases: Quest Mechanics and AI Mascots

One of the most effective gamification tools has become the fragmentation of macrotasks. The "Closing the reporting period" process, in the classic sense, requires the entrepreneur to mobilize enormous cognitive resources. A gamified ERP system transforms this process into a level map reminiscent of casual video games:

1. Micro-quests: Instead of the requirement to "Check all documents," the system presents the task: "You have three unconfirmed documents from logistics. Resolve them to open the weekly balance chest."

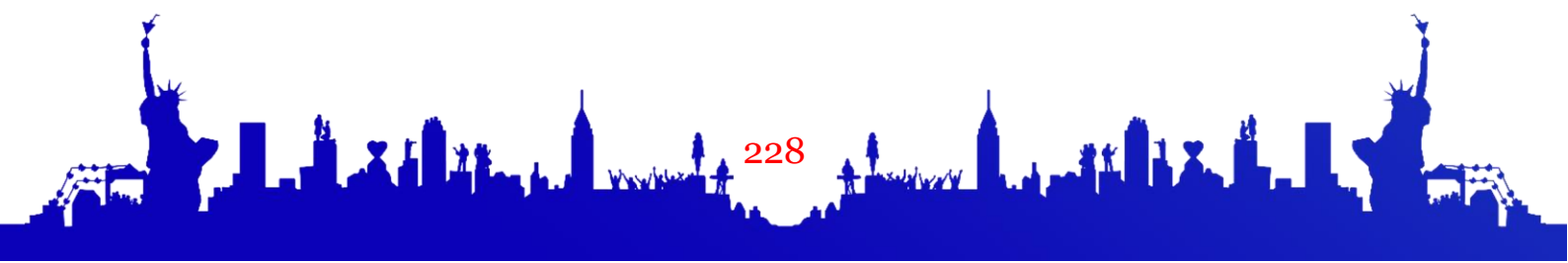
2. Instant Feedback Loops: Unlike traditional accounting, where results are only visible at the end of the month, the game interface reacts instantly. Correctly linking a payment to an invoice triggers a positive animation, creating a dopamine loop that reinforces correct behavior.

3. Artificial intelligence as an anthropomorphic assistant: Demystifying control through the introduction of AI mascots (assistant characters) plays an important role. Instead of dry system errors, a dialog box appears with a character explaining the problem in plain.

3.4. Impact on operational efficiency and PFM/SMB culture

The impact of implementing gamified systems goes far beyond the user's aesthetic pleasure. It directly transforms a business's economic performance:

- **Elimination of "tax shock":** Through gamified timers and reminders disguised as game events, primary data is entered into the system in a piecemeal, continuous manner, rather than in a rush on the last night before a deadline. This evens out the workload for the entrepreneur.





- **Improved accounting accuracy:** Gamified constraints (for example, the inability to complete a transaction or "close a quest" until the debit and credit balances are balanced) force non-experts to correct errors at the outset, preventing the accumulation of systemic distortions in the balance sheet.

- **Implicit learning:** By interacting with flow metaphors, the user latently learns the fundamental principles of financial management. After some time, he begins to consciously operate real complex reports - Cash Flow (cash flow statement) and P&L (profit and loss statement), making the transition from intuitive management to data-centric.

4. Conclusion

Gamification of debits and credits in modern ERP systems and fintech applications represents more than just a graphic design trend, but a profound sociotechnical transformation. Translating the complex, counterintuitive mathematical logic of double-entry accounting into the universal language of game mechanics has radically changed the way people without specialized education perceive financial routines.

Reducing the cognitive barrier facilitates the widespread involvement of self-employed individuals and small entrepreneurs in a culture of conscious bookkeeping. This reduces the rate of early bankruptcy, minimizes the risk of critical errors when interacting with tax authorities, and increases the overall economic resilience of small and micro businesses in the digital economy.

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