

“SWITCHED” APP: VALIDATING PRE-SEED READINESS OF A CAR-CULTURE  
MICROLEARNING APPLICATION UNDER VENTURE-BUILDER PLAYBOOK

by

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## LIST OF ABBREVIATIONS

ARPPU — Average Revenue Per Paying User

ARPU — Average Revenue Per User

ASC — Advantage Shopping Campaign (Meta Ads campaign type)

ASO — App Store Optimization

B2C — Business-to-Consumer

CAC — Customer Acquisition Cost

CAGR — Compound Annual Growth Rate

CAPI — Conversions API (Meta server-side event ingestion)

CBO — Campaign Budget Optimization (Meta Ads budget setting)

CPC — Cost Per Click

CPM — Cost Per Mille (cost per 1,000 impressions)

CPR — Cost Per Result

CTA — Call to Action

CTR — Click-Through Rate

DMV — Department of Motor Vehicles (United States driving authority)

EU — European Union

F1 — Formula 1 (international motor-racing championship)

KPI — Key Performance Indicator

LMS — Learning Management System

LP — Landing Page

LTV — Customer Lifetime Value

MVP — Minimum Viable Product

ROI — Return on Investment

SAM — Serviceable Available Market

SEO — Search Engine Optimization

SKU — Stock Keeping Unit

SOM — Serviceable Obtainable Market

T1 — Tier-1 markets (United States, United Kingdom, Canada, Australia, New Zealand)

TAM — Total Available Market

UGC — User-Generated Content

USD — United States Dollar

UTC — Coordinated Universal Time

UTM — Urchin Tracking Module (URL parameter)

VAMP — Visa Acquirer Monitoring Programme

## ABSTRACT

This thesis evaluates the pre-seed readiness of a mobile microlearning application for car culture, applying the venture-builder validation playbook codified by Ukrainian operators — specifically SKELAR and Genesis — to test whether a paying audience can be acquired profitably under a personal-savings budget. The methodology is selected because it represents the cheapest and fastest path to falsifiable signal: market research, idea selection, niche analysis, fake-door funnel testing with paid Meta acquisition, and upper-funnel analytics, executed in sequence, let a single founder generate decision-grade evidence on the order of weeks rather than quarters, and minimise sunk cost before any pre-seed capital commitment. The framework adopted here is the methodological backbone of the entire thesis and shapes every chapter that follows. The product, Switched, sits inside the established microlearning category — alongside Headway, Blinkist, and Brilliant — to inherit a proven monetisation pattern rather than prove a new behaviour. Desk research first maps two market layers: the car-knowledge and car-culture space, and the global microlearning category. Primary research adds creative analysis of 134 active ads from eight comparable apps in the Meta Ads Library, two expert interviews with venture-builder operators, a seventeen-step Vercel-hosted quiz funnel with a hard paywall, and five paid Meta campaigns across the five Tier-1 English-speaking markets. End-to-end conversion is tracked in Amplitude. The clean dataset (n = 960 unique funnel entries) shows that 17.3 percent of entries reach the paywall — at the upper end of category benchmarks — while only 4.2 percent click the paywall CTA, well below the 25–30 percent expected of mature content-subscription products. Static creatives outperform video, and the identity-coded first-screen headline (“Talk cars like you own the room”) outperforms the shame-coded variant (“Fix your car IQ. Shut their mouths”). The thesis concludes that the microlearning framing, the funnel topology, and the upper-funnel creatives are validated for the pre-seed iteration. The low paywall click-through is consistent with the test’s current constraints and is the highest-priority focus for the



next iteration. Recommendations and the venture-builder follow-on path are presented in the closing chapter.

## CHAPTER 1. INTRODUCTION

The cultural visibility of cars and motorsport has expanded substantially over the past decade. Formula 1, once a niche European championship, has become a mainstream entertainment product: its global fanbase reached 826.5 million viewers across the 2024 season, a twelve-percent year-on-year increase, according to Nielsen Sports data reported by SportsPro (SportsPro). Year-round engagement is further sustained by the Netflix documentary series *Formula 1: Drive to Survive*, which has run continuously since 2019. Adjacent disciplines — drifting, karting, rallycross, and amateur track days — have followed the same trend, supported by lower-cost entry vehicles, better-organised local communities, and a generation of car owners who are simultaneously buyers, builders, and content creators. Where the previous generation of enthusiasts read print magazines, the present audience reads, watches, and posts on YouTube, Reddit, and Instagram, with Threads emerging as a fast-growing channel. The migration is so complete that long-running enthusiast forums host explicit retrospectives on the loss of the print era; a long-running thread on the Autosport community forum titled "The Slow Death of Automobile Magazines" continues to gather reader discussions, with members recording both nostalgia for long-form journalism and pragmatic acceptance that most of what they used to read is now distributed on digital platforms ("Slow Death").

This visibility is not only cultural; it is economic. Drivers in Tier-1 markets — the United States, the United Kingdom, Canada, Australia, and New Zealand — are a high-disposable-income audience, and a meaningful portion of that audience extends spending well beyond routine maintenance into the specialty-equipment market: parts, accessories, and modifications chosen for performance, appearance, and customisation rather than necessity. In the United States alone, this enthusiast-driven specialty market — distinct from the much larger maintenance aftermarket of oil, brakes, tyres, and service parts — reached USD 52.65 billion in 2024, a one-percent year-on-year increase (SEMA). This figure isolates discretionary enthusiast spend: the consumer who chooses to invest in a vehicle as an expression of identity rather than purely for transport. The digital products serving this audience span a wide spectrum: deep practical content on one end (mechanic forums,

OEM service manuals, specialist do-it-yourself YouTube channels), a substantial middle of long-form video review and storytelling (channels such as Carwow, Doug DeMuro, Donut, Hagerty, and MotorTrend) that blends entertainment with informal education, and short-form social entertainment on the other end (Instagram reels, TikTok edits, meme accounts). What this landscape lacks, however, is a structured-microlearning layer — short, retention-driven lessons delivered in the format that has succeeded for general-knowledge apps such as Headway and Brilliant — that could turn a casually interested viewer into a confident participant in car culture.

This thesis began as an "edutainment" application for car enthusiasts. Early research signals were positive on the audience side but weak on the monetisation side, and the framing of the product proved difficult to defend against the question every venture-builder analyst eventually asks: which existing category does this fit into, and which proven monetisation playbook can it inherit? The answer arrived through an industry conversation with the CEO of an early-stage microlearning application within an EdTech group. The category, populated by applications including Headway, Blinkist, Imprint, Brilliant, MyGrowth, Nibble, and Deepstash, has unit economics, retention curves, and a creative playbook that are well understood inside the venture-builder ecosystem. Repositioning the product, *Switched*, as a microlearning application focused on car culture moved the entire research agenda onto firmer ground: the question shifted from "does this audience exist?" to "can this audience be acquired profitably under the standard microlearning playbook?".

The research problem this thesis addresses can therefore be stated precisely. The car-culture audience is large, visible, and disposable-income-positive; the microlearning category is a proven monetisation environment; no incumbent in that category serves the car-culture vertical; and it is unclear whether a paying audience for that combination can be acquired profitably under the standard content-subscription playbook — creative testing on Meta, hard-paywall quiz funnel, Tier-1 targeting — operating on the constrained budget available to a single founder.

The objectives of the present capstone are correspondingly defined. First, this study maps the market context for both the car-culture audience and the microlearning category, and identifies the

substitutes and competitive boundaries within which Switched would operate. Second, the study designs and runs a learning-cycle experiment using the playbook described by venture-builder operators: 134 competitor ads sourced from the Meta Ads Library are analysed, 21 original creatives are produced from the resulting concept patterns, a 17-step quiz funnel with a hard paywall is built on Vercel, and five paid Meta campaigns are launched into the five Tier-1 English-speaking markets. Third, the study integrates end-to-end conversion data from Amplitude with creative-level performance data from the Meta Ads Manager to evaluate whether the funnel topology and the upper-funnel creatives meet category benchmarks. Fourth, the study assesses what would have to be true for the unit economics to close under stated assumptions, and identifies the specific next experiments required to either reach that point or invalidate the thesis.

The remainder of the document follows the analytical chain implied by these objectives. Chapter 2 describes the research design, data sources, methods, tools, initial persona, and ethical limitations. Chapter 3 presents the market and user analyses and the synthesised key findings. Chapter 4 articulates the solution direction and the business model, including three-scenario unit-economics sensitivity. Chapter 5 evaluates the addressable market, documents the implementation cycles in detail, and lays out the post-launch analysis and roadmap. Chapter 6 records the thesis's conclusions, limitations, and implications for further work.

## CHAPTER 2. RESEARCH DESIGN AND METHODOLOGY

This chapter sets out the research design that frames the analytical and empirical work in the chapters that follow. Section 2.1 states the research objectives and the falsifiable hypotheses. Section 2.2 inventories the primary and secondary data sources. Section 2.3 describes the methods. Section 2.4 documents the tools and technical stack. Section 2.5 records the initial user persona drafted before research. Section 2.6 names the ethical considerations and the most consequential limitations of the design.

### 2.1 RESEARCH OBJECTIVES AND HYPOTHESES

The central research question of this thesis is whether a paying audience for a car-culture microlearning application can be acquired profitably under the standard content-subscription playbook described in Chapter 1, using a personal-savings budget as the operating constraint. The research is organised around five falsifiable hypotheses, against which the experimental work in Chapter 5 is evaluated.

**H1.** Microlearning is the correct category frame for Switched, in that the subscription mechanics, retention curves, and creative grammars of the established microlearning category transfer to a car-culture vertical without measurable performance loss.

**H2.** A paying audience for car-culture microlearning exists at adequate scale in Tier-1 English-speaking markets to support an early-stage subscription business.

**H3.** The standard quiz-onboarding-plus-hard-paywall funnel achieves at or near category benchmarks on conversion from entry through paywall view, when applied to a car-culture proposition with no prior brand awareness.

**H4.** The creative concept patterns identifiable in the Meta advertising of mature microlearning applications are transferable, and adapted versions of these concepts perform at competitive cost-per-result when redeployed for a car-culture audience.

**H5.** A budget at the scale of a single founder's savings is sufficient to generate signal of adequate quality to support the next-iteration go-or-no-go decision, although insufficient to declare unit-economics validation.

## **2.2 DATA SOURCES**

The study draws on primary and secondary data. The primary sources are: 134 active competitor advertisements collected from the Meta Ads Library across eight comparable microlearning applications (Headway, Blinkist, Imprint, Brilliant, MyGrowth, Nibble, Deepstash, and one comparator operating in the adjacent driver-licence-test niche); three expert sources from the Ukrainian venture-builder ecosystem — an interview with the CEO of an early-stage microlearning application within an EdTech group (anonymous by source preference); an interview with Igor Kotyrlo, Chief Executive Officer of Agen, an early-stage venture inside the SKELAR ecosystem (insights paraphrased in this thesis per company-confidentiality terms governing transcript reproduction; see Section 2.6 and Appendix E); and the Tier-1 funnel benchmarks shared in personal communication by Yehor Vorobiov, Head of Marketing at SKELAR; in-funnel event analytics collected through Amplitude across a seventeen-step quiz funnel hosted on Vercel; and the Meta Ads Manager export covering five paid campaigns. Secondary sources comprise the Specialty Equipment Market Association 2025 Market Report (SEMA), Nielsen Sports' Formula 1 viewership data reported by SportsPro, eLearning Industry's published microlearning market statistics for 2025, the official websites and App Store listings of the eight comparator applications (including pricing tiers), and additional published market reporting consulted in Chapter 3.1.

## **2.3 METHODS**

The methods deployed correspond to the data sources. Desk research summarises the structure, scale, and growth trajectory of both market layers — the car-culture audience and the global microlearning category. Creative-pattern analysis was performed on a single Figma board on which the 134 competitor advertisements were imported, annotated, and clustered into ten concept families (see Chapter 5.2.1, Table 5.2). Expert interviews were conducted as semi-structured conversations focused on operating playbooks, funnel benchmarks, and pricing conventions, recorded with consent and processed into structured notes. Funnel construction and an A/B test on the first-screen headline were operationalised as experimental treatments, with the funnel hosted on Vercel and event-tracked end-to-end in Amplitude. Paid acquisition experiments followed a five-campaign optimisation ladder — Click → Checkout → Lead — on Meta, with creatives split between static and video formats, and audiences split between two first-screen headline variants designated qhl2 and qhl4. All decisions, treatments, and outcomes are documented in Chapter 5.

## **2.4 TOOLS AND TECHNICAL STACK**

Creative production used four tools. Figma served as the pattern board and the working file for static-creative iteration. OpenAI's ChatGPT Image 2.0 model and Google's Gemini Image generated still images: a subset of these were used directly as static advertisements, while another subset was animated in Kling 2.0 to produce video advertisements. HeyGen produced additional video advertisements with AI-presenter scripts in the user-generated-content style. The funnel itself was developed as a Next.js and React application, with the design system produced in Anthropic's Claude Design and the implementation assisted by Claude Code; the application was deployed on the free tier of Vercel for fast iteration on quiz screens and the hard paywall. Event-level analytics were

captured in Amplitude across all seventeen funnel steps. The paid-acquisition layer used Meta's Business Portfolio with the Advantage Shopping Campaign (ASC) format, Campaign Budget Optimization (CBO), the Conversions API for server-side event ingestion, and a dedicated Meta dataset for pixel learning. A consolidated naming convention for campaigns and ad sets — by which the date, optimisation target, creative type, and audience-variant of every test can be reconstructed from the campaign name alone — is provided in Appendix B. The live quiz funnel used in the experiment was deployed at [https://switched-pro.vercel.app/?utm\\_ad=swchd\\_ghl\\_2](https://switched-pro.vercel.app/?utm_ad=swchd_ghl_2) and used in all five paid Meta campaigns.

## **2.5 INITIAL USER PERSONA**

Before primary research was conducted, a preliminary user persona was drafted to guide creative production and audience-targeting decisions. The persona was defined as a male car enthusiast aged 25–55 living in a Tier-1 English-speaking market — the United States, the United Kingdom, Canada, Australia, or New Zealand — accustomed to paying for mobile applications, comfortable with English-language content, and engaged with car content on social media or video platforms. The persona was treated as an assumption to be tested, not a finding. The refined post-research persona derived from the Amplitude demographic split and the Meta audience-quality signal is presented in Chapter 3.2, Table 3.2.

## **2.6 ETHICAL CONSIDERATIONS AND LIMITATIONS**

Three ethical considerations and three methodological limitations bound the conclusions of this study.

On the ethical side, no real payments were collected at any point in the experiment, in keeping with the fake-door convention used at the equivalent stage by venture-builder operators (Kotyrlo);



the paywall presented a confirmation step and ended at a "Thank you" screen with an optional feedback field, so that no card details were captured and no chargeback exposure was created. The interview with Igor Kotyrlo is treated under the source's stated confidentiality terms: insights are paraphrased in this thesis and the transcript is not reproduced; the same applies in Appendix E. The conversation with the CEO of the early-stage microlearning application within an EdTech group is treated as a personal communication and attributed anonymously, in line with the source's preference. The benchmarks shared by Yehor Vorobiov are cited as a personal communication and attributed by name, in line with the consent given.

On the methodological side, three limitations apply. First, sample sizes at the deepest funnel events are small — seven paywall CTA clicks across 960 unique entries — and conclusions about post-paywall behaviour are correspondingly directional rather than definitive. Second, a 33-hour regression disabled the call-to-action button at the *pain* step between 12:00 UTC on 1 May 2026 and 21:00 UTC on 2 May 2026; this study therefore adopts a two-window analytical approach in which full-period data is used for upper-funnel events (welcome through *pain*) and Meta-side metrics (impressions, clicks, click-through rate, cost per click, cost per mille), which the bug did not affect, while an hour-precise clean cut is used for events at *car* and below. The bug, its detection, and the exclusion methodology are addressed in detail in Chapter 5 and the data-quality appendix. Third, no paywall-to-purchase conversion rate is available from this iteration, because no real payment processor was integrated; the unit-economics scenarios in Chapter 4.2 therefore use externally benchmarked conversion ranges rather than measured values.

## CHAPTER 3. MARKET, USER, AND STAKEHOLDER ANALYSIS

This chapter applies the research design described in Chapter 2 to the market and audience in which Switched would operate. Section 3.1 maps the microlearning category, its incumbents, the substitutes consumers use today, the trends that frame consumer expectations, and the structural barriers that any new entrant must navigate. Section 3.2 presents the user and stakeholder analysis, integrating in-funnel demographic evidence with the pre-research persona drafted in Chapter 2.5. Section 3.3 synthesises the findings of the two preceding sections into a small set of high-impact insights and an explicit list of validated and invalidated assumptions.

### 3.1 MARKET AND SYSTEM ANALYSIS

This section maps the market in which Switched would compete. It addresses six topics in turn: the size and growth of the global microlearning market, the public-scale signal from listed and private competitors, a competitor landscape table covering eight reference applications, the substitutes that consumers use today for car-related content, four industry trends that operate as design constraints, and the structural barriers that constrain any new entrant. The section closes with a competitor quadrant map that locates Switched in the unoccupied space.

**Market size and growth.** The global microlearning market has been measured by two independent research firms during 2023–2024, using different scopes that explain the spread between their headline figures. eLearning Industry, drawing on aggregated industry data, reports a 2024 market value of USD 1.55 billion with a projected 13.5 percent compound annual growth rate through 2034 ("Microlearning Statistics"). Meticulous Research, in a December 2024 industry brief distributed via GlobeNewswire, reports a 2023 market of USD 3.4 billion and projects USD 7.9 billion by 2030, implying a 12.5 percent CAGR ("Microlearning Strategic Industry Report"). The two estimates differ chiefly in scope — eLearning Industry skews toward the consumer-subscription segment, while Meticulous Research includes enterprise learning-management deployments — but

they agree on the directional point relevant to this thesis: the category is compounding in low double digits with proven economics, and the consumer-subscription segment within it is sizeable and growing.

The category's strongest public-market signal comes from Duolingo, the only listed pure-play in the broader gamified-learning space. According to Duolingo's annual report filed with the U.S. Securities and Exchange Commission for fiscal year 2024, the company generated USD 748 million in revenue — a forty-one percent year-on-year increase — with 40.5 million daily active users, 116.7 million monthly active users, and 9.5 million paying subscribers (Duolingo). These figures describe a single product reaching public-market scale on the same gamified-mobile-subscription mechanics that the rest of the microlearning category has adopted, and they materially de-risk H1 of this thesis: the playbook works at scale, in the public markets, against a product taxonomy adjacent to Switched's.

**Competitor landscape.** Eight applications are treated as direct or indirect competitors in this study. They are summarised in Table 3.1 by positioning, content vertical, public scale signal, and 2026 monthly and annual subscription pricing in USD. Several private competitors (Imprint, MyGrowth, Nibble, Deepstash) have only limited public financial data; their inclusion is on the basis of category fit and product mechanic rather than measured revenue.

**Table 3.1.** *Microlearning Competitor Comparison Matrix (May 2026)*

| Application | Positioning / Hook               | Vertical                                   | Public Scale Signal                                                 | Monthly USD | Annual USD |
|-------------|----------------------------------|--------------------------------------------|---------------------------------------------------------------------|-------------|------------|
| Headway     | "Daily microlearning from books" | Personal development, nonfiction summaries | 50M+ cumulative downloads; 24M+ MAU                                 | 14.99       | 89.99      |
| Blinkist    | "Big ideas in 15 minutes"        | Nonfiction summaries                       | EUR 53M revenue (2022); ~1M paying users; acquired by Go1, May 2023 | 15.99       | 99.99      |
| Brilliant   | "Learn STEM interactively"       | STEM and problem-                          | USD 92.6M total funding                                             | 27.99       | 161.88     |

|           |                                             |                                        |                                                                   |                   |              |
|-----------|---------------------------------------------|----------------------------------------|-------------------------------------------------------------------|-------------------|--------------|
|           |                                             | solving                                | (Series C, since 2013)                                            |                   |              |
| Duolingo  | "Free language learning that works"         | Languages, math, music                 | USD 748M revenue (FY 2024); 9.5M paying subscribers; NASDAQ:D UOL | 12.99             | 83.99        |
| Imprint   | "Visual microlearning "                     | Philosophy, psychology, finance        | Private; no public scale data                                     | n/a (annual only) | 87.49–124.99 |
| MyGrowth  | "Daily micro-learning across disciplines"   | Arts, history, biology, psychology     | Private; no public scale data                                     | 24.99             | 69.99        |
| Nibble    | "Your bite of knowledge"                    | STEM and humanities (400+ lessons)     | Private; no public scale data                                     | 11.99             | 49.99        |
| Deepstash | "Replace doomscrolling with microlearning " | Curated insights, personal development | Private; no public scale data                                     | 12.99             | 29.99        |

*Source: Compiled by the author from corporate disclosures (Duolingo SEC 10-K), the Go1–Blinkist acquisition press release, Crunchbase (Brilliant funding history), and the official websites and Apple App Store listings of each application (accessed May 2026). Pricing reflects the standard US-visible subscription tier on the date of access; promotional and regional variation is not exhaustively captured.*

The pricing distribution clusters around USD 12–16 monthly and USD 70–100 annually for the consumer-microlearning median, with Brilliant (USD 27.99 monthly, USD 161.88 annual) sitting at the premium end and Deepstash (USD 12.99 monthly, USD 29.99 annual) at the discount end. The cluster is consistent with what is sometimes referred to as the Netflix-effect on consumer-subscription pricing: monthly prices materially above approximately USD 10 — the long-running anchor set by mainstream streaming services — require explicit value justification on the paywall, and most

microlearning incumbents sit at or just above that anchor rather than well above it. The implications of this distribution for Switched's pricing decision — and in particular the need to settle in the median rather than at either extreme — are addressed in Chapter 4.2.

**Substitutes.** The functional substitutes for Switched fall into three layers, sketched briefly in Chapter 1 and developed here. The first layer is mainstream video on YouTube, which is itself heterogeneous: broad-audience review and entertainment channels (Carwow at approximately 10.9 million subscribers as of May 2026, Donut Media at 9.3 million, MotorTrend at 7.0 million, Doug DeMuro at 5.1 million, Hagerty at 3.5 million); explanatory and engineering-deep channels such as Engineering Explained (4.2 million) and Savagegeese (under one million but high-engagement); and head-to-head review formats such as Throttle House (3.4 million). All of these are confirmed actively publishing in 2025–2026 (HypeAuditor; Social Blade). The second layer is interest-based community media: Reddit communities such as r/cars, r/formula1, r/cartalk, and r/projectcar, alongside large brand-specific enthusiast forums — BimmerForums for BMW (over 800,000 registered members), RennList for Porsche (over 360,000 registered users), Mustang6G, S2KI, and Honda-Tech, all of which were active in 2025–2026 (BimmerForums; RennList). The third layer is the print-and-magazine business in long-term contraction. Road & Track, founded in the 1940s, reached a monthly circulation of approximately 758,600 at its 1980s peak and was the de-facto reference of record for road tests, racing results, and new-model coverage before the migration of editorial attention to digital ("Road & Track"); the contemporary print-and-magazine business is dominated by Hagerty's media division and a small number of legacy titles that have shifted most distribution to digital. None of these substitutes offers structured, retention-driven, identity-coded microlearning. Substitution against Switched is therefore most likely to come from the consumer's existing time-and-attention budget rather than from a directly competing format.

**Industry trends.** Two trends — one specific to the microlearning category, one specific to the car-culture domain — frame the period of this study and operate as design constraints for any new entrant.

The first is gamification-driven retention, which has moved from a feature to a category default in microlearning. A 2025 Harvard Business School case study on Duolingo documents a fourteen-percent uplift in day-fourteen user retention from streak-wager mechanics alone, a doubling of the company's "power user" share from 20 percent to over 30 percent, and a churn reduction from 47 percent to 37 percent following Duolingo's 2022 gamification overhaul (Rayport and Tempest Keller). Streaks, leaderboards, daily quests, and identity-flavoured progression are no longer differentiators in this category; their absence is now a deficit, and any product entering the category must build retention mechanics into its first iteration rather than treat them as a later feature.

The second is the cultural-attention-on-cars wave, the size of which is documented in three independent indicators. Formula 1's global fanbase reached 826.5 million viewers across the 2024 season, a twelve-percent year-on-year increase (SportsPro). United States consumers spent USD 52.65 billion on enthusiast-specialty automotive parts and equipment in 2024 (SEMA). Formula DRIFT, the largest professional drift series in North America, reported its 2025 season as the most successful in its twenty-two-year history "in terms of spectator attendance, audience viewership and fan engagement" ("Formula DRIFT 2025"). Together these indicators describe a tailwind: a large, attentive, spending audience that is increasingly engaged with car culture as both consumers and participants and that is reachable on mobile.

**Market structure and barriers.** Three structural barriers apply to any new entrant. The first is the cost of paid acquisition on Meta, which is the dominant performance channel for early-stage consumer-subscription apps and which is increasingly priced as an auction in which the largest spenders set the clearing price. The second is the gatekeeping rules of the Apple App Store and Google Play, which include subscription-policy compliance, content-moderation review, and a fifteen- to thirty-percent platform fee on subscription revenue. The third is the payment-processor compliance regime — in particular Visa's Acquirer Monitoring Programme (VAMP), which entered enforcement on 1 October 2025 with per-transaction fees applied to acquirers whose merchants exceed defined dispute thresholds (Visa). Industry coverage of VAMP's effect on subscription funnels

documents that the historical low-friction trial model (a USD 1 introductory charge converting to a full-price renewal after seven to fourteen days) has been progressively disincentivised by the dispute risk associated with sharp price step-ups, since customers who forget the trial frequently dispute the renewal charge (CatalystPay). These compliance pressures, also discussed in a venture-builder operator interview (Kotyrlo), are returned to in Chapter 4.2.

**Quadrant placement.** Figure 3.1 plots the eight competitors and the substitute layers on two axes: vertical depth, measuring the breadth versus specialisation of the content domain, and audience breadth, measuring the size of the addressable consumer audience from niche enthusiast to broad consumer. Microlearning incumbents cluster in the upper-right quadrant — broad audiences on broadly applicable content domains. The YouTube substitute layer is itself heterogeneous: broad-audience review-and-entertainment channels (Carwow, Donut, MotorTrend) sit in the upper-mid range on both axes; explanatory and engineering-deep channels (Engineering Explained, Savagegeese) sit lower on audience breadth and deeper on the vertical axis; brand-specific enthusiast forums (BimmerForums, RennList) occupy the lower-left, narrow-and-deep. Switched is plotted in the lower-right whitespace: a broad-audience subscription product on a deeply vertical content domain. The quadrant makes the whitespace argument explicit: the gap exists not because the audience is too small but because no existing product applies the proven microlearning playbook to a culturally specific, identity-coded content domain.



**Fig. 3.1.** *Microlearning Competitor Quadrant Map — Vertical Depth × Audience Breadth. Source: Author's illustration based on the competitor and substitute landscape developed above.*

### 3.2 USER AND STAKEHOLDER ANALYSIS

This section integrates the pre-research persona drafted in Chapter 2.5 with empirical evidence collected during the paid-acquisition experiment described in Chapter 5. Three caveats apply throughout. First, the demographic split available from the Meta Ads Manager — gender and age — covers a single sample window of  $n = 61$  users who reached the funnel's Checkout-screen event, which is too small to be representative. Second, the audience acquired against the Click, Checkout, and Lead optimisation events used in this study typically differs in quality from the audience that a purchase-optimised campaign would acquire (Kotyrlo). Third, although the broader funnel dataset has been hour-precise-cut around the 33-hour broken-button window, the demographic sample discussed here is naturally clean: the bug suppressed all events past the *pain* step (the onboarding screen on which the user is asked to identify their primary pain points), so the Checkout-screen events on which the demographic split is based almost entirely fired outside the broken window by construction. The patterns below are therefore treated as directional hypotheses for the next iteration to confirm, not as final findings.

**Primary segment — male enthusiast, 35+, Tier-1 markets.** The Meta demographic breakdown of users who reached the Checkout-screen event shows that 97 percent are male; the female sub-sample ( $n = 2$ ) is too small to permit any age- or geography-level inference about women from this dataset alone, and is treated separately under the Underserved-audience hypothesis below. Within the male sub-sample, approximately half are 35 years or older, with eighteen of the 35+ users above 55. This describes a primary segment that is older than the original pre-research persona assumed. The 35+ skew is also consistent with industry practice in the venture-builder ecosystem, where mature consumer-subscription products are typically targeted at audiences over 35 on the basis



that this cohort exhibits the highest willingness and ability to pay for non-essential digital products (Kotyrlo). The Tier-1-market assumption is corroborated by the Amplitude country-of-entry breakdown over the broader paid-acquisition window: the United States contributed the largest entry volume by a significant margin, followed by the United Kingdom, Canada, Australia, and New Zealand in approximately that order, with the four non-US markets together contributing roughly the same volume as the United States alone (Section 5.2.9, Table 5.4). A device-side signal points in the same direction. iPad — a form factor that skews older and higher-income — converted entries to paywall-CTA clicks at 1.12 percent, more than twice the cross-device average. Desktop traffic (Windows, Mac, Linux) converted at zero in the same window, but this last figure is confounded by the funnel's mobile-first design: the user experience on desktop has not been explicitly optimised, and the zero-conversion result should be read as evidence that desktop is a low-priority segment for the current iteration rather than as evidence that desktop users are uninterested. The iPad sample is small ( $n = 89$  entries) and its conclusion is therefore directional, but the direction is consistent with the older, higher-disposable-income persona implied by the demographic and country data.

**Secondary segment — male enthusiast under 35.** The remaining half of the male sub-sample falls in the 18–34 age range, the lower bound being set by the Meta Ads platform's minimum-age targeting policy. This segment is more ad-receptive on the upper-funnel metrics (Meta-side click-through rate is typically higher for younger audiences) but, according to the venture-builder operator interview, has historically been less reliable as a paying audience for non-essential subscription content (Kotyrlo). The single-source attribution here is acknowledged; the present thesis treats the lower-pay-rate pattern as a working hypothesis to be tested against a purchase-optimised campaign in the next iteration. The presence of this segment in the paid-acquisition sample at meaningful volume validates the upper-funnel concept work but does not validate purchase intent for the same cohort.

**Underserved-audience hypothesis — women.** The 97 percent male share of the paid-acquisition sample is striking, but it should not be read as evidence that female demand for car-culture

microlearning is absent. Two external reference points argue against that reading. First, the gender composition of the broader car-and-motorsport audience has shifted substantially over the past decade. Formula 1's global fanbase reached approximately 41 percent female by 2024, according to Nielsen Sports data reported by BlackBook Motorsport (BlackBook Motorsport), and Formula 1's own 2025 Global Fan Survey reports that women now account for a substantial share of newly-engaged fans (Formula One World Championship Limited). NASCAR's audience is also 41 percent female, comparable to the major North American team-sport audiences (YouGov). Second, in the adjacent consumer-subscription categories that share Switched's monetisation mechanics, women are not under-paying. A peer-reviewed cross-sectional survey of 12,151 paid subscribers of Calm — a meditation and self-improvement subscription — found that approximately 80 percent identified as female (Huberty et al.), consistent with the broader pattern that female users have meaningful paid engagement in self-improvement subscription apps.

A more defensible reading of the 97 percent male share in the present sample is therefore that it reflects how the advertising and the funnel were designed in this iteration rather than the underlying demand structure. The advertising creatives used in the experiment were adapted from generic car-culture and microlearning patterns observed in competitor advertising on the Meta Ads Library; none of them was specifically personalised for a female audience. The funnel's first-screen headline that won the A/B test, "Talk cars like you own the room", is itself identity-coded and reads as a masculine social-confidence prompt. The paid sample was therefore filtered through two layers — generic, non-female-personalised advertising at the top of the funnel, and a male-coded first-screen headline immediately inside it — without a female-coded message ever appearing in the audience's path. Switched accordingly identifies female car-curious adults as a hypothesis-worthy underserved audience for the next iteration. Creative work addressed specifically to women — with advertisements, hooks, and funnel copy that read as built for women, rather than as a male default with female accommodation — is identified in Chapter 5.3 as a candidate next-iteration experiment of distinct strategic interest, alongside the paywall and pricing experiments listed there.

**Behavioural patterns.** Across both segments, three behavioural patterns recur and converge on a small set of repeated themes. The first is doomscrolling fatigue: the Switched advertising creatives that performed best in the experiment ("Replace doomscrolling with addictive car learning"; "POV: how it feels getting addicted to this car culture game instead of doomscrolling") explicitly position the product as a substitute for compulsive social-media scrolling, and the cost-per-result on these creatives confirms the audience hook. The second is attraction to the five-minute-explainer format — the same format used by Headway, Blinkist, and Imprint — which addresses three reinforcing characteristics of the modern adult learner at once: a shortened attention span, limited windows of free time inside the working day, and a preference for low-friction entry points into a new subject. The third is willingness to pay for emotional or identity value rather than for narrowly utilitarian information: Headway markets to "be the most interesting person in the room"; Switched's qhl2 first-screen headline that won the funnel A/B test ("Talk cars like you own the room") trades on the same identity logic.

**Pain points (working hypothesis).** The pain points implied by the behavioural patterns above are presented as a working hypothesis rather than a validated finding, since they are inferred from creative-performance data and persona logic rather than from direct user research. Three pains are hypothesised. First, that most car-curious adults perceive a knowledge gap between themselves and the visible enthusiast community they consume on YouTube, on Reddit, and at meetups. Second, that they experience social anxiety in conversations with people who are deeper in the subject. Third, that they have no entry-level path into the culture that fits inside the time and money constraints of an ordinary mid-career adult: the existing options are either deep practical content that assumes prior knowledge, or surface entertainment that does not build it. Direct validation through user interviews and surveys is identified in Chapter 5.3 as a near-term task; the three hypothesised pains are nonetheless used as the working axis on which Switched's content brief in Chapter 4.1 is organised.

**Stakeholders.** Five stakeholder groups outside the user affect the viability of Switched. The first is the car-content creator ecosystem on YouTube and Instagram — the channels named in

Chapter 3.1 plus the long tail of mid-sized creators — who are potential collaborators for content licensing, distribution, or co-marketing once the product reaches credible scale. The second is the motorsport-and-events ecosystem: Formula 1, Formula DRIFT, national karting federations, and major car-meetup organisers, all of whom serve as potential brand-partnership and content-source partners. The third is driving schools and adjacent training organisations, which represent both a content-source partnership opportunity (for the basic-driving-skills chapter Switched intends to ship as a foundational module) and a potential distribution channel into a captive audience of new and aspiring drivers. The fourth is the platform ecosystem. In its first iteration the product is web-hosted on Vercel and is therefore exposed primarily to web-payment-processor rules; if and when the product migrates to native iOS or Android applications, the Apple App Store and Google Play subscription policies and platform fees (fifteen to thirty percent of subscription revenue) will apply. The fifth is the payment-processor regime, principally Visa and Mastercard, whose VAMP-driven dispute monitoring constrains pricing experiments and trial structures, as discussed in Chapter 3.1.

**Persona update.** Table 3.2 records the three personas the rest of the thesis uses: the primary and secondary personas observed in the paid-acquisition sample, and the tertiary underserved-audience hypothesis introduced above. The pre-research persona drafted in Chapter 2.5 is the comparison baseline; its evolution into the post-research personas is documented in the prose above and is not re-tabulated here.

**Table 3.2.** *User Personas — Post-Research and Hypothesised (May 2026)*

| Attribute | Primary persona — Older Enthusiast        | Secondary persona — Younger Aspirant | Tertiary persona (hypothesis) — Underserved Female Audience                                                     |
|-----------|-------------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Age range | 35+ (with strong representation above 55) | 18–34                                | Hypothesised broad; closest reference cohorts (F1 female fanbase; Calm paid subscribers) suggest a 25–45 anchor |
| Gender    | Male                                      | Male                                 | Female                                                                                                          |

|                                   |                                                                                                 |                                                                                    |                                                                                                                                               |
|-----------------------------------|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Geography                         | Tier-1 English-speaking                                                                         | Tier-1 English-speaking                                                            | Tier-1 English-speaking; not yet measured for this audience                                                                                   |
| Occupation                        | Mid-career professional                                                                         | Early-career professional or student                                               | Mixed; over-indexes in self-improvement-app categories (Calm reference)                                                                       |
| Engagement with car content       | Regular long-form YouTube (Carwow, Donut, Hagerty); occasional Reddit; Formula 1 weekend viewer | Heavily engaged with Formula 1; active on TikTok and Instagram; occasional YouTube | Likely entered car-and-motorsport interest via Formula 1 or Drive to Survive; not yet served by predominantly male-coded car-content channels |
| Spend on cars                     | Active in the SEMA-tracked specialty market (parts, accessories, modifications)                 | Aspirational; budget-constrained but willing to pay for digital products           | Not yet measured for this audience; SEMA does not publicly disclose a gender split                                                            |
| Primary pain (working hypothesis) | Knowledge gap; social anxiety in deeper conversations; no time for long-form content            | Wants to talk cars confidently with peers; feels late to the culture               | Lack of car-culture media that reads as built for women rather than as a male default with female accommodation                               |
| Likely device                     | iPad or iPhone                                                                                  | iPhone or Android                                                                  | Not yet measured; assumed mobile-first                                                                                                        |
| Hook that won the funnel A/B test | "Talk cars like you own the room" (qhl2)                                                        | Same                                                                               | Not tested in this iteration; female-targeted creative concepts identified in Chapter 5.3 as a candidate next-iteration experiment            |

*Source: Compiled by the author from the paid-acquisition demographic sample (n = 61 Checkout-event users on Meta), the Amplitude country-of-entry and device-of-entry breakdowns (Tables 5.4 and 5.5 in Chapter 5.2), the F1 and NASCAR audience-gender data (BlackBook Motorsport; YouGov), the Calm paid-subscriber composition (Huberty et al.), and the pre-research persona drafted in Chapter 2.5.*

**Limits of the empirical evidence.** The table is presented as a working hypothesis, not a final finding. The demographic sample is small ( $n = 61$ ), captured against a single optimisation event, and acquired in a single creative-corpus window; the next iteration of the experiment, with a purchase-optimised objective and an enlarged sample, is the test that would either confirm or invalidate this persona. The thesis treats the persona as the working brief for Chapter 4.1 and Chapter 5.3 without overstating its evidential weight.

### 3.3 KEY FINDINGS AND INSIGHTS

This section synthesises the analytical results of Sections 3.1 and 3.2 into a limited set of high-impact insights and into an explicit account of which assumptions from Chapter 2.1 are supported, partially supported, or invalidated by the evidence collected so far. Each insight is referenced by the chapters that develop it further.

**Insight 1 — Microlearning, not edutainment, is the right category frame, and the whitespace inside it is real.** The framing pivot described in Chapter 1 is supported by both market and operational evidence. The microlearning category is large and compounding (eLearning Industry; Meticulous Research), and it has a public-market reference product (Duolingo, USD 748 million revenue in fiscal year 2024 with 9.5 million paying subscribers) that proves the gamified-mobile-subscription playbook at scale (Duolingo). Inside that category, no application in the competitor matrix in Table 3.1 occupies the car-culture content domain; the substitute layer — long-form YouTube channels, Reddit communities, brand-specific forums — does not use the microlearning format. The whitespace identified in Figure 3.1 is therefore real, not residual, and is the load-bearing positioning decision for the rest of the thesis.

**Insight 2 — The funnel topology is validated up to paywall view.** Of 960 unique funnel entries in the clean Amplitude dataset, 17.3 percent reached the paywall view. This rate sits at the upper end of category benchmarks for content-subscription onboarding flows, where entry-to-paywall

reach of approximately 17 to 24 percent is reported by Tier-1 venture-builder operators (Vorobiov). Mid-funnel step-to-step conversion is in the 88 to 98 percent range, which is normal for quiz-onboarding products. The seventeen-step structure of the funnel is therefore not the bottleneck.

**Insight 3 — The paywall is the universal bottleneck of the present iteration, but the measured rate is consistent with the test's constraints.** Across the 166 paywall views in the clean dataset, only 7 reached the paywall CTA click — a 4.2 percent rate, well below the 25 to 30 percent expected of mature content-subscription products (Vorobiov). The low rate is, however, consistent with three constraints of the present test: single-digit paywall CTA clicks, which is statistically thin; campaigns optimised for upper-funnel events (Click, Checkout, Lead) rather than for purchases, which typically acquire audiences with weaker downstream intent (Kotyrlo); and a Meta pixel that requires more spend before its audience-quality signal stabilises. The experiment that would disentangle a real product-or-copy issue from these test-design constraints — a paywall A/B test run with a purchase-optimised campaign objective and a larger sample — is outside the scope of this thesis and is identified in Chapter 5.3 as a post-capstone follow-up. Until that test runs, the paywall is treated as a hypothesis, not as a confirmed defect.

**Insight 4 — Two creative findings carry into the next-iteration brief.** First, static formats won the largest share of spend on this corpus: of the highest-performing creatives at the Checkout-event level, two were static (packs 5\_5 and 7\_3) and one was video (pack 13\_1, which produced the lowest cost-per-Checkout figure in the corpus on a small but striking sample). The result is sample-size-limited and corpus-specific. Static formats are preserved as the default in the next-iteration brief, but the video corpus showed promising signal of its own and may reach a meaningfully different audience with different behavioural patterns; the next iteration accordingly maintains both formats — static-led, video-supported — rather than dropping video, in line with the standard practice of diversifying creative-format risk. Second, the qhl2 funnel first-screen headline ("Talk cars like you own the room") outperformed qhl4 ("Fix your car IQ. Shut their mouths") across most spend

allocations: the identity-flavoured invitation beat the shame-flavoured corrective. Both findings carry into the creative-format and copy direction proposed in Chapter 5.3.

**Insight 5 — The audience composition observed is a function of how the funnel was targeted, not of the underlying market.** The paid-acquisition sample skewed 97 percent male, with approximately half of the male sub-sample 35 years or older. The 35+ skew is consistent with the venture-builder convention of targeting older audiences for non-essential subscription products (Kotyrlo). The 97 percent male share, however, is inconsistent with the broader car-and-motorsport audience, which is approximately 41 percent female in Formula 1 (BlackBook Motorsport; Formula One World Championship Limited) and NASCAR (YouGov), and with adjacent self-improvement subscription apps where women are a substantial share of paid users — approximately 80 percent at Calm (Huberty et al.). The present iteration's gender skew is therefore best read as a function of the male-coded funnel first-screen headline and the non-female-personalised advertising used in this run, rather than as evidence of absent female demand. The female audience is treated as a hypothesis-worthy underserved segment for the next iteration (Chapter 5.3).

**Insight 6 — Closing the unit-economics math requires a paywall-to-purchase signal not yet collected.** All unit-economics scenarios developed in Chapter 4.2 use externally benchmarked paywall-to-purchase rates because no real payment processor was integrated in this iteration; the absolute customer-acquisition-cost figure therefore remains a sensitivity range rather than a measured value. Integrating a payment processor is identified as the highest-priority technical task for the next iteration. Stripe is the conventional choice for web-hosted subscription products at this stage and is reported by venture-builder operators to be the standard integration in early-stage projects (Kotyrlo); subscription-management platforms such as RevenueCat or Adapty become relevant once the product migrates to native iOS or Android applications. The next iteration's plan is detailed in Chapter 5.3.

**Validated and invalidated assumptions.** Table 3.3 records the status of the five hypotheses set out in Chapter 2.1, plus one additional assumption that was surfaced and invalidated during the work in Chapter 3.



**Table 3.3.** *Validated and Invalidated Assumptions*

| <b>Assumption</b>                                                                                                                | <b>Status</b>                                     | <b>Evidence base</b>                                                                                                                                    | <b>Next step</b>                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>H1</b> — Microlearning is the correct category frame for Switched                                                             | Supported                                         | Competitor landscape (Table 3.1); Duolingo public-market scale; venture-builder operator interviews (Kotyrlo; the anonymous microlearning-category CEO) | Carried into Chapter 4.1                                                                                                                       |
| <b>H2</b> — A paying audience for car-culture microlearning exists at adequate scale in Tier-1 markets                           | Directional support; not yet validated end-to-end | 17.3 percent entry-to-paywall reach within benchmark; no paywall-to-purchase data available                                                             | Integrate a payment processor — Stripe for the web-hosted iteration; RevenueCat or Adapty after migration to native applications (Chapter 5.3) |
| <b>H3</b> — The standard quiz-and-hard-paywall funnel achieves at or near category benchmarks                                    | Partially supported                               | Entry-to-paywall reach at the upper end of benchmark; paywall-to-CTA below benchmark and confounded by test-design constraints                          | Paywall A/B test prioritised in Chapter 5.3                                                                                                    |
| <b>H4</b> — The creative concept patterns observable in mature competitor advertising are transferable to a car-culture audience | Partially supported                               | Three statics (5_5, 7_3, 13_1) achieved competitive cost-per-result; sample-size limits apply                                                           | Re-test with a larger creative corpus and a purchase-optimised campaign objective                                                              |
| <b>H5</b> — A founder-savings budget generates decision-quality signal for the next-iteration go-or-no-go decision               | Partially supported                               | Upper-funnel and concept-selection signal sufficient; unit-economics signal insufficient                                                                | Continue small-scale tests; pursue grants and a venture-builder pitch (Chapter 5.3)                                                            |
| (Implicit assumption from Chapter 2.5 persona) — The car-culture microlearning audience is male by default                       | <b>Invalidated</b>                                | F1 ~41 percent female fanbase (BlackBook Motorsport; Formula One World Championship Limited); NASCAR ~41 percent female (YouGov); Calm paid             | Female-targeted creative and funnel experiment in the next iteration (Chapter 5.3)                                                             |

|  |  |                                                                                                                                                                              |  |
|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  |  | subscribers ~80 percent female (Huberty et al.); the 97 percent male share in this iteration is attributable to male-coded funnel and creative choices, not to absent demand |  |
|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

*Source: Author's synthesis of the Chapter 2.1 hypotheses and the empirical and external evidence developed in Chapters 3.1, 3.2, and 5.2.*

**Implications for the chapters that follow.** Insight 1 carries the category-frame and whitespace argument into Chapter 4.1's solution direction. Insight 2 supports the seventeen-step funnel structure as the default into Chapter 5.2. Insight 3 frames the open question that Chapter 4.2 must answer: under what assumptions does the unit-economics math close, and what would have to be true at the paywall for the answer to be yes? Insight 4 informs the creative-format and copy direction for the next iteration. Insight 5 motivates the parallel female-targeted-creative experiment in Chapter 5.3. Insight 6 sets the technical priority for the next iteration: integrating a payment processor is the precondition for measuring real cost-per-acquisition.

## CHAPTER 4. SOLUTION DIRECTION AND BUSINESS MODEL

This chapter sets out the proposed solution and the business model under which it would be evaluated. Section 4.1 articulates the core concept of Switched, explains how the design addresses the pain points identified in Chapter 3.2, and presents the content brief and the retention mechanics. Section 4.2 develops the business-model logic and the unit-economics sensitivity analysis.

### 4.1 SOLUTION DIRECTION

The proposed solution is Switched, a microlearning subscription product for car culture. The first iteration is delivered as a web-hosted application — for the reasons set out in Chapter 3.2 — with a planned migration to native iOS and Android applications once the unit economics are validated. The product is designed against the three pain points hypothesised in Section 3.2: the perceived knowledge gap between car-curious adults and the visible enthusiast community; the social anxiety experienced in conversations with people who are deeper in the subject; and the absence of an entry-level path into car culture that fits inside the time and money constraints of an ordinary mid-career adult.

**Core concept and positioning.** Switched sits inside the established microlearning category and applies its proven format — short structured lessons, streak-based retention, identity-coded onboarding, hard-paywall monetisation — to a content domain that no current incumbent occupies. The category-frame decision was the load-bearing positioning move described in Chapter 1 and validated as Insight 1 of Chapter 3.3. The product is not positioned as a driving-instruction product, a workshop manual, or an entertainment channel; those positions are already occupied or are not subscription-friendly. It is positioned as a confidence-and-knowledge product — one that turns a casually interested viewer into someone who can hold their own in a conversation about cars and motorsport — and it inherits the Headway-style "be the most interesting person in the room" framing rather than the "learn to fix a tyre" framing that adjacent applications have tried before.

**Name and branding.** The name *Switched* was chosen over *Shifted* for three reasons. First, "shifted" already names several products and content properties in adjacent categories — including the part-time-work product *Shifted* and a number of car-topic media properties that use *Shifted* or *Shifter* in their names — creating brand-differentiation problems and a meaningful intellectual-property risk. Second, "switched" carries a personal-transformation reading ("switched on" to a topic) that reinforces the identity-coded positioning. Third, the verb fits the car-culture domain naturally, in that the gear-shift action is the quintessential moment of driver engagement. The Switched logo carries the gear-shift visual as one element of its mark but is not reducible to a shift mark alone, so brand recall is anchored on the full name *Switched* rather than drifting toward "shift" or "shifter".



**Fig. 4.1.** *Switched Logo.* Source: Author's design, finalised March 2026.

**Product mechanics.** The first-iteration mechanics are explicitly modelled on the elements of the broader microlearning category that have been validated at scale. Lessons are five to seven minutes long, mobile-first in layout, and organised into chapters that map to the content angles set out below. Retention is anchored on a streak mechanic in the style of Duolingo, whose 2025 Harvard Business School case documents a fourteen-percent uplift in day-fourteen retention from streak-wager mechanics alone, alongside a doubling of the company's "power user" share and a churn reduction from 47 to 37 percent (Rayport and Tempest Keller). The onboarding flow is the seventeen-step quiz funnel validated in Chapter 5.2, with the qhl2 first-screen headline ("Talk cars like you own the room") preserved as the default winning hook, and the hard paywall preserved as the monetisation mechanism. A basic-driver-skills foundational module is included as a stable entry point for users

who arrive without prior car interest; a driving-test-style backup pivot is held in reserve and addressed in Chapter 5.3.

**Content brief.** Six content angles are identified for the first content roadmap, drawn directly from the highest-performing creative concepts in Chapter 5.2 and from the persona pains in Chapter 3.2. They are: (1) general car-culture confidence — the principal hook for the Older Enthusiast persona; (2) motorsport history and Formula 1 pop culture — the principal hook for the Younger Aspirant persona, given the cultural-attention wave documented in Chapter 3.1; (3) drifting, karting, and rally — the participation-adjacent layer; (4) mechanics-light fundamentals — the bridge from the consumer audience to the deep-practical YouTube and forum substitutes; (5) the basic-driver-skills foundational module mentioned above; and (6) a parallel content track addressed specifically to women, identified in Chapter 3.3, Insight 5, as the next-iteration experiment for the Underserved Female Audience persona. None of these angles is a separate product; all are content cuts inside the same application, designed to extend customer lifetime value rather than fragment audiences across products.

**How the solution creates value.** For users, the proposed solution offers a structured, retention-driven path into a subject they already consume passively but cannot yet participate in confidently. The five-minute lesson format respects the time and attention constraints of a working adult; the streak mechanic builds the daily habit that the category has shown is essential to retention; and the identity-coded hook signals from the first screen that the product is built for them rather than retrofitted from generalist content. For the stakeholder groups identified in Chapter 3.2 — content creators, motorsport-and-events organisations, driving schools, the platform ecosystem, and payment processors — Switched is a subscription product compatible with the standard partnership and compliance shapes those groups already operate; partnerships and content licensing are explicitly identified as scaling levers in Chapter 5.3.

**Solution as a learning-cycle direction.** The solution direction set out above is the initial concept, intended to be validated through the marketing-first experimentation described in Chapter

5: user need is tested first via creative and funnel performance, with product refinement following the marketing signal rather than preceding it. Several elements — the identity-coded hook, the static-first-with-video-supported creative mix, the seventeen-step funnel topology, and the qhl2 winning headline — are already supported by evidence developed in Chapters 3 and 5. Other elements — the paywall pricing tier, the female-targeted creative track, and the post-paywall retention mechanics — remain hypotheses for the next iteration. The solution direction is therefore presented as the working concept, not as the final product specification.

## 4.2 BUSINESS MODEL AND UNIT ECONOMICS

This section sets out the business-model logic of Switched and tests its unit economics under explicit scenario assumptions. The unit-economics framework applied below follows the venture-builder convention practised by Ukrainian operators — specifically SKELAR and Genesis — as documented through the operator interview (Appendix E) and adopted as the methodological backbone of this thesis. The numbers used in the unit-economics calculations come from the clean dataset described in Chapter 2.6 — clean-dataset paid spend across the five campaigns of approximately USD 107.70 against seven paywall-CTA clicks in the cleaned Amplitude funnel data, yielding a working cost-per-paywall-CTA of approximately USD 15.39. All variables not measured in the present iteration are flagged as assumptions.

**Business-model logic.** Switched is a business-to-consumer subscription microlearning product. It creates value by combining identity and confidence (the user becomes someone who can hold their own in a conversation about cars and motorsport), low-effort entertainment (short, gamified lessons in a category the user already consumes passively), and low-effort knowledge (structured content in a domain the user has not yet been able to enter at scale). Value is delivered through a mobile-first web application in the present iteration, with native iOS and Android applications introduced after unit-economics validation. Value is captured through a tiered subscription that, as

tested in the present iteration, comprises a 7-day SKU at USD 6.99, a monthly SKU at USD 14.99, and a three-month SKU at USD 27.99; an annual SKU is intended to be added in the next iteration. The subscription is sold through a paywall placed at the end of the seventeen-step onboarding quiz documented in Chapter 5.2.

**Why a funnel-end paywall.** The standard paid-acquisition flow in the consumer-microlearning category is a structured onboarding quiz that terminates in a payment gate. The form of that gate varies across the eight competitors in Table 3.1: some present an immediate-paid-subscription gate (a strict hard paywall), others present a 7-day free-trial gate that converts to paid renewal at the end of the trial — a soft-hard hybrid that has become the modal configuration in the category since the broader payment-processor compliance shift discussed in Section 3.1. Operationally, the funnel-end paywall is justified on three grounds. First, it is the place at which user intent peaks: the user has invested between five and fifteen minutes of attention in the onboarding quiz and is at maximum emotional commitment to the product. Second, it conditions the Meta optimisation pixel on a meaningful event; Tier-1 venture-builder operators report that pixel learning against deeper events stabilises faster and yields better audience-quality signal than learning against upper-funnel proxies (Kotyrlo). Third, a funnel-end paywall after a structured quiz is the standard playbook in the consumer-subscription content category, with funnel-pass-through benchmarks of 17 to 24 percent entry-to-paywall reach in healthy products (Vorobiov). The seventeen-step funnel topology is consistent with this convention. Switched's first iteration uses the immediate-paid-subscription variant rather than the trial-gated variant, on the basis that immediate-paid funnels deliver a stronger initial pixel signal at the volumes available to a personal-savings budget (Kotyrlo); a trial-gated paywall variant is preserved as an A/B candidate for the next iteration in Chapter 5.3.

**Pricing.** The pricing decision is anchored on three constraints: the consumer-subscription pricing distribution observed across direct competitors (Table 3.1, repeated in compressed form below as Table 4.1); the Netflix-effect ceiling on consumer-subscription monthly pricing, which makes anything materially above approximately USD 10 per month require explicit value justification

on the paywall; and the payment-processor compliance regime (VAMP) that has progressively disincentivised the historical USD 1 trial model, as discussed in Chapter 3.1. Within these constraints, Switched's tested first-iteration pricing — USD 6.99 for a 7-day SKU, USD 14.99 monthly, and USD 27.99 for a three-month SKU — sits at the median of the consumer-microlearning category: the monthly tier is two dollars above Headway's USD 12.99 and one dollar below Blinkist's USD 15.99, and the three-month tier is comparable to Headway's three-month tier of USD 29.99. The next-iteration plan adds a USD 89.99 annual SKU at the category-median annual discount of approximately five months. Higher pricing (in the Brilliant range of USD 27.99 monthly) would require a substantially stronger value justification on the paywall and is not supported by the present iteration's evidence; lower pricing (in the Deepstash range of USD 12.99 monthly with USD 29.99 annual) would push Switched into the discount tier and invite payment-processor scrutiny on the basis of the steep monthly-to-annual discount ratio.

**Table 4.1.** *2026 Microlearning Subscription Price Benchmark — Compressed View*

| Application                           | Monthly USD  | Annual USD              | Notable additional SKUs                  |
|---------------------------------------|--------------|-------------------------|------------------------------------------|
| Headway                               | 12.99        | 89.99                   | 3-month USD 29.99                        |
| Blinkist                              | 15.99        | 99.99                   | —                                        |
| Brilliant                             | 27.99        | 161.88                  | 7-day free trial                         |
| Duolingo Super                        | 12.99        | 83.99                   | 7- to 14-day free trial                  |
| Imprint                               | annual only  | 87.49–124.99            | 7-day free trial                         |
| MyGrowth                              | 24.99        | 69.99                   | 7-day free trial                         |
| Nibble                                | 11.99        | 49.99                   | 3-month USD 19.99                        |
| Deepstash                             | 12.99        | 29.99                   | 7-day free trial                         |
| <b>Switched (tested)</b>              | <b>14.99</b> | (annual not yet tested) | <b>7-day USD 6.99; 3-month USD 27.99</b> |
| <b>Switched (next-iteration plan)</b> | <b>14.99</b> | <b>89.99</b>            | <b>7-day USD 6.99; 3-month USD 27.99</b> |



*Source: Compiled by the author from corporate disclosures, the official websites and Apple App Store listings of each application, and a category-pricing validation pass conducted in May 2026. Switched's tested pricing is the SKU mix run through the funnel during the paid-acquisition experiment in Chapter 5.2.*

**Cost structure.** Five cost categories apply to the business-model logic above, and they apply with very different weights in the early-stage and post-launch phases.

The dominant category at every stage is paid acquisition. In the present iteration, Meta-side spending is the only non-trivial cost line, with a measured upper-funnel cost-per-Amplitude-entry of approximately USD 0.226 per entry against approximately USD 15.39 per paywall-CTA click (Section 5.2.10). Heavy reliance on paid Meta acquisition is treated in Switched's plan as a temporary first-iteration condition rather than a long-term strategy: organic distribution through an Instagram and Threads presence is identified in Chapter 5.3 as the primary mechanism for broadening the addressable audience and lowering blended customer-acquisition cost over time.

The second category is product and analytics tooling — Vercel for hosting, Amplitude for in-funnel event tracking, Stripe for payment processing in the web phase, and the AI-creative tools listed in Chapter 2.4. These line items are small in absolute terms relative to acquisition spend.

The third category is content production. In the present and immediate next iteration, content production is bounded by the AI-tool stack and a small set of founder-and-contractor inputs; a full editorial team is not yet warranted because the marketing-first validation chain (Chapter 4.1, Solution as a Learning-Cycle Direction) has not yet generated the unit-economics signal that would justify the spend. Writers, designers, and editorial subscriptions become a meaningful line item only after the unit-economics math closes.

The fourth category is the team. The first MVP-and-search team is small by category convention: a chief executive (the founder), a marketing operator who runs creative and acquisition, and a product manager with analytical responsibility for the funnel and the paywall (Kotyrlo). This is

not yet a "product team" in the sense of a multi-disciplinary product organisation; it is a search team optimised for marketing-first iteration on a constrained budget.

The fifth category is the payment-processor cost line: Stripe fees of approximately 2.9 percent plus USD 0.30 per successful transaction, plus a budget for chargebacks and refunds of approximately three to five percent of gross revenue. App-store fees of fifteen to thirty percent of subscription revenue do not apply in the web-first phase but become relevant once the product migrates to native applications.

**Unit economics — sensitivity scenarios.** The unit-economics math in this section is built up from five explicit assumptions. The first is a working cost-per-paywall-CTA of USD 15.39 (clean-data anchor described above). The second is the SKU-mix simplification: as a working baseline the calculations below model a monthly-subscription user (the actual paying-user mix across the 7-day, monthly, three-month, and planned annual SKUs would shift the figures in either direction depending on how that mix evolves, and the next iteration will measure the mix directly). The third assumption is the **two-step pricing structure**: the first month is a discounted introductory price of USD 14.99, and from the second rebill onwards the price returns to the full tier of USD 29.98. After payment-processor and refund deductions of approximately seven percent, this gives a net first-month **average revenue per paying user (ARPPU)** of approximately USD 13.94 and a net second-month-onwards ARPPU of approximately USD 27.88. The fourth assumption is a paywall-CTA-to-purchase rate that is **not measured** in the present iteration and is therefore varied across four sensitivity scenarios. The fifth is a retention curve consistent with the venture-builder operator interview, in which approximately 50 percent of paying users retain through the first rebill, approximately 70 percent of those retain through the second, and approximately 75 percent month-on-month thereafter (Kotyrlo).

The unit economics in this section are evaluated on two return-on-investment horizons in parallel: a six-month horizon, in line with the venture-builder convention for early-stage subscription products (Kotyrlo); and a twelve-month horizon, which captures the longer payback profile sometimes used in financial-modelling outputs. Under each horizon and the retention curve above,

the expected paying-user lifetime is computed by summing the per-month retention probability, weighted by the corresponding net ARPPU. The full computation is set out in Table 4.2; the six-month working LTV is approximately USD 54.58 per paying user (across approximately 2.46 paying-user months), and the twelve-month working LTV is approximately USD 64.74 (across approximately 2.82 paying-user months).

Beyond the base subscription, additional revenue from upsells would lift LTV further. In the consumer-microlearning category, upsell mechanics typically include one-off premium-content unlocks (advanced or specialised lessons sold outside the main subscription), in-app credit packs that gate optional features such as additional quizzes or social-comparison modules, advanced-tier or course-bundle subscriptions sold separately from the base SKU, and gift-subscription flows. None of these mechanics is included in Switched's first-iteration product, and the LTV figures in Table 4.2 should therefore be read as a floor on what a fully built-out version of the product could deliver, not as a ceiling. To make the magnitude of this floor-to-ceiling gap visible in the analysis, Table 4.3 below adds a sensitivity in which upsell revenue lifts the per-paying-user ARPPU by twenty percent — a working figure intended to be illustrative rather than measured.

**Table 4.2.** *Expected Paying-User Lifetime — Six-Month and Twelve-Month Horizons*

| Month                         | Retention probability           | Net ARPPU per month (USD) | Net revenue contribution (USD) |
|-------------------------------|---------------------------------|---------------------------|--------------------------------|
| M1 (introductory price)       | 1.000                           | 13.94                     | 13.94                          |
| M2 (full price; first rebill) | 0.500                           | 27.88                     | 13.94                          |
| M3                            | 0.350                           | 27.88                     | 9.76                           |
| M4                            | 0.263                           | 27.88                     | 7.32                           |
| M5                            | 0.197                           | 27.88                     | 5.49                           |
| M6                            | 0.148                           | 27.88                     | 4.13                           |
| <b>Six-month subtotal</b>     | <b>2.458 paying-user months</b> | —                         | <b>54.58</b>                   |
| M7                            | 0.111                           | 27.88                     | 3.09                           |

|                           |                                 |       |              |
|---------------------------|---------------------------------|-------|--------------|
|                           |                                 |       |              |
| M8                        | 0.083                           | 27.88 | 2.32         |
| M9                        | 0.062                           | 27.88 | 1.74         |
| M10                       | 0.047                           | 27.88 | 1.30         |
| M11                       | 0.035                           | 27.88 | 0.97         |
| M12                       | 0.026                           | 27.88 | 0.74         |
| <b>Twelve-month total</b> | <b>2.822 paying-user months</b> | —     | <b>64.74</b> |

Source: Author's calculation under the retention curve reported by Kotyrló (Appendix E) and the two-step pricing structure described above. Net ARPPU figures apply a working seven-percent deduction for payment-processor fees and refunds.

**Table 4.3.** Unit-Economics Sensitivity (Monthly SKU with Two-Step Pricing) — Six-Month and Twelve-Month Horizons, Base Case and +20% Upsell-ARPU Sensitivity; All Figures Are Working Assumptions

| Scenario           | Paywall-CTA → purchase | Implied CAC (USD) | 6-mo base LTV (USD) | 6-mo base ROI | 6-mo +20% upsell ROI | 12-mo base LTV (USD) | 12-mo base ROI | 12-mo +20% upsell ROI | CAC payback (base)   |
|--------------------|------------------------|-------------------|---------------------|---------------|----------------------|----------------------|----------------|-----------------------|----------------------|
| Best case          | 50%                    | 30.78             | 54.58               | +77%          | +113%                | 64.74                | +110%          | +152%                 | 2.3 months           |
| Top-quartile       | 30%                    | 51.30             | 54.58               | +6%           | +28%                 | 64.74                | +26%           | +51%                  | 5.2 months           |
| Industry median    | 15%                    | 102.60            | 54.58               | −47%          | −36%                 | 64.74                | −37%           | −24%                  | Beyond twelve months |
| Cold-quiz baseline | 5%                     | 307.80            | 54.58               | −82%          | −79%                 | 64.74                | −79%           | −75%                  | Beyond twelve months |

Source: Author's calculation from the clean-data working cost-per-paywall-CTA of USD 15.39 (Chapter 5.2.10 reconciliation); paywall-CTA-to-purchase rates from a category-benchmark

*range; base LTV figures from Table 4.2. The +20% upsell-ARPU sensitivity scales LTV by 1.20 to represent a working assumption that a developed upsell line lifts per-paying-user revenue by approximately twenty percent over the same horizon; the upsell figure is illustrative rather than measured. CAC payback is computed under the base case as the month at which cumulative net revenue per paying user first exceeds the implied CAC, with linear interpolation within months.*

The headline finding from Table 4.3 is that the unit-economics math closes positively in the upper half of the paywall-CTA-to-purchase distribution on both the six-month and the twelve-month horizons. Under the base case, the best-case scenario delivers a positive seventy-seven-percent six-month ROI (110 percent at twelve months) with CAC payback inside the horizon, and the top-quartile scenario delivers a marginally positive six-percent six-month ROI (26 percent at twelve months). The +20% upsell-ARPU sensitivity meaningfully shifts these results: under that sensitivity, the top-quartile scenario moves from marginal to clearly positive (+28 percent at six months and +51 percent at twelve), and the best-case scenario strengthens further (+113 / +152 percent). The industry-median and cold-quiz scenarios remain negative under both the base case and the +20% upsell sensitivity, and do not pay back within either horizon — these scenarios are structurally negative under the retention curve assumed and would require a step-change in retention, paywall conversion, or upsell take-up well above twenty percent to recover. Industry coverage of CAC-payback norms for early-stage subscription apps reports a target of approximately 4.8 months (Proven SaaS), which Switched's best-case scenario sits comfortably inside.

This pattern is also consistent with the venture-builder convention that a first-iteration CAC at two to three times the eventual operational target is treated as a promising rather than a failing outcome (Kotyrlo). The expectation at this stage is not that the unit-economics math closes on the first cohort but that the gap between observed and target CAC is small enough to be closed by the standard subsequent levers — paywall optimisation, creative iteration, audience targeting, and pixel maturity — within a finite number of further iterations.

To make the operational target explicit, Table 4.4 inverts the unit-economics math: it computes the maximum-allowable CAC at which the product would deliver a positive thirty-percent ROI — a working operational threshold treated by venture-builder operators as the minimum healthy outcome for a stabilised consumer-subscription business (Kotyrlo). Four target CACs are computed, one for each combination of horizon and upsell sensitivity. The maximum-allowable CAC at the +30% ROI threshold is computed as LTV divided by 1.30.

**Table 4.4.** *Maximum-Allowable CAC for the +30% ROI Threshold — by Horizon and Upsell Sensitivity*

| Horizon      | Base case (no upsell) | +20% upsell sensitivity |
|--------------|-----------------------|-------------------------|
| Six-month    | USD 42.0              | USD 50.4                |
| Twelve-month | USD 49.8              | USD 59.8                |

*Source: Author's calculation from Table 4.2 LTV figures, applying maximum-allowable CAC = LTV / 1.30.*

The present iteration's measured numbers sit inside the band defined by this threshold. The best-case paywall-CTA-to-purchase scenario (CAC USD 30.78) already clears the +30% ROI threshold across all four cells of Table 4.4; the top-quartile scenario (CAC USD 51.30) clears the twelve-month +20% upsell threshold and sits at the edge of the twelve-month base-case threshold. The industry-median scenario (CAC USD 102.60) sits beyond all four thresholds. The next-iteration target — bringing the paywall-CTA conversion rate into the 25 to 30 percent benchmark range — is intended to lower the cost-per-CTA and bring the implied CAC into the band of below approximately USD 80 typical of category-comparable consumer-microlearning subscription apps in Tier-1 markets, which sits inside the +30% ROI threshold under the twelve-month and upsell sensitivities and at the edge under the six-month base case.

**What would have to be true.** The most consequential lever is the paywall-CTA conversion rate itself. The present iteration's measured rate of 4.2 percent (Section 5.2.8, Insight 3 of Chapter

3.3) sits well below the 25 to 30 percent benchmark for mature content-subscription products (Vorobiov). Bringing the paywall-CTA rate into category-benchmark range would substantially reduce the cost-per-CTA, since a higher conversion rate at the bottleneck step means fewer paywall views — and therefore fewer upstream impressions — are required to generate each CTA click. The exact magnitude of the reduction is non-linear and depends on factors that this iteration cannot measure — Meta auction dynamics, audience-saturation effects, and pixel-learning behaviour all attenuate the pass-through from paywall improvement to cost-per-CTA, so a six-fold paywall improvement does not produce a six-fold cost-per-CTA reduction in practice. The realistic operating range for category-comparable consumer-microlearning subscription apps in Tier-1 markets sits in the broad band of below approximately USD 80; the next-iteration target is for Switched's CAC to settle inside that band, which corresponds to the upper half of the paywall-CTA-to-purchase distribution in Table 4.2 and is the band in which the unit-economics math closes positively under the LTV figure of approximately USD 64.68 derived above. Three further levers compound this effect: a larger Meta pixel-spend window stabilises audience-quality signal and typically lowers cost-per-CTA further (Kotyrlo); a geographic mix that overweights the better-converting markets (Australia and the United States in this iteration's paid sample, per Section 5.2.9) shifts the average cost-per-CTA downward; and the longer-term shift away from heavy paid-acquisition reliance toward organic Instagram and Threads distribution — outlined in Chapter 5.3 — lowers blended CAC over time as the audience funnel diversifies. None of these levers can be tested without a paywall A/B test under a purchase-optimised campaign objective and a sufficient pixel-spend window — a programme of work explicitly identified in Chapter 5.3 as the post-capstone next iteration.

**Risks.** Five risks materially affect the business-model logic. The first is that the paywall conversion rate stays below benchmark even after the next-iteration paywall A/B test, in which case the cost-per-CTA stays high and the unit-economics math does not close on a personal-savings budget. The second is single-creative dependency: in the present iteration two static creatives accounted for the majority of useful Checkout-event volume, and Meta's algorithm tends to over-

allocate spend to the single-best-performing asset, which weakens portfolio resilience. The third is the payment-processor compliance regime, principally VAMP, which constrains pricing experiments at both ends of the spectrum and which becomes more sensitive as monthly volume grows. The fourth is the platform-fee exposure on later migration to native applications: a fifteen- to thirty-percent App Store and Google Play deduction would directly compress net ARPU and consequently LTV. The fifth is the founder-budget constraint itself: a personal-savings funding model is sufficient for upper-funnel and concept-selection learning, but is insufficient for the pixel-spend volume required to declare unit-economics validation, as documented in Chapter 5.3.

**Implication for the next iteration.** The principal implication of the unit-economics analysis above is that the highest-leverage move for the next iteration is fixing the paywall — its conversion rate, its pricing, and its copy — rather than adding upstream creative variants or expanding geographic reach. A purchase-optimised campaign with measured paywall-to-purchase data, a paywall A/B test, and a Stripe payment integration are the three preconditions for closing the unit-economics math; they are addressed together in Chapter 5.3.



## CHAPTER 5. MARKET POTENTIAL AND IMPLEMENTATION

This chapter connects the analytical work of Chapters 3 and 4 to the empirical iteration documented in this chapter and to the next-iteration roadmap that follows from it. Section 5.1 evaluates the addressable market and the realistic share of it that Switched could capture inside a defined planning horizon. Section 5.2 documents the iterative implementation cycles, including the funnel build, the paid-acquisition experiments, the 33-hour broken-button incident and its resolution, and the cross-cut analyses that the cleaned dataset supports. Section 5.3 lays out the post-launch analysis and the staged roadmap that follows from it, including the experimental priorities for the next iteration and the funding pathway through grants and the venture-builder ecosystem.

### 5.1 MARKET POTENTIAL — TAM, SAM, AND SOM

This section evaluates the size and reachable share of the addressable market for Switched. Following the methodology recommended for startup-thesis market sizing, both a top-down and a bottom-up estimate are constructed for the SAM and the SOM, and the two are reconciled into a defensible range; the TAM is presented as a single bounded estimate. All figures are working assumptions, presented to demonstrate the structure of the reasoning rather than to forecast a specific revenue trajectory.

**TAM — global car-culture audience addressable for microlearning subscription.** The global microlearning category was valued at approximately USD 1.55 billion in 2024 ("Microlearning Statistics") to USD 3.4 billion in 2023 ("Microlearning Strategic Industry Report"), depending on whether enterprise-LMS deployments are included alongside consumer subscriptions. The relevant TAM for Switched is the intersection of two populations: people interested in cars and motorsport, and people willing to pay for microlearning-format subscriptions. Anchoring on the Formula 1 fanbase of approximately 826.5 million in 2024 (BlackBook Motorsport) as a lower bound on the global car-and-motorsport audience and on the established willingness of self-improvement

subscribers to pay for short-form learning content (Calm's paid base of more than ten thousand surveyed subscribers documented in Huberty et al.; Duolingo's 9.5 million paying subscribers in fiscal year 2024 reported in Duolingo's annual filing), a working TAM at the intersection sits in the range of USD 1.4 to USD 5.4 billion of annual potential subscription revenue, on the assumption that 15 to 60 million globally would be willing to pay an annual subscription comparable to the consumer-microlearning median (USD 89.99 per year).

**SAM — Tier-1 English-speaking, car-interested, microlearning-fit, paying-capable.** The SAM is constructed by two methods that are reconciled into a single working range.

The top-down construction starts from the adult driving-age population of the five Tier-1 English-speaking markets — approximately 240 million in aggregate — and applies four successive filters: car-interest (approximately 15 to 20 percent of driving-age adults, derived from the SEMA-tracked specialty market footprint and from broader motorsport-fan estimates), paying-capacity for non-essential digital subscriptions (approximately 70 percent in Tier-1 markets), and microlearning-format fit (approximately 20 percent, derived from the share of adults who already subscribe to a comparable category app such as Headway, Blinkist, or Brilliant). The product of these filters gives a top-down SAM of approximately 5 to 7 million users in Tier-1 markets, equivalent to approximately USD 450 to 630 million in annual subscription revenue at the proposed pricing.

The bottom-up construction starts from the Tier-1 English-speaking population (approximately 469 million in aggregate — United States 333 million, United Kingdom 68 million, Canada 39 million, Australia 27 million, New Zealand 5 million, per World Bank population indicators 2024) and applies three filters: the share of population that pays for microlearning subscriptions (approximately 2.5 to 3 percent, anchored to Duolingo's 9.5 million paying subscribers as a fraction of the United States population and corroborated by the Headway and Brilliant scale signals); the share of microlearning subscribers with car interest (approximately 15 to 20 percent, derived from F1 fan share in Tier-1 markets per Nielsen / SportsPro 2024 and broader car-interest indicators in the SEMA Annual Market Report); and an annual ARPPU of approximately USD 36

(based on the two-step pricing structure of USD 14.99 introductory and USD 29.98 from the second rebill, applied across the observed retention curve from Chapter 4.2). The product of these filters gives a bottom-up SAM of approximately 1.8 to 2.8 million addressable paying users in Tier-1 markets, equivalent to approximately USD 63 to USD 100 million in annual subscription revenue — a marginal widening of the earlier published USD 54 to USD 72 million estimate.

The gap between the two methodologies is structural rather than contradictory: the top-down approach captures the addressable population, and the bottom-up approach captures the segment of that population that has already self-identified as a paying microlearning user. The defensible working SAM lies between these two figures, in the range of approximately USD 100 to USD 600 million in annual subscription revenue, and the truer figure depends on the cross-elasticity between Switched's car-vertical content and the incumbents' general-knowledge content.

**SOM — realistic capture inside a 24-month planning horizon. The venture-builder convention practised by Ukrainian operators (SKELAR and Genesis, as documented by the operator interview in Appendix E) treats sustained monthly subscription revenue of approximately USD 200,000 to USD 300,000 as the threshold at which unit economics are considered validated for an early-stage subscription product (Kotyrlo); this corresponds to approximately USD 2.4 to USD 3.6 million in annualised subscription revenue. A second, cross-check derivation expresses SOM as a realistic year-one capturable share of the bottom-up SAM: a 1.5 to 3 percent capture share is the venture-builder working heuristic for a single-founder consumer-subscription product (Kotyrlo; no hard published statistic exists for this share, which is treated as a working assumption in this thesis), which produces a SOM range of approximately USD 0.95 to USD 3.0 million on the bottom-up SAM. The two derivations overlap, and the working SOM band of approximately USD 0.5 to USD 3.6 million is retained as defensible. At the proposed average revenue per paying user, the implied paying-user count is approximately five to forty thousand, depending on the SKU mix between monthly, three-**

month, and annual subscriptions. This SOM is consistent with venture-builder benchmarks for a 24-month iteration of a single-vertical content-subscription product.

**Table 5.1.** *Switched — TAM, SAM, and SOM Working Estimates*

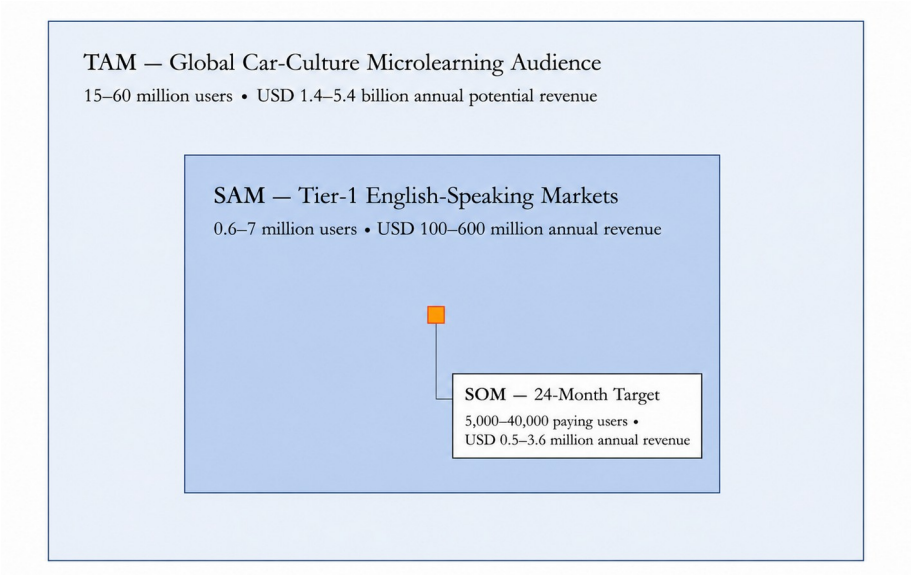
| Layer                      | Definition                                                                          | Population (users)   | Annualised revenue at target SKU mix |
|----------------------------|-------------------------------------------------------------------------------------|----------------------|--------------------------------------|
| TAM                        | Global car-culture-interested adults willing to pay for microlearning subscriptions | 15–60 million        | USD 1.4–5.4 billion                  |
| SAM (top-down)             | Tier-1 driving-age × car-interested × paying-capable × microlearning-format-fit     | 5–7 million          | USD 450–630 million                  |
| SAM (bottom-up)            | Tier-1 microlearning paying-user base × car-interest fraction                       | 0.6–0.8 million      | USD 54–72 million                    |
| <b>SAM (working range)</b> | <b>Reconciled top-down and bottom-up</b>                                            | <b>0.6–7 million</b> | <b>USD 100–600 million</b>           |
| SOM (24-month target)      | 0.4–0.6% of SAM mid-point; aligned with the pre-seed-to-Series-A revenue threshold  | 5,000–40,000         | USD 0.5–3.6 million                  |

*Source: Author's calculation. TAM derived from BlackBook Motorsport (citing Nielsen Sports) and category-payment-propensity proxies from Duolingo's annual filing and Huberty et al. SAM filters informed by SEMA Market Report and the public scale signals in Table 3.1. SOM threshold from venture-builder convention reported by Kotyrlo. All figures are working assumptions presented to demonstrate the structure of the reasoning.*

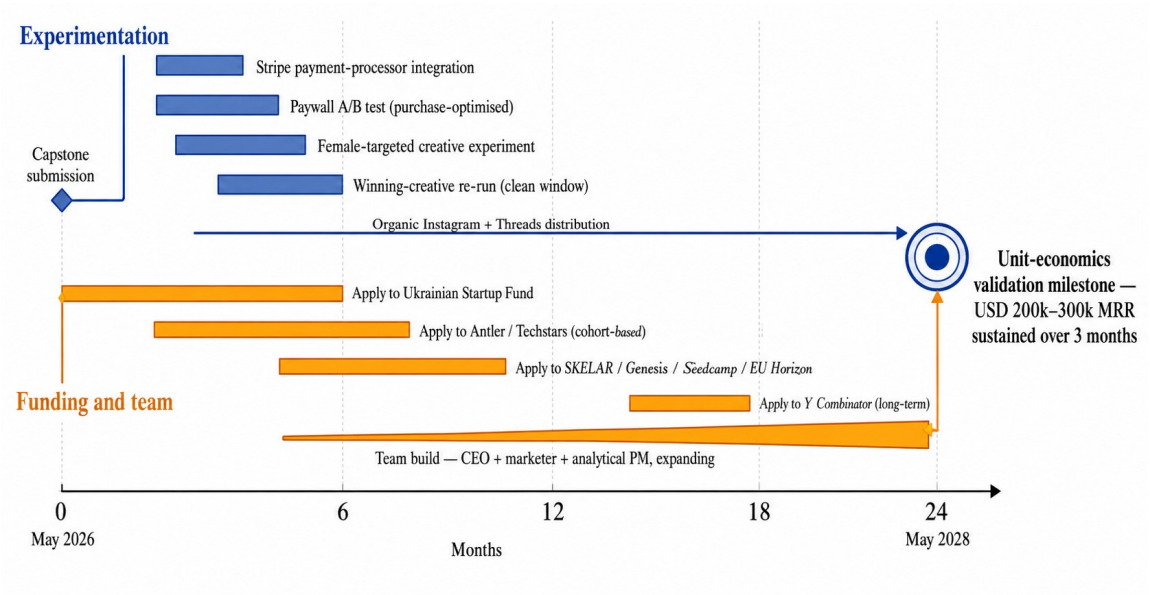
**Initial target segment and expansion path.** The 24-month plan begins with the validated primary segment from Chapter 3.2 — the male enthusiast aged 35 and over in Tier-1 markets — and then extends to two parallel expansion vectors. The first vector is the secondary segment of male enthusiasts under 35, served by motorsport-history and Formula 1 pop-culture content. The second

vector is the underserved-female-audience hypothesis introduced in Chapter 3.2 and Insight 5 of Chapter 3.3, served by female-targeted creative and funnel copy that is identified in Chapter 5.3 as a candidate next-iteration experiment. Geographic expansion outside Tier-1 English-speaking markets is treated as a post-validation move.

**Growth constraints.** Five constraints bind the realistic upper bound of SOM growth inside the 24-month horizon. The first is paid-acquisition cost inflation on Meta as the largest spenders set the auction-clearing price for relevant audiences, as discussed in Chapter 3.1. The second is the payment-processor compliance regime — VAMP and its equivalents — which constrains pricing experiments and trial structures, as discussed in Chapter 4.2. The third is the platform-ecosystem dependency that emerges if and when Switched migrates to native iOS or Android applications, in which case the App Store and Google Play subscription policies and the fifteen- to thirty-percent platform fee become directly relevant to net unit economics. The fourth is the language-barrier constraint: Tier-1 English-speaking markets are the natural launch audience but do not, on their own, deliver the multi-billion-dollar revenue scale that the global TAM allows for; expansion beyond English-speaking geographies would require localisation work and an additional research-and-creative cycle for each target market. The fifth is the content-licensing regime of motorsport governing bodies and event organisers. Material relating to Formula 1, Formula DRIFT, the major rally championships, and the national karting federations is protected by trademark and broadcasting rights, and a credible expansion into deep motorsport-history or live-event-adjacent content would eventually require formal licensing arrangements with these organisations — with the cost, exclusivity, and contractual constraints that follow. Switched's first iteration relies on publicly available historical, cultural, and educational material that does not require licensing; the licensing question becomes binding only at the point at which the product moves from category-overview content into proprietary-event content.



**Fig. 5.1.** TAM, SAM, and SOM — Switched (Working Estimates). Source: Author's illustration based on Table 5.1.



**Fig. 5.2.** Project Timeline — From Capstone Submission to 24-Month SOM Target. Source: Author's roadmap as set out in Chapter 5.3.

5.2 IMPLEMENTATION AND LAUNCH EXPERIMENTS

This section documents the action-based research that constitutes the heart of this capstone. It is structured as ten learning cycles, each presented with its hypothesis, design, execution, and learning. Cycles A through C cover the preparatory work — creative research, funnel construction, and Meta-side technical setup. Cycles D through F document the three paid campaigns at progressively deeper Meta optimisation events. Cycle G documents the 33-hour broken-button incident detected during the experiment and the data-cleaning methodology adopted in response. Cycles H through J integrate the cleaned dataset into the master 17-step funnel performance, the audience-segmentation analysis, and the customer-acquisition-cost chain.

**5.2.1 Cycle A — Creative research.** The hypothesis tested in this cycle was that the creative concept patterns observable in mature competitor advertising are transferable to a car-culture audience, in line with H4 of Chapter 2.1. The design followed standard category practice in the venture-builder ecosystem (Kotyrlo): one hundred and thirty-four active competitor advertisements were collected from the Meta Ads Library across eight comparable applications (Headway, Blinkist, Imprint, Brilliant, MyGrowth, Nibble, Deepstash, and one comparator in the adjacent driver-licence-test niche), with the inclusion criterion of being four or more days active and live at the time of the scrape on 20 April 2026. The advertisements were imported into a single Figma board, annotated, and clustered by visual and verbal pattern; the cluster analysis identified ten recurring concept families, summarised in Table 5.2. From those patterns, twenty-one creatives were produced for Switched, comprising eight static formats and thirteen video formats (Table 5.3); creative production used the AI-creative-tool stack documented in Chapter 2.4 (ChatGPT Image 2.0, Gemini Image, Kling 2.0, HeyGen) plus author-led design work in Figma. The learning from this cycle — that competitor concept patterns transfer with a car-culture content swap and that the resulting creatives are ready for paid testing — fed directly into Cycle D below.

**Table 5.2.** *Creative Concept Families Observed in the Meta Ads Library (n = 134 ads)*

| # | Concept family   | Format(s)   | Notes          |
|---|------------------|-------------|----------------|
| 1 | "How I passed my | text-static | Adjacent-niche |

|    |                                                               |                                                 |                                                   |
|----|---------------------------------------------------------------|-------------------------------------------------|---------------------------------------------------|
|    | DMV driving test"                                             |                                                 | pattern; included as a backup-pivot reference     |
| 2  | "How to become a well-spoken person"                          | text + graphic, static and video                | Identity-flavoured                                |
| 3  | "Replace doomscrolling with addictive ... game"               | text + graphic, static and video                | Very popular                                      |
| 4  | "I'm addicted to this ... game"                               | text + graphic, static and video                | First-person endorsement variant                  |
| 5  | "Addictive ... game" — other variants                         | satisfying AI video, slideshow with trend music | Very popular                                      |
| 6  | "Like Duolingo, but for ... / Like Netflix / Like Harvard"    | text + graphic, static; UGC video               | Popular reference-mark format                     |
| 7  | "X% of adults fail this basic ... quiz" or "X signs that ..." | text + graphic, static                          | Curiosity-gap hook with knowledge-deficit framing |
| 8  | UGC app-on-screen interaction                                 | UGC video                                       | Tutorial-style                                    |
| 9  | Day-by-day challenge                                          | video, with on-screen text                      | Popular structured-progression hook               |
| 10 | "TikTok for smart / high-IQ people"                           | UGC video, satisfying AI video                  | Very popular identity-flavoured hook              |

*Source: Author's analysis of one hundred and thirty-four active competitor advertisements collected from the Meta Ads Library on 20 April 2026, across eight comparable consumer-microlearning applications.*

**Table 5.3.** *Twenty-One Creatives Produced for Switched — Launch Set (April–May 2026)*

| Pack ID | Concept reference | Format | Headline / hook                                     |
|---------|-------------------|--------|-----------------------------------------------------|
| 1_1     | Concept 1         | static | "How I passed my DMV driving test on the first try" |
| 2_1     | Concept 2         | static | "Don't be a poser. Be a car savvy."                 |
| 2_2     | Concept 2         | static | "Don't just love cars.                              |

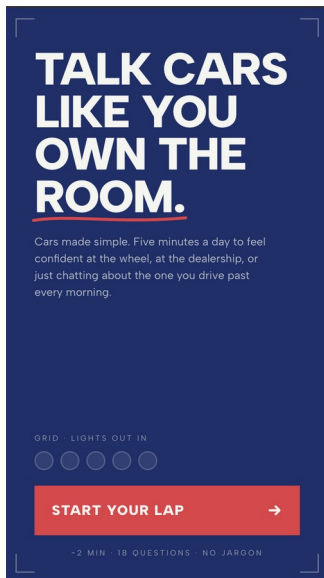


|      |            |           |                                                                           |
|------|------------|-----------|---------------------------------------------------------------------------|
|      |            |           | Understand them."                                                         |
| 2_3  | Concept 2  | static    | "How to go from car fan to car savvy"                                     |
| 5_5  | Concept 3  | static    | "Replace doomscrolling with addictive car learning app"                   |
| 7_3  | Concept 7  | static    | "95% of drivers fail this basic car quiz"                                 |
| 7_5  | Concept 7  | static    | "95% of drivers fail this car culture quiz"                               |
| 8_3  | Concept 8  | static    | "3 signs that you don't know true car culture"                            |
| 10_1 | Concept 9  | UGC video | App-on-screen interaction, version 1                                      |
| 10_2 | Concept 9  | UGC video | App-on-screen interaction, version 2                                      |
| 11_1 | Concept 4  | video     | "POV: getting addicted to this car history game instead of doomscrolling" |
| 11_2 | Concept 4  | video     | "POV: getting addicted to this car culture game instead of doomscrolling" |
| 11_3 | Concept 4  | video     | "Soooo now I'm addicted to this car culture game?"                        |
| 11_4 | Concept 11 | video     | "POV: your inner child when you gave up on car obsession"                 |
| 11_5 | Concept 11 | video     | "What happens when your feed starts feeding your ambitions"               |
| 12_1 | Concept 6  | video     | "Like Duolingo, but for car culture and confidence"                       |
| 13_1 | Concept 3  | video     | "Replace scrolling with learning car knowledge"                           |

|      |           |       |                                               |
|------|-----------|-------|-----------------------------------------------|
| 13_2 | Concept 3 | video | "Replace scrolling with learning car culture" |
|------|-----------|-------|-----------------------------------------------|

*Source: Author's creative-production worksheet, May 2026. The list above shows the twenty-one head packs; minor design variants (such as 11\_4\_1 and 11\_4\_2 with text-readability adjustments) are recorded in Appendix A.*

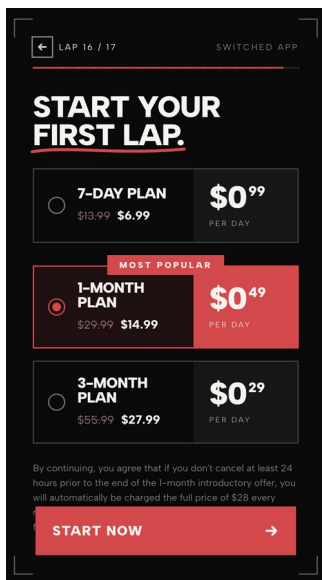
**5.2.2 Cycle B — Funnel build.** The hypothesis tested in this cycle was that a structured 17-step quiz funnel terminated by a hard paywall would deliver an entry-to-paywall conversion rate at the upper end of category benchmarks, in line with H3 of Chapter 2.1. The design adopted the consumer-microlearning quiz-funnel convention as described in Chapter 4.2 and by the venture-builder operator interview (Kotyrlo), where a fifteen- to thirty-screen quiz immediately preceding a paywall is the established playbook. Switched's funnel landed on seventeen screens, organised as: an entry (welcome view) followed by sixteen completed-event steps — `welcome`, `gender`, `level`, `goal`, `pain`, `car`, `stat`, `time`, `style`, `scenario`, `reveal`, `safespace`, `analyzing`, `plan`, `proof` — terminated by `paywall_viewed` and `paywall_cta_clicked`. The funnel was deployed on Vercel for fast iteration and was instrumented end-to-end in Amplitude. An A/B test was set up at the first screen between two headline variants designated qhl2 ("Talk cars like you own the room") and qhl4 ("Fix your car IQ. Shut their mouths"). The learning from this cycle was largely structural: the funnel topology was completed and tracked, and the qhl2-versus-qhl4 split was cued up for the paid campaigns to run against.



**Fig. 5.4. Funnel First Screen — qhl2 Variant (“Talk Cars Like You Own the Room”).** *Source: author's screenshot, May 2026.*



**Fig. 5.5. Funnel First Screen — qhl4 Variant (“Fix Your Car IQ. Shut Their Mouths”).** *Source: author's screenshot, May 2026.*



**Fig. 5.6. Switched Paywall — End-of-Funnel Subscription Gate.** *Source: author's screenshot, May 2026.*

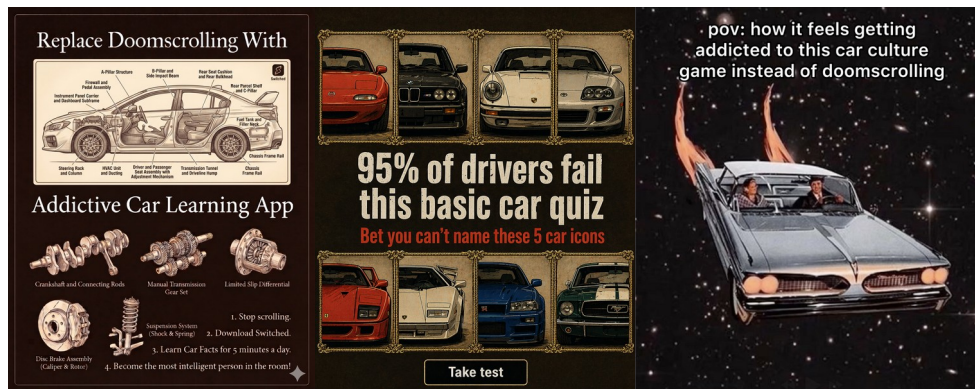
**5.2.3 Cycle C — Meta-side technical setup.** Before any paid spend, the Meta-side infrastructure required for compliant, well-instrumented paid acquisition was assembled. This included the verification of a Meta-side ad account (Switched Ad Account), the creation of an Instagram brand profile and a Facebook fan page (with a small posting history to clear the platform's review thresholds), the configuration of a Meta dataset and the Conversions API for server-side event ingestion (so that Amplitude events could be reliably attributed back to Meta's audience signal), and the linking of the dataset to a Business Portfolio for governance. A budget of USD 200 was allocated from personal savings for the initial test cycles. The learning from this cycle was operational: the Meta-side stack was prepared to a standard sufficient to run the campaigns described below, and the campaign and ad-set naming convention documented in Appendix B was adopted for traceability.

**5.2.4 Cycle D — Click test (campaign 1, 27 April 2026).** The hypothesis tested in this cycle was that the creative corpus produced in Cycle A would meet category benchmarks at the cheapest Meta optimisation event (link-click) before the optimisation ladder was stepped up to deeper events. The campaign — `S1_U_Ctest60427(1)_fp1_T1_Click_lc` — ran on 27 April with USD 7.31 of spend, returning 2,637 impressions and 175 link clicks at a click-through rate of 6.64 percent and a cost-per-click of USD 0.042. The two highest-performing creatives at click-event level were

2\_2 (79 clicks at USD 0.045 per click) and 7\_3 (89 clicks at USD 0.039 per click). The learning from this cycle was the validation of creative quality at upper-funnel: a CTR of 6.64 percent in Tier-1 English-speaking markets is healthy for a cold-audience consumer-app campaign and was sufficient to warrant stepping up to a deeper-event optimisation in Cycle E.

**5.2.5 Cycle E — Checkout-event test (campaigns 2 and 3, 30 April 2026).** The hypothesis tested in this cycle was that the funnel-end Checkout event — the user opening the paywall — would optimise efficiently against the Meta pixel, and that a static-versus-video creative comparison and a qhl2-versus-qhl4 first-screen comparison would yield interpretable winners. Two campaigns were run in parallel, each with two ad sets: S1\_U\_Ctest60430(1)\_fp1\_T1\_Checkout\_lc for static creatives and S1\_U\_Ctest60430(2)\_fp1\_T1\_Checkout\_lc for video creatives, with each campaign split into qhl2 and qhl4 ad sets. The campaign budget-optimisation setting was set to Campaign Budget Optimization (CBO) under the Advantage Shopping Campaign (ASC) format. All figures below reflect the cleaned dataset (broken-window-excluded), per the methodology in Section 2.6. The static campaign returned approximately 3,189 impressions, 217 link clicks at a 6.80 percent CTR, 45 Checkout-screen events on USD 25.42 of clean-dataset spend, and a USD 0.56 cost per Checkout — the lowest of the two campaigns. The video campaign returned approximately 2,052 impressions, 62 link clicks at a 3.02 percent CTR, 15 Checkout-screen events on USD 17.99 of clean-dataset spend, and a USD 1.20 cost per Checkout. Across both campaigns, qhl2 outperformed qhl4 on the majority of spend allocations. Combining the qhl2 and qhl4 ad-set variants per pack, the highest-performing creatives at Checkout-event level were 5\_5 in static (23 Checkout-screen events at USD 0.38 cost per Checkout), 7\_3 in static (15 events at USD 0.49), 11\_2 in video (8 events at USD 0.91), and 13\_1 in video (4 events at USD 0.25 — the lowest cost per Checkout in the entire corpus, on a small but striking sample). The learning from this cycle was that statics out-converted video at the Checkout-event level on this corpus by roughly a factor of two on cost-per-result, that the qhl2 first-screen variant outperformed qhl4 across most spend allocations, and that one outlier

video creative (13\_1) demonstrated that the video format is not categorically inferior and warrants continued testing.



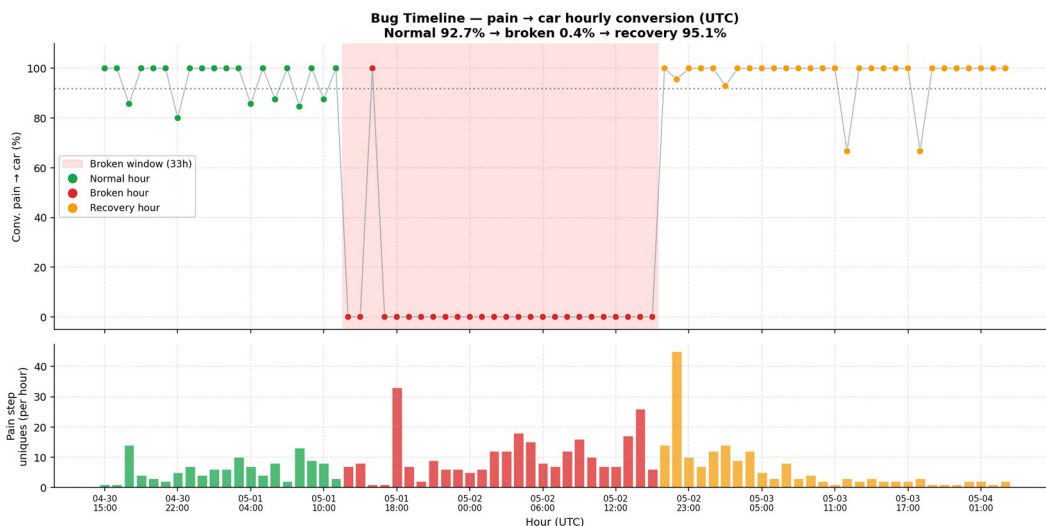
**Fig. 5.8. Top Three Winning Creatives at the Checkout-Event Level — Packs 5\_5, 7\_3, and 13\_1.** *Source: author's creative-production worksheet, May 2026.*

**5.2.6 Cycle F — Lead-event test (campaigns 4 and 5, 1 May 2026).** The hypothesis tested in this cycle was that the deeper Lead event — defined for this study as the user clicking through the paywall to the payment-method-selection screen — would yield enough volume on the available budget for a directional read on cost-per-Lead and on which creatives convert past the paywall. Two campaigns were launched: S1\_U\_Ctest60501(1)\_fp1\_T1\_Lead\_lc for static creatives and S1\_U\_Ctest60501(2)\_fp1\_T1\_Lead\_lc for video, each with the same qhl2-and-qhl4 ad-set split. Total Lead events across both campaigns came to three. With  $n = 3$ , the cycle does not support inference about which creatives convert past the paywall; the result is treated as directional only and is explicitly so flagged. The unexpected and material finding from this cycle was the bug timing: most of the planned spend window for these campaigns coincided with the broken-button incident documented in Cycle G, and the cycle's most consequential output is therefore the data-quality methodology that follows rather than the Lead-cost figure itself.

**5.2.7 Cycle G — Bug detection and recovery.** The hypothesis tested in this cycle was that the rolling hourly funnel telemetry maintained in Amplitude would be sensitive enough to detect a regression at any single funnel step. On 1 May 2026, between approximately 12:00 UTC and 21:00 UTC on 2 May, the conversion rate from `completed: pain` to `completed: car` collapsed from a normal range of approximately ninety to ninety-five percent to approximately zero-point-four

percent: 273 users completed the *pain* step in the broken window, of whom only one reached *car*. The defect was a regression on the call-to-action button at the *pain* step (the onboarding screen on which the user is asked to identify their primary pain points): the button rendered correctly but did not advance the user. The regression was identified during routine review of the rolling hourly Amplitude telemetry on the morning of 2 May, was repaired by approximately 21:00 UTC on 2 May, and was followed by an immediate recovery to roughly 95 percent *pain* → *car* conversion in the post-fix window. The total broken window was 33 hours.

The data-quality response was a two-window analytical approach, agreed in Chapter 2.6 and applied throughout this section. Full-period data is used for upper-funnel events (welcome through *pain*) and Meta-side metrics (impressions, clicks, click-through rate, cost per click, cost per mille), which the bug did not affect. An hour-precise clean cut excluding 12:00 UTC on 1 May to 21:00 UTC on 2 May is used for events at *car* and below. The cut excludes approximately USD 87.62 of the total USD 195.32 paid spend in the period and approximately one of the seven total paywall-CTA clicks; the remainder of the analysis in this section uses the cleaned dataset by default. The complete bug-timeline data — hourly counts of *pain*, *car*, and the resulting conversion rate over the 120 hours surrounding the incident — is held in Appendix D under `bug_timeline_hourly.csv`. The learning from this cycle is that the data-quality discipline practised across the experiment was sufficient to detect the regression on the same day it occurred, to scope its impact precisely, and to preserve the integrity of every downstream analysis without abandoning the dataset.



**Fig. 5.7. Bug Timeline — pain → car Conversion Across the 33-Hour Outage (Amplitude, hourly granularity).** *Source: Amplitude chart vl2wvazu, exported May 2026.*

**5.2.8 Cycle H — End-to-end funnel performance.** The hypothesis tested in this cycle, drawing on the cleaned dataset, was that the seventeen-step funnel topology achieves at or above the category benchmark of seventeen to twenty-four percent entry-to-paywall conversion (Vorobiov). The cleaned dataset comprises 960 unique funnel entries, excluding Ukraine and Poland and hour-precise around the broken window. The full step-by-step funnel performance is presented in Table 5.4. The headline finding is that 17.3 percent of unique entries reach the paywall view — at the upper end of the seventeen-to-twenty-four-percent benchmark — while only 0.73 percent reach the paywall CTA click, a 4.2 percent paywall-view-to-CTA conversion against a 25 to 30 percent category benchmark. Three single-step drops dominate the loss: the welcome bounce (54.8 percent drop, the largest single-step leak in the funnel), the paywall-view-to-CTA collapse (95.8 percent drop, the universal bottleneck), and the *plan* → *proof* step (15.7 percent drop, the largest mid-funnel leak in an otherwise 88-to-99-percent step-to-step range). The mid-funnel topology is healthy in the venture-builder convention; the bottlenecks are concentrated at the two interfaces — the welcome CTA and the paywall CTA — and the paywall is the more consequential of the two for the unit-economics math developed in Chapter 4.2.

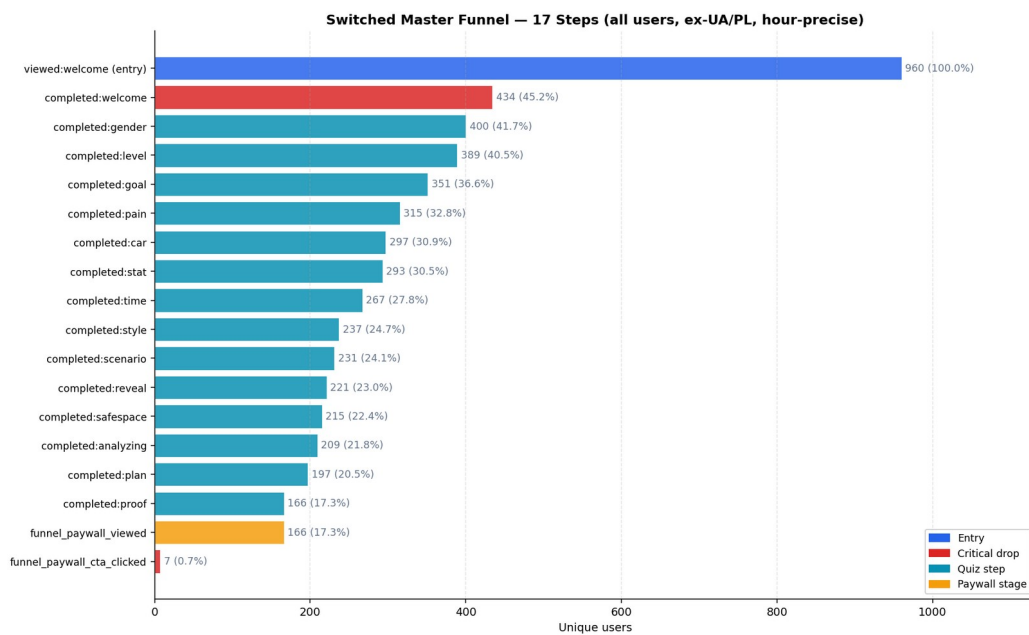
**Table 5.4. Switched Master Funnel — Seventeen-Step Performance, Clean Dataset ( $n = 960$  entries; excluding Ukraine and Poland; hour-precise)**

| Step | Step name              | Users | Share of entries | Step-to-step conversion |
|------|------------------------|-------|------------------|-------------------------|
| 0    | viewed:welcome (entry) | 960   | 100.0%           | —                       |
| 1    | completed:welco me     | 434   | 45.2%            | 45.2%                   |
| 2    | completed:gende r      | 400   | 41.7%            | 92.2%                   |
| 3    | completed:level        | 389   | 40.5%            | 97.3%                   |



|    |                         |     |       |        |
|----|-------------------------|-----|-------|--------|
|    |                         |     |       |        |
| 4  | completed:goal          | 351 | 36.6% | 90.2%  |
| 5  | completed:pain          | 315 | 32.8% | 89.7%  |
| 6  | completed:car           | 297 | 30.9% | 94.3%  |
| 7  | completed:stat          | 293 | 30.5% | 98.7%  |
| 8  | completed:time          | 267 | 27.8% | 91.1%  |
| 9  | completed:style         | 237 | 24.7% | 88.8%  |
| 10 | completed:scenar<br>io  | 231 | 24.1% | 97.5%  |
| 11 | completed:reveal        | 221 | 23.0% | 95.7%  |
| 12 | completed:safesp<br>ace | 215 | 22.4% | 97.3%  |
| 13 | completed:analyz<br>ing | 209 | 21.8% | 97.2%  |
| 14 | completed:plan          | 197 | 20.5% | 94.3%  |
| 15 | completed:proof         | 166 | 17.3% | 84.3%  |
| 16 | paywall_viewed          | 166 | 17.3% | 100.0% |
| 17 | paywall_cta_clic<br>ked | 7   | 0.73% | 4.2%   |

*Source: Author's analysis of the cleaned Amplitude dataset for the period 27 April to 4 May 2026, excluding Ukraine and Poland, hour-precise around the broken-window of 12:00 UTC on 1 May to 21:00 UTC on 2 May; raw-data inventory in Appendix D.*



**Fig. 5.3.** *Switched Master Funnel — 17 Steps (all users, excluding Ukraine and Poland; hour-precise). Source: Author's visualisation of clean-dataset funnel data (n = 960 entries, hour-precise) using Python and matplotlib; underlying data in Table 5.4.*

**5.2.9 Cycle I — Audience segmentation.** The hypothesis tested in this cycle was that the segmentation cuts available in the cleaned dataset — by country, by device, and by Meta-side demographic — would surface concentrations and outliers worth carrying into the next iteration. The segmentation results are presented in Tables 5.5 and 5.6 and summarised below.

The country cut (Table 5.5) confirms the Tier-1 working assumption from Chapter 5.1 and surfaces three notable patterns. Australia returned the highest end-to-end conversion at 0.58 percent on a small entry volume (171). The United States contributed the largest entry volume at 615 entries but with the lowest welcome-completion rate among the validated Tier-1 markets (28.9 percent), implying a top-of-funnel landing-experience or copy-fit issue specific to the US audience. The United Kingdom showed the highest welcome-completion rate (73.0 percent) but the lowest paywall-CTA conversion (1.8 percent), suggesting that copy or pricing fits the UK upper funnel but not the UK paywall. New Zealand, Ireland, and Sweden all returned zero paywall-CTA clicks, with Ireland and Sweden showing zero conversion past the welcome screen and warranting a session-replay drilldown

in the next iteration to determine whether the traffic was bot-driven, language-gated, or affected by an event-firing bug.

The device cut (Table 5.6) shows iPad as the standout form factor at 1.12 percent overall conversion (n = 89 entries; small but striking, more than twice the cross-device average). All desktop traffic — Windows, Mac, and Linux combined, totalling 138 entries — converted at zero paywall-CTA. As discussed in Chapter 3.2, the desktop figure is confounded by the funnel's mobile-first design and should be read as a low-priority-segment indicator rather than as evidence of absent demand. In-app browsers (Instagram and Facebook) contributed 66 percent of total funnel traffic and 89 percent of welcome-screen completions, which is consistent with Meta-driven traffic landing in the app's in-app browser before bouncing out.

Finally, the Meta-side demographic cut (n = 61 Checkout-event users, discussed in Chapter 3.2) shows the audience as 97 percent male and approximately 50 percent thirty-five years or older within the male sub-sample; the under-served-female-audience hypothesis articulated in Chapter 3.2 is the corresponding next-iteration experiment.

**Table 5.5.** *Per-Country Funnel Performance (Tier-1 Markets and Outliers)*

| Country        | Entries | Welcome<br>→<br>completed<br>(%) | Gender →<br>completed<br>(%) | Paywall →<br>viewed<br>(%) | Paywall →<br>CTA (%) | Overall E<br>→ CTA<br>(%) |
|----------------|---------|----------------------------------|------------------------------|----------------------------|----------------------|---------------------------|
| Australia      | 171     | 60.8                             | 94.2                         | 15.3                       | 6.7                  | 0.58                      |
| United States  | 615     | 28.9                             | 92.1                         | 29.3                       | 6.3                  | 0.49                      |
| Canada         | 221     | 59.7                             | 92.4                         | 25.4                       | 3.2                  | 0.45                      |
| United Kingdom | 370     | 73.0                             | 88.5                         | 23.4                       | 1.8                  | 0.27                      |
| New Zealand    | 128     | 58.6                             | 90.7                         | 19.1                       | 0.0                  | 0.00                      |
| Ireland        | 67      | 0.0                              | n/a                          | n/a                        | n/a                  | 0.00                      |
| Sweden         | 44      | 0.0                              | n/a                          | n/a                        | n/a                  | 0.00                      |

*Source: Author's analysis of the cleaned per-country funnel breakdown; raw-data inventory in Appendix D. Note: this breakdown excludes Ukraine and Poland but does not have the hour-precise broken-window cut applied (the underlying data sums to a higher total than the master funnel in Table 5.4); the figures are therefore directional. Because the broken-window bug suppressed events at and after the \*pain\* step, the entry-volume column is largely unaffected, while the paywall-view and paywall-CTA percentages in each country may be modestly understated relative to a fully clean cut.*

**Table 5.6.** *Per-Device Funnel Performance (clean dataset)*

| Device           | Entries | Welcome → completed (%) | Paywall → viewed (%) | Paywall → CTA (%) | Overall E → CTA (%) |
|------------------|---------|-------------------------|----------------------|-------------------|---------------------|
| Apple iPad       | 89      | 78.7                    | 4.5                  | 1.1               | 1.12                |
| Android (mobile) | 672     | 56.0                    | 11.9                 | 0.4               | 0.45                |
| Apple iPhone     | 678     | 42.6                    | 11.1                 | 0.4               | 0.44                |
| Windows desktop  | 107     | 22.4                    | 2.8                  | 0.0               | 0.00                |
| Mac desktop      | 16      | 43.8                    | 6.3                  | 0.0               | 0.00                |
| Linux desktop    | 15      | 6.7                     | 0.0                  | 0.0               | 0.00                |

*Source: Author's analysis of the cleaned per-device funnel breakdown; raw-data inventory in Appendix D.*

**5.2.10 Cycle J — Customer-acquisition-cost chain.** The hypothesis tested in this cycle was that a clean cost-per-paywall-CTA figure could be derived from the cleaned dataset that was internally consistent with the unit-economics modelling in Chapter 4.2 and with the broken-window data-cleaning methodology adopted in Cycle G. The CAC chain is presented in Table 5.7. Using clean-dataset paid spend of approximately USD 107.70 across the five campaigns against seven paywall-CTA clicks in the cleaned Amplitude funnel data, the cost per paywall-CTA — that is, the cost per intent-to-pay click — comes to approximately USD 15.39. The CAC chain is the input to the

unit-economics scenario sensitivity in Chapter 4.2 (Table 4.3) and is the foundation on which the next-iteration paywall A/B test must build to drive the CAC into the operational range identified in Chapter 4.2.

**Table 5.7.** *Customer-Acquisition-Cost Chain — Clean Dataset*

| Stage                                                                                                     | Count      | Cost per stage (USD) |
|-----------------------------------------------------------------------------------------------------------|------------|----------------------|
| Clean-dataset paid spend across the five campaigns (excluding Ukraine and Poland; broken-window-excluded) | USD 107.70 | —                    |
| Meta link clicks                                                                                          | 543        | 0.198                |
| Amplitude paywall views (clean)                                                                           | 166        | 0.649                |
| Amplitude paywall-CTA clicks (clean)                                                                      | 7          | 15.39                |

*Source: Author’s reconciliation of the cleaned Meta Ads Manager spend export against the cleaned Amplitude funnel export; underlying raw-data inventory in Appendix D; broken-window exclusion methodology and reconciliation steps documented in Appendix F.*

**5.3 POST-LAUNCH ANALYSIS AND ROADMAP**

This section converts the implementation evidence of Section 5.2 and the unit-economics analysis of Chapter 4.2 into a structured plan for the iteration that follows the capstone submission. It is organised in seven sub-parts: an extrapolation of what the analysis points to next; an explicit list of the critical data gaps that must be closed; a sequenced set of experimental priorities; the organic-distribution strategy that follows from the paid-acquisition findings; the MVP content roadmap; the funding pathway through grants and the venture-builder ecosystem; and a brief description of the unit-economics-discovery loop that the next twelve to twenty-four months are designed to traverse.

The venture-builder unit-economics-discovery loop. The end-to-end arc practised by Ukrainian venture-builder operators (SKELAR and Genesis), as described in the operator interview (Appendix E), spans nine stages, from initial market research through to a Series-A-readiness signal. This capstone covers the first five stages — market research, idea selection, niche and opportunity research, first tests, and upper-funnel results analysis. Stages six through nine — MVP, bigger paid tests, pre-seed validation at the USD 200,000–300,000 monthly recurring revenue scale, and the seed round — form the next-iteration trajectory and are the subject of the experimental priorities set out in Table 5.8. Fig. 5.9 below illustrates the full arc with the diploma scope visually highlighted.

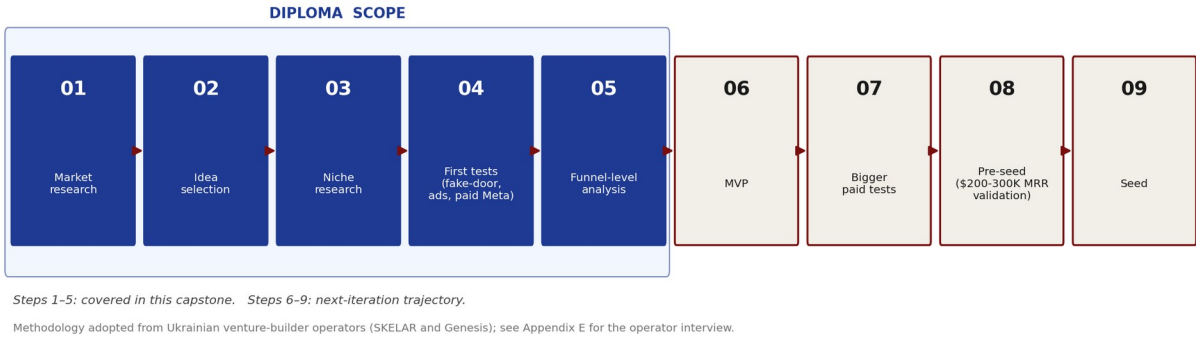


Fig. 5.9. Venture-Builder Roadmap — Nine-Stage Arc with Diploma Scope Highlighted (Steps 1–5). *Source: Author’s synthesis of the venture-builder unit-economics-discovery loop described in the operator interview (Kotyrlo, Appendix E) and corroborated by the public descriptions of SKELAR’s and Genesis’s portfolio-construction methodology.*

**Extrapolation — what the analysis points to next.** The unit-economics analysis in Chapter 4.2 (Table 4.3) showed that under the cost-per-paywall-CTA observed in the present iteration (USD 15.39, the clean-data anchor reconciled in Section 5.2.10), the two-step pricing structure (USD 14.99 introductory and USD 29.98 from the second rebill), and a six-month return-on-investment horizon, the math closes in the upper half of the paywall-CTA-to-purchase distribution and fails in the lower half. The lever that moves the most weight is the paywall-view-to-CTA conversion rate itself, currently 4.2 percent against a 25 to 30 percent category benchmark (Vorobiov; Section 5.2.8, Insight 3 of Chapter 3.3). Bringing the paywall-CTA rate into category-benchmark range would substantially reduce the cost-per-CTA, with the next-iteration target a CAC inside the band of below approximately USD 80 that is typical of category-comparable consumer-microlearning subscription apps in Tier-1

markets. The first-iteration CAC at two to three times the eventual operational target is, in the venture-builder convention, treated as a promising rather than a failing outcome (Kotyrlo); Switched's measured numbers sit inside that band.

**Critical data gaps.** Five gaps in the present dataset must be closed before unit-economics validation can be declared. The first is the paywall-to-purchase conversion rate, which cannot be measured without integrating a real payment processor; this is the single most consequential gap, since every CAC figure in Chapter 4.2 is conditional on an externally-benchmarked paywall-to-purchase assumption. The second is the absolute volume of paywall-CTA clicks: at  $n = 7$  in the present iteration, post-paywall behaviour can only be discussed directionally. The third is the per-creative attribution between Amplitude funnel data and Meta Ads Manager creative reporting after the broken-window cut, which limits the precision of the per-creative cost-per-result figures used in Section 5.2.5. The fourth is the demographic breakdown of paying users (as opposed to Checkout-event users), which would allow the underserved-female-audience hypothesis from Chapter 3.2 to be tested empirically. The fifth is the geographic anomaly observed in Ireland and Sweden, where 100 percent of the entries did not pass the welcome screen; the next iteration's session-replay drilldown will determine whether the cause is bot traffic, language gating, or a tracking event-fire bug.

**Next-iteration experimental priorities.** The plan that follows the capstone submission is sequenced into six concrete priorities, summarised in Table 5.8. Each is tied to a specific evidence gap, a specific hypothesis from Chapter 2.1 or Chapter 3, and a specific outcome that it is intended to unlock. The first four priorities together carry a working-budget order-of-magnitude similar to the present iteration (a few hundred US dollars of personal-savings spend); the fifth priority is low-fixed-cost and founder-led; the sixth priority is intended to lift the budget ceiling for everything above it.

**Table 5.8.** *Next-Iteration Experimental Priorities — Sequenced Plan*

| # | Priority          | Hypothesis tested       | Specific action          | Resource requirement | Outcome unlocked        |
|---|-------------------|-------------------------|--------------------------|----------------------|-------------------------|
| 1 | Payment-processor | The paywall-to-purchase | Integrate Stripe for the | One to two weeks of  | Closes the largest data |

|   |                                                      |                                                                                                                                                                         |                                                                                                                 |                                                                     |                                                                                                                        |
|---|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
|   | integration                                          | conversion rate is measurable and can be brought to category-benchmark levels                                                                                           | web-hosted phase; defer RevenueCat or Adapty to the native-application phase                                    | focused engineering time                                            | gap in Chapter 4.2; converts every unit-economics scenario from assumed to measured                                    |
| 2 | Paywall A/B test under purchase optimisation         | The 4.2 percent paywall-CTA rate (Section 5.2.8) reflects a real product or copy issue rather than only the test-design constraints discussed in Chapter 3.3, Insight 3 | Run two paywall variants — including a free-trial-gated variant — under a purchase-optimised campaign objective | Roughly USD 200 to USD 500 of paid spend; four to six elapsed weeks | Disentangles product-or-copy issue from test-design constraints; targets paywall-CTA conversion above 10 to 15 percent |
| 3 | Female-targeted creative track                       | Female demand for car-culture microlearning is present but obscured by male-coded creative and funnel choices (Chapter 3.2; Chapter 3.3, Insight 5)                     | Produce female-targeted advertising and funnel copy and run a parallel campaign                                 | Modest creative-production effort; two to three weeks               | Validates or invalidates the Underserved Female Audience hypothesis                                                    |
| 4 | Re-run of winning creatives                          | Statistical confirmation of the first-iteration ranking among packs 5_5, 7_3, and 13_1                                                                                  | Re-run the three winning packs under the post-bug clean window with a larger budget                             | Modest paid spend; one to two weeks                                 | Converts directional cost-per-Checkout figures into a more confident estimate                                          |
| 5 | Organic distribution launch on Instagram and Threads | Organic distribution lowers blended customer-acquisition                                                                                                                | Founder-led editorial cadence on the six content angles                                                         | Low fixed cost; ongoing time commitment                             | Diversifies the audience funnel away from Meta-only                                                                    |



|   |                                                               | cost over time                                                              | in Table 5.9                                                                           |                                                         | dependency                                                                                |
|---|---------------------------------------------------------------|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------------------------------------------------|
| 6 | Funding pathway through grants and venture-builder programmes | Capital availability is sufficient to lift the ceiling on priorities 1 to 5 | Apply to the instruments listed in Table 5.10, sequenced by hardness and applicability | Application-preparation time; programme-specific cycles | Removes the personal-savings ceiling that constrains the present iteration's spend volume |

*Source: Author's synthesis of the data gaps identified above, the Chapter 4.2 unit-economics analysis, and the venture-builder operator interview (Kotyrlo).*

**Organic distribution strategy.** Heavy reliance on paid Meta acquisition has been treated throughout this thesis as a temporary first-iteration condition rather than a long-term strategy (Chapters 4.2 and 5.1). The next-iteration plan complements paid acquisition with an organic distribution programme on Instagram and Threads. The choice of Threads alongside Instagram is intentional: Threads has been growing rapidly through 2025 and 2026 as a channel for organic reach in consumer subscription categories that overlap with the cultural-conversation domain Switched targets. The expected effect on the unit economics is a reduction in blended CAC over time, as some share of paying-user volume comes through organic channels rather than auction-priced Meta inventory. The organic programme is planned as a low-fixed-cost, founder-led editorial cadence on car-culture content that mirrors the six MVP content angles in Table 5.9 below.

**Table 5.9.** *MVP Content-Angle Roadmap — LTV-Different Cuts of a Single Application*

| Angle                                           | Primary persona served | Hook category (per Table 5.2)                                                 | Notes                                                                                       |
|-------------------------------------------------|------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| 1. General car-culture confidence               | Older Enthusiast       | Concept 2 — "How to become a well-spoken person", adapted                     | Principal hook for the validated primary persona; entry-level path into the wider catalogue |
| 2. Motorsport history and Formula 1 pop culture | Younger Aspirant       | Concepts 3 and 11 — "Replace doomscrolling ..." and "TikTok for smart people" | Carries the cultural-attention wave documented in Chapter 3.1; aligns with F1's growing     |

|                                                                                                                |                                        |                                                                           |                                                                                                                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------|----------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                |                                        |                                                                           | fanbase                                                                                                                                                                                                                                      |
| 3. Drifting, karting, and rally                                                                                | Both validated personas                | Concepts 6 and 8 — "Like Duolingo, but for..." and listicle hooks         | Participation-adjacent layer; supports the motorsport-and-events stakeholder partnerships in Chapter 3.2                                                                                                                                     |
| 4. Mechanics-light fundamentals                                                                                | Older Enthusiast                       | Concepts 4 and 11 — addiction-flavoured hooks                             | Bridge from the consumer audience to the deep-practical YouTube and forum substitutes                                                                                                                                                        |
| 5. Basic-driver-skills foundational module                                                                     | Both validated personas                | Concept 1 — "How I passed my DMV driving test"                            | Stable entry point for users who arrive without prior car interest; not a separate product                                                                                                                                                   |
| 6. Female-targeted parallel track                                                                              | Underserved Female Audience hypothesis | New concept family to be developed                                        | Identified in Chapter 3.2 and Chapter 3.3, Insight 5; directly informs the female-targeted creative experiment                                                                                                                               |
| 7. Upsell pathway — premium-content unlocks, in-app credit packs, advanced-tier or course-bundle subscriptions | All personas                           | Not a hook category — a revenue-line addition rather than a content angle | Positioned as a post-unit-economics-validation experiment rather than a first-iteration priority; the +20% upsell-ARPU sensitivity in Chapter 4.2, Table 4.3 illustrates the magnitude of the LTV uplift this pathway is designed to deliver |

*Source: Author's synthesis of the Chapter 4.1 Solution Direction, the Chapter 3.2 personas, the Section 5.2.1 creative-concept analysis, and the Chapter 4.2 unit-economics sensitivity analysis. The first six rows are content cuts inside the same application designed to extend customer lifetime value across persona-specific paths rather than fragment the audience across separate products. The seventh row is the upsell-pathway item — a revenue-line addition layered on top of the base*

*subscription, included here for roadmap completeness; its delivery sequencing is conditional on first-iteration validation.*

**Funding pathway through grants and the venture-builder ecosystem.** The personal-savings funding model adopted for the present iteration is, as documented in Chapter 4.2, sufficient for upper-funnel and concept-selection learning but insufficient for the spend volume required to declare unit-economics validation (Kotyrlo). The funding pathway between the capstone submission and unit-economics validation passes through a combination of non-dilutive grant programmes and the Ukrainian and international venture-builder ecosystems. Table 5.10 lists the pre-seed and early-stage instruments identified as direct sources of capital, with two additional columns: a hardness-to-obtain rating and an applicability-readiness rating that estimates how close Switched currently is to a credible application. Programmes that offer cloud credits or industry-adjacent partnerships rather than capital — Google for Startups, Microsoft for Startups Founders Hub, Diia.City, and direct partnerships with operators such as Gismart — are valuable but excluded here on the basis that they do not deliver direct funding; they are noted as supplementary in the pipeline but tracked separately.

**Table 5.10.** *Grants and Venture-Builder Pipeline — Direct-Funding Instruments (May 2026)*

| # | Instrument             | Type                                 | Hardness to obtain | Applicability readiness                                                    |
|---|------------------------|--------------------------------------|--------------------|----------------------------------------------------------------------------|
| 1 | Ukrainian Startup Fund | Non-dilutive grant                   | Medium             | Ready: pre-revenue early-stage applications accepted                       |
| 2 | Antler                 | Pre-seed accelerator (cash + equity) | High               | Near-ready: cohort-based; international intake runs continuously           |
| 3 | Techstars              | Accelerator (cash + equity)          | High               | Near-ready: thematic programmes accept early-stage founders with a working |

|   |                                        |                                                        |           |                                                                                                      |
|---|----------------------------------------|--------------------------------------------------------|-----------|------------------------------------------------------------------------------------------------------|
|   |                                        |                                                        |           | prototype                                                                                            |
| 4 | SKELAR                                 | Venture builder<br>(capital +<br>operating<br>support) | High      | Mid-term:<br>requires<br>demonstrable<br>traction and unit-<br>economics signal                      |
| 5 | Genesis                                | Venture builder<br>(capital +<br>operating<br>support) | High      | Mid-term:<br>requires<br>demonstrable<br>traction and unit-<br>economics signal                      |
| 6 | Seedcamp                               | Pre-seed and<br>seed (cash +<br>equity)                | High      | Mid-term:<br>London-based;<br>selective on<br>consumer-<br>subscription<br>founders                  |
| 7 | EU Horizon<br>Europe SME<br>Innovation | Non-dilutive<br>grant                                  | High      | Mid-term:<br>bureaucratic<br>preparation;<br>applied-research-<br>flavoured<br>proposals<br>favoured |
| 8 | Y Combinator                           | Seed accelerator<br>(cash + equity)                    | Very high | Long-term:<br>highest<br>competition;<br>typically reached<br>with prior<br>validated traction       |

*Source: Author's compilation from the corresponding programme websites and the venture-builder operator interview (Kotyrlo). Hardness ratings reflect public selection-rate signals and the venture-builder convention; applicability ratings reflect the gap between the present iteration's stage and each programme's stated stage requirements.*

**The unit-economics-discovery loop.** The standard unit-economics-discovery loop in the venture-builder ecosystem, as described by the operator interview, follows a defined arc that is useful to set out explicitly here because it frames the time horizon of the next-iteration plan. A pre-seed round typically delivers between USD 100,000 and USD 200,000 of dilutive or non-dilutive capital

to the founding team. The team uses that capital to build a working MVP, run paid-acquisition tests, and assemble enough paying-user evidence to make a unit-economics call. The threshold conventionally treated as confirmation of unit economics is approximately one hundred paying users, captured by working back through the funnel against benchmark conversion rates at each stage — for example, approximately 50 percent of users reaching the payment step from the paywall click, and approximately 80 percent payment-success at the processor — to compute the implied funnel-entry volume required (Kotyrlo). At the spend volumes required to deliver one hundred paying users at the cost-per-paywall-CTA range identified in Chapter 4.2, the implied paid-spend window is several thousand US dollars; achieving this at sustained calendar-monthly-revenue volumes of approximately USD 200,000 to USD 300,000 over three months is the threshold that unlocks the next funding round and the team build that follows it. The pre-seed period is typically burn-only, which is why the personal-savings model used in the present capstone is not by itself sufficient for validation; the funding pathway in Table 5.10 is the bridge between this thesis's iteration and the venture-builder ecosystem's validation threshold.

The full project timeline — covering both the Section 5.1 horizon and the sequenced experimental priorities introduced above — is consolidated into Fig. 5.2 in Chapter 5.1.

## CHAPTER 6. CONCLUSIONS AND RECOMMENDATIONS

### 6.1 RECAP OF THE PROBLEM AND THE ANALYTICAL APPROACH

This thesis examined whether a paying audience for a car-culture microlearning application could be acquired profitably under the standard content-subscription playbook used by venture-builder ecosystems, on a personal-savings budget. The problem was framed in Chapter 1 by three observations: that the cultural visibility and discretionary spending of the car-and-motorsport audience are sizeable and growing in Tier-1 markets; that the global microlearning category is large, compounding, and has at least one public-market reference product proving its mechanics at scale; and that no application currently occupies the intersection of these two — the category whitespace that Switched is positioned to fill. The analytical approach combined desk research on both market layers, a creative analysis of one hundred and thirty-four active competitor advertisements from the Meta Ads Library, two expert interviews with operators inside the Ukrainian venture-builder ecosystem, the construction of a seventeen-step quiz funnel hosted on Vercel and instrumented end-to-end in Amplitude, and five paid Meta campaigns across the five Tier-1 English-speaking markets. The investigation was structured as a marketing-first validation chain: user need was tested through creative and funnel performance before product investment was committed, in line with the venture-builder convention described in the Chapter 2 methodology.

### 6.2 SUMMARY OF KEY INSIGHTS AND RECOMMENDATIONS

Six high-impact insights, set out in detail in Chapter 3.3, drive the recommendations of this thesis. First, the microlearning category — rather than the "edutainment" framing originally considered — is the correct positioning frame for Switched, and the whitespace inside that category for a car-culture vertical is real, not residual. Second, the seventeen-step funnel topology achieves an

entry-to-paywall reach of 17.3 percent in the cleaned dataset, at the upper end of category benchmarks for content-subscription onboarding flows. Third, the paywall-view-to-CTA conversion of 4.2 percent is the universal bottleneck of the present iteration; the measured rate is consistent with the test's design constraints (small sample, non-purchase optimisation, immature pixel) and is treated as a hypothesis rather than a confirmed product defect. Fourth, two creative findings carry forward: static formats won the largest share of spend at the Checkout-event level (with packs 5\_5 and 7\_3 leading), and the qhl2 first-screen funnel headline ("Talk cars like you own the room") outperformed the qhl4 alternative, with the implication that identity-coded copy beats shame-coded copy in this audience. Fifth, the 97 percent male share of the paid-acquisition sample is best read as a function of male-coded creative-and-funnel choices in this iteration rather than as evidence of absent female demand, which makes the female audience a hypothesis-worthy underserved segment for the next iteration. Sixth, closing the customer-acquisition-cost math requires a paywall-to-purchase signal that this iteration did not collect; integrating a payment processor is the highest-priority technical task for the next cycle.

The recommendations that follow from these insights are sequenced as the six experimental priorities in Chapter 5.3, Table 5.8: integrate a payment processor (Stripe in the web-hosted phase); run a paywall A/B test under a purchase-optimised campaign objective; launch a female-targeted creative track in parallel; re-run the winning creatives identified in this iteration under a clean window; launch organic distribution on Instagram and Threads to lower blended customer-acquisition cost over time; and pursue the funding pathway through grants and venture-builder programmes set out in Chapter 5.3, Table 5.10.

### **6.3 ASSESSMENT OF STARTUP VIABILITY UNDER STATED ASSUMPTIONS**

Under the assumptions developed in Chapter 4.2 — a working cost-per-paywall-CTA of approximately USD 15.39 from the cleaned dataset, the two-step pricing structure of USD 14.99

introductory and USD 29.98 from the second rebill, the retention curve consistent with the venture-builder operator interview, and the parallel evaluation on a six-month and a twelve-month return-on-investment horizon — the unit-economics math closes in the upper half of the paywall-CTA-to-purchase distribution and fails in the lower half. The best-case scenario delivers a customer-acquisition cost of approximately USD 30.78 against a six-month customer lifetime value of approximately USD 54.58 (twelve-month USD 64.74), with a CAC payback inside both horizons; the top-quartile scenario delivers a marginally positive six-month ROI with payback near the edge of the six-month horizon and a stronger twelve-month ROI; the median and cold-quiz scenarios do not pay back within either horizon. Under a working +20% upsell-ARPU sensitivity (Table 4.3), the top-quartile scenario shifts to clearly-positive ROI on both horizons, while the median and cold-quiz scenarios remain structurally negative. The realistic operating range for category-comparable consumer-microlearning subscription apps in Tier-1 markets sits in the broad band of below approximately USD 80, and the next-iteration target is for Switched's CAC to settle inside that band once the paywall-CTA conversion rate is brought into the 25 to 30 percent benchmark range and the Meta pixel matures against a purchase-optimised event; both of those movements depend on experimental work that lies outside the scope of this thesis and is identified in Chapter 5.3. The first-iteration CAC at two to three times the eventual operational target is, in the venture-builder convention, a promising rather than a failing outcome (Kotyrlo); the present iteration's measured numbers sit inside that band. The viability assessment is therefore that the project has produced sufficient signal to warrant a second iteration, with the paywall A/B test and the payment-processor integration as the two preconditions for closing the unit-economics math.

## 6.4 LIMITATIONS

Five limitations bound the conclusions above. First, sample sizes at the deepest funnel events are small — seven paywall-CTA clicks across nine hundred and sixty unique entries — and



conclusions about post-paywall behaviour are correspondingly directional rather than definitive. Second, no real payments were collected at any point in the experiment, in keeping with the fake-door convention used at the equivalent stage by venture-builder operators (Kotyrlo); this means that no measured paywall-to-purchase rate is available for the unit-economics math, and the figures in Chapter 4.2 use externally-benchmarked sensitivity ranges rather than measured values. Third, a thirty-three-hour broken-button regression on the *pain* funnel step contaminated part of the experimental window; the data-cleaning methodology adopted in response (full-period data for upper-funnel and Meta-side metrics; hour-precise clean cut for events at *car* and below) is documented in Chapter 2.6 and applied throughout, but the smaller cleaned dataset reduces the precision of every downstream estimate. Fourth, the analysis covers a single iteration and a single creative-corpus window; the findings have not been replicated, and the venture-builder convention is to require multiple iterations before unit-economics validation is declared. Fifth, the paid-acquisition sample skews 97 percent male, which Chapter 3.2 reframes as a function of male-coded creative-and-funnel design choices rather than as evidence of absent female demand; the underlying gender composition of the addressable market remains an open empirical question that the next iteration's female-targeted creative experiment is intended to address.

## 6.5 FUTURE RESEARCH AND IMPLICATIONS

Five directions for further research follow directly from the limitations and the next-iteration priorities. The first is the integration of Stripe in the web phase — and of subscription-management platforms such as RevenueCat or Adapty after migration to native applications — to unlock the paywall-to-purchase rate that closes the unit-economics math. The second is the paywall A/B test under a purchase-optimised campaign objective and a sample size sufficient for statistical confidence, with the explicit intent of testing whether the paywall-CTA bottleneck is a real product or copy issue or an artefact of the present test's design constraints. The third is the female-targeted creative

experiment introduced in Chapter 3.2 and recommended in Chapter 5.3, which would either invalidate or validate the underserved-female-audience hypothesis. The fourth is direct user research — interviews and surveys of the car-curious adult population in Tier-1 markets — to test the persona pains hypothesised in Chapter 3.2, which the present thesis derived from creative-performance data and persona logic rather than from primary user research. The fifth is the funding pathway itself: the grants and venture-builder programmes listed in Table 5.10 are the bridge between this thesis's iteration and the venture-builder ecosystem's unit-economics-validation threshold of approximately USD 200,000 to USD 300,000 in monthly revenue sustained over three months (Kotyrlo).

The principal implication of the work for the broader question is that the action-based, marketing-first validation chain used in this thesis is a viable approach to testing a category-vertical subscription product on a personal-savings budget, even where the budget is too small to declare unit-economics validation. The signal generated is sufficient to make a confident next-iteration decision and to identify the precise levers that the next iteration must move; the unanswered questions are sized appropriately to the next funding round, rather than to the present iteration. On those terms, the thesis recommends that the project continue.

The intended trajectory of the Switched project. The author intends to continue this work in two stages. The first stage continues self-funded on a small personal budget (low single-digit thousands of US dollars), focused on closing the paywall-CTA conversion gap identified in Chapter 5.2 and on building data-driven evidence of paywall efficacy. The second stage — contingent on the first — is an approach to a Ukrainian venture-builder programme (SKELAR or Genesis, the two operators whose methodology forms the backbone of this thesis) for capital and operational support to scale the unit-economics-discovery loop into the MVP and bigger-paid-tests stages of the arc set out in Fig. 5.9. The venture-builder pathway is preferred over alternative funding routes for the reasons documented in Chapter 4.2: it shortens time-to-validated-economics by an order of magnitude relative to traditional bootstrapped or seed-first paths, and it provides the operational support —

creative production, performance-marketing know-how, payment-processor integration, retention analytics — that a single founder cannot credibly source unaided.

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## APPENDIX A. TWENTY-ONE FINAL CREATIVES — LAUNCH SET

This appendix lists the twenty-one head packs of advertising creative produced for Switched and launched into the paid-acquisition experiment described in Section 5.2. The list reproduces Table 5.3 in full and adds the production tool used for each pack and a note on minor design variants. All packs were finalised between 20 April and 1 May 2026.

| Pack ID | Concept reference (Table 5.2)     | Format      | Production tool   | Headline / hook                                          |
|---------|-----------------------------------|-------------|-------------------|----------------------------------------------------------|
| 1_1     | Concept 1 — DMV reference         | Static      | ChatGPT Image 2.0 | "How I passed my DMV driving test on the first try"      |
| 2_1     | Concept 2 — identity confidence   | Static      | ChatGPT Image 2.0 | "Don't be a poser. Be a car savvy."                      |
| 2_2     | Concept 2 — identity confidence   | Static      | ChatGPT Image 2.0 | "Don't just love cars. Understand them."                 |
| 2_3     | Concept 2 — identity confidence   | Static      | ChatGPT Image 2.0 | "How to go from car fan to car savvy"                    |
| 5_5     | Concept 3 — replace doomscrolling | Static      | Gemini Image      | "Replace doomscrolling with addictive car learning app"  |
| 7_3     | Concept 7 — curiosity-gap hook    | Static      | ChatGPT Image 2.0 | "95% of drivers fail this basic car quiz"                |
| 7_5     | Concept 7 — curiosity-gap hook    | Static      | Gemini Image      | "95% of drivers fail this car culture quiz"              |
| 8_3     | Concept 7 — curiosity-gap hook    | Static      | ChatGPT Image 2.0 | "3 signs that you don't know true car culture"           |
| 10_1    | Concept 9 — UGC                   | Video (UGC) | HeyGen            | UGC talking-head distinguishing surface familiarity with |

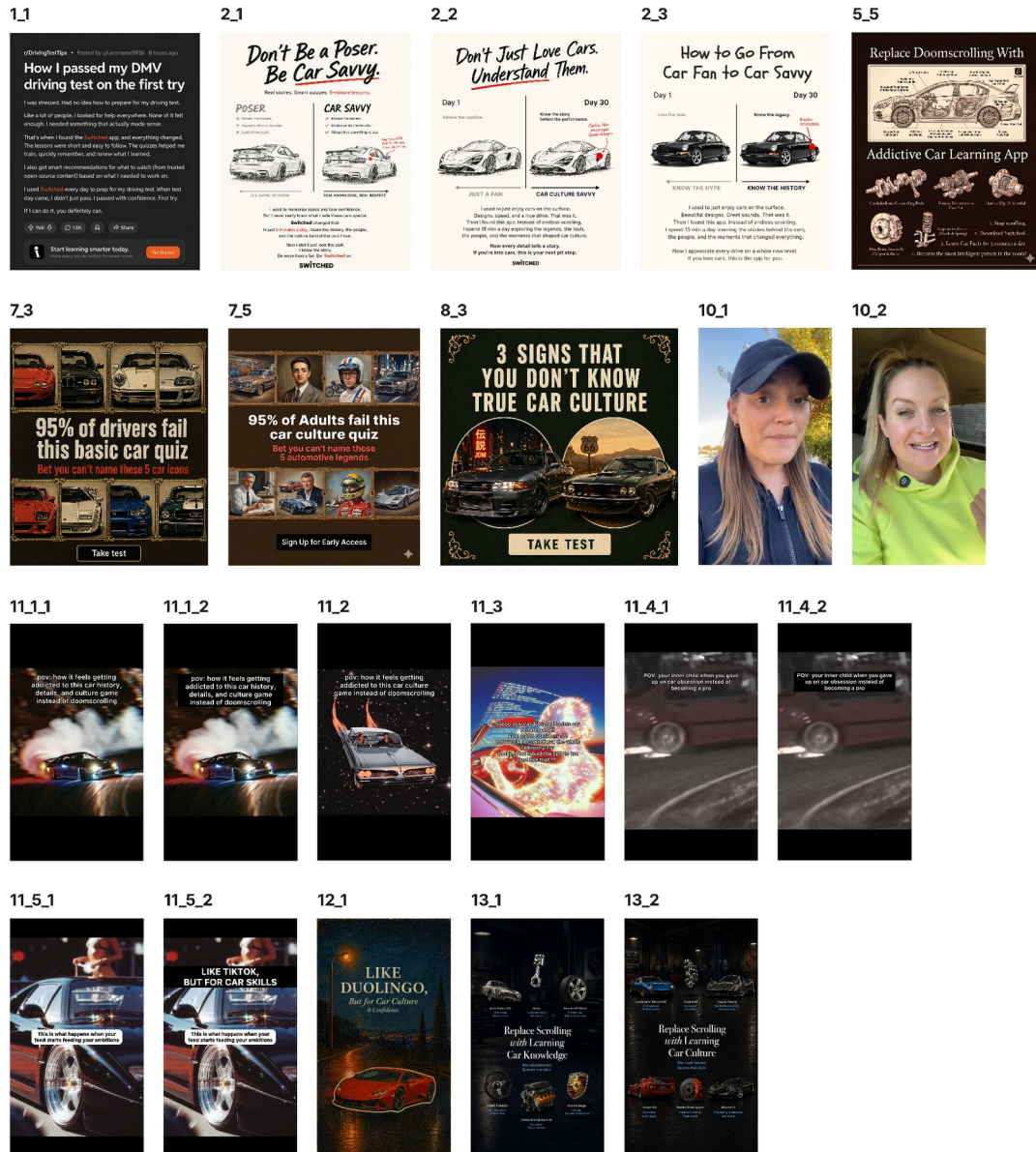


|      |                                     |             |                               |                                                                                                                                    |
|------|-------------------------------------|-------------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
|      |                                     |             |                               | car names and brands from genuine understanding of the culture, version 1                                                          |
| 10_2 | Concept 9 — UGC                     | Video (UGC) | HeyGen                        | UGC talking-head distinguishing surface familiarity with car names and brands from genuine understanding of the culture, version 2 |
| 11_1 | Concept 4 — addiction-flavoured     | Video       | Pinterest + InShot            | "POV: getting addicted to this car history game instead of doomscrolling"                                                          |
| 11_2 | Concept 4 — addiction-flavoured     | Video       | Pinterest + InShot            | "POV: getting addicted to this car culture game instead of doomscrolling"                                                          |
| 11_3 | Concept 4 — addiction-flavoured     | Video       | Pinterest + InShot            | "Soooo now I'm addicted to this car culture game?"                                                                                 |
| 11_4 | Concept 11 — TikTok-for-smart       | Video       | Pinterest + InShot            | "POV: your inner child when you gave up on car obsession"                                                                          |
| 11_5 | Concept 11 — TikTok-for-smart       | Video       | Pinterest + InShot            | "What happens when your feed starts feeding your ambitions"                                                                        |
| 12_1 | Concept 6 — "Like Duolingo, but..." | Video       | ChatGPT Image 2.0 + InShot    | "Like Duolingo, but for car culture and confidence"                                                                                |
| 13_1 | Concept 3 — replace scrolling       | Video       | ChatGPT Image 2.0 + Kling 2.0 | "Replace scrolling with learning car                                                                                               |

|      |                                  |       |                                  |                                                        |
|------|----------------------------------|-------|----------------------------------|--------------------------------------------------------|
|      |                                  |       |                                  | knowledge"                                             |
| 13_2 | Concept 3 —<br>replace scrolling | Video | ChatGPT Image<br>2.0 + Kling 2.0 | "Replace<br>scrolling with<br>learning car<br>culture" |

Source: Author's creative-production worksheet, May 2026.

**Minor design variants.** Several packs were launched in two or three minor design variants where the headline text required different visual treatment (font weight, contrast, line break). The variants relevant to the paid campaigns include 11\_4\_1 and 11\_4\_2 (text-readability adjustments to pack 11\_4) and 11\_5\_1 and 11\_5\_2 (text-readability adjustments to pack 11\_5). The variants are not separately analysed in Section 5.2 because they were rotated as part of the same ad set; aggregate spend and result counts are reported under the parent pack.



**Fig. A.1. Twenty-One Final Creatives — Launch Set, Thumbnail Grid.** *Source: author's creative-production worksheet, May 2026.*

## APPENDIX B. CAMPAIGN AND AD-SET NAMING CONVENTION

This appendix documents the naming convention used for the five paid campaigns and their ad sets. The convention encodes the experimental dimensions of each campaign — the date, the optimisation objective, the creative format, and the audience-variant — directly in the name, so that the experimental design can be reconstructed from the campaign list alone.

### Campaign-level naming convention

The campaign name pattern is:

$S\{n\}_{\text{audience}}\text{Ctest}\{YMMDD\}(\{n\})_{\text{fp}\{n\}}\text{T}\{n\}_{\text{objective}}_{\text{lc}}$

The components are:

- $S\{n\}$  — the Switched ad-account identifier. Throughout this experiment, all campaigns used  $S1$  (Switched Account 1).
- $\text{audience}$  — the gender/audience variant.  $U$  denotes "Unisex" (no gender targeting). All campaigns in this experiment used  $U$ .
- $\text{Ctest}$  — a fixed token marking the campaign as a creative test.
- $\{YMMDD\}$  — the launch date in single-digit-year, two-digit-month, two-digit-day format.  $60427$  denotes 27 April 2026;  $60501$  denotes 1 May 2026.
- $(\{n\})$  — the ordinal of campaigns launched on that date.  $(1)$  is the first campaign,  $(2)$  the second.
- $\text{fp}\{n\}$  — the Facebook fan page identifier used. All campaigns used  $\text{fp}1$ .
- $\text{T}\{n\}$  — the geographic tier.  $T1$  denotes Tier-1 (United States, United Kingdom, Canada, Australia, New Zealand).
- $\text{objective}$  — the Meta optimisation objective. The five campaigns used  $\text{Click}$ ,  $\text{Checkout}$ , and  $\text{Lead}$ .
- $\text{lc}$  — the bidding strategy,  $\text{lc}$  denoting "lowest cost".

**Five campaigns launched.**  $S1\_U\_Ctest60427(1)_{\text{fp}1\_T1\_Click\_lc}$  (Cycle D);

$S1\_U\_Ctest60430(1)_{\text{fp}1\_T1\_Checkout\_lc}$  (Cycle E, statics);

$S1\_U\_Ctest60430(2)_{\text{fp}1\_T1\_Checkout\_lc}$  (Cycle E, video);

S1\_U\_Ctest60501(1)\_fp1\_T1\_Lead\_lc (Cycle F, statics);  
 S1\_U\_Ctest60501(2)\_fp1\_T1\_Lead\_lc (Cycle F, video).

### **Ad-set-level naming convention**

The ad-set name pattern is:

{creative-pool}\_{format}\_S{n}\_{audience}\_ASC{YMMDD}  
 ({n})\_{first-screen-variant}

The components specific to ad sets are:

- {creative-pool} — mix denotes that the creatives in the ad set are intentionally different from each other by concept. - {format} — I denotes Image (static); V denotes Video. - ASC — fixed token denoting the use of the Advantage Shopping Campaign format. - {first-screen-variant} — the funnel A/B-test cell. qhl2 denotes the headline "Talk cars like you own the room"; qhl4 denotes the headline "Fix your car IQ. Shut their mouths".

**Example.** mix\_V\_S1\_U\_ASC60501(2)\_qhl4 reads: a mixed-creative video ad set under the Switched account, unisex audience, Advantage Shopping Campaign launched as the second campaign on 1 May 2026, routing users to the qhl4 first-screen variant.

## APPENDIX C. FUNNEL SCREEN LIST AND FIRST-SCREEN VARIANTS

The Switched onboarding funnel comprises seventeen tracked steps from entry through paywall-CTA click. The full step list is reproduced below, together with the two first-screen headline variants tested in the qhl2-versus-qhl4 A/B experiment described in Section 5.2.5.

### The seventeen funnel steps

The Amplitude event identifiers are listed in funnel order. Each numbered step corresponds to a `funnel_step_completed` event, except for step 0 (entry) and steps 16 and 17 (paywall view and paywall CTA click), which use distinct event names.

0. `viewed:welcome` — entry to the funnel: the welcome screen renders with no required interaction other than a continue button. 1. `completed:welcome` — the user clicks the welcome-screen continue button. 2. `completed:gender` — the user selects their gender. 3. `completed:level` — the user selects their car-knowledge self-assessment level. 4. `completed:goal` — the user selects their desired outcome. 5. `completed:pain` — the user selects the confidence-killer that brought them in, from driving situations to social conversations about cars. 6. `completed:car` — the user selects the car brand they own, if any. 7. `completed:stat` — the user clears an illustrative-statistics screen showing category-typical data points about driver knowledge. 8. `completed:time` — the user selects a daily-learning-time commitment. 9. `completed:style` — the user selects a preferred learning style and clears the screen. 10. `completed:scenario` — the user answers a quiz question on the appropriate response to a specific car-related issue. 11. `completed:reveal` — the user views the right-answer reveal for the scenario quiz. 12. `completed:safespace` — the user clears a framing screen positioning the product as an efficient learning environment. 13. `completed:analyzing` — the user waits through a scripted personalisation-loading animation that frames the assembly of their

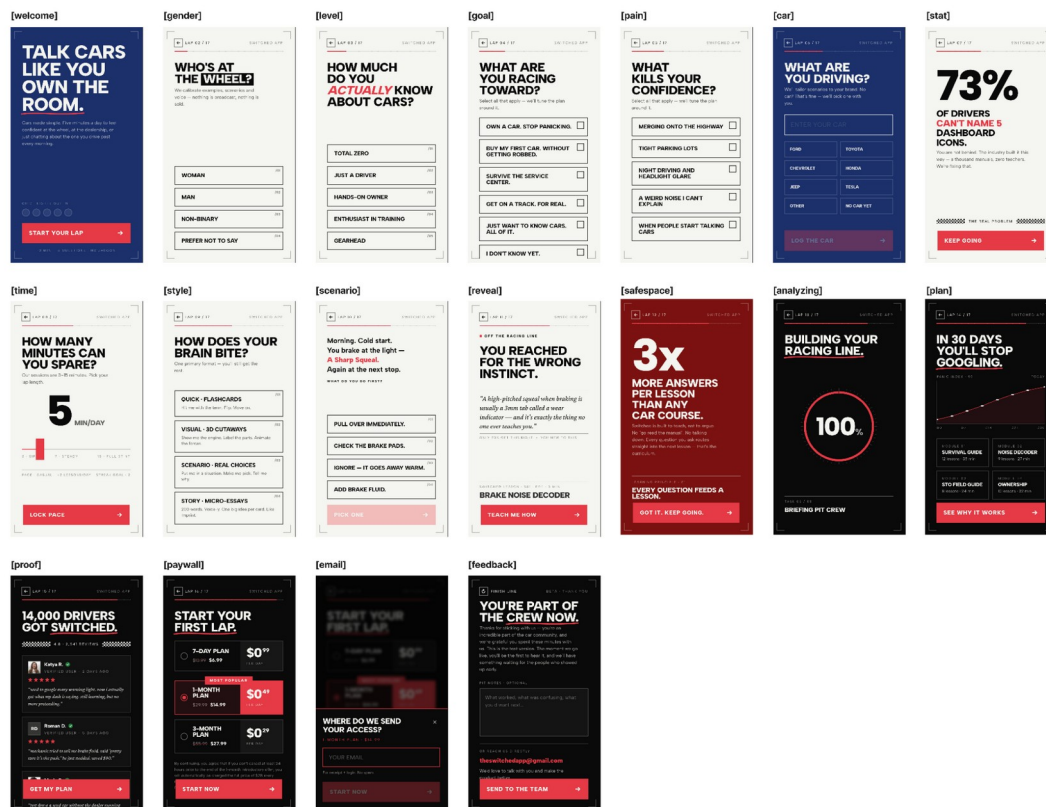
plan. 14. `completed:plan` — the user views the proposed personalised learning plan and clears the screen. 15. `completed:proof` — the user views the social-proof and credibility screen and clears it. 16. `funnel_paywall_viewed` — the paywall renders. 17. `funnel_paywall_cta_clicked` — the user clicks the paywall CTA (the intent-to-pay event). The `email` and `feedback` events are not represented in the document.

### **The two first-screen variants tested**

The funnel ran an A/B test on the welcome-screen headline. Both variants share an identical visual layout and call-to-action; only the headline text differs.

- **qhl2 — identity-coded variant.** Headline: "Talk cars like you own the room." - **qhl4 — shame-coded variant.** Headline: "Fix your car IQ. Shut their mouths."

The qhl2 variant won the majority of paid-spend allocations across the Cycle E (Checkout) and Cycle F (Lead) campaigns and is preserved as the default winning hook in the Chapter 4.1 solution direction. The qhl4 variant is recorded for reference and could be revisited under a purchase-optimised campaign.



**Fig. C.1. Switched Funnel — Screenshots of the Funnel Quiz Steps (Using Winner qhl2 First Screen Variant).** *Source: Author's screenshots, May 2026.*

Live deployment: [https://switched-pro.vercel.app/?utm\\_ad=swchd\\_qhl\\_2](https://switched-pro.vercel.app/?utm_ad=swchd_qhl_2) (Vercel production URL, used in all five paid Meta campaigns).



## APPENDIX D. RAW ANALYTICS DATA INVENTORY

This appendix lists the raw data exports that underlie the analysis in Sections 5.2.7 through 5.2.10. The CSV files are supplied as digital supplementary materials alongside this thesis. A short note on the broken-window cleaning methodology follows the inventory.

### CSV inventory

| File                                   | Rows | Description                                                                                                                                                                    |
|----------------------------------------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>bug_timeline_hourly.csv</i>         | 120  | Hourly counts of <b>pain</b> and <b>car</b> step completions and the resulting conversion rate, covering the five days surrounding the broken-button incident (Section 5.2.7). |
| <i>funnel_overall_hour_precise.csv</i> | 18   | The seventeen-step master funnel under the hour-precise clean cut; the basis for Table 5.4.                                                                                    |
| <i>funnel_by_country.csv</i>           | 7    | Funnel-milestone performance broken down by country (entry, welcome, gender, paywall view, paywall CTA); Tier-1 markets plus Ireland and Sweden as outliers (Table 5.5).       |
| <i>funnel_by_device_type.csv</i>       | 9    | Funnel-milestone performance broken down by form factor (iPad, iPhone, Android, Windows, Mac, Linux); the basis for Table 5.6.                                                 |
| <i>funnel_by_device.csv</i>            | 9    | Funnel-milestone performance broken down by operating-system family.                                                                                                           |
| <i>funnel_by_os.csv</i>                | 8    | Funnel-milestone performance broken down by browser bucket (Mobile Safari, Chrome Mobile, Facebook in-app, Instagram in-app, etc.).                                            |

|                                     |     |                                                                                                                                                                                                                                                                                        |
|-------------------------------------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>funnel_by_creative.csv</i>       | 5   | Funnel-milestone performance broken down by <b>utm_content</b> value; top five creatives by entry volume.                                                                                                                                                                              |
| <i>funnel_by_day.csv</i>            | 8   | Per-day entry, paywall-view, and paywall-CTA counts across the experimental window.                                                                                                                                                                                                    |
| <i>funnel_by_hour_of_day.csv</i>    | 24  | Per-hour-of-day funnel performance aggregated across clean days, in UTC.                                                                                                                                                                                                               |
| <i>ads_manager_report_clean.csv</i> | 793 | Meta Ads Manager export covering the five paid campaigns at campaign, ad-set, and ad level, with hourly granularity; records spend, impressions, link clicks, click-through rate, cost-per-click, cost-per-mille, the optimisation-event count, and ad-quality rankings (Section 5.2). |

#### **Broken-window cleaning methodology**

A 33-hour regression on the *pain* funnel step between 12:00 UTC on 1 May 2026 and 21:00 UTC on 2 May 2026 contaminated part of the experimental window. The cleaning methodology adopted in this thesis is the two-window approach documented in Section 2.6: full-period data is used for upper-funnel events (welcome through *pain*) and Meta-side metrics, which the bug did not affect; an hour-precise clean cut excluding the 33-hour window is used for events at *car* and below. The complete bug-timeline data is in *bug\_timeline\_hourly.csv*. The recovery-period evidence is summarised in Appendix G.

UTM template used in all paid Meta campaigns to attach campaign, ad-set, and creative identifiers to each funnel entry for downstream Amplitude attribution: [https://switched-pro.vercel.app/?utm\\_source=FB-switched&campaign\\_id={{campaign.id}}&adset\\_id={{adset.id}}](https://switched-pro.vercel.app/?utm_source=FB-switched&campaign_id={{campaign.id}}&adset_id={{adset.id}})

&ad\_id={{ad.id}}&utm\_campaign={{campaign.name}}&utm\_adset={{adset.name}}

&utm\_ad={{ad.name}}&no\_adset={{adset.name}}&original\_url\_ad={{ad.name}}

**APPENDIX E. VENTURE-BUILDER INTERVIEW — KEY INSIGHTS (PARAPHRASED)**

This appendix records the substantive insights drawn from a personal interview with Igor Kotyrlo, Chief Executive Officer of Agen (an early-stage venture inside the SKELAR ecosystem), conducted in 2026. The full transcript is not reproduced in this thesis, in keeping with the company-confidentiality terms agreed with the source. The insights below are paraphrased and grouped by topic.

**On research and validation flow.** Most early-stage subscription products inside the venture-builder ecosystem follow a structured arc: idea selection → market and competitor research → fake-door tests using a quiz funnel and a paywall placeholder → unit-economics-search using paid acquisition. The fake-door step is the standard convention at the personal-savings-budget stage and does not require collecting real payments.

**On geographic targeting.** Tier-1 English-speaking markets (United States, United Kingdom, Canada, Australia, New Zealand) are the natural launch geography because of a combination of higher disposable income and higher willingness to pay for digital products, particularly among adults aged 35 and over.

**On unit-economics validation thresholds.** The threshold conventionally treated as confirmation of unit economics is approximately one hundred paying users, captured against benchmark conversion rates at each funnel stage. Sustained calendar-monthly revenue of approximately USD 200,000 to USD 300,000 over three months is the threshold at which the venture-builder ecosystem treats unit economics as validated for the next funding round.

**On pre-seed capitalisation.** Pre-seed rounds typically deliver between USD 100,000 and USD 200,000 of dilutive or non-dilutive capital. The team-build at this stage is small — chief executive, marketing operator, and an analytical product manager — and the period is conventionally burn-only.

**On funnel topology and pricing.** Quiz funnels of fifteen to thirty screens followed by a hard paywall are the established convention. Trial-pricing at USD 1 has effectively died as a funnel mechanic because of payment-processor compliance regimes (notably Visa's Acquirer Monitoring Programme and the equivalent), which penalise sharp price step-ups associated with high dispute rates. Average consumer-subscription pricing in the category has shifted from a USD 30–60 historical range to a USD 20–40 modern range as a result.

**On retention curves.** Approximately fifty percent of paying users churn at the first rebill; approximately seventy percent of those retain through the second; approximately seventy-five percent month-on-month thereafter.

**On distribution strategy.** Meta is still the dominant performance channel for cold-audience consumer-subscription products at this stage of the playbook.

## APPENDIX F. DATA QUALITY NOTES

This appendix records the data-quality issues that affected the experimental window and the methodology used to manage them.

### **Exclusion of internal-test traffic from Ukraine and Poland**

The funnel was tested with friends and colleagues based in Ukraine and Poland during early build iterations. To prevent that internal-test volume from contaminating the paid-acquisition analysis, all entries originating from Ukraine and Poland are excluded from every dataset reported in Section 5.2 and from every figure in the body of the thesis. This exclusion is applied uniformly to both the Amplitude funnel data and the Meta Ads Manager export.

### **The 33-hour broken-button incident**

Between approximately 12:00 UTC on 1 May 2026 and 21:00 UTC on 2 May 2026, the call-to-action button on the *pain* step of the Switched onboarding funnel rendered correctly but did not advance the user to the next screen. The defect was a regression introduced during a routine update. The conversion rate from `completed:pain` to `completed:car`, normally approximately 90 to 95 percent, collapsed to approximately 0.4 percent during the window: of 273 users who completed the *pain* step in the broken window, only one reached `completed:car`.

The incident was identified during routine review of the rolling hourly Amplitude funnel telemetry on the morning of 2 May 2026. The defect was repaired by approximately 21:00 UTC on 2 May 2026, and the immediate post-fix hour returned a 100 percent `pain` → `car` conversion rate (14 of 14 users), with subsequent hours stabilising at approximately 95 percent — within the normal operating range. The complete hourly conversion data is in *bug\_timeline\_hourly.csv*.

## Hour-precise exclusion methodology

The cleaning methodology applied in the body chapters is a two-window approach. Full-period data is used for events upstream of the bug (welcome through *pain*) and for Meta-side metrics (impressions, clicks, click-through rate, cost-per-click, cost-per-mille), which the bug did not affect. An hour-precise clean cut excluding 12:00 UTC on 1 May to 21:00 UTC on 2 May is used for events at *car* and below. The cut excludes approximately USD 87.62 of paid spend and approximately one paywall-CTA click out of seven in the experimental window; the remaining six paywall-CTA clicks fired in clean hours.

## One-day conversion-window note for late-period creatives

The Amplitude funnel reports use a one-day conversion window. Creatives launched in the final days of the experimental period (1 to 4 May 2026) had less than the one-day window to mature before data collection ended. The per-creative tables in Section 5.2 should therefore be read with the awareness that late-launched creatives may have under-counted downstream events relative to their true rate. The conversion-window choice for the next iteration should be revisited at that time.

## Reconciliation note — Meta Checkout-event versus Amplitude paywall-CTA

Two superficially similar metrics appear in the body of the thesis and must not be conflated. The first is the **Meta-side cost per Checkout-screen event**, which Meta's pixel registers when the user opens the paywall and is the optimisation event for the Cycle E campaigns. The second is the **Amplitude-side cost per paywall-CTA click**, which Amplitude registers when the user clicks the paywall CTA and is the intent-to-pay event used in Chapter 4.2's unit-economics math. The two

events are at adjacent funnel steps but are not the same measurement, and the two cost figures (USD 0.55 and USD 1.00 for the static and video Cycle E campaigns at the Checkout-event level; USD 15.39 across the experiment at the Amplitude paywall-CTA level) refer to different events. The unit-economics analysis in Chapter 4.2 uses the Amplitude paywall-CTA figure throughout because it is closer to the eventual purchase event.