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Article

Digital Items as Information System Artifacts: Toward a Typology of Valuation-to-Monetization Mechanisms in Southeast Asian Free-to-Play Economies

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Abstract

Free-to-play games have become one of the dominant economic models in the digital games industry, especially in mobile-first markets. Although access to these games is free, revenue is generated through digital items, premium currencies, randomized reward systems, seasonal passes, and other monetization mechanisms. Existing studies have examined many of these features separately, but there is still a lack of a design-oriented framework that explains how player-perceived value is systematically converted into monetization. This paper proposes a Design Science Research approach for developing a typology of valuation-to-monetization mechanisms in Southeast Asian free-to-play game economies. The study reframes digital items as information system artifacts whose design shapes both player value and revenue capture. Drawing from literature in information systems, game studies, virtual goods, and monetization research, the paper outlines a three-phase research design consisting of systematic evidence synthesis, typology development, and empirical evaluation through structured observation. The intended contribution is a practical and theoretically grounded typology that helps explain how digital items are designed to generate willingness to spend. The paper also argues that Southeast Asia provides a meaningful regional context because of its mobile-heavy market, hybrid monetization portfolios, and strong presence of free-to-play titles. This preprint presents the conceptual foundation and methodological design of the study.

Keywords: free-to-play games; virtual goods; monetization; digital items; design science research; information systems; Southeast Asia

1. Introduction

Digital games are now one of the largest entertainment sectors in the world, and many of the most commercially successful titles follow the free-to-play model. In this model, entry is free, but monetization occurs through in-game purchases, premium currencies, randomized rewards, seasonal progression systems, and time-limited offers. This creates a simple but important question: if the game itself is free, how exactly does value become revenue?

This question matters because free-to-play economies are not built only on isolated purchases. They are built on systems. A player does not simply buy a skin, a character, or a battle pass in a vacuum. These purchases are shaped by a wider arrangement of scarcity, progression, timing, social status, aesthetics, utility, and platform design. In practice, monetization in free-to-play environments is rarely just one mechanism. It is usually a portfolio of interconnected mechanisms working together.

Southeast Asia is a useful context for examining this issue. The region is strongly mobile-oriented, highly engaged with free-to-play ecosystems, and marked by selective spending patterns rather than broad premium purchasing habits. In such environments, monetization often depends on carefully designed item systems that translate player desire, urgency, identity, or convenience into repeated spending. This makes the region relevant not only commercially but also analytically.

Prior scholarship offers valuable insights into virtual goods, player motivations, loot boxes, gacha systems, battle passes, and ethical concerns surrounding monetization. However, much of the literature

remains fragmented. Some studies focus on the psychological drivers of spending. Others focus on one monetization format at a time. Still others examine fairness, regulation, or player protection. While each of these strands is important, they do not yet provide a system-level way of classifying how value is created and then operationalized into monetization.

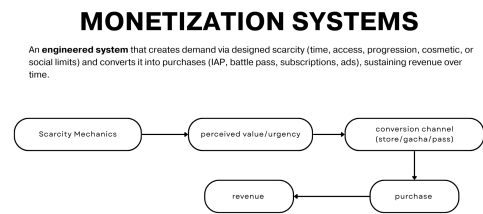


Figure 1. Monetization systems in free-to-play games: scarcity levers and purchase formats.

This paper argues that digital items in free-to-play games can be treated as information system artifacts. They are not merely cosmetic additions or game content. They are designed digital objects embedded in sociotechnical systems. Their attributes shape how players interpret value, and their surrounding purchase structures shape how that value is captured economically. Seen this way, digital items sit at the intersection of design, behavior, infrastructure, and revenue logic [1,2].

The aim of this paper is to present the conceptual and methodological foundation for a typology of valuation-to-monetization mechanisms in Southeast Asian free-to-play economies. Using a Design Science Research perspective, the study seeks to produce a structured artifact that classifies how digital items create player-perceived value and how this value is transformed into monetization through specific formats and configurations. Rather than treating monetization tactics in isolation, the proposed typology is intended to organize the relationships among valuation attributes, scarcity levers, transaction formats, and control features.

This paper is positioned as an early-stage research article. It does not claim to present the final typology or completed empirical findings. Instead, it presents the rationale, literature grounding, research questions, and research design that will guide the development and evaluation of the artifact.

2. Literature Review

2.1. Digital Items and Player Value

Digital items, or virtual goods, are intangible but economically meaningful objects that players recognize as valuable. Their value may come from functional advantage, visual appeal, symbolic status, rarity, or convenience. Prior work on virtual item sales shows that players do not purchase digital items randomly. They respond to item attributes that align with their goals, tastes, identities, or play styles [3]. Functional value may include improved performance, efficiency, or progress. Hedonic value may involve aesthetics, customization, novelty, or enjoyment. Social value may involve signaling status, exclusivity, identity, or group belonging [4,5].

These forms of value are often layered together. A single item can be attractive not only because it looks good but because it is rare, visible to others, or tied to a limited-time event. Similarly, a character or upgrade may offer mechanical advantage while also carrying prestige or brand recognition. Because of this, digital items should not be treated as fixed units of value. They are better understood as designed bundles of meaning and utility.

This becomes especially important in free-to-play economies, where the item itself is rarely the entire product. What matters is how its design interacts with the surrounding system. Availability windows, rarity tiers, consumability, permanence, transferability, and upgrade paths can all affect perceived value. In this sense, player spending is not only a reaction to an object but to a designed context around that object.

2.2. Monetization Mechanisms in Free-to-Play Games

Free-to-play monetization is usually discussed in terms of formats such as direct sale, randomized rewards, premium currencies, bundles, subscriptions, battle passes, and ad-reward exchanges. These formats differ not only in pricing logic but also in how they structure anticipation, uncertainty, repetition, and perceived fairness [6,7].

Direct sale is one of the clearest formats because the player knows exactly what is being purchased. It often suits cosmetic items, convenience items, or fixed bundles. Randomized reward systems such as loot boxes or gacha operate differently. They introduce uncertainty and often rely on rarity tiers, banner rotation, or pity systems [8,9]. Seasonal passes combine monetization with engagement by asking players to pay for a structured reward track over time. Premium currencies can soften the psychological visibility of real-money spending and enable more flexible pricing structures. Rewarded ads create a different exchange, where player attention becomes part of the value loop.

Most live-service titles do not rely on a single mechanism. They combine several. A game may sell costumes directly, use gacha for character acquisition, provide a battle pass for retention, and offer ad-reward exchanges for soft currency recovery. As a result, studying one mechanism alone often gives an incomplete picture of the broader monetization system.

2.3. Ethical Critiques and Player Protection

The literature also includes a growing body of work on problematic monetization design. Researchers have examined predatory monetization, dark patterns, misleading interfaces, artificial urgency, and systems that blur the line between entertainment and exploitative design [10,11]. Loot boxes and gacha systems have attracted particular attention because of their resemblance to gambling-like structures, especially when tied to limited disclosures or behavioral nudges [12].

These concerns are important, but they also show why a more systematic classification is needed. Without a structured way of describing how value, scarcity, timing, and payment formats interact, ethical analysis can become too general or too tactic-specific. A typology would not replace ethical analysis, but it could provide a more precise descriptive basis for it.

2.4. Southeast Asia as a Relevant Context

Southeast Asia is not just a convenient regional sample. It is a meaningful context for monetization research because of its strong mobile game penetration, hybrid monetization practices, and diverse market behaviors. Many titles popular in the region combine elements associated with East Asian and Western monetization design. Gacha systems, battle passes, top-up events, direct skin sales, premium currencies, and time-limited bundles often coexist in a single title.

This makes Southeast Asia an especially useful context for examining combination logic. If monetization research is to move beyond isolated tactics, it needs to account for regions where hybrid portfolios are common.

2.5. Design Science Research and Taxonomy Development

Design Science Research is an appropriate methodological foundation for this study because the intended output is an artifact: a typology that organizes a complex design space into a usable structure. In information systems research, DSR is concerned with building and evaluating purposeful artifacts that address identified problems [13]. A typology fits this tradition because it provides a structured and reusable way to classify phenomena.

Taxonomy development methods in information systems emphasize explicit meta-characteristics, iterative development, and ending conditions such as conciseness, completeness, robustness, and extendibility [14]. This is useful for monetization research because the field contains many overlapping terms, moving industry practices, and hybrid configurations that can otherwise become difficult to compare systematically.

2.6. *Research Gap*

Three major gaps motivate this study. First, existing research is fragmented. Many studies examine only one monetization tactic, one player motivation, or one ethical controversy at a time. Second, there is limited attention to the combination logic of monetization systems. Contemporary free-to-play economies are multi-mechanism environments, yet research often treats tactics independently. Third, there is a lack of a practical, replicable coding framework that links item valuation to monetization configuration in a way that supports comparison across titles and contexts.

This study addresses these gaps by proposing a Design Science Research typology of valuation-to-monetization mechanisms in Southeast Asian free-to-play economies.

3. **Research Definition**

3.1. *Research Problem*

Free-to-play games generate revenue through digital items and associated monetization mechanisms, but existing scholarship does not yet provide a system-level typology that clearly explains how player-perceived value is transformed into monetization across interconnected mechanics.

3.2. *Research Aim*

The study aims to design and evaluate a Design Science Research typology that classifies how digital items in free-to-play games generate player-perceived value and how those valuation mechanisms are operationalized into monetization within Southeast Asian game economies.

3.3. *Research Objectives*

The study has four objectives:

1. To synthesize academic and selected grey literature related to digital item valuation and monetization mechanisms.
2. To identify candidate dimensions and categories for a valuation-to-monetization typology.
3. To construct the typology through iterative conceptual and empirical development.
4. To evaluate the clarity, applicability, and reliability of the typology using structured observation and inter-rater agreement.

4. **Methods**

4.1. *Research Questions*

The study is guided by the following questions:

- **RQ1:** What valuation mechanisms do digital items embody in Southeast Asian free-to-play titles, and how are these reflected through item attributes?
- **RQ2:** What monetization mechanisms are used in Southeast Asian free-to-play titles, and how are they configured in practice?
- **RQ3:** What dimensions and categories best organize the valuation-to-monetization linkage into a concise, comprehensive, and extendible typology?
- **RQ4:** How reliably can independent coders apply the typology to real free-to-play titles?
- **RQ5:** What design implications emerge from mapping titles to typology categories, especially in relation to sustainable monetization and player acceptance?

4.2. *Research Approach*

This study adopts a Design Science Research approach. The goal is not only to describe an existing phenomenon but to build a useful classificatory artifact that can support both research and practice. The intended artifact is a typology that links valuation mechanisms to monetization mechanisms in free-to-play game economies.

The study also draws on the Nickerson, Varshney, and Muntermann taxonomy development method. This method is suitable because it allows the typology to be developed iteratively through

both conceptual reasoning and empirical observation. It also requires clear ending conditions, which helps ensure that the artifact is not arbitrary or overly open-ended [14].

4.3. Overall Design

The research is organized into three phases.

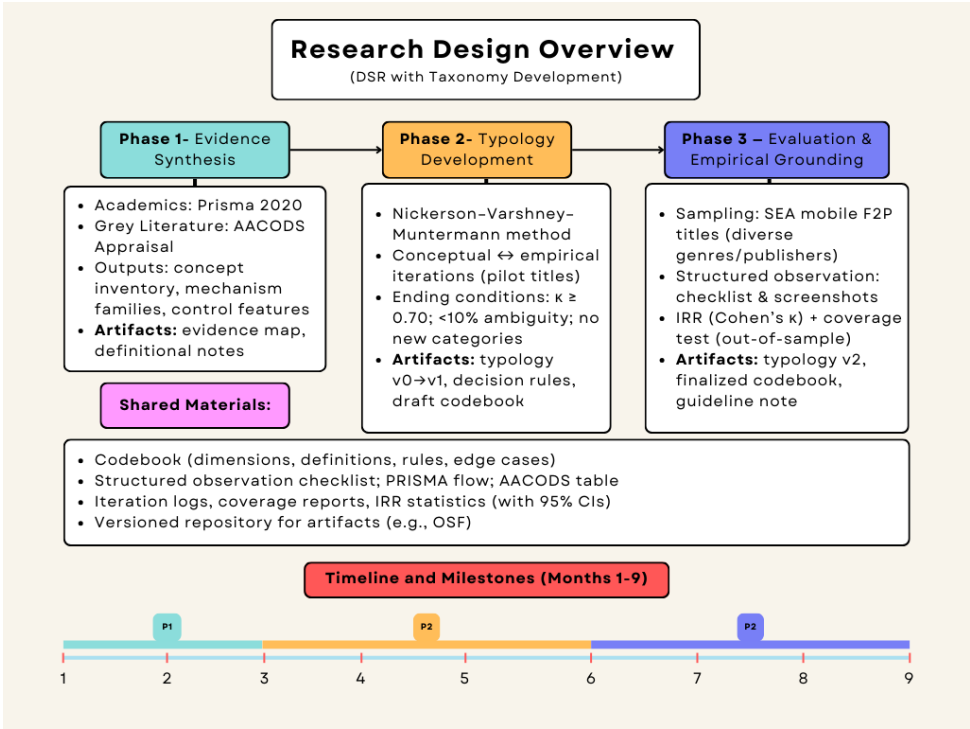


Figure 2. Three-phase Design Science Research process for building and evaluating the valuation-to-monetization typology.

Phase 1: Systematic Evidence Synthesis. The first phase identifies and synthesizes literature relevant to digital items, player value, monetization mechanisms, and free-to-play economies. Academic sources will be screened systematically, while selected grey or industry sources will be appraised cautiously because live-service monetization evolves quickly and practical insights often appear outside formal journals [15,16].

Phase 2: Typology Development. The second phase uses the evidence base from Phase 1 to develop the typology. Candidate dimensions and categories will first be proposed conceptually, then challenged and refined using observed game cases. This stage will produce a draft artifact, decision rules, and a working codebook.

Phase 3: Artifact Evaluation. The third phase evaluates the usefulness and reliability of the artifact through structured observation and comparative case analysis. Independent coders will apply the typology to a sample of free-to-play titles, and inter-rater agreement will be measured using Cohen’s kappa [17,18].

4.4. Unit of Analysis

The primary unit of analysis is the monetized digital item system within a free-to-play title. This includes both the item and the structure through which it is made valuable and purchasable. Examples include skins sold directly, characters acquired through gacha, pass-based reward tracks, consumable boosts, or time-limited bundles connected to event design.

4.5. Data Sources

The study will use two broad sources of evidence. First, academic literature from databases such as Scopus, ACM Digital Library, IEEE Xplore, and Google Scholar will provide theoretical and

empirical grounding. Second, selected grey and industry materials such as market reports, official monetization breakdowns, postmortems, and public system descriptions may be included when they contribute to understanding current monetization practices.

For the empirical phase, the study will focus on publicly observable features of live games, including official storefronts, event interfaces, reward systems, and publicly visible disclosures.

4.6. Structured Observation and Coding

A structured observation checklist will be used to document each title. The checklist will capture features such as item class, valuation attributes, monetization format, rarity structure, time limitation, premium currency use, pity or guarantee controls, ad-reward integration, bundle structure, and visibility and disclosure features [19–21].

Each title will then be coded against the draft typology. Disagreements between coders will be used to refine definitions and decision rules.

4.7. Reliability and Evaluation

Inter-rater reliability will be assessed using Cohen’s kappa. This is appropriate for nominal classification and helps determine whether the typology can be applied consistently by different coders [17,18].

Coverage and clarity will also be evaluated by applying the typology to out-of-sample titles. If frequent ad hoc categories are needed, or if coders repeatedly struggle with boundary cases, then the typology will require further refinement.

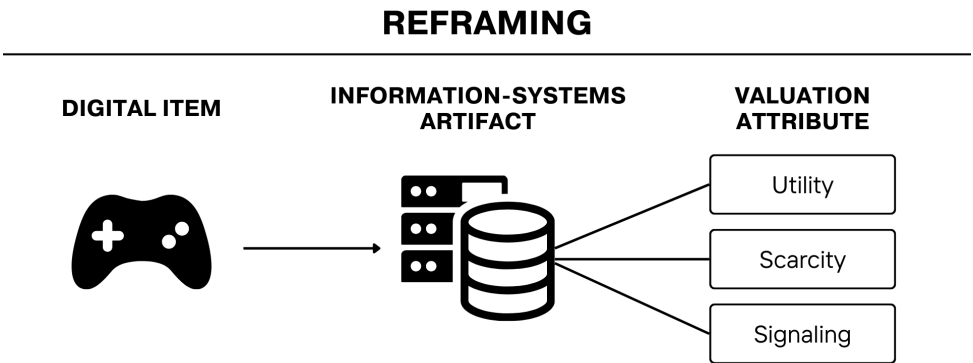


Figure 3. Valuation × monetization framework: digital items as information system artifacts.

4.8. Ethical Considerations

This study focuses on publicly observable product features and does not collect personal data from human participants at this stage. Because no direct participant data are being gathered in the design and observation phases described in this paper, ethical approval and participant consent were not required.

5. Results

As this paper presents an early-stage Design Science Research study, final empirical results are not yet available. However, several preliminary outcomes can already be identified.

First, the reviewed literature suggests that monetization in free-to-play economies should not be treated as a single-variable phenomenon. The same title often contains multiple monetization channels

that depend on different forms of player value. This supports the need for a typology that captures relationships rather than isolated tactics.

Second, the proposed artifact appears feasible within a Design Science Research framework because the domain already contains recurring dimensions. Prior work has repeatedly pointed to utility, aesthetics, signaling, scarcity, direct sale, randomized rewards, passes, and currency mediation as meaningful constructs [3,4,6,9]. The present study's task is not to invent these ideas from nothing, but to organize them into a coherent and evaluable structure.

Third, the Southeast Asian context strengthens the study because hybrid monetization systems are particularly common in mobile-first regional portfolios. This increases the practical value of a typology capable of describing combinations, dependencies, and recurring patterns.

The expected outputs of the full study are as follows:

1. A validated typology of valuation-to-monetization mechanisms.
2. A codebook with definitions, categories, and decision rules.
3. A structured observation protocol.
4. A coded sample of Southeast Asian free-to-play titles.
5. Reliability evidence demonstrating the typology's reproducibility.
6. A set of design implications for researchers and practitioners.

6. Discussion

This paper positions monetization not as a narrow business feature, but as a design problem embedded within information systems. When a game item is made scarce, visible, desirable, time-bound, or progression-relevant, it becomes more than an asset. It becomes part of a system for shaping willingness to pay. This system perspective is important because it helps explain why monetization debates often feel incomplete when they focus on only one feature at a time.

A loot box is not just a loot box. A skin is not just a skin. A battle pass is not just a subscription-like product. These mechanisms gain meaning from the wider design environment in which they are placed. Scarcity, prestige, uncertainty, timing, interface presentation, and reward structure all influence whether players interpret the system as exciting, fair, manipulative, rewarding, or exhausting.

For information systems research, this is significant because it reframes digital game economies as organized sociotechnical arrangements rather than merely entertainment content. The artifact proposed in this study aims to bring that arrangement into a form that is easier to compare, critique, and refine.

Practically, the typology may also help teams think more clearly about alignment. A monetization format may fail not because the mechanism itself is inherently weak, but because it does not match the kind of value the item is supposed to carry. A direct sale may work well for prestige cosmetics but poorly for randomized excitement-driven pulls. A battle pass may support long-term engagement but become bloated if its rewards lack meaningful perceived value. By mapping valuation against monetization, teams may be better able to diagnose such issues.

At the same time, this study has clear limits. It does not aim to estimate causal effects on revenue, retention, or welfare in this paper. It is a design-oriented and classificatory effort. The artifact may later support such studies, but it is not a substitute for behavioral experiments, revenue analytics, or player interviews.

7. Conclusions

This paper has presented the conceptual and methodological foundation for a Design Science Research study on valuation-to-monetization mechanisms in Southeast Asian free-to-play game economies. The study begins from the observation that digital items generate revenue not simply because they exist, but because they are embedded in designed systems that shape how players perceive value and how that value is transacted.

Existing scholarship provides many useful insights, but it remains fragmented across player motivation studies, monetization format studies, and ethical critiques. In response, this paper proposes a typology-oriented approach that reframes digital items as information system artifacts and links valuation attributes with monetization mechanisms.

The paper contributes by defining the research problem, reviewing the relevant literature, articulating the research questions, and outlining a three-phase Design Science Research methodology. The next stages of the larger study will complete the evidence synthesis, construct the typology through iterative development, and evaluate its reliability and usefulness through structured observation and comparative case analysis.

If successful, the resulting artifact will offer both a theoretical contribution to information systems research and a practical framework for analyzing monetization design in contemporary free-to-play economies.

Use of Artificial Intelligence: AI-assisted tools were used for language support during manuscript drafting. The author reviewed, revised, and takes full responsibility for the final content of the manuscript.

Conflicts of Interest: The author declares no conflicts of interest.

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