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Introduction

In the current dynamic business environment, companies are in a macro-marketing environment, which is influenced by forces as a firm cannot control. Technology change and economic policy uncertainty contribute greatly to how a strategy will be implemented as well as providing unique opportunities and threats to pioneers and followers. First movers have a superior position by taking an early entry and innovative position whereas late movers enjoy the effects of learning, minimization of risk, and efficiency of resources. Successful strategic marketing management should hence place into account the impacts of these macro forces on competitiveness of any kind of firm. This report critically analyses the effects of the economic policy uncertainty, and technological innovation on pioneers and followers (Task 1) and analyses the strategic responses of the two groups through marketing and innovation strategies supported by contemporary real-world examples (Task 2), based on the recent peer-reviewed literature.

Task 1: Macro-Environmental Analysis

This section critically analyses the two external macro-marketing factors: (1) uncertainty in the economic policy, and (2) technological/innovation environment. It examines the way the changes in these actors create opportunities and threats to pioneer and follower firms operating in the same industry.

Uncertainty in economic policies (EPU)

Nature of the Actor

Economic policy uncertainty (EPU) is a term used to describe the lack of predictability in government activities (taxation, regulation, spending, trade, and monetary policy) which alter the operating conditions of the firms. EPU is a macro-systemic factor, and individual firms cannot control it, yet it has a significant impact on investment, innovation and taking risks. Empirical studies indicate its multidimensional connection with corporate innovation. In general, Lou *et al.* (2022) determine that increased EPU tend to be linked with decreased output of innovations, particularly among the firm headed by leaders who have low risk-taking. This is an indication of how the preference to riskiness in the senior positions influences the reaction of the firm to

uncertainty. Also, subjective perceptions are important as demonstrated by Zhou, Zhang and Ruan (2023), the efficiency of innovation among CEOs with higher perceived uncertainty levels declines. EPU, therefore, consists of objective macro volatility, as well as subjective interpretation by a manager.

Opportunities Arising from EPU

In the case of pioneering firms, EPU may provide opportunities based on real-options reasoning. Flexible financially well-informed firms can invest in innovation at the time of uncertainty before it becomes clear and develop real options that can offer payoffs in the long term. According to Shao (2024), the decelerated investments consist of or the diversified innovation portfolios enable the pioneer to deal with downside risk and carry upside risks. By taking an early leadership, pioneers can influence the making of the policy, be able to manipulate the regulations or even gain favourable positions prior to the establishment of the rules.

Median EPU can also provide innovation. Kun, Hu and Liu (2022) observe that in the cases where the uncertainty is not too high (especially monetary policy uncertainty), companies can invest more in research and development as the hedge against the collapse of the regulatory environment. In the same way, Chen *et al.* (2023) demonstrate that EPU adversely impacts the green innovation by restricting financing options; however, businesses able to overcome financing options with ease can become the sustainability pioneers once green rules level off.

EPU also provides followers with opportunities. They may follow the path of fast-follower that is to follow the pioneers in their steps and enter the market when the regulatory trend is observed and the direction is more evident. This avoids being exposed to premature investments as well as learning through the mistakes of pioneers. According to Lou *et al.* (2022), companies that are not highly risk-takers, who are usually the followers, might not be as disadvantaged during the high EPU periods because they do not make risky early commitments. The followers also have the ability to enjoy regulatory groundwork, legitimacy, and infrastructure developed by trailblazers.

Threats Posed by EPU

Regardless of such opportunities, EPU is threatening. In the case of pioneers, the major risk involves trapped investment. Early **capital-intensive** innovation can turn out to be a failed venture in case economic incentives change, as a result of a policy change like a withdrawing subsidy or a rapid tightening of the regulatory screw. As Lou *et al.* (2022) mention, a negative impact of EPU on innovation is more severe in firms with poor risk-taking ability, which marks the risk of committing too much to too much uncertainty. The biggest threat to financing consists of the innovators whose activities are long-term, and have uncertainties (Adeloye, Olawoyin and Daniel, 2024).

Followers, too, face threats. Making any investments at unstable times can lead to loss of absorptive capacity or capability erosion and can hardly easily catch up in the future. Individuals can also fail to interpret changing regulatory policies, joining too late or at a wrong angle to the policy outcome (Morabi *et al.*, 2021). Waiting therefore may cause long term competitive disadvantages in spite of the fact that it helps to minimize the risk in the short term.

Technological / Innovation Environment

Nature of the Actor

The change in technology including digitalization, AI, machine learning, platform ecosystems, and emerging innovations is a strong macro force that remakes industries. It recreates consumer behaviour, market delimitations, and rivalry. Companies are competing in innovation ecosystems with suppliers, universities, customers and regulators; therefore, technological environments create opportunities and restrictions.

Opportunities Arising from Technological Change

Technological dynamism is very advantageous to pioneers. They are able to build new products, business model and platform earlier than their competitors. Particularly, open innovation enables pioneers to use external knowledge, work with startups, and engineer ecosystems. In their study of 200 Indian biotechnology firms, Narayan and Hungund (2021) discover that open innovation increases the results of innovation and overall performance. There is an added value of

combining various innovation types which include process, organisational, and marketing which combine and give better returns than product innovation. Using a sample of more than 15,000 firm-years, Bogetoft *et al.* (2024) prove that concomitant innovation strategies result in high productivity and long-term performance. Investors that have ventures in more than one area of innovation create a potent competitive advantage and gain early standard-setting.

Technological change also offers opportunities to the followers. They are able to take a moderate course exploration-exploitation- starting with tried technologies and selectively experimenting. Hu *et al.* (2021) demonstrate that companies with an equal measure of exploration and exploitation are more stable in dynamic settings irrespective of their positions in the market. It can also be followed by a reverse innovation by the followers, licensing, or modular development, which R&D has a lower risk and cost. This will enable them to provide effective, even more regionalized solutions without necessarily carrying the extensive weight of technological discovery.

Threats Posed by Technological Change

Rapid obsolescence is a threat to pioneers. The first mover is always at risk of being overtaken, in case there is the emergence of better technologies that surpass the ones they made their innovations in early stages. Being a leader also means constant investment in the research and development, which drains financial and organisational resources (Isaacson, Maniff and Wong, 2022). Pioneers can also make bad decisions based on the lines of technology and end up with an inferior platform or architecture that ends up being a sunk cost.

Followers face various threats. Platform dominance, network effects, or ecosystem control might become a lock-in, preventing the entry of followers by innovators (Haas, 2019). There may be obstacles in access to essential knowledge, talent, or relationships by the followers. In addition, technology changes very fast and hence going slow or not in sync with the change can leave the followers forever behind.

Task 2: Strategic Responses to Macro Actors

Based on the macro-environmental analysis, this section critically considers the way pioneer and follower firms react strategically to economic policy uncertainty and technological change by using marketing, innovation, and capability-building strategies.

Strategic Responses to Economic Policy Uncertainty

Pioneers' Responses

Flexible and adaptive approaches are usually tackled by pioneering firms to deal with the risk related to economic policy uncertainty. Considering the irreversibility of innovation investments, pioneers use real-options thinking to make staged or modular investments enabling them to pivot with a changing policy (Iriani *et al.*, 2024). This type of staged methodology minimises the exposure to abrupt changes of policies but maintains the capacity of expanding quickly in case the situations are favourable.

One strategic response is that of active regulatory involvement. The pioneers often engage in policy promotion, consultations as well as institutional networking in order to influence regulatory conditions favourable to their innovative products. By framing themselves as collaborators in such spheres like sustainability or going digital, the pioneers acquire authoritativeness and minimize uncertainty in regulations. To take a case example, the leaders in renewable energy industries resort to lobbying to create compliance, subsidies, and public/privacy partnership. In their marketing perspective, they result in the integration of advocacy and education campaigns that are invested in legitimising new technologies among both consumers and policymakers (Shepherd *et al.*, 2019).

Financial tactics as well are involved. First-mover companies expand their sources of funds, develop flexibility in the capital structure and reserve to face regulatory shocks. These reserves cushion the long-term investment horizons even in instances where the policy environment is volatile.

Followers' Responses

The reaction to an uncertain situation is often more cautious by the follower firms. Instead of taking an early action, the followers postpone any significant investments until the regulation is stabilised, and they are less exposed to unfavourable changes in policies.

There are also collaborative systems like alliances, consortia and industry associations which followers are dependent on. These common structures reduce the expenses of individual lobbying and allow group effects. In marketing, fast-follower positioning is applied by followers who learn what pioneers do, by narrating policy but differing in terms of cost leadership, and/or efficiency, and/or customised solutions. Their reduced fixed-cost base is their ability to be more pricing-flexible in times of regulatory turmoil. Managerial scanning also is enhanced by followers to identify regulatory signals and new societal demands, on the basis of which competitiveness is found to be influenced by managerial perceptions of their ecological and social pressures (Papadas, Avlonitis and Carrigan, 2017).

Industry Example: Renewable Energy

A good example of the innovative strategy can be presented by NextEra Energy. Being a solar energy leader, it is making considerable investments in large-scale photovoltaic (PV) farms, intervening at the same time in policy regimes including feed-in tariffs. The real-options management is demonstrated by its utilization of pilot projects prior to conducting on a large scale. It also promotes the environmental advantage of solar energy to policy makers and consumers in order to enhance legitimacy (GLOBAL OVERVIEW, 2024).

Being more cautious is the strategy of such followers as Dominion Energy. Dominion follows the progress of regulations and enters the market as the policy situation becomes more stable. The fact that the company spent 80 million on rooftop PV and bought solar development experience demonstrates that adherents do not scale up renewable activities until favourable circumstances arise (Taylor, 2025).

Dynamics of Strategic Responses to Technological / Innovation

Pioneers' Responses

In the technological field, innovative companies use open innovation and ecosystems orchestration policies to maintain leadership. Pioneers tap into a variety of streams of knowledge by including universities, startups, research laboratories and technological partners, which boost development. Indian biotechnology companies prove that open innovation enhances quality and performance of the firms (Narayan and Hungund, 2021).

Instead of pursuing the exploitation strategy of product innovation alone, pioneers utilise a mixture of innovation strategies: product, process, marketing and organisational innovation. Empirical data shows that companies that pursue mixed strategies achieve the optimal performance increment (Bogetoft *et al.*, 2024). The strategies strengthen dynamic capabilities and facilitation of technological leadership in the long run.

The first mover marketing strategies focus on eco system leadership. They place themselves as power brokers of platforms upon which they can coalesce around complementary firms and developers. This produces network effects and bonding devotees of the first mover (Altman and Tushman, 2017). Pioneers are also incentivized to nurture technology foresight by scenario planning, visioning future and strategic forecasting in order to predict major changes such as changes in AI, automation, or data governance and to adjust innovation portfolios accordingly (Stewart and Stow, 2023). Such abilities help visionaries to act in advance and not to respond to new technological trends in a reactive manner.

Followers' Responses

Follower firms use more balanced exploration-exploiter approaches and opt to polish on the current technologies instead of moving towards radical innovations. The less risky nature will promote innovation approaches like reverse innovation modifying the technologies invented by pioneers to suit the needs of the local market, and licensing and modular innovation that restrict start-up capitalization (Mulewa and Omido, 2025). The followers are being marketed with the focus placed on reliability, affordability, and ease. They do not compete in terms of novelty but rather devote themselves to practical value and user experience. Incremental innovation contributes to the localisation and responsiveness to mainstream users who are fond of mature

technologies (Nigg-Stock, Bayrle and Brecht, 2023). Strategically, followers tend to become part of the already existing ecosystems instead of building the foundational architectures. They are required to succeed on the basis of absorptive capacity the capability of acquiring, adapting and applying external knowledge.

Industry Example: Artificial Intelligence in Small Businesses

The studies conducted on AI and ML adoption among micro-businesses in the UK reveal that there is a difference in the first mover and follower capabilities. First mover AI solutions can be highly beneficial in generating innovation. Instead, second movers use off-the-shelf AI tools, whereby they customize them to the current processes to achieve cheaper innovation results. The focus of followers on modularity and user-friendliness is a sign of strategic orientation towards efficiency, but not technological leadership.

Strategy Evaluation: Trade-offs and Strategic Tensions

Both innovators and imitators undergo major trade-offs on how to react to policy and technological changes.

Resource Intensity vs. Flexibility: Due to the large outlays by pioneers in the construction of policy or technology ecosystems, there is vulnerability to collapsing in the event of unexpected changes. One way to solve this would be by real-options logic, which can sooth commitment or slowness. The followers are flexible but endanger to be marginalised in case they come late or the pioneers establish the important standards.

Organizational Capabilities: To maintain first-mover advantage, it is necessary to have condensed capabilities: absorptive capacity, ecosystem coordination, and innovation leadership (Müller, Buliga and Voigt, 2020). Strong scanning and learning skills are also required by the followers to prevent a wrong comparison of trends.

Regulatory Volatility: Investors and Investees are both limited by unpredictable regulatory changes. First movers might also underrate their chances of policy-making, whereas structural-

level tactics used by followers might be rendered obsolete back to closed or proprietary structures in case regulations change towards this direction.

Performance Inequality: Evidence shows that collective innovation strategies provide the highest performance advantages, yet these advantages are disproportionately received by already efficient firms, increasing the performance inequality (Posen *et al.*, 2022). In this way, despite good strategies, followers or low-capacity innovators are likely to lag, which enhances competitive asymmetries.

Conclusion

This report has presented the idea of economic policy uncertainty and change in technology which poses a unique opportunity and threat on pioneers and followers. Pioneers use uncertainty by using real-options, policy engagement, and ecosystem leadership and they will be faced with stranded investments and technological leapfrogging. The reduction in exposure by the followers takes the form of imitation, adaptation and alliance but the followers have timing and capability limitations. The two follow the approaches based on their resource profiles- pioneers stress on foresight and platform orchestration and the followers on modular adjustment and cost-effective positioning. Nevertheless, both methods have trade-offs and the gains of innovation are not evenly distributed. In the end, those companies that end up flourishing will be those who do not stop scanning, adapting and strategically shaping macro-environmental forces.

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