A TRIP MAP™ Framework Case Study: Sticky Notes

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A TRIP MAP™ Framework Case Study

Sticky Notes

This case study reviews the history and evolution of "sticky notes," the ubiquitous mildly adhesive notes that originated as a branded product from 3M®: Post-it® Notes. It uses the **TRIP MAP™** industry evaluation framework, a two-dimensional strategy framework for evaluating the maturity and economic potential of technologies throughout their lifecycle, with critical diagnostic utility for business planning including R&D allocation; corporate strategy, organization, and talent management; and venture capital, investing, and M&A analysis. **The TRIP MAP framework combines TRIP™ Technology Readiness Inflection Points™ with the MAP™ Market Adoption Profile.**

TRIP™ Technology Readiness Inflection Points™ pinpoint the maturity of a technology across 10 stages:

1) **recognition** of a need or opportunity
2) **research** via discovery, experiment, theory
3) **invention**, including ideation and architecture
4) **realization**, via reduction to practice, prototyping, and refinement
5) **commercialization** via a business model and value propositions
6) **scaling** infrastructure and supply chains
7) **diffusion** across innovators, early adopters, and the mass market
8) **maturity**, with slowed growth, new entrants, and standardization
9) **decline** due to market saturation, shifting trends, disruptive alternatives, etc.
10) **redirection**, e.g., discontinuation, relegation to a niche, renewal, etc.

The **MAP™** Market Adoption Profile helps compare different market opportunity sizes and then real market results, which variously can be measured on wallet share, market share, unit sales, annual revenue, etc., and optionally analyzed in greater granularity, e.g., in terms of segments. In early TRIP stages, the MAP level is projected; in later ones, it is actual.

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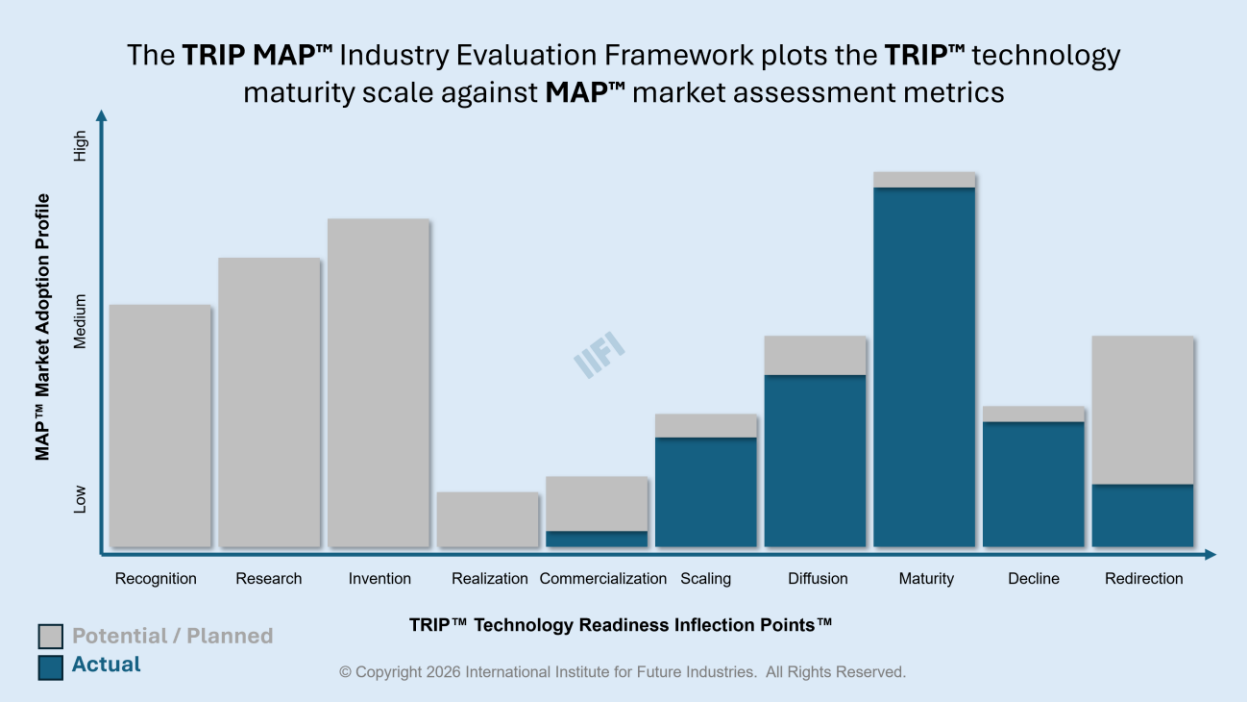
When taken together as orthogonal measures, the **TRIP™** and **MAP™** scales form the **TRIP MAP™** industry evaluation framework: a *map* to the *trip* that technologies take from cradle to grave or rebirth.



To be sure, the research and commercialization of innovations is an uncertain process. Shifts in competition, evolving customer needs and trends, varying technology applications and product positioning, or technology practicalities may impact MAP levels as a technology moves through its TRIP cycle. Moreover, as shown in the diagram, the MAP profile begins as a *potential* market opportunity, and then unit sales, revenues, or share become *actual*. Even in later stages, though, there is some uncertainty based on orders, subscriptions, long-term contracts, cancellations, and the like.

A new technology may have a promising future that never pans out, as with Sony®'s Betamax®, 3D televisions, or the Segway® personal transportation device. The Segway was projected to be "a product that would sweep the world and change people's lives forever." Steve Jobs famously said that it was "going to be as big as the Personal Computer." Instead,

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it was widely considered to be a flop, and was retired after only selling roughly as many units in two decades as were predicted for its first year.

Conversely, Sony executives heavily criticized the plan for and prototype of the Sony Walkman®, because it couldn't record audio tapes, only play them back. They projected that no one would buy such a device. It went on to sell 385 million units.

The **TRIP MAP** framework differs from other models in the sphere of technology innovation, which all have their uses but areas that they don't address. For example, Disruptive Innovation focuses primarily on the dilemma that incumbents face due to technological innovations and asymmetric financial incentives between the high end and low end of the market, but doesn't address the end-to-end lifecycle including research and invention through strategic redirection, nor does it account for technologies that arrive on the market with substantial advantages over the incumbent. The Technology Adoption Lifecycle model addresses adoption dynamics from a customer or market viewpoint, but doesn't address stages prior to market introduction nor the realities of commercialization, such as learning curve effects or supply chain optimization. Conversely, Design Thinking and the Stage-Gate Innovation® process address pre-commercialization phases only, without regard to scaling, diffusion, maturity, or strategic redirection. The Gartner® Hype Cycle® famously addresses market *perception* of technologies but doesn't address market sizes or innovation stages. Moreover, it isn't clear that every technology must pass through stages such as a "Peak of Inflated Expectations®" or a "Trough of Disillusionment®."

The present case study explores the history of the "sticky notes" industry, illustrating the use of the TRIP MAP framework for understanding such technology innovation evolution.

Today we take for granted that sticky notes, using an adhesive technically known as acrylic copolymer microspheres, are obviously useful, but their TRIP MAP framework analysis shows a wild journey filled with serendipitous failure and various pivots.

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1960s

TRIP Stage 1: Recognition

3M (Minnesota Mining and Manufacturing) was already in the adhesives business and recognized that a super-strong adhesive would have applications to aerospace, for bonding aircraft parts together, and construction, also for structural applications such as building heavy manufacturing assemblies. Strength was important to withstand demanding environments, such as planes with all of their turbulence, vibration, temperature extremes, and stresses, e.g., during take-off and landing. The market potential would be huge and profitable for such a product.

MAP Size: High
MAP Segments: Aerospace, Heavy Manufacturing

TRIP Stage 2: Research

In the 1960s, 3M conducted research into free-radical polymerization to try to develop an ultra-strong adhesive. This research into polymer chemistry was specifically focused on manipulating monomer synthesis and reaction conditions in acrylates to control viscoelasticity and surface adhesion properties.

3M's Dr. Spencer F. Silver experimented with known formulas, adjusting recipes to attempt to create such an adhesive, but failed, creating a weak adhesive in 1968 that formed into microspheres. There didn't appear to be much of a future for an adhesive that basically didn't adhere.

MAP Size: Zero
MAP Segments: None

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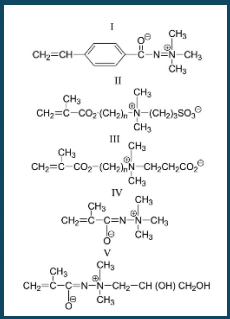
Early 1970s

TRIP Stage 3: Invention



On March 9, 1970, Dr. Silver filed a patent application for “Acrylic Copolymer Microspheres,” which was ultimately awarded on November 12, 1972, as U.S. Patent 3,691,140. The prior research had led to an understanding of the behavior and refinement of these weak adhesives, leading to this invention of “Infusible, solvent-dispersible, solvent-insoluble, inherently tacky, elastomeric copolymer microspheres.” The invention was “ideally suited for use in aerosol spray adhesives for graphic arts applications.

A subsequent patent was awarded for adhesive sheets targeted at masking tape for painting.

MAP Size: Low
MAP Segments: Graphic Arts, Painting

TRIP Stage 4: Realization

Although patented as usable in aerosol sprays and tape, Dr. Silver’s prototype, which he ultimately hoped would have commercial value was for a sticky bulletin board. One could place sheets of paper or small notes on the board and then remove or rearrange them as needed.

A colleague, Art Fry, realized that the adhesive could potentially be useful to keep notes from falling out of a book of hymns so in 1974, Fry developed a prototype by hand-coating scrap yellow paper with adhesive. However, 3M management and sales were skeptical, because their market research told them that there was little demand for “expensive scrap paper.”

MAP Size: Zero
MAP Segments: None

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Late 1970s

TRIP Stage 5: Commercialization

Even though it seemed unlikely to gain traction, 3M test marketed “Press ‘n Peel” in four U.S. cities, only to discover that consumers didn’t want to pay extra for scraps of paper. They don’t realize that traditional advertising doesn’t convey the value of the innovation.

In 1978, in the “Boise Blitz,” Fry, Silver, and other 3M executives handed out free samples to secretaries and executive assistants. After trying them, 90% indicated they would actually purchase. On April 6, 1980, 3M launched Post-It® Notes.

MAP Size: Low
MAP Segments: Office Supplies

Early 1980s

TRIP Stage 6: Scaling

3M rapidly scaled up specialized paper coating machinery, paper supply chains, and retail distribution networks across office supply chains, schools, and global markets.

3M built manufacturing processes to coat paper at scale and established a distribution model. While there was plenty of equipment that could manufacture and process rolls (aka “webs”) of paper, the adhesive created new challenges, because it can gum up traditional paper processing equipment.

MAP Size: Medium
MAP Segments: Offices, Education, Global

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Early 1980s - 1990s

TRIP Stage 7: Diffusion

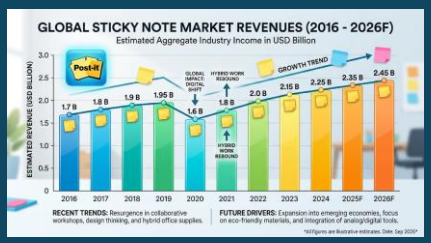
Adoption spreads from corporate secretaries and executive assistants (Early Adopters) to general office workers, students, and home kitchens (Mass Market). Learning curve efficiencies lower per-pad production costs while global brand recognition expanded.

MAP Size: Large
MAP Segments: Office, Education, Home, Global

1990s - Present

TRIP Stage 8: Maturity

Post-it Notes reached steady-state market saturation, capturing a dominant share of the multi-billion-dollar sticky note category. 3M defends its position through brand equity, new color palettes, dispenser systems, and line extensions like Super Sticky Notes.



3M's revenues for Post-it Notes become roughly 45-52% Office and Corporate, 25-28% Education, and 15-20% Household and Personal.

MAP Size: High
MAP Segments: Office and Corporate, Education, Household and Personal

TRIP Stage 9: ~~Decline~~

Post-it Notes in particular and sticky notes more broadly have not reached a stage of decline, despite a broad global transition to digital goods and services.

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TRIP Stage 10: Redirection

3M has continued to build upon the core invention:

- **Repurposing** to new markets, such as agile software development, where the notes embody principles such as transparency, flexibility, brevity, and collaboration, and where color-coding is particularly informative.

- **Remixing** digital and physical via a Post-it App that can be used to digitally capture the results of brainstorming and software development sessions.

- **Renovation** via sustaining innovations and line extensions like Post-it Extreme which can be used in cold, humid environments, new color palettes, and Super Sticky Notes. Unlike standard sticky notes designed for clean paper surfaces, Post-it Extreme notes are waterproof, temperature-resistant, and feature up to 100 times the holding power on textured, non-paper materials (e.g., concrete, raw wood, metal, brick, and tile).

- **Retargeting** Extreme to things like construction sites, commercial kitchens (in freezers and near steam tables or sinks), manufacturing and logistics, commercial facilities, outdoor residential, etc.

- **Relocating** via global market expansion.

MAP Size: High
MAP Segments: Office, Education, Home, Software Development, Construction, Commercial Food Preparation, Commercial Facilities, Outdoor, Global

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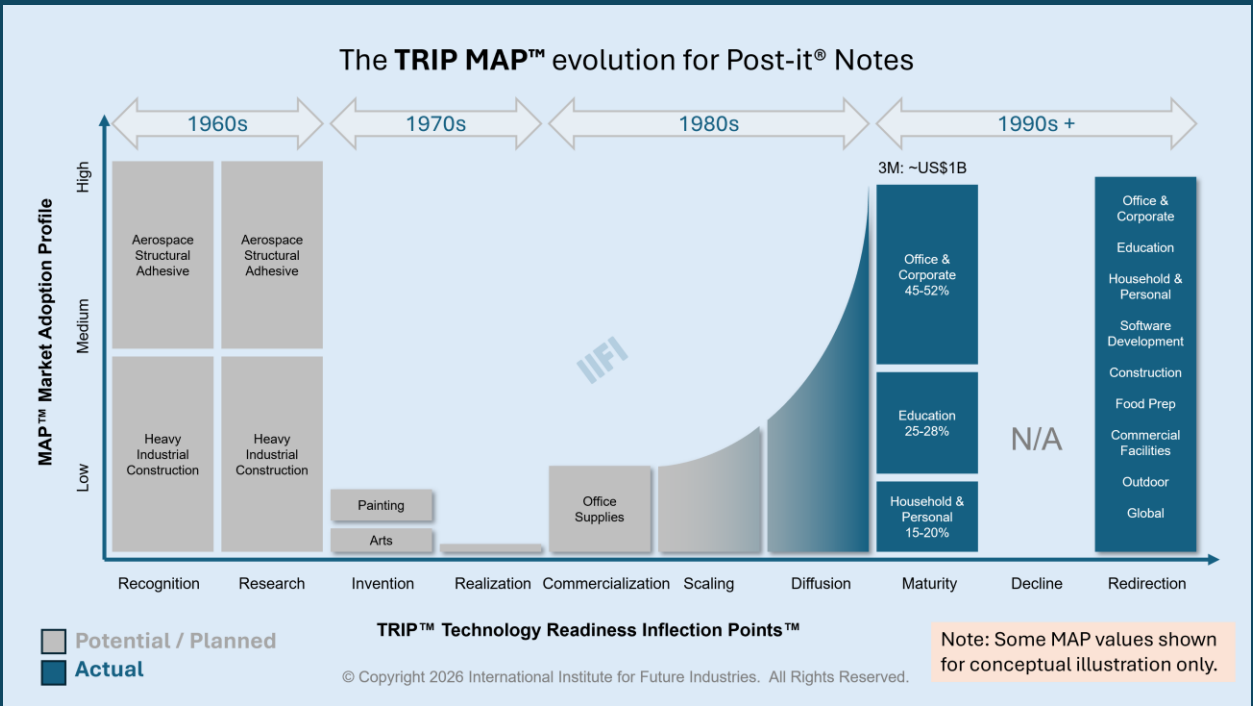
The TRIP MAP Process for Sticky Notes

A “serendipitous failure” followed a torturous journey through the TRIP process, with MAP levels jumping back and forth between high and zero, and target and actual segments dynamically vary at first due to pivots to find a good product-market fit, and then due to the strategic evolution of the product line.

This simplified view doesn’t show all of the complexities of interactions and overlaps between phases. However, this case study shows how a technology-based product can go from the recognition of market opportunity to a stable, mature market continuing to evolve through strategic redirection.



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