

# ALIGN: A 27-Year-Old Visionary Startup, Adapting to Shape the Smile Ecosystem

Amrit Chugani  
Nupur Malhotra  
Sudhire Rahul Karunakaran  
Harsh Jain  
Sneh Pandey  
Vaishnavi Cherukuri

## Executive Summary

- Amid **rising production costs** and **shrinking consumer budgets**, **breakthroughs in AI and 3D printing** are set to revolutionize orthodontics, while reshaping the industry's future
- **Technological stagnation** and **rising cost sensitivity** threaten innovation and market growth, but **breakthroughs in AI and 3D printing**, alongside **stabilizing economic conditions**, offer a path to increased efficiency, affordability, and sustained demand
- The orthodontic industry's future depends on **leveraging AI and 3D printing breakthroughs**, while **balancing premium innovations with rising cost sensitivity** in a gradually evolving tech landscape
- Incumbents **drive partnerships and product innovation**, insurgents emphasize **cost leadership and market expansion**, while adjacents focus on **synergies and distribution** to adapt to different markets.
- Align Technology stands poised to **capitalize on opportunities** in the expanding clear aligner market through **digital innovation** and **affordability strategies**, yet it must **contend with threats** from **macroeconomic fluctuations** and **intensified competition** from more cost-effective alternatives
- Align Technology's **immediate plan** should focus on **accelerating AI integration** in treatment planning, enhancing **digital marketing and telehealth services**, developing **partnerships with 3D printing companies**, and **initiating research into advanced materials**
- Align Technology should expand **dental partnerships**, invest in **3D printing**, **diversify product offerings**, and **pilot a modular digital dental health platform** to enhance adoption and patient experience
- Align Technology should implement **flexible financing options** and develop a **comprehensive digital dental health platform** to enhance accessibility and establish a leader position in the evolving dental market

## **The loss of patent protection leaves the door open to competitors to enter worldwide orthodontics market as a shift in consumer preference to clear aligners increases**

Align technology, a major player in the global malocclusion treatment space, has pioneered the use of clear aligners as an alternative to braces and lead the way in widespread use of this product. The company's major source of revenue is its Invisalign product while its systems and Services segment that includes the iTero intraoral scanners and CAD/CAM services contributes a small share of revenue. A dip in stock price has made investors question its long-term strategic outlook as it battles patent-based headwinds

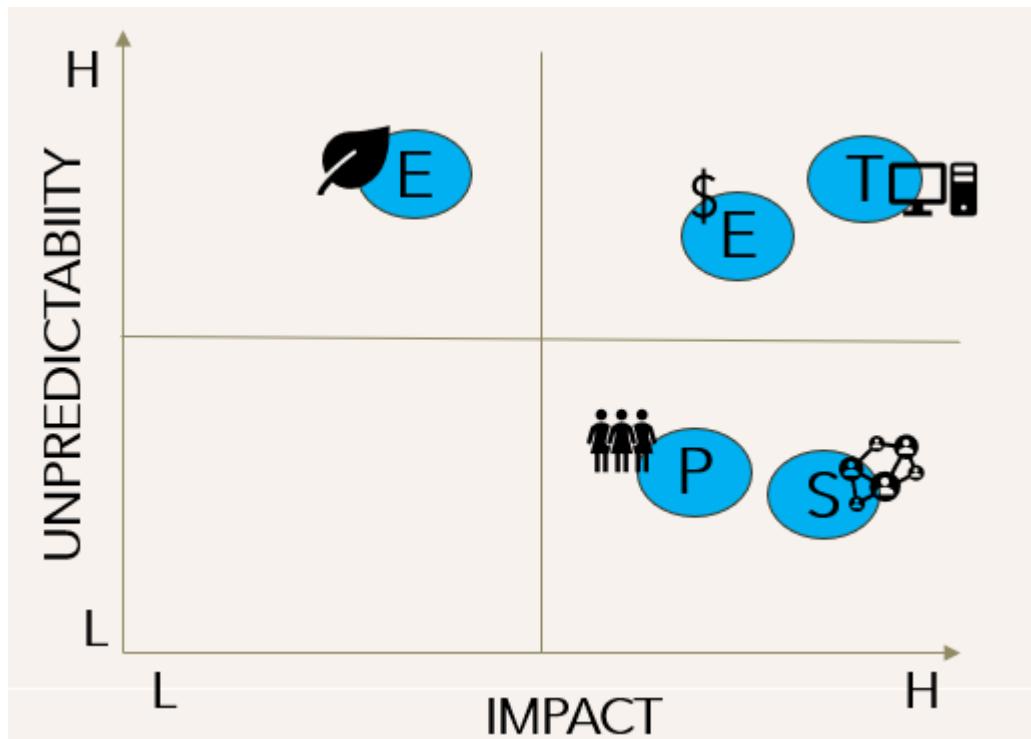
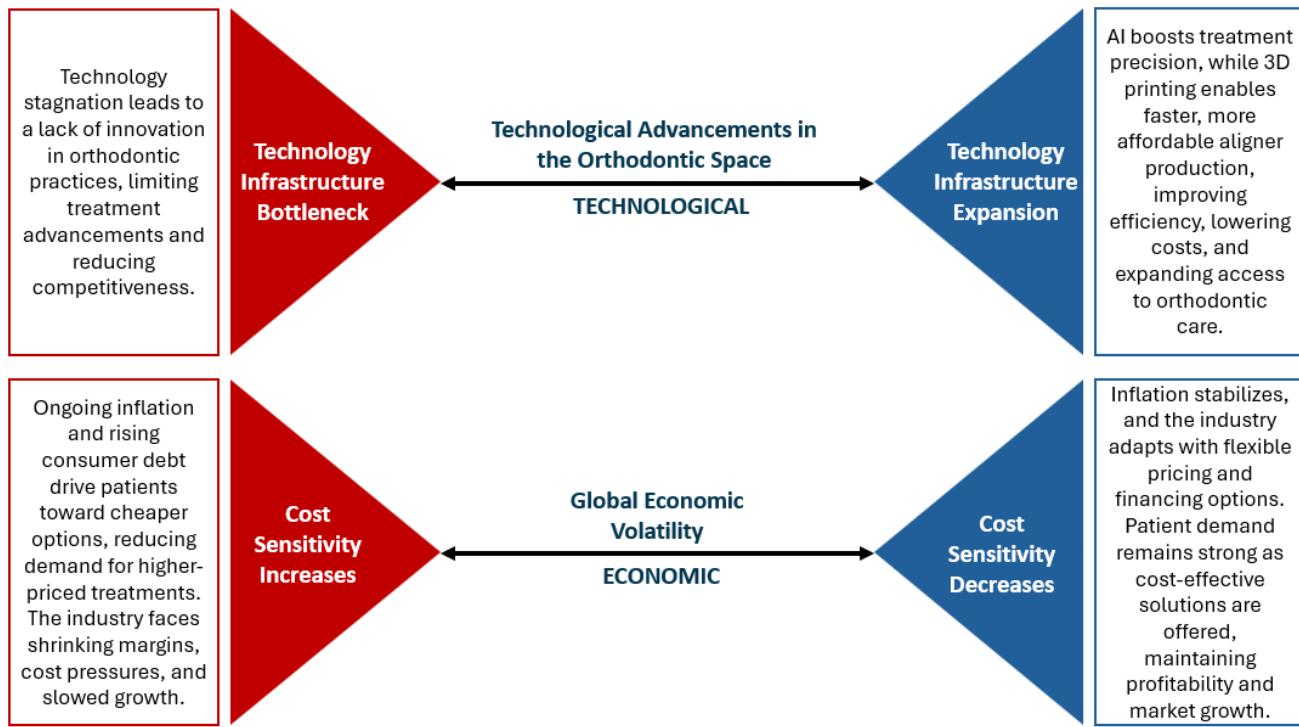
While consumer preference is shifting towards the use of clear aligners, Align must deal with new competition that has emerged as 40 of its patents which provided regulatory protection in the use of clear aligners technology have expired leaving the gates wide open for competitors.

The question of whether Align can emerge and continue to stay a winner will depend on how it navigates through a rough competitive landscape and adapts to emerging technologies in this space to keep improving its product. The shift in consumer behavior provides strong tailwinds using this to capture market share will depend on the implementation of a sound timely strategy to stay in the lead

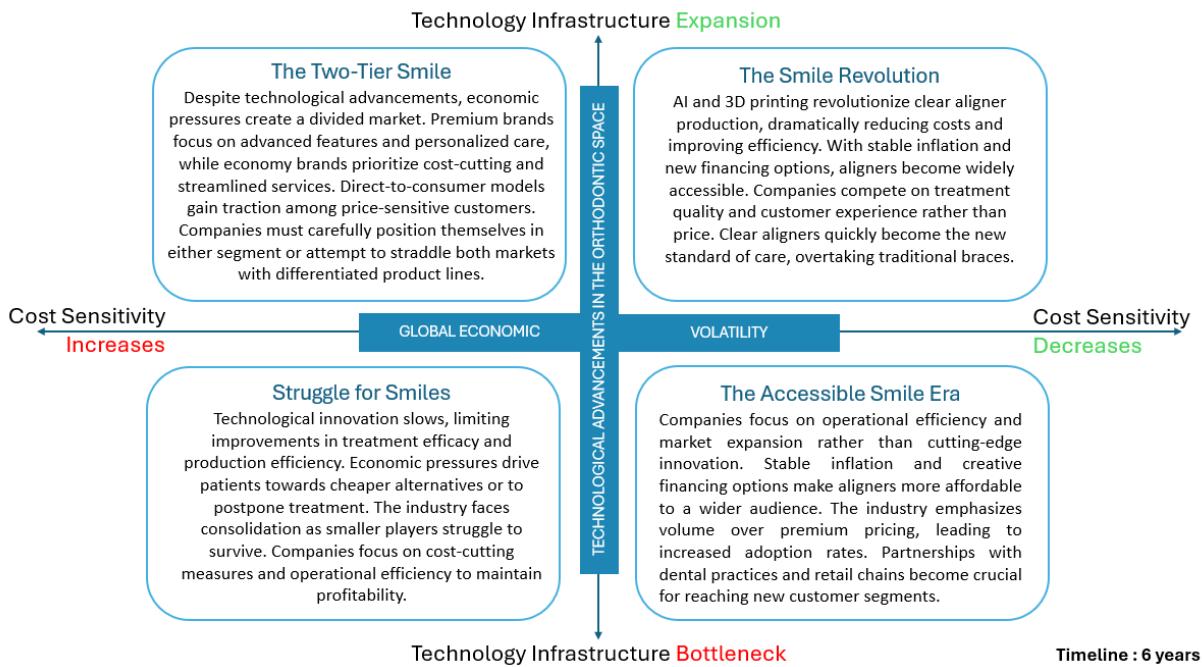
## **Amid rising production costs and shrinking consumer budgets, breakthroughs in AI and 3D printing are set to revolutionize orthodontics, while reshaping the industry's future**

Societal	Technological	Economic	Environmental	Political
<p>--&gt; 71% of millennials report feeling self-conscious about their teeth, compared to 54% of the general population. The growing emphasis on perfect smiles in social media could drive demand for orthodontic treatments.</p> <p>--&gt; The industry being driven by dentist recommendations puts all the power in hands of dentists to drive the product</p> <p>--&gt; The traditional method of treating malocclusion with braces still exists especially in the teenager segment and can be a barrier to shift consumer behavior towards clear aligners.</p>	<p>--&gt; <b>The 3D printing market in healthcare is projected to grow at a CAGR of 21.8% from 2021 to 2028.</b> Advancements in 3D printing and AI technologies have the potential to significantly transform the clear aligner industry, enhancing production efficiency and treatment precision</p> <p>--&gt; AI algorithms can analyze patient scans and develop customized treatment plans, potentially reducing the need for specialized orthodontists</p> <p>--&gt; Clear aligners and iTero products utilize digital technology, and some dental professionals have been and may continue to resist moving to a digital platform</p>	<p>--&gt; <b>Inflationary pressures are driving up production costs across industries, while rising consumer debt is reducing disposable income driving patients to pursue less costly orthodontic treatments</b></p> <p>--&gt; Continued disruptions in global supply chains could delay shipments, increase costs, and affect production, impacting the aligner industry's ability to meet global demand</p> <p>--&gt; Volatile exchange rates can impact revenue and profitability for companies operating internationally, as currency fluctuations affect the cost of goods sold and the pricing of products in different markets.</p>	<p>--&gt; The average orthodontic treatment produces approximately 1.5 kg of plastic waste, including packaging, aligners, and other disposable materials. An increased focus on environmental impact could pressure the industry to develop more eco-friendly production methods and materials.</p> <p>--&gt; Global supply chain disruptions from extreme weather have risen 29% since 2012, according to a 2023 World Economic Forum study. This creates uncertainty for the invisible aligner industry, which depends on complex global networks.</p>	<p>--&gt; In the U.S., only about 60% of employer-sponsored dental insurance plans cover orthodontic treatment. Shifts in government healthcare policies could affect insurance coverage for orthodontic treatments.</p> <p>--&gt; Tariffs on Chinese goods could raise costs for orthodontic products and materials, squeezing profit margins and reducing consumer demand.</p>

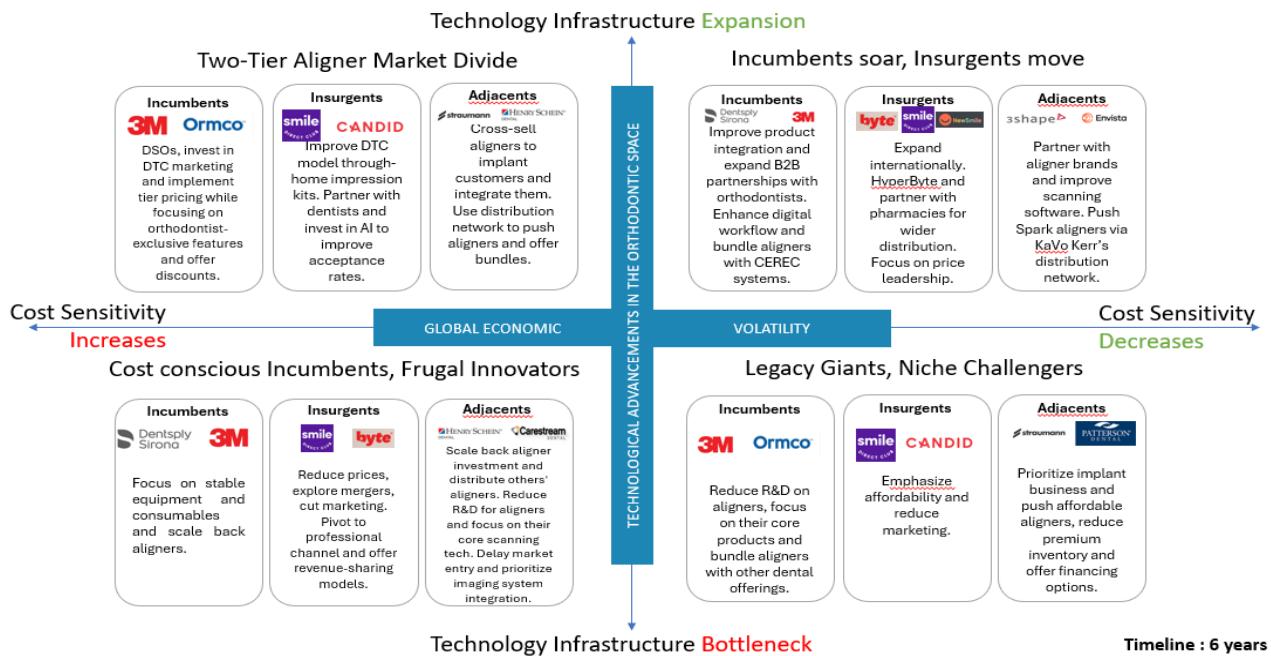
**Technological stagnation and rising cost sensitivity threaten innovation and market growth, but breakthroughs in AI and 3D printing, alongside stabilizing economic conditions, offer a path to increased efficiency, affordability, and sustained demand**



# The orthodontic industry's future depends on leveraging AI and 3D printing breakthroughs, while balancing premium innovations with rising cost sensitivity in a gradually evolving tech landscape



As the clear aligner market evolves, incumbents drive partnerships and product innovation, insurgents emphasize cost leadership and market expansion, while adjacents focus on synergies and distribution to adapt to different markets.



**Align Technology stands poised to capitalize on opportunities in the expanding clear aligner market through digital innovation and affordability strategies, yet it must contend with threats from macroeconomic fluctuations and intensified competition from more cost-effective alternatives**

## **Biggest Opportunities**

Align Technology has numerous opportunities in the expanding clear aligner market. The growing demand for aesthetic dental solutions, alongside the shift from traditional braces, positions Align to capture greater market share.

- By leveraging digital advancements such as intraoral scanning and 3D printing, the company can streamline processes and innovate further. Continuous innovation will help Align maintain its competitive edge in this rapidly evolving market.
- Focusing on affordability and volume allows Align to capture a broader audience, especially through partnerships with dental practices and retail chains.
- Entering emerging markets with rising dental awareness presents significant growth potential.
- Developing personalized at-home treatment options can cater to evolving consumer preferences, making orthodontic care more accessible and convenient.
- Align can capitalize on offering advanced features like personalized care and tailored treatment plans, appealing to higher-income customers willing to pay for premium solutions.

## **Biggest Threats**

Macroeconomic fluctuations influencing consumer spending on non-essential items, which includes clear aligners coupled with technological prowess of competitors poses serious threats to Align's future success

- As inflation rises and consumer debt increases, patients may opt for more affordable dental solutions, such as traditional braces or over-the-counter aligners. This shift could lead to decreased demand for Align Technology's premium clear aligners, directly impacting revenue.
- As more affordable alternatives gain traction in the market, Align might face intensified competition from both established players and new entrants. In addition to the existing technologically advanced competitors, more economy brands and DTC startups may enter the market, eroding Align's market share in the price-sensitive consumer base.
- A challenging economic environment may limit Align's ability to expand into new markets or invest in product development.

- Geopolitical tensions further exacerbate their market success due to disruptions in supply chain. As affordability becomes the key focus, Align could face margin erosion, especially if new competitors enter the market with even lower-cost alternatives.

## Strategic Response

**Align Technology's immediate plan should focus on accelerating AI integration in treatment planning, enhancing digital marketing and telehealth services, developing partnerships with 3D printing companies, and initiating research into advanced materials**



### Phase 1 – Immediate plan (0-2 Years)

#### 1. Accelerate AI integration in treatment planning

**Exploration:** Invest in AI-driven software to enhance treatment precision and efficiency. Leverage the database of 18 million treated cases to develop advanced AI not only for treatment planning but also to predict patient-specific outcomes based on demographic and clinical data.

**Rationale:** Leveraging AI can improve outcomes, reduce costs, and maintain a technological edge over competitors, addressing both economic and technological uncertainties. AI-driven manufacturing can also automate inventory optimization to meet demand efficiently.

#### 2. Enhance Digital Marketing and Telehealth Services

**Exploration:** Invest in digital marketing campaigns and enhance telehealth services for consultations and follow-ups, making it easier for patients to access orthodontic care.

**Rationale:** In an uncertain economic environment, patients may prefer remote consultations for cost-saving convenience. Strengthening online presence can attract cost-conscious consumers and facilitate access to Align's products, boosting sales. Partnering with Teledoc and Amwell could help in the integration of tele-orthodontic services into existing platforms.

3. Develop strategic partnerships with 3D Printing Companies

**Exploration:** Develop partnerships with local or regional 3D printing companies to enhance supply chain resilience and reduce the risk of supply chain disruption while keeping costs low.

**Rationale:** With manufacturing technologies evolving, improving cost efficiency and speed in production is key to remaining competitive against low-cost alternatives, especially in times of supply chain sensitivities.

#### *Capability building for Phase 2*

##### *Initiate research into advanced materials*

*Exploration: Begin R&D into next-generation aligner materials with improved properties.*

**Align Technology should expand dental partnerships, invest in 3D printing, diversify product offerings, and pilot a modular digital dental health platform to enhance adoption and patient experience**

#### **Phase 2 – Mid Term plan (2-4 Years)**

1. Expand partnerships with dental schools and practices

**Exploration:** Strengthen partnerships with orthodontists and dentists by offering incentives for recommending Align products and providing training for effective product usage.

**Rationale:** This builds a strong network of skilled professionals using Align's technology, ensuring long-term adoption and loyalty while addressing technological adoption barriers.

2. Invest in advanced 3D printing technologies

**Exploration:** Research and develop proprietary 3D printing methods for aligner production.

**Rationale:** This can significantly reduce production costs and time, helping to address both economic pressures and technological advancements in the industry.

3. Expand range of complementary products and develop tiered pricing models

**Exploration:** Develop and launch a line of oral care products specifically designed for aligner wearers, such as specialized cleaning solutions, aligner removal tools, and whitening treatments compatible with aligners.

**Rationale:** This diversifies revenue streams, enhances the overall patient experience, and creates additional touchpoints with customers throughout their treatment journey. It also helps Align capture more value from each patient and strengthens brand loyalty.

## *Capability building for Phase 3*

*Pilot a modular digital dental health platform*

*Exploration: Begin developing and testing components of an integrated ecosystem for diagnostics and treatment planning.*

**Align Technology should implement flexible financing options and develop a comprehensive digital dental health platform to enhance accessibility and establish a leader position in the evolving dental market**

### **Phase 3 – Long Term plan (5-6 Years)**

#### **1. Implement Flexible Financing Options**

**Exploration:** Offer flexible financing solutions, such as installment plans or partnerships with third-party financing companies.

**Rationale:** By easing the financial burden on patients, Align can encourage more consumers to opt for their products despite rising consumer debt. This can also increase conversion rates and improve customer loyalty.

#### **2. Develop a comprehensive digital dental health platform**

**Exploration:** Fully integrate the modular components into a cohesive ecosystem that combines diagnostics, treatment planning, and long-term dental health monitoring.

**Rationale:** These positions Align as a leader in digital dentistry, creating a sticky ecosystem that can withstand economic fluctuations and technological disruptions.

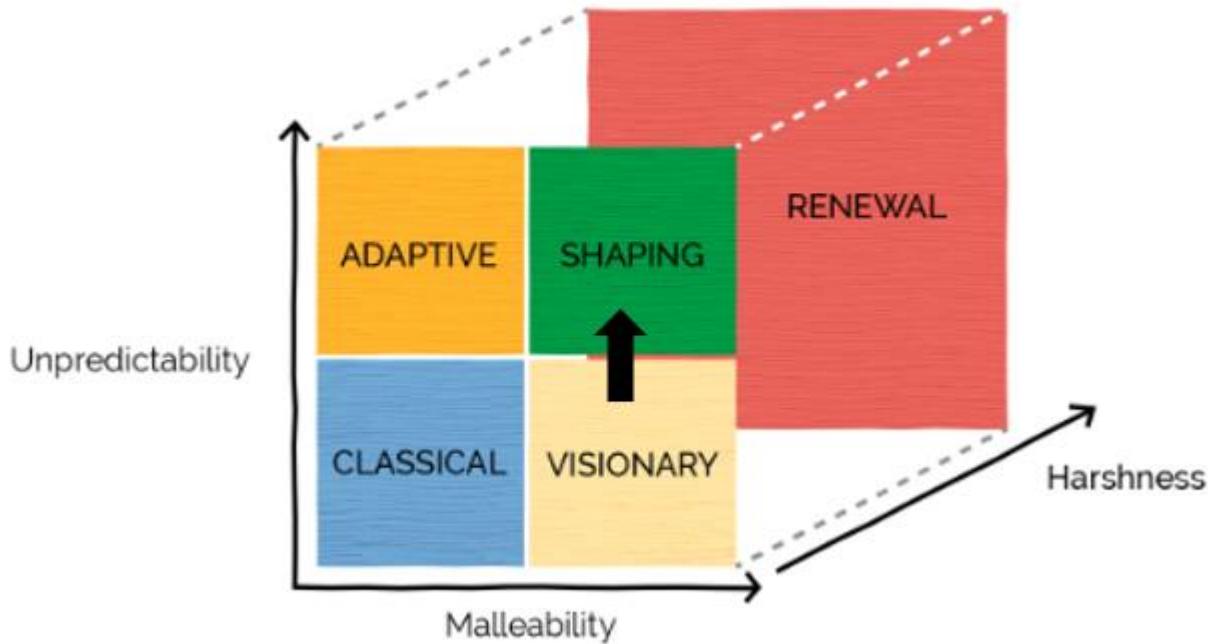
#### **3. Expand Presence in Emerging Markets**

**Exploration:** Align Technology should target high-growth markets like Asia-Pacific and India by creating localized digital health ecosystems and adapting product offerings and marketing strategies to meet local needs and economic trends.

**Rationale:** This expansion can drive revenue growth and strengthen brand loyalty by making Align's solutions affordable and accessible, while fostering community trust and engagement in these diverse markets.

## Appendix

# Strategy Palette



### Current Approach – Why is Align in Visionary?

Align Technology, a pioneer of advanced orthodontics, has revolutionized the industry with its clear aligner solutions and innovative technologies. It has led the way in adoption of Invisalign as an alternative to traditional wire braces. The company was able to dominate in the malocclusion treatment market by staying close to customers and understanding preferences, especially in the adult segment which contributes to a large percentage of users. Since then, the market has drastically evolved with the introduction of AI and 3D printing posing as a threat and Align would have to change gears if it wants to continue to stay relevant.

### New Approach – Why Shaping fits Align tech?

Align has already integrated tools like the iTero scanner, CAD/CAM services, and Invisalign, building a comprehensive digital ecosystem for orthodontic treatment. Its business model already hints at ecosystem orchestration, with its connections to dental professionals, product innovations, and digital workflows.

Align should continue to **expand its ecosystem**, bringing in complementary players, such as AI diagnostic tool providers, material science companies for advanced aligners, and even insurance companies to shape the delivery and financing

of orthodontic care. By **orchestrating** a wider ecosystem, Align can control the standards of the industry and capture value from every step of the patient's journey.

## Revenue Stream Exploration

### CURRENT REVENUE STREAMS

- **Invisalign Product Sales:** This is the core revenue driver, where Align makes approximately **\$1,300 per patient** for every Invisalign treatment. It involves selling the aligners to orthodontists and dentists, who then sell them to patients. This model is a straightforward **product sales model** with high margins due to the premium nature of the product.
- **Systems & Services** (iTero Scanners & CAD/CAM Services): This accounts for about **17% of total revenue**. Align sells iTero intraoral scanners and charges for CAD/CAM services, with additional recurring revenue from **consumables** like single-use scanning tips priced at **\$2.50 each**. This model combines **hardware sales** with a **recurring consumables revenue stream**.

### SUGGESTED REVENUE STREAMS

#### 1. Subscription Model (Recurring Revenue)

- Align could offer software subscriptions to dental practices, providing access to enhanced features like AI-powered treatment planning, cloud-based storage of patient data, or regular software updates for iTero scanners.
- Complementing Existing Model: This model builds on the Systems & Services segment, moving it from a one-time purchase model to a recurring revenue model.

#### 2. Data analytics and AI services

- Leverage the database of over 18 million treated cases to offer predictive analytics and AI-driven treatment planning services to orthodontists and dentists.
- Charge for access to these advanced tools, potentially on a per-use or subscription basis.

#### 3. Expanded consumables line

- Develop and sell a wider range of consumables beyond scanner tips, such as specialized cleaning products for aligners or complementary oral care items.
- This could increase revenue per customer and provide a steady income stream.

## Competitor Comparison

Category	Align Technology Clear Aligners	Traditional Braces	Competitors (e.g., SmileDirectClub)
Cost	\$3,000 - \$8,000	\$2,500 - \$6,000	\$1,500 - \$2,000
Technology	Advanced (3D printing, AI treatment)	Basic mechanical system	Varies; some use similar tech but less oversight
Accessibility	Requires orthodontist consultation	Requires orthodontist visits	Primarily online; at-home treatment options available

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