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# Strategic pivot patterns in entrepreneurial firms driven by digital experimentation capability

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**Abstract.** Software startups have adopted stages of release and feedback loops involving customers as ways of reviewing their product strategy but the gap between the visibility of experimentation and the occurrence of strategic reorientation is hard to define. A public trace analysis of the development process is carried out on the companies of PostHog and OpenBB between 2022 and 2024 through the corporate history, launch statements, and GitHub issue traces. Python-enabled coding of the observable test signals against shifts in target customers, product architecture, and product monetization takes place. Three strategic reorientation events emerge including PostHog customer repositioning in February 2023 and its decision regarding the product related to the warehouse in March 2023, while in October 2024, OpenBB launches its workspace platform. Two signal-to-pivot intervals of two and ten months can be identified respectively; an open issue of PostHog stays opened for 785 days as an example of why issue closing does not necessarily show experimentation.

**Keywords:** digital experimentation capability, strategic pivot, entrepreneurial firms, text mining, temporal analysis

## 1. Introduction

Software firms modify their products using beta versions, feature toggles, and customer feedback, but pivots depend on changes in venture value proposition or market targets. Modern literature differentiates between disciplined entrepreneurial experimentation and iteration [1]. The literature on technology ventures relates strategic pivot to dynamic capabilities and environmental uncertainty [2]. There is evidence suggesting that experimentation in technology ventures does not end with validation of the first customers but may affect scaling strategy [3]. Public development activities, however, are treated as a form of learning despite inability to link feedbacks and managerial decisions. Outdated history of corporations, press releases about products, and discussions in code repositories are additional sources of data to study the boundary. The PostHog and OpenBB projects represent two auditable examples of ventures featuring clear product signals and strategic reorientation. Observable events are coded chronologically, divided into customer and product pivots and compared month by month. The analysis helps to differentiate rhythms of observable adaptation and internal experimentation and avoid labeling routine releases as strategic pivots.

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# 2. Literature review

## 2.1. Digital experimentation capability

Experimentation capability is comprised of a testable hypothesis, observation of its implementation, interpretation of feedback, and the resulting decision. Studies on early-stage firms indicate that negative feedback does not always lead to changes in core value propositions [4]. Theory-based entrepreneurship research also provides empirical evidence that both hypothesis formulation and testing contribute to coherent strategic pivots [5]. Beta launch information, user feedback, and closed issues could be detected through digital traces, yet their relationship with learning processes is unclear. Closed issue post-release may just denote management of the backlog, while an unresolved experiment can already be affecting product development. Therefore, distinguishing between test stage data, feedback interpretation, and decision-making process is necessary. Activity in the repository could be considered a partial behavioral proxy for organizational learning.

## 2.2. Strategic pivot typology

Pivots vary in the nature of organizational assumptions changed. Evidence on deep-technology venture teams indicates high frequency of changes to value propositions and customers during commercialization [6]. Temporary pivots have been found to distinguish strategic decisions from lasting organizational redirections [7]. In case of software startups, customer pivots imply changes in target customers, product pivots signify changes in solution provided, while revenue model pivots represent changes in value capture mechanism. A feature enhancement may aid in implementing the current strategy without constituting a pivot. Publicly available information about the position statement and product history can confirm whether a change qualifies as a pivot. Overlapping classifications could be present in cases of changes in both pricing and target markets; classification should be based on strategic objective.

## 2.3. Feedback-driven strategic adaptation

Digital capabilities can help startups to recognize and respond to changing opportunities, yet feedback is often reinforcing current strategies. Qualitative evidence demonstrates that digital sensing, seizing, and transformation capabilities positively impact pivoting of business model under uncertainty [8]. New research highlights the effect of the framing of mentor feedback on entrepreneurs' willingness to change strategic decisions [9]. Publicly available experimentation information, therefore, only partially captures information on adaptation: observable experiment can take place before the repositioning of strategy, and feedback from customers or financial pressure can be the reason behind the same decision. Time between a signal and public pivot reflects disclosure-based response time rather than the effect of experimentation. Interpretations need to be distinguished in the case of selectively observable startup ventures.

# 3. Experimental methods

## 3.1. Public trace dataset construction

PostHog and OpenBB were chosen as examples of software companies whose histories have a clear identification of outdated strategies and whose development repositories have an open record of problems. The documents from December 2022 until June 2025 were analyzed, but the principal pivot decisions were limited to October 2024 only. For PostHog, the company's history contains a strategy adopted in February 2023 for

startup adoption and a decision made in March 2023 to develop a proprietary warehouse as a response to a migration of the customer data. For OpenBB, the first public launch of Workspace happened in December 2023, exiting alpha happened in May 2024, and the new Workspace was announced in October 2024. The event records include information about the firm, source of information, month when the event happens, text of the event, and evidence category. The classification of corporate changes is based on the changes in target customers, core product, and revenue model. Changes that involve routine features are used as evidence for the background implementation. GitHub issues are analyzed separately in order to understand whether there is a connection between trial, feedback, and decision-making process.

## 3.2. Experimentation trace coding

Official histories, release notices, and issue threads are processed using Python keyword rules covering beta, alpha, experiment, feedback, feature flags, customer segments, and platform changes. Candidate passages are classified as trial, feedback, decision, or routine development. A complete experimentation trace requires explicit evidence connecting all three components, as shown in Equation (1).

$$C_r = T_r F_r A_r \tag{1}$$

Here, $C$ indicates trace completeness for candidate experiment $r$, while $T$, $F$, and A are binary indicators of a documented trial, interpreted feedback, and linked decision. Records without verifiable connections remain incomplete rather than being treated as unsuccessful experiments.

For GitHub records containing opening and closure dates, administrative issue duration is calculated using Equation (2).

$$L_r = t_r^{close} - t_r^{open} \tag{2}$$

Here, $L$ is the issue duration in days, and the two timestamps identify issue closure and creation. Repository studies demonstrate that issues and pull requests contain heterogeneous development information [10]. Therefore, issue duration is excluded from experimentation feedback latency unless a related test and decision are independently verified. Classification also distinguishes beta-stage changes from major strategic repositioning, with month-level dating used when exact days are unavailable.

## 3.3. Lagged pivot association analysis

A strategic pivot is dated to the month of a public statement confirming customer repositioning or core-product reorientation. Earlier signals are eligible when their recorded content concerns the affected market or product. The interval between a selected precursor and the corresponding pivot is calculated using Equation (3).

$$\Delta_{ik} = 12(Y_{ik}^{p} - Y_{ik}^{s}) + (M_{ik}^{p} - M_{ik}^{s}) \tag{3}$$

Here, $\Delta$ represents elapsed calendar months for pivot $k$ of enterprise $i$; $Y$ and $M$ identify the year and month of the pivot $p$ and earlier signal $s$.

The relative frequency of each primary pivot category is calculated using Equation (4).

$$F_k = \frac{N_k}{\sum_{j=1}^{K} N_j} \tag{4}$$

Here, $N_k$ is the number of verified pivots in category $k$, and $K$ represents the number of classification categories. The PostHog product-usage signal from December 2022 is consistent with the company's targeting decision from February 2023, and the demonstration for OpenBB in December 2023 is consistent with the

platform's launch in October 2024. The PostHog warehouse decision from March is in the typology, but it will not be included in the interval computation due to the lack of preceding customer loss dates. Repository association adheres to the structure extraction process [11]. The two-case dataset supports descriptive comparisons rather than permutation-based statistical inference.

# 4. Results

## 4.1. Verified strategic pivot patterns

According to Table 1, there were three pivot points identified for two entrepreneurial firms that include one customer repositioning and two product changes. PostHog focused on promising startups in February 2023, as the firm repositions its customer targeting to become more common among new ventures. In March 2023, PostHog decided to build a single data warehouse based on the data migration of customers and changing needs regarding its products, which means that PostHog continues making product changes. On the other hand, in October 2024, OpenBB launched its new workspace that made its product portfolio move away from the terminal-based finance tools to become a research platform. Thus, 33.3% of pivots included customer repositioning, while 66.7% included product restructuring. It is important to say that two pivot points of PostHog demonstrate consecutive changes in targeting and products, while OpenBB shows platform-oriented pivots.

**Table 1.** Verified strategic pivot events in two software ventures

| Enterprise | Event date | Strategic pivot | Primary category | Documented basis |
|---|---|---|---|---|
| PostHog | February 2023 | Focus on mass adoption among high-potential startups | Customer pivot | Revised targeting and deployment strategy |
| PostHog | March 2023 | Decision to develop an integrated data warehouse | Product pivot | Customer data migration and product-platform expansion |
| OpenBB | October 2024 | Transition toward the OpenBB Workspace platform | Product pivot | Integrated research workspace following staged development |

## 4.2. Experimentation-associated pivot differences

As can be seen from Figure 1, the two firms had different time patterns in relation to the occurrence of experimentation signals and strategic pivoting. PostHog saw a rise in independent product use in December 2022 and pivoted on its customer position in February 2023, thus taking two months to respond to the signals. The second pivot by PostHog involved the decision to create an integrated data warehouse in March 2023. OpenBB unveiled the Workspace feature in December 2023, made an alpha release in May 2024 and redesigned the platform in October 2024. The entire process took ten months, with five months elapsing between each development milestone. There is a gap of eight months between the two signal to pivot periods, showing that there are differences in how the two firms have responded to the experimentation signals through strategic pivoting. PostHog responded quickly in customer repositioning while OpenBB responded through a staged product pivot.

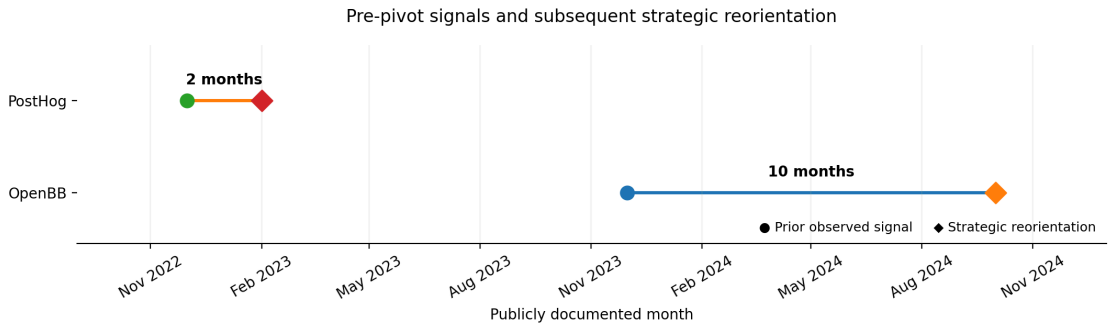



**Figure 1.** Observable pre-pivot signals and subsequent strategic reorientation

## 5. Discussion

The distinctions between PostHog and OpenBB lead to the conclusion that digital experimentation could enable strategic adjustment through separate organizational learning processes. Specifically, the repositioning of customers by PostHog based on the changing product usage suggests that market input could allow firms to reconsider the customer demand and adjust strategic focus. The decision to build the warehouse made by PostHog was driven by the increased concern about data integration and product functionality. For its part, the sequential development of Workspaces by OpenBB is a completely different example of strategic adjustment, when product achievements led to the restructuring of the whole platform. It becomes clear that the impact of experimentation on strategy formation depends on the fact whether feedback relates to customer demand or product architecture. However, the variation in time periods could be caused by implementation complexity and organizational priorities. However, product development stage, resource availability, and market environment could affect strategy making in an independent manner.

## 6. Conclusion

The publicly available histories of PostHog and OpenBB reveal three distinct strategic pivots for the companies involving one customer pivot and two core product pivots. The two documented time periods from a precursor to a pivot are two and ten months, indicating variation in the reported timeline for adaptation. An independently observed 785-day lifecycle of an issue explains why repository closure cannot take the place of the evidence that an experiment has been conducted. The combination of text classification, dated event matching, and explicit trace-linking rules offers a reproducible methodology for analyzing digital experimentation and strategic pivots. Limitations of this methodology include the small sample of firms, backward-looking firm histories, lack of internal feedback, and incomplete mapping of issues to releases.

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