

"Glasses-free 3D Films for Smartphones : Driving 3D Content Consumption and UGC Platform Vitalization"

Mar, 2026

Rahum Nanotech Inc.



Table of Contents

01 Overview

02 Issues

Barriers to the Mass Adoption of 3D Business

03 Solution

Development of Glasses-Free 3D Film for Smartphones

3D Platform Development, AI, and UGC (User-Generated Content)

Expansion of Market Demand

04 Marketing

05 Business

Target Market

Business Model

Financial Projection

Business Road Map

06 Company

Company Overview

Patents

Core Technology

Overview

■ Market Evolution & Technology Foundation

- ✓ Advancements in 3D Imaging and Display Technology
- ✓ The Paradigm Shift in 3D Content Creation and Consumption

■ Growth Drivers & Scalability

- ✓ The Democratization of User-Generated Contents (UGC)

■ Strategic Synergy & Vision

- ✓ Synergizing 3D Content with Virtual Spaces and AI

< Key Growth Drivers for 3D Displays Market >

- ✓ AI-Driven Evolution in 2D-to-3D conversion technology
- ✓ Expanding Horizons : Seamless Convergence with XR (AR, VR, MR)
- ✓ Accelerating the 3D User-Generated Content (UGC) for Mass Adoption
- ✓ Accelerating Growth in Alignment with Immersive 3D Content Trends

- 2024 Market Size: approx. USD 13.4 billion (20% YoY growth from 2023)
- 2030 Projected Market Size: Over USD 40 billion
- Smartphone Screen Protector Market: approx. KRW 4.77 trillion

■ Key Barriers to the Mass Adoption of 3D Business

UX Barriers to Mass Market Adoption

- User Discomfort during extended use
-> Eye Strain, headache, dizziness caused by viewing.
- Restricted Viewing Angles & Narrow Optimal Positioning.
- Physical Discomfort of wearable devices
-> **excessive** weight and physical Strain during extended use.

Technical Hurdles & Complexity

- Lack of Content Diversity in the 3D Ecosystem
-> Substantial Cost Overhead in 3D : Increased requirements for filming, editing, and rendering
- Resolution degradation in 3D Display modes
-> Since 3D is divided into several viewing angles, the resolution is lower than 2D, causing problems.

Limited Consumer Accessibility due to Premium Pricing

- High Price Points as a Barrier to Market Adoption.
-> Lack of Price Accessibility for Mass-Market Consumers.
- Decreased Investment by Companies
- 3D Content Scarcity -> sluggish Device Sales
-> Reduced Corporate Investment -> Further 3D Content Shortage

Solution

- Development of Lightweight 3D Devices
- Overcoming Viewing Angle Constraints in Glasses-Free 3D
- Optimization 3D Rendering to minimize Viewing Discomfort

- Commercializing AI-Driven 2D-to-3D Content conversion
- Building a Scalable 3D Video Streaming Platform

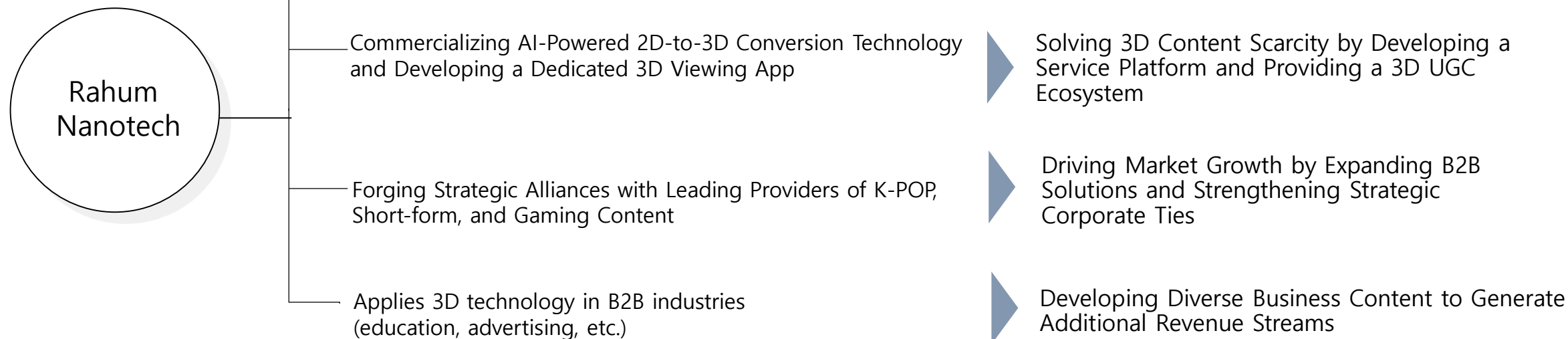
- Development of Glasses-free 3D Films & Affordable 3D Devices.
- Forging Strategic Partnerships and securing a Robust 3D Content Pipeline.

Solution

"Leading the 3D revolution via innovation: Rahum Nanotech Inc is pioneering the market with glasses-free smartphone films and a scalable 3D User-Generated Content (UGC) platform."

Rahum Nanotech's Competencies

Key Solution



Solution

Development of Glasses-Free 3D Film for Smartphones

- ✓ Glasses-Free 3D Film (Lens) Pattern Technology Applied
- ✓ Realization of glasses-free 3D stereoscopy through the finest 3D film manufacturing/processing and ultra-precision pattern.
- ✓ Technical improvements including Moiré Reduction, Crosstalk Reduction, Resolution, Power Consumption, and Horizontal Resolution.
- ✓ Nano Imprinting technology applied for 3D stereoscopic image realization.
 - Joint technology development with Pohang University of Science and Technology (POSTECH) Nano Convergence Technology.
- ✓ Development of content for glasses-free 3D lenticular film.
 - Maximization of Multi-View 3D Stereoscopy.

Content Experience and Performance for 3D Implementation



Transparent LED
Content Experience



Digital Media Art Content
Experience



Advertising Examples Using
Lenticular Material
Source: neolearn.tistory.com/

Implementing Glasses-free 3D Film Technology on Existing Hardware

➤ 3D Optical Films for Smartphones: Integrated 3D Viewing Capabilities and Screen Protection



- Used as an alternative to existing smartphone protective films ("Protective Film + 3D Stereoscopic Video Film").
- Allows viewing of various immersive 3D content such as YouTube, IMAX, Netflix, and movies through a dedicated application.

➤ Glasses-free 3D Optical Films for Large-scale Displays and Digital Signage



- Used as a replacement for 3D display panels.
- Realizes glasses-free 3D stereoscopic content by attaching the lenticular material to existing outdoor advertising, online game monitors, and LCD/OLED display panels.

➤ Target Markets and Commercial Applications of Glasses-free 3D Films



Smartphone 3D Film



Advertising DID + 3D Film



Glasses-Free 3D Gaming Film

■ Eliminating Content Shortages by Building a 3D Ecosystem Powered by AI and User-Generated Content

➤ 3D Content Creation and Platform Development

- Establishment of a platform structure enabling UGC creation and sharing using smartphone cameras.

➤ Activation of 3D Content Generation with Smartphone Cameras

■ UGC (User Generate Contents) mass adoption

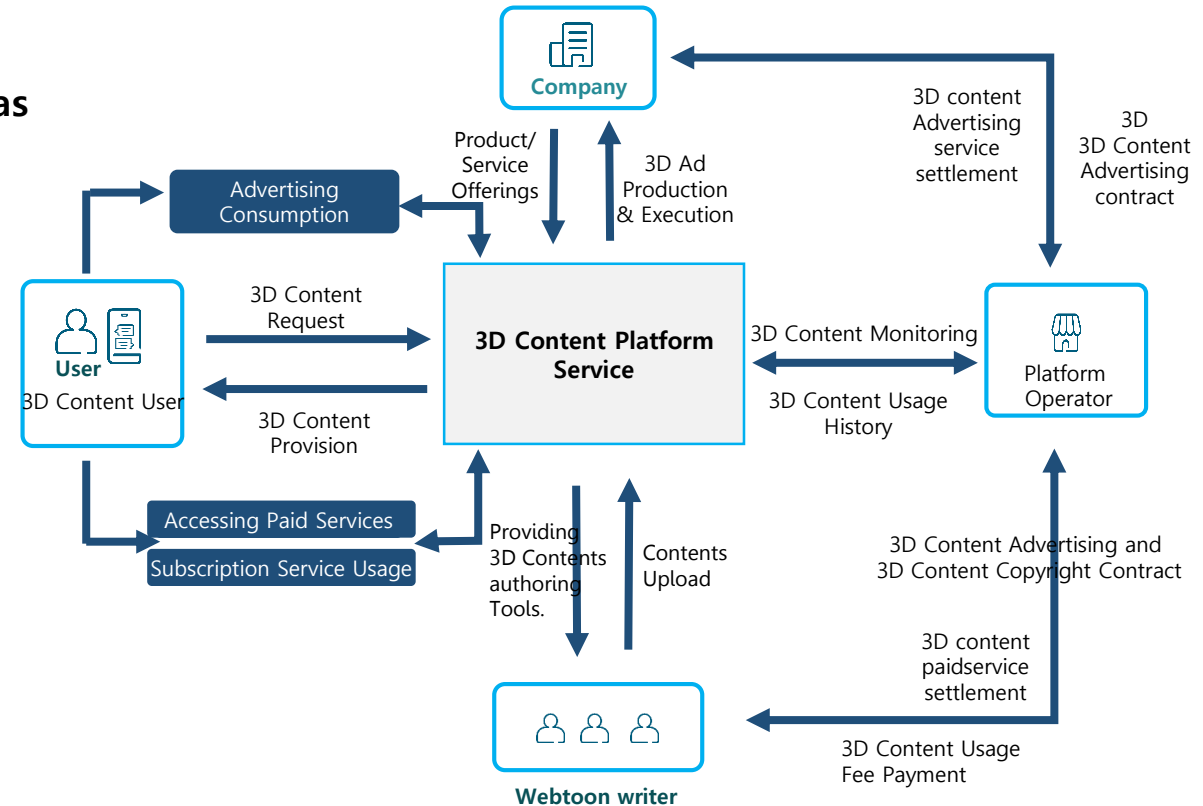
- Mass adoption of UGC created with the iPhone's 3D camera.
- Real-time viewing of 3D photos and videos.
- Activation of related user platforms for UGC mass adoption.

➤ B2B Utilization of 3D in Industry (Education, and Advertising)

- Brand advertising and product promotion videos converted to 3D using AI conversion technology.
- Utilization in Industrial Technology Education, Science Experiments, and Game-Based Learning (AR/VR/MR Integrated Education).

➤ Development of a 3D Platform Dedicated to Webtoon Artists and IP Holders

- Providing writers with 3D copyright tools, enabling them to directly upload and distribute 3D videos.



Scaling Market Demand

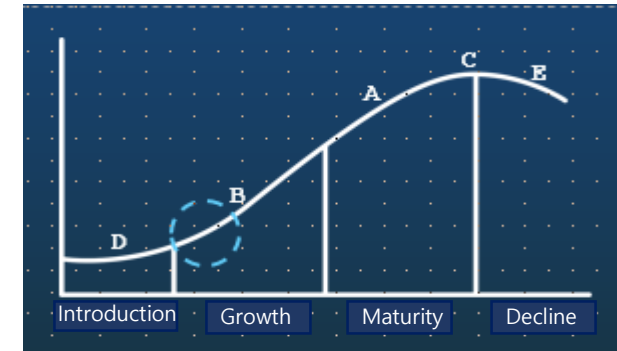
➤ Building an Ecosystem for 3D Content Consumption via AI-Driven 2D-to-3D Transformation Technology

- Allows 3D content creation for smartphones and general users.
- Real-time viewing of 3D photos and videos.
- Combination of smartphone 3D film and AI conversion technology.
 - * Integration of smartphone 3D film + AI conversion technology, New 3D Media Market.
- Easy Content Creation through AI + 3D Generation Technology Development.

➤ Converting Popular 2D Content into 3D and Expanding B2B Strategic Alliances

- Conversion of Popular Games to 3D Game and B2B Partnership
 - o Global launch of 3D version of popular game.
- Strategic Partnership with K-POP Entertainment Company
 - o Distribution of music videos, short-form content, etc., in 3D using K-POP fandom (approx. 200 million global fans).
- Conversion of Webtoon Copyright to 3D Content
 - o Activation of 3D content consumption by providing 3D platform copyright tools.
 - o Enhancement of webtoon copyright holder profitability and rights protection.

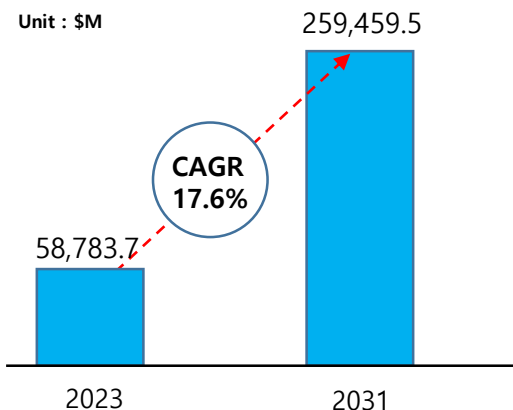
➤ Life Cycle of Glasses-Free 3D Display Technology



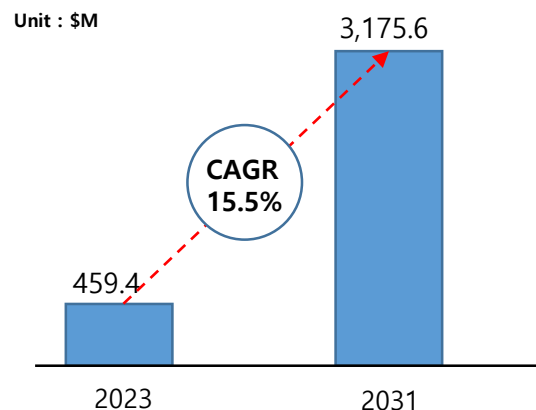
- The smartphone, gaming, and single-stage 2D Display markets are currently in the initial growth stage (Point D on the graph), and the market is expected to achieve rapid growth within the next 5 years.
- Current Position: : Initial Growth Stage

Marketing

3D Display Market



Glasses-Free 3D Display Market



Source : Research and markets, 2021. Verified Market Research 2021
fusionmarketresearch.com/enquiry.php/Global-Glasses-Free-3D-Displays-Market

< Smartphone Screen Protector Market Status >

Unit : \$M

Category	Korea	USA	EU	China	Global
# of Smartphone Installed	47,267,712	241,395,000	434,085,000	801,448,000	4,028,000,000
Penetration Rate	984%	77%	67.30%	68%	
Screen Protector Buyers	37,341,492	190,702,050	342,927,150	633,143,920	3,182,120,000
Screen Protector Market Size	378.5	1,932.8	3,475.6	6,416.9	12,203.8

- The global smartphone screen protector market size is approximately KRW 47.7 Trillion..
 (Screen Protector Price: 15,000원/개 기준)

Source : StockApps data , 2021.7 기준, Hootsuite Reports , 2021기준, 미국 Pew Research Center, 2018기준

Marketing & Sales Channel Development

- ❖ Establishment of Global Distribution Channels
 - USA, Europe, Southeast Asia.
 - o Sales through company's own mall, smartphone distributors.
 - o Sales of K-POP Goods, etc..
- ❖ Promotion of Sales Channels
 - E-commerce.
 - o Coupang, etc..
- ❖ Global Partnership for World Taekwondo Federation (Global Fandom 250 Million) 3D Business Promotion
- ❖ Execution of K-POP Music Video Content Agreement with FMG Entertainment
- ❖ Signing of Business Agreement with Hanter-Global
- ❖ Installation of 3D DID for Entertainment Land, Marts, etc., Worldwide
- ❖ Overseas Export Promotion Business

Marketing

■ Marketing & Sales Activity

❖ Overseas Export Promotion Business (Sep 2025 ~)

- Government support projects to promote overseas exports of 3D film
- Promotion of investment attraction and export/distribution collaboration with Dubai investors.

❖ Collaborative Business Agreement with the Korea Influencer Association to Expand the 3D Content Ecosystem (Nov. 2025 ~)

- Global Promotion and Sales of 3D Films via International Influencer Networks – R&R (Roles and Responsibilities) & Content:
- Empowering Influencers with Comprehensive Content Production and Promotional Support
- Facilitating the Production, Promotion, and Commercialization of 3D Content
- Boosting Brand Visibility through Association Events, Exhibitions, and Joint Marketing

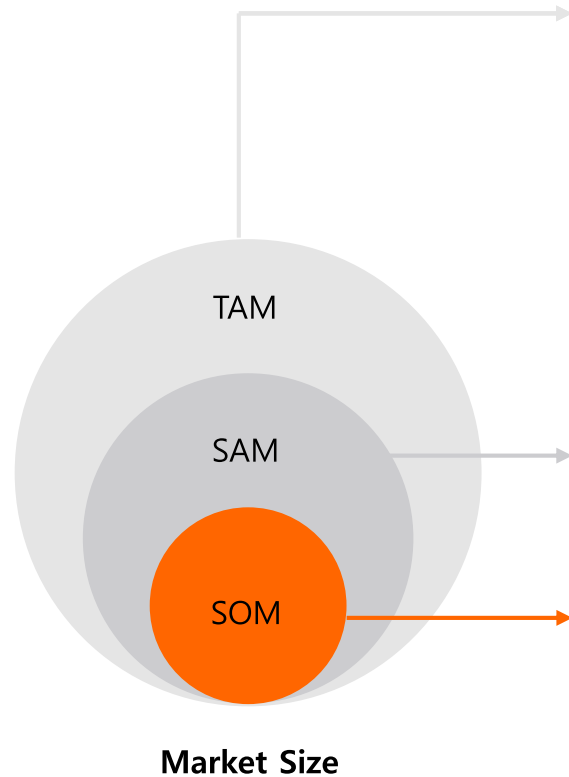
❖ "Entry into the K-Content Market through Strategic Partnership with Cosmic Country Co., Ltd."

- Production of K-Content products utilizing 3D films
 - o Promotion of overseas sales of idol group Goods.
- Scheduled SM Entertainment investment approval and contract signing with 6 affiliated companies (Oct 2025)

❖ Establishing a Nationwide Distributor and Dealership System (In Progress)

- Planning to recruit master distributors and dealers for 3D film sales.
 - o Establishment of distributor and dealership policies.
 - o Planning to recruit master distributors and dealers for 3D film sales.
 - o Development of online/offline marketing strategies, etc., to boost 3D film sales.

Business : Target Market



Total Addressable Market : The size of the entire market, product/service category, and copyrighted business domain.

3D Display Market (2023)	58,783	Unit : \$M
Global MEDIA Market	291,216	
Global Advertising Market (On, Off Line)	799,324	

Serviceable Available Market (Targeted Market) The size of the market pursued by a startup within the TAM.

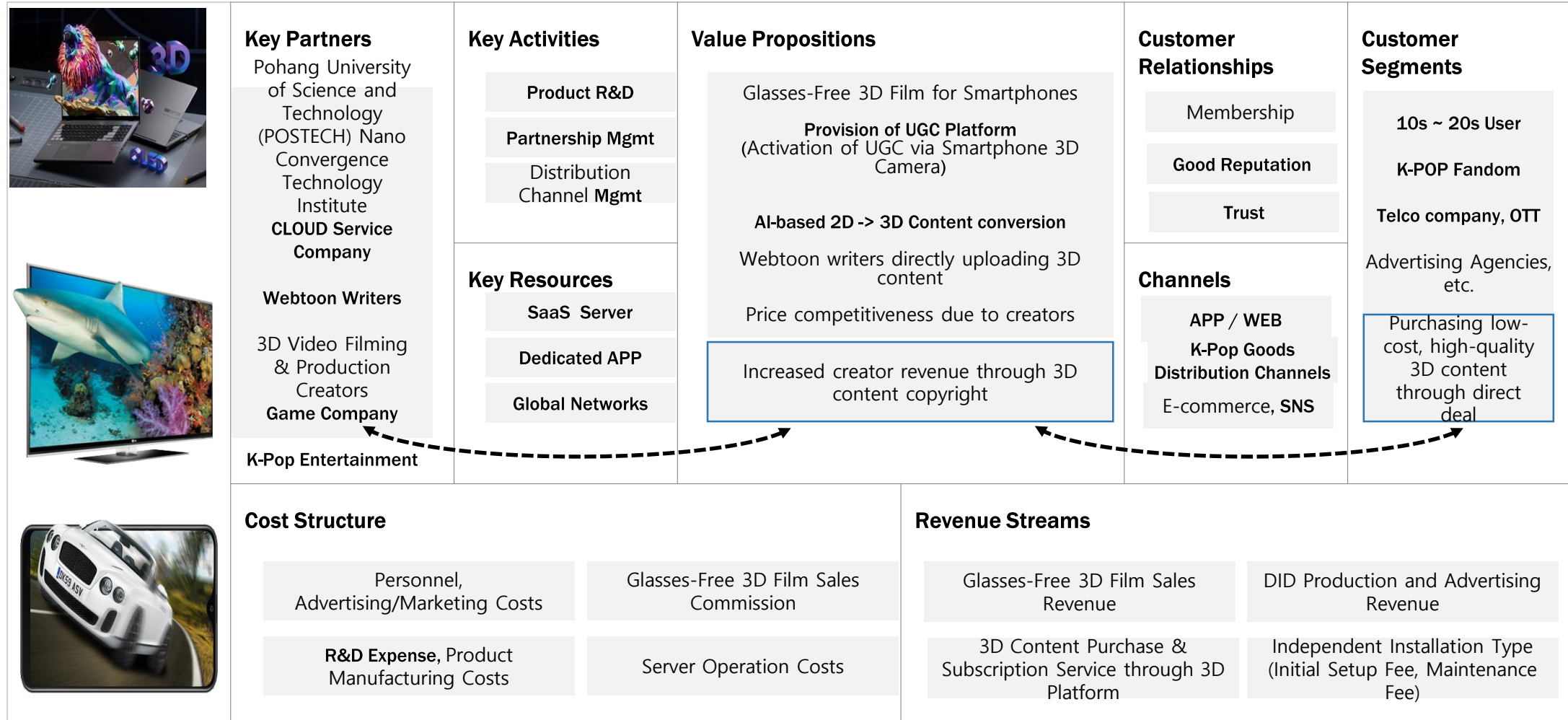
Glasses-Free 3D Display Market (2023)	459
YouTube, Apple Content Market (YouTube (53조), Apple (123조))	118,918
Social Media Advertising Market * Domestic Digital Advertising Marke (6조 7천억 원)	197,972

Serviceable Obtainable Market (Short-Term Secured Market)

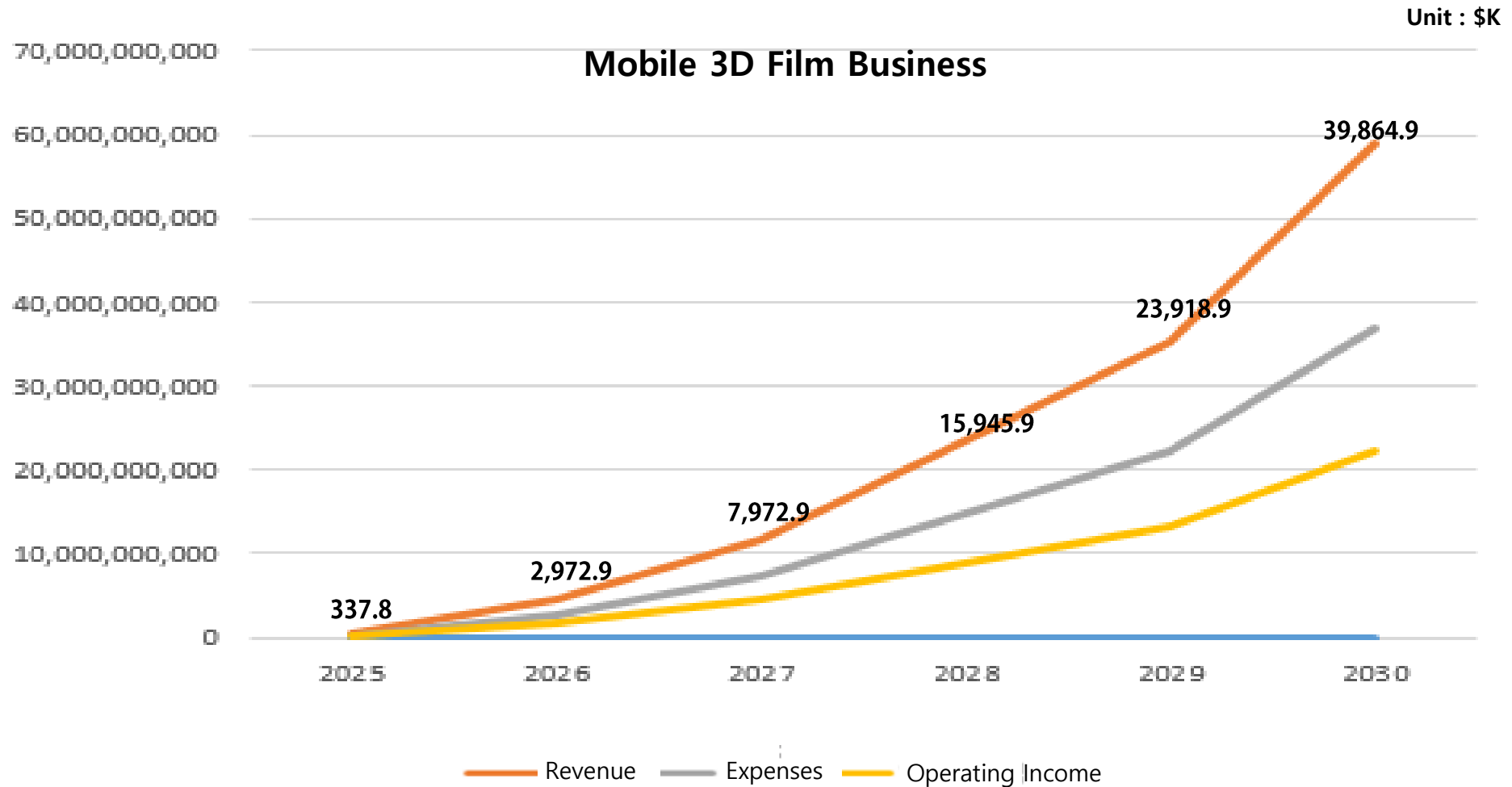
Glasses-Free Smartphone 3D Film Market (Screen Protection Function + 3D Image Display Film) * Smartphone protector purchase 3,182,120,000 person x 1% x 32 USD /ea = (Targeting 31.8 million units in sales))	1,018
UGC 3D Content PLATFORM Market * Webtoon 3D Content Copyright Distribution Market: : USD 26.4 million / year * Webtoon Market : 220,000 person / month x 12 month x 10 USD - Global Webtoon marcket (2,874 Million USD), - Korea Webtoon Platforms Naver and Kakao (1,959 Million USD)	26.4
3D Advertising Market * 1,000 Display 202.7 USD / Film x 3,378 USD /Display Device	10,135

Business Model

Business Model Canvas for Glasses-Free 3D Film Sales and 3D UGC Platform Business



Financial Projection



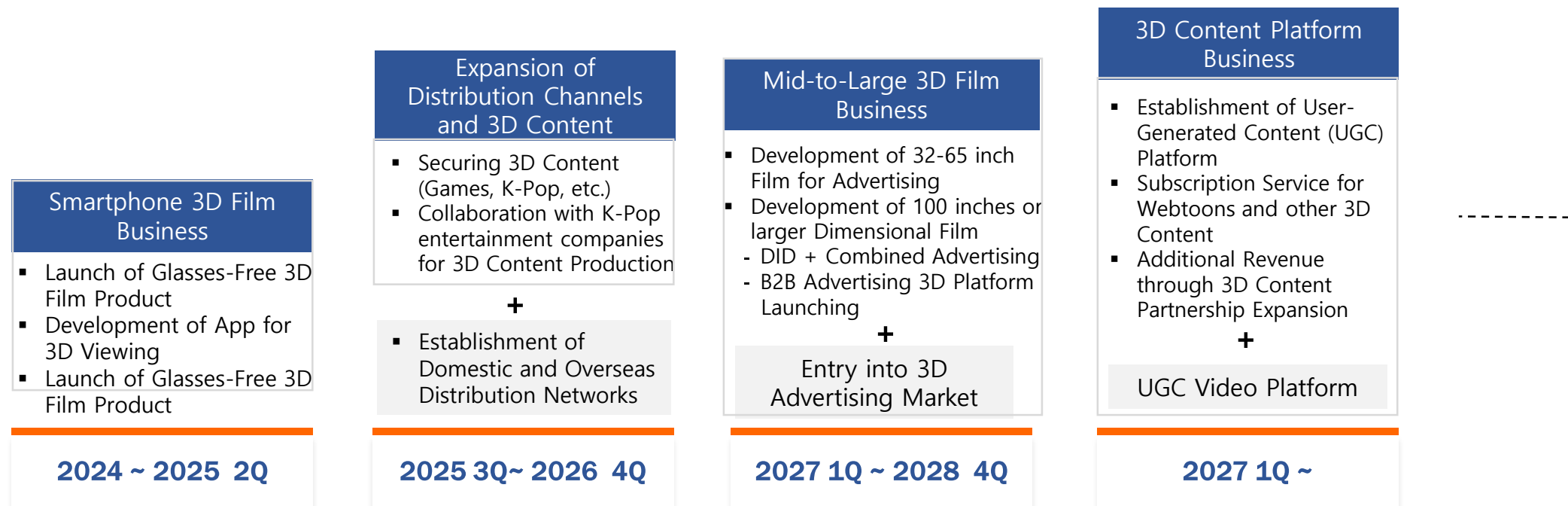
Com 1) Revenue projections are based on factors such as 3D video creation related to K-Pop and the ability to use the iPhone 16's 3D filming.

2) Revenue Expansio

- Launch of Goods and other collaborations with entertainment companies

Business Road Map

Phased Business Roadmap: Scaling 3D Content via Film Sales & Securing User Base through 3D UGC Platform (Optimized for Profitability, Growth, and Defensive Barriers)



Company

Company Name	Rahum Nanotech Inc	CEO/ President	Younghoon Lee	Date of Establishment	July 2, 2018
Employees	8	Website	www.rahumnanotech.com	Capital	2 Billion KRW
Address	Headquarters: #467, 78 Jungang-ro, Gwangju-si, Gyeonggi-do, 12771, Republic of Korea Seoul Office: #1520, Jeil Officetel, 260, Songpa-daero, Songpa-gu, Seoul, South Korea				

Core Technology

- Glasses-Free 3D Film (Lens) Pattern Technology
- Nano Imprinting Technology (Joint Development with Pohang University of Science and Technology (POSTECH) Nano Convergence Technology)
- Optimal Glasses-Free 3D Film Design
- Development of Glasses-Free 3D Film Manufacturing Process (Moiré Reduction, Resolution Improvement)
- Development of Content for Glasses-Free 3D Lenticular Film (3D Stereoscopy)
- Development of Glasses-Free 3D Lenticular Film

Competencies

Patent

- 01 Method for Forming Patterns of Etch-Free Printed Micro-Electrodes
- 02 Transparent LED Display Device and Manufacturing Method Thereof
- 03 Virtual Platform Service Provision Method, Apparatus, and Computer Program Using a 3D Avatar Reflecting Voice Recognition via Offline Advertising Video
- 04 Manufacturing Method of a Mold for Fabricating a Glasses-Free 3D Film Layer Used in a 3D Video Providing Apparatus and the Apparatus Using a Head-Mounted Device

KRX Startup Market Registered Company



Competencies

■ Development of Glasses-Free 3D Film (Lens) Manufacturing Process

- Moiré Reduction, Resolution Improvement
- Realization of Glasses-Free 3D Stereoscopic Image through Ultra-Precision Processing
- Technical Improvements including 2D Crosstalk, Moiré Reduction, Resolution, Power Consumption, and Horizontal Resolution

■ Content Development for Glasses-Free 3D Lenticular Film

- Maximization of Multi-View 3D Stereoscopy ↑
- Based on Content Development Experience and Performance for 3D Implementation

■ Development of Glasses-Free 3D Lenticular Film

END OF DOCUMENT

Thank You.