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Project Report

“Print-Trint” Bringing Imagination to Life

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This project has provided us with insights into the practical aspects of entrepreneurship, and we look forward to applying the knowledge gained in our future endeavors.

Thank you for this enriching opportunity.

Sincerely,

K. M. Safin Kamal
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Executive Summary

In introducing our transformative project of establishing a 3D model printing business in Bangladesh, we aim to usher in a new era of innovation and economic growth. This venture holds the promise of empowering local industries, designers, and entrepreneurs with cutting-edge technology, allowing them to seamlessly translate ideas into tangible reality. Beyond the technological leap, our commitment to localized solutions addresses specific market needs, fostering job creation, skill development, and sustainable practices. This project aligns with Bangladesh's economic vision, offering a strategic blend of advanced manufacturing capabilities and eco-friendly practices, contributing to the nation's journey towards becoming a regional hub for additive manufacturing. By facilitating access to 3D printing services, we anticipate a positive ripple effect on various sectors, promoting creativity, reducing production costs, and placing Bangladesh on the global innovation map. As we embark on this endeavor, our vision extends beyond a business venture — it is a commitment to shaping a future where 3D printing acts as a catalyst for economic prosperity, technological advancement, and sustainable development in Bangladesh.

This report serves as a comprehensive exploration of our 3D model printing business project including business model canvas, financial model, SWOT analysis, project charter and many more. It includes competition analysis and risk factors of our project. Throughout this report, we will provide a detailed overview of our project's objectives, strategies, challenges, and opportunities, with the ultimate goal of outlining a roadmap for the successful realization of our 3D model printing business.

Project Name

Our project name is "PRINT-TRINT". The name clearly communicates the nature of our business – printing. People instantly understand that our company is involved in printing, and the addition of "Trint" adds a unique touch, making it intriguing. The combination of "PRINT" and "TRINT" is easy to remember, making it likely that potential customers will recall the business when they are in need of 3D printing services. This is crucial for building brand recognition and customer retention. The name has a modern and dynamic feel, suggesting that our 3D printing business is innovative and up-to-date with the latest technology. "PRINT-TRINT" is easy to pronounce and spell, reducing the chances of confusion. This is important for word-of-mouth marketing and online searches, as people can easily find and share information about your business. The name doesn't use complex or unfamiliar words, making it accessible to a wide audience in Bangladesh. It can resonate with both English and Bengali speakers, ensuring broad appeal.



Figure-1: Business Logo

Mission

Our mission at PRINT-TRINT is to bring imagination to life through cutting-edge 3D printing technology.

Vision

Our vision at PRINT-TRINT is to be the premier 3D printing hub in Bangladesh, recognized for our commitment to quality, affordability, and customer satisfaction.

Detailed Description of the Project

In embarking on our groundbreaking venture to establish a 3D model printing business in Bangladesh, we delve into a comprehensive and dynamic business model that not only offers cutting-edge services but also strategically positions us as innovators in the local market.

At the heart of our project lies the commitment to serving customized products that cater to the diverse needs of businesses, individuals, and creative enthusiasts. Through advanced 3D printing technology, we empower our clients to bring their unique visions to life, offering bespoke solutions that go beyond the constraints of traditional manufacturing.

A key hallmark of our enterprise is the creation and retailing of our trademark product – a distinct and carefully crafted showpiece that not only showcases the precision and capabilities of our 3D printing services but also serves as a signature item synonymous with our brand. This trademark product becomes a centerpiece in our retail shop, acting as a tangible representation of the innovation and creativity that defines our business.

Our sales strategy encompasses a multi-faceted approach, engaging directly with customers through walk-in retail interactions. In these spaces, individuals can explore our diverse portfolio of customizable products, consult with our expert team, and place orders for unique creations tailored to their specifications. The retail shop becomes not just a point of sale but a showroom of possibilities, inviting customers to experience the potential of 3D printing firsthand.

Complementing our retail presence, we leverage the power of online platforms to broaden our reach and accessibility. Through a user-friendly website, customers can seamlessly browse through our product offerings, place orders, and engage in a virtual consultation process for personalized projects. This online avenue not only enhances convenience for our clients but also taps into the vast potential of the digital market.

A unique facet of our business model involves catering to the academic community, particularly school and college students. We introduce a subscription-based model that provides students with exclusive benefits for a one-year duration. This subscription encompasses a curated selection of 3D printed educational tools, prototypes, and design aids, tailored to augment their learning experience. By integrating 3D printing into the academic sphere, we aim to foster innovation and creativity among the younger demographic, preparing them for a future where these skills are paramount.

Furthermore, our subscription model extends to partnerships with educational institutions, offering tailored packages for schools and colleges to integrate 3D printing into their curriculum. This collaborative approach not only ensures a steady stream of business but also aligns with our vision of contributing to educational advancement within Bangladesh.

In conclusion, our 3D model printing business stands as a beacon of innovation, offering a spectrum of services ranging from bespoke product creation to the retailing of our

signature showpiece. With a dual approach of physical retail presence and a robust online platform, we cater to the diverse needs of our clientele. Additionally, our strategic subscription model underscores our commitment to education, positioning us as not just a business but a catalyst for positive change in creativity, innovation, and skill development within Bangladesh.

Opportunity Analysis

As we start PRINT-TRINT's 3D printing business in Bangladesh, it's important to look at all the chances the market offers. This analysis helps us find the best places where PRINT-TRINT can use its strengths and be a part of the changing world of 3D printing in Bangladesh

- **Growing Market Demand:** Bangladesh is experiencing a rising demand for customized and innovative products. PRINT-TRINT can tap into this market by offering personalized 3D printing solutions for individuals and businesses.
- **Educational Sector Collaboration:** Collaborating with educational institutions for projects and learning programs can open up a significant market. Offering educational discounts and workshops can establish PRINT-TRINT as a valuable partner in fostering innovation and learning.
- **Supply Chain Enhancement:** As businesses in Bangladesh look for efficient and cost-effective ways to enhance their supply chain, PRINT-TRINT can position itself as a solution for on-demand and customized manufacturing, reducing inventory costs for businesses.
- **Promoting Local Artisans:** Empowering local artisans and designers by providing a platform for turning their ideas into tangible products can create a unique selling point. This aligns with the global trend of supporting local talent and craftsmanship.
- **Medical and Prototyping Applications:** With the increasing adoption of 3D printing in healthcare and prototyping, PRINT-TRINT can explore partnerships with medical institutions and product designers, offering specialized services for creating prototypes and medical models.
- **Technology Advancements:** Staying updated with the latest advancements in 3D printing technology presents an opportunity to offer new materials, faster printing processes, and improved quality. This can attract tech-savvy customers seeking cutting-edge solutions.
- **E-commerce Integration:** Integrating with online platforms and e-commerce websites can broaden PRINT-TRINT's reach, allowing customers to conveniently order 3D-printed products and services online.

- **Environmental Sustainability:** As environmental concerns grow, promoting the eco-friendly aspects of 3D printing, such as reduced waste and energy-efficient processes, can appeal to environmentally conscious consumers and businesses.
- **Government Initiatives and Support:** Exploring government incentives and grants for technology-driven businesses can provide financial support and foster a conducive business environment for PRINT-TRINT's growth.
- **Community Engagement:** Actively engaging with the local community through sponsorships, events, and educational initiatives can enhance brand visibility and build a positive reputation, establishing PRINT-TRINT as a community-oriented business.

Business Model Canvas

The Business Model Canvas is a strategic management tool that provides a visual framework for developing, describing, and analyzing a business model. It consists of a single-page document divided into nine key building blocks, including Customer Segments, Value Propositions, Channels, Customer Relationships, Revenue Streams, Key Resources, Key Activities, Key Partnerships, and Cost Structure. Entrepreneurs and business leaders use the canvas to articulate and visualize their business concepts, helping them understand the interdependencies between different components. It encourages a holistic view of the business and facilitates communication within a team or with stakeholders. By using the Business Model Canvas, organizations can iteratively refine and adapt their strategies, fostering innovation and agility in responding to market dynamics and customer needs.

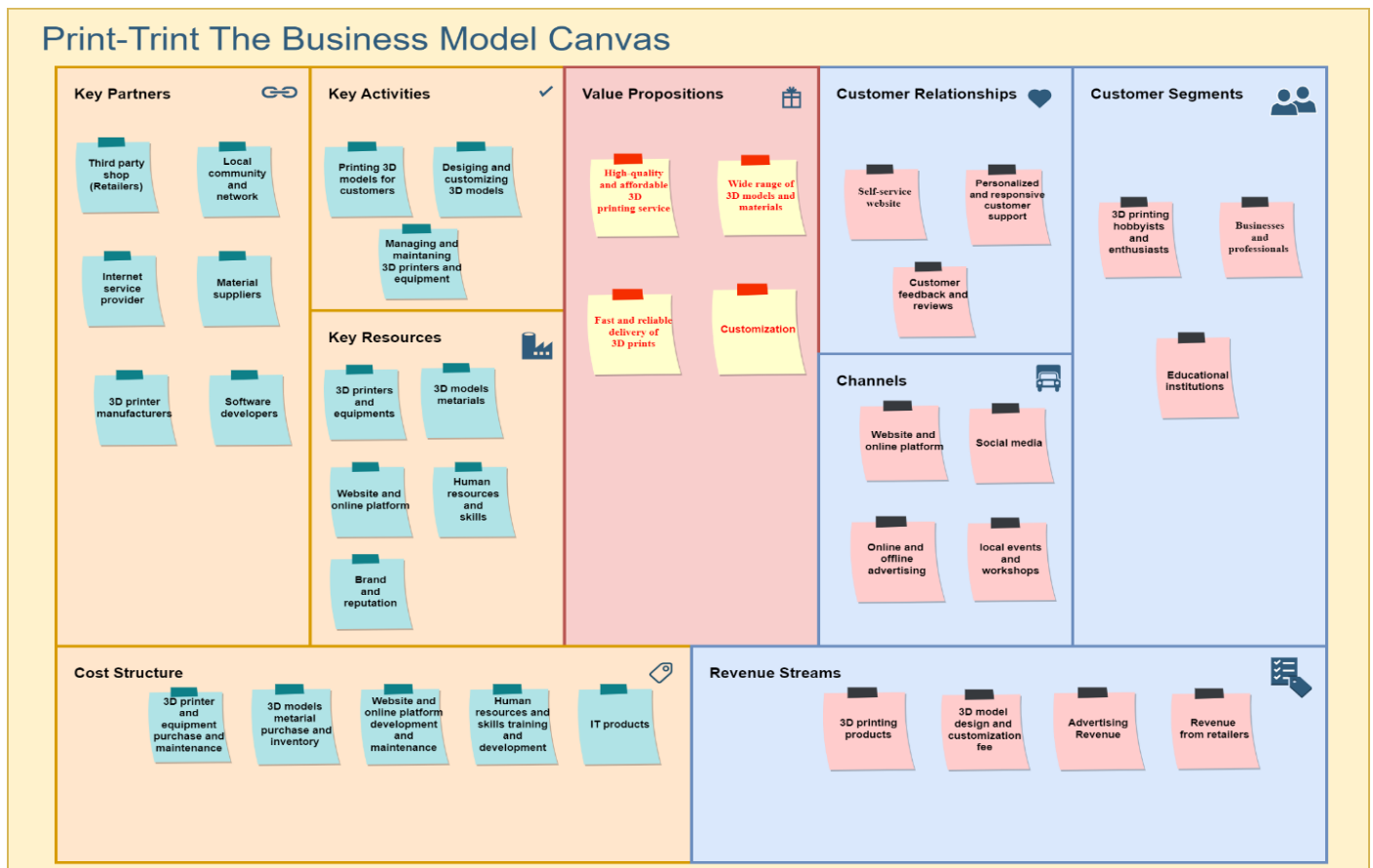


Figure-2: Business Model Canvas

Customer Segments

1. **3D printing hobbyists and enthusiasts:** Hobbyists and enthusiasts are individuals with a personal interest or passion for 3D printing. They use our service to print their 3D models for fun, learning, or entertainment. These customers might have their 3D printers or rely on our service to bring their designs to life. They create 3D models ranging from toys, games, art, and jewelry, to gadgets. Whether it's a Star Wars fan printing a lightsaber, a board game lover crafting a custom chess set, or a jewelry maker designing a unique necklace, these customers use 3D printing as a hobby or a way to express themselves creatively. For example, a Minecraft player might print 3D models of in-game items, while a Harry Potter fan could create magical objects from the series. Ultimately, these customers find joy and satisfaction in using 3D printing for their interests.
2. **Businesses and professionals requiring 3D models for prototyping, testing, or marketing:** We assist businesses and professionals utilizing 3D printing for a variety of work-related purposes. They often require 3D models for tasks such as

prototyping, testing, or marketing their products, services, or ideas. Beyond these applications, 3D models also play a role in enhancing presentations, reports, or proposals. Our clientele spans diverse fields, including engineering, architecture, design, education, health, and entertainment. In these sectors, individuals view 3D printing as a versatile tool, offering solutions and providing a competitive advantage.

3. For instance, an engineer may choose to 3D print a model of a machine or device to evaluate its functionality. In the realm of architecture, an architect might create a 3D model of a building to better visualize and communicate their design. A designer may leverage 3D printing to prototype a product or showcase a logo for marketing purposes. In the educational sector, educators might utilize 3D models to illustrate scientific phenomena, while health professionals could employ them for diagnostic purposes, such as creating models of human organs. Even entertainers find value in 3D printing, using it to design props that enhance their performances.
4. **Educational institutions using 3D printing for learning and teaching:** Schools and groups involved in education find 3D printing helpful for lessons and hands-on learning. They use it from primary to college levels, as well as in job training and informal education. 3D printing has become a useful tool, helping to teach various subjects or skills. For example, a primary school might use it to show animals or planets, while a high school could print things from history or culture. In college, 3D models aid teaching in math or science. Even vocational schools and fun educational groups benefit by using 3D printing to teach skills or creative activities. It shows that our 3D printing service can help lots of different education groups.

Customer Relationships

1. **Self-service website:** This means we offer our customers a website and online platform. They can use it to access and order our 3D printing service without needing our direct help. On the website, they can look through, choose, and pay for the 3D models and materials they want. They can even upload their own 3D models, request design help, and follow the progress of their prints. The website has our portfolio, testimonials, and ratings. Customers can also contact us with questions or feedback. This self-service option gives customers the convenience to use our 3D printing service on their terms, and it helps us save money and reach and keep more customers.
2. **Personalized and responsive customer support:** This means our company wants to help customers in a personalized and quick way. We aim to answer their questions, solve problems, and listen to their feedback. By doing this, we hope to make customers happy and keep them coming back. Offering special and fast customer support can also make our company stand out from others, giving us an

edge over competitors. Our goal is to be a friendly and reliable choice for customers, making them feel well taken care of when they choose our services.

3. **Customer feedback and reviews:** Our company pays attention to what customers say about us on our website, social media, and other places. This helps us in a few ways. First, it shows that we care about what customers need, making them happier and more likely to stick with us. Second, by listening to their thoughts, we can make our 3D printers better. Third, when happy customers share good reviews and tell others about us, it brings in more customers. Lastly, by quickly fixing problems and helping customers after they buy our products, we aim to keep them happy and satisfied.

Value Propositions

1. **High-quality and affordable 3D printing service:** This talks about how our 3D printing service helps our customers. It makes things of really good quality, even better than expected. Plus, it doesn't cost a lot – it's affordable compared to other ways of making things. The service uses fancy technology to create cool shapes without needing extra tools or complicated steps. This is great for people who want quick prototypes, new product ideas, or personalized stuff. And, these cool features make the service stand out from other similar options available.
2. **Wide range of 3D models and materials to choose from:** Our 3D printing company is all about giving customers plenty of options. We offer a diverse selection of 3D models and materials to cater to different folks with different needs. Some customers love printing their own unique creations, while others are happy with our ready-made designs. We even provide a range of materials like plastic, metal, or ceramic, allowing customers to experiment with different combinations. This broad offering is designed to attract a wide variety of customers, ensuring that everyone can find something they like. It's not just about providing choices; it's about meeting the unique preferences of each customer. This sets our 3D printing company apart from competitors that might have a more limited selection. We believe in giving customers the freedom to create and differentiate ourselves by offering a diverse and versatile range of options.
3. **Fast and reliable delivery of 3D prints:** This outlines one of the advantages our 3D printing company brings to customers, emphasizing the prompt and dependable delivery of 3D prints. This implies that our company can swiftly produce and dispatch high-quality 3D printed items, assuring customers that their orders will arrive on time and without issues. This benefit is particularly attractive to customers with urgent or intricate projects or those prioritizing convenience and quality over cost. Our company can convey this advantage through various marketing channels, including the website, social media, or advertisements. Additionally, it can substantiate this claim by sharing testimonials, reviews, or case

studies from contented customers. We can gauge the effectiveness of this advantage by monitoring metrics like delivery time, customer satisfaction, retention, and loyalty.

Channels

1. **Website and online platform:** Our website and online platform act as a central place to showcase our 3D printers, materials, software, and services. It also includes stories from happy customers, case studies, and reviews, all helping to attract new customers and make our brand more well-known. Besides showing off what we offer, our online presence is a helpful resource. Customers can find detailed info, like product specs, manuals, tutorials, FAQs, and ways to connect with us. We want to make sure customers have all the information that they need and feel confident choosing our products. And, if they decide to buy something or share their thoughts, our website makes it easy. They can purchase items, download software, use cloud services, share their 3D models, and give feedback. It's not just about making money; we want to make their experience with us enjoyable and satisfying.
2. **Social media:** We use popular social media like Facebook, Twitter, Instagram, and YouTube to tell people about our 3D printing service. We share cool stuff like pictures, videos, stories, or tips to get the attention of potential customers and make our brand well-known. We're not just talking; we also listen and talk back to customers on social media. We answer their questions, reply to comments, join discussions, and even ask them things through polls and surveys. This helps us build trust, make customers stick around, and get useful feedback. And when we have something new to offer, we use social media to tell everyone. Whether it's a new product, a feature, or a special deal, we share it. This way, we not only get more customers and sales but also keep our current customers happy and maybe get some new ones from their recommendations.
3. **Online and offline advertising:** To enhance awareness and visibility, we employ a combination of online and offline advertising platforms such as Google Ads, Facebook Ads, YouTube Ads, billboards, flyers, and magazines. This approach allows us to showcase our 3D printing service to a wide and diverse audience, ultimately increasing brand recognition and attracting potential customers who might be seeking a 3D printing solution but are unaware of our services. Our advertising strategy involves precise targeting and customer segmentation, achieved through both online and offline channels. By considering demographics, interests, behaviors, and needs, we tailor messages and offers to specific customer groups. This personalized approach aims to boost the relevance of our communication, leading to increased conversion and retention rates. Additionally, the use of online and offline advertising platforms serves as a valuable tool for measuring and optimizing performance. Metrics such as impressions, clicks,

conversions, and costs are tracked to evaluate the effectiveness and efficiency of our advertising campaigns. This ongoing assessment allows us to identify areas for improvement and capitalize on opportunities, ensuring our advertising efforts align with our overarching goals.

4. **Local events and workshops:** Conducting local events and workshops emerges as a valuable approach to reach and educate potential customers about the merits and capabilities of 3D printing. Through this channel, we not only demonstrate the functionality of 3D printers and showcase their diverse outputs but also actively engage with customers, addressing their questions and concerns. Importantly, these events contribute to building trust and credibility, positioning us as knowledgeable experts and reliable providers in the realm of 3D printing. Simultaneously, they play a pivotal role in promoting the value proposition and elevating brand awareness for our 3D printer business. In essence, local events and workshops serve as dynamic platforms for connecting with the community, fostering understanding, and establishing a positive presence in the market.

Revenue Streams

1. **3D printing service fee based on model size, material, and complexity:** The service fee is based on the size, material, and complexity of the 3D model that the customer wants to print. This means that the company can charge different prices for different types of 3D models, depending on the cost and value of the printing process. The Revenue Streams element is important for the business model canvas because it shows how the company captures value from its Value Propositions and Customer Segments.
2. **3D model design and customization fee based on customer requirements:** It indicates that clients must pay the company for the creation and modification of 3D models to meet certain requirements. This charge is a means of making money from people looking for customized or distinctive 3D things. Various aspects, such as the intricacy, size, and material of the model, might affect the cost. In essence, this service adds value by satisfying clients' particular needs. By providing a specialized and customized approach, it sets the organization apart from other 3D printer companies. By meeting particular needs, the business becomes well-known as the go-to option for people in need of specialized 3D solutions in addition to making money. In the highly competitive market for 3D printing services, the company's emphasis on individualized service strengthens its unique selling proposition.

both sides. Besides, the company might have alternative revenue streams, including the sale of 3D printers, consumables, or advertising. This diversified approach ensures various ways for the company to generate income beyond premium subscriptions.

3. **Advertising and sponsorship income from 3D printing related content and events:** It explains the income a company gets from various Customer Segments. This suggests the company has a varied income stream, meaning it earns money from different sources related to various Customer Segments or Value Propositions. In this instance, the company makes money not only by selling 3D printers and associated products but also by offering 3D printing-related content and events like online tutorials, magazines, workshops, or exhibitions. These activities can attract customers interested in learning more about 3D printing or wanting to connect with fellow enthusiasts or professionals. The company may charge fees for accessing the content or participating in events, and it might also earn from advertising and sponsorships with companies looking to reach the 3D printing audience. This approach helps the company stand out, enhance customer loyalty, and deliver extra value to its customers.
4. **Revenue from retailers:** Revenue from retailers in our 3D printing business means making money by teaming up with stores. We sell our 3D printed products or services to these retailers, either in bulk, for special collaborations, or by creating exclusive items for them to sell in their stores. It's a way to reach more customers and diversify how we make money beyond selling directly to individuals. The income comes from negotiated agreements based on order volumes and specific arrangements with the retail partners.

Key Activities

1. **Printing 3D models for customers:** Procuring and operating 3D printers and related equipment are essential steps in enabling the production of various 3D models and materials. The emphasis lies in managing and maintaining the quality and efficiency of the 3D printing process to ensure the best possible outcomes. The objective is to reliably fulfill customer orders in a timely manner, meeting their expectations and delivery timelines. Simultaneously, handling and resolving any customer issues or complaints related to the 3D printing service are crucial for maintaining customer satisfaction. This involves addressing concerns, providing solutions, and ensuring that the overall customer experience remains positive.
2. **Designing and customizing 3D models for customers:** Offers a distinct value proposition that sets the business apart from competitors providing ordinary 3D models. Builds customer loyalty and satisfaction through personalized solutions that cater to individual needs and preferences. Generates income by charging for design and customization services or by selling the tailored 3D models. Elevates the company's reputation and brand image as a creative and innovative provider of 3D printing solutions. This approach not only differentiates the business but also ensures customer satisfaction, revenue generation through customization services, and an enhanced corporate image as a forward-thinking player in the 3D printing industry.

3. **Managing and maintaining 3D printers and equipment:** The 3D printer manufacturers and suppliers may extend technical support, maintenance, and innovative contributions to enhance the 3D printing service. The association with these partners may be structured through long-term contracts, strategic alliances, or collaborative ventures. In essence, the success of the 3D printer business relies on the cooperative relationships forged with external entities that contribute key resources and support services for the delivery of customized and innovative 3D printing solutions.

Key partners

1. **3rd party shops:** This implies that the 3D printer business model collaborates with external partners running physical or online stores selling 3D printed items to consumers. These partners play a crucial role in the value proposition by expanding access to a broader and more varied market, enhancing visibility, and boosting the credibility of the 3D printing service. In return for selling their products, the 3D printer business model may provide these partners with a commission, discount, or referral fee. The association with these partners is typically formalized through agreements, collaborations, or affiliations, emphasizing the importance of mutually beneficial relationships in extending the reach and impact of the 3D printing service.
2. **Local community and network:** This means that we've established connections and affiliations with individuals or organizations in our vicinity who actively support and promote our 3D printer business. These connections may involve local 3D printing enthusiasts, clubs, or groups who share our passion for 3D printing. It could also encompass local media, influencers, or events that showcase our 3D printer business. Furthermore, our network may include local customers, partners, or suppliers who offer feedback, referrals, or resources. Being part of a local community and network is instrumental in enhancing our reputation, visibility, and trust in the 3D printer business. It also provides opportunities for learning, collaboration, and growth by engaging with other 3D printing experts, innovators, and users.
3. **Internet service provider:** An Internet Service Provider (ISP) is a crucial partner for our 3D printing business because it provides the internet connection needed for the online operation of the 3D printing service. The ISP is essential for various aspects of the business, helping with communication through the website and online platforms, facilitating key activities such as printing and designing 3D models, managing equipment, and supporting marketing efforts. In simpler terms, the ISP ensures the business can connect to the internet, allowing it to operate online and deliver services to customers, manage operations, and generate revenue through various streams like service fees, design fees, subscriptions,

advertising, and other related products and services.

4. **Material Suppliers:** Material suppliers are important partners for our 3D printing business because they supply the materials, known as filaments, used to create 3D models. In simpler terms, material suppliers are crucial for our 3D printing business because they help by providing a wide range of materials for customers to choose from, ensuring the quality and cost-effectiveness of the 3D prints. They play a key role in our business operations, supporting activities like printing and designing 3D models, and they contribute to essential resources such as models, materials, 3D printers, and skills. Additionally, material suppliers can help reduce costs by offering discounts, accommodating bulk orders, or providing convenient delivery options for our business.
5. **3D printer manufacturers:** These are the companies that produce and supply the 3D printers that we use to print our products. They are essential for our business because they provide us with the technology and equipment that enable our core activity.
6. **Software developers:** Software developers play a vital role by providing tools and features that boost our productivity, creativity, and overall quality. Simplify3D specializes in 3D printing software, offering the powerful Simplify3D slicer. Ultimaker produces both 3D printers and software, including Cura, a popular slicer, and Ultimaker Cloud for remote printing management. Choosing the right software developers should be based on how they enhance our workflow, performance, and outcomes, and their support with updates, feedback, and troubleshooting. Look for collaborations that mutually benefit innovation and growth.

Key Resources

1. **3D printers and equipment:** This implies that we have both access to and possession of the necessary 3D printers and equipment to facilitate our 3D printing service. These resources encompass a variety of 3D printers in terms of types, sizes, and qualities, including FDM, SLA, SLS, or DLP printers. Additionally, they encompass diverse 3D printing materials like PLA, ABS, resin, nylon, or metal, along with various accessories such as nozzles, extruders, filaments, or spools. The 3D printers and equipment play a pivotal role in our 3D printer business, influencing factors such as the service's quality, speed, and cost. It's essential to invest in their procurement, maintenance, and occasional upgrades to ensure they consistently deliver optimal performance and functionality.
2. **3D models' materials(filament):** This means we have the stuff, called filament, needed for our 3D printing service. The filament comes in different types, colors, and qualities like PLA, ABS, resin, nylon, or metal. These materials decide how the 3D prints look, work, and cost. It's important to buy, keep track of, and store these materials to make sure we always have them and they're good quality.

3. **Website and online platform:** This means we have control over the website and online platform that lets us offer our 3D printing service on the internet. This platform has features like browsing, ordering, and paying for 3D models and materials, as well as uploading and downloading 3D models. It also allows designing and customizing 3D models, tracking and receiving 3D prints, viewing our portfolio, testimonials, and ratings, and contacting us for questions or feedback. Having a website and online platform is crucial for our 3D printer business because it lets us connect with and assist our customers conveniently, flexibly, and independently. However, it does require ongoing development, maintenance, and upgrades to make sure it stays user-friendly, secure, and performs well.
4. **Human resources and skills:** This means we have control over the people and their abilities that allow us to provide our 3D printing service. This includes our own skills in 3D printing, 3D model design, and managing the 3D printing service. It also involves the skills and expertise of our employees, contractors, or freelancers who assist us with various aspects like 3D printing, 3D model design, customer support, marketing, or accounting. Having the right people with the right skills is crucial for our 3D printer business because they influence the quality, speed, and cost of our 3D printing service. It's also important to provide training, development, and fair compensation to keep them motivated, satisfied, and performing well.
5. **Brand and reputation:** This indicates that we control and own the brand and reputation that allow us to provide our 3D printing service. This involves elements like our name, logo, slogan, or story that represent our 3D printer business. It also encompasses the recognition, credibility, or trustworthiness we've gained from our customers, partners, or the market. The brand and reputation play a vital role in our 3D printer business as the awareness, preference, and loyalty of our customers. To maintain relevance, consistency, and distinctiveness, it's necessary to continually create, upkeep, and enhance them.

Cost Structure

1. **3D printer and equipment purchase and maintenance:** This implies that we need to invest funds in purchasing and keeping up the 3D printers and equipment necessary for printing 3D models. This involves the initial expenses of acquiring the 3D printers and equipment, along with the continuous costs of repairs, servicing, or upgrades. The purchase and maintenance of 3D printers and equipment represent a substantial financial outlay for our 3D printer business, impacting the quality, speed, and cost of your 3D printing service. It necessitates thorough planning, budgeting, and effective management to guarantee their optimal performance and functionality.

2. **3D models' material purchase and inventory:** This indicates that we need to allocate funds for acquiring and storing the materials (filament) used in 3D printing 3D models. This encompasses the expenses associated with obtaining various types, colors, and qualities of 3D printing materials (filament), like PLA, ABS, resin, nylon, or metal. It also includes the costs related to managing inventory, including tasks such as storing, organizing, or replenishing the materials. The purchase and inventory management of 3D models' materials represent a significant financial commitment for our 3D printer business, impacting the appearance, functionality, and cost of our 3D prints. Careful planning, budgeting, and effective management are essential to ensure the availability and quality of these materials
3. **Website and online platform development and maintenance:** This means that we need to allocate funds for the creation and upkeep of the website and online platform used to communicate and provide our 3D printing service on the Internet. This involves the expenses related to hiring or outsourcing web developers, designers, or programmers for the creation and regular updates of our website and online platform. Additionally, it encompasses the costs associated with hosting, securing, or optimizing our website and online platform. The development and maintenance of the website and online platform constitute a substantial financial investment for our 3D printer business, influencing the usability, security, and performance of our online 3D printing service. It demands careful planning, budgeting, and effective management to ensure its relevance, consistency, and distinctiveness.
4. **Human resources and skills training and development:** This implies that we need to allocate funds for the training and improvement of the human resources and skills within our 3D printer business, whether they are our own or those of individuals we employ. This involves the expenses related to hiring or outsourcing trainers, coaches, or mentors to teach and enhance our own skills and expertise in 3D printing, 3D model design, and 3D printing service management. It also encompasses the costs associated with hiring or outsourcing trainers, coaches, or mentors to educate and improve the skills and expertise of our employees, contractors, or freelancers who assist us with various aspects like 3D printing, 3D model design, customer support, marketing, or accounting. Training and developing human resources and skills constitute a significant financial investment for our 3D printer business, influencing the quality, speed, and cost of our 3D printing service.
5. **IT products:** In our 3D printing business, "IT products" in the Cost Structure are the essential tech tools we need. This includes machines like 3D printers, computer programs like Autodesk and Simplify3D, devices (laptops, tablets), and online services (internet, cloud storage) that make everything work. These tools ensure our designs come to life smoothly and that our business runs efficiently. It's the cost we pay to have the right tech in place for quality prints and overall productivity. Regularly keeping these tools up to date helps us to stay on top of the latest trends in 3D printing.

SWOT Analysis

SWOT analysis is a strategic planning tool used to assess an organization's internal Strengths and Weaknesses, as well as external Opportunities and Threats. It involves identifying and analyzing these four key elements to make informed decisions and formulate effective strategies. Strengths and Weaknesses pertain to internal factors such as resources, capabilities, and limitations, while Opportunities and Threats relate to external factors such as market trends, competition, and regulatory changes. The analysis helps businesses capitalize on their strengths, address weaknesses, seize opportunities, and mitigate threats. By evaluating these factors comprehensively, organizations can develop a clearer understanding of their position in the market and devise strategies to enhance their competitiveness and achieve long-term success.

S Strengths	W Weaknesses	O Opportunities	T Threats
<ul style="list-style-type: none"> • Innovative and customized 3D printing service • Growing demand and customer base • Unique business and Limited Competition in Bangladesh • Relatively low investment required • Expertise and experience in 3D printing 	<ul style="list-style-type: none"> • Limited Material Options • High printing machine Costs • Skills Gap of the employees • Market Awareness • Dependency on Technology 	<ul style="list-style-type: none"> • Market expansion and diversification • Industrial Applications • Profitability and efficiency by adopting new technologies, materials and methods • Market expansion by partnering, collaboration and networking • Brand image and reputation by participating in events, competitions, and exhibitions. 	<ul style="list-style-type: none"> • Competition within the market • Regulatory Challenges • Economic Downturn • Rapid Technological Changes • Global Supply Chain Disruptions

Figure-3: SWOT Analysis

Strengths:

- **Innovative and customized 3D printing service:**

The 3D business can make products that are different and special for each customer. The business can use 3D printing to make things that have complex shapes, small details, and personal designs that are hard to make with normal methods. It can make 3D-printed body parts, jewelry, toys, or models for customers. This will help to create a loyal customer base by offering customized and personalized solutions that meet their specific needs and preferences. For example, it offers 3D printing services for customers who want to create their own designs, logos, and products, such as jewelry, toys, and gifts. And we also offer 3D printing services for customers who want to create their own solutions, such as prosthetics, orthotics, and implants.

- **Growing demand and customer base:**

3D printing is a versatile and flexible technology that can create a wide range of products and services, such as design, prototyping, production, and post-processing. This means that the business has a lot of people who want and need 3D printing services. The business can serve different kinds of people and businesses that use 3D printing for different reasons. For example, the business can serve people in health, education, building, and engineering, as well as businesses that use 3D printing for medical devices, teaching tools, building models, and new ideas.

- **Unique businesses and limited competition in Bangladesh:**

3D printing is a relatively new and emerging technology that can create physical objects from digital models. As of now, there are very few 3D printing businesses in Bangladesh, giving this business a significant first-mover advantage. As a rare business in the region, it can attract attention from businesses, educational institutions, and individuals eager to explore the capabilities of 3D printing. This uniqueness can serve as a powerful marketing point, setting the business apart in a market that may not be saturated with similar offerings.

- **Relatively low investment required:**

The investment required to start a 3D printing business is relatively low compared to other manufacturing businesses. 3D printers themselves have become increasingly affordable in recent years. There are now a wide range of 3D printers available at a variety of price points. It does not require a lot of overhead. Unlike traditional manufacturing businesses, which require large warehouses and expensive machinery, 3D printing businesses can be operated out of a relatively small space with minimal equipment. Again, 3D printing materials are also relatively inexpensive. The cost materials have come down significantly in recent years, and there is now a wide range of materials available

- **Expertise and experience in 3D printing:**

The business has the skill and knowledge to offer good service and make the customers happy. The business can use its skill and knowledge in 3D printing to choose the best materials, machines, and designs for the products. For example, it can use different types of 3D printing technologies and materials depending on the product requirements and customer preferences. Again, the business can use advanced 3D printing software to design and optimize the products for better performance and quality. The business can also help and advise the customers on how to use and take care of their 3D-printed products.

Weaknesses:

- **High Printing Machine Costs:**

Specialized Equipment Investment: Acquiring top-tier 3D printing equipment, including high-resolution printers and advanced scanning devices, demands substantial upfront capital. Ongoing Maintenance Expenses: Regular maintenance costs for intricate 3D printing machinery, coupled with the need for skilled technicians, contribute to ongoing operational expenses.

- **Limited Material Options:**

Material Diversity Exploration: The current market may offer a limited range of high-quality printing materials. Investing in exhaustive research and development to discover and integrate innovative materials into the 3D printing process is essential. Collaboration for Material Innovation: Forming partnerships with material science experts to actively innovate new materials that enhance the capabilities and quality of 3D printed models.

- **Skills Gap:**

Advanced Training Programs: Developing comprehensive training programs encompassing not only 3D modeling skills but also in-depth training on operating sophisticated 3D printers. Strategic Academic Collaborations: Forming strategic partnerships with local educational institutions to shape curricula and foster a talent pool with specialized skills in 3D printing technologies.

- **Market Awareness:**

Educational Initiatives: Implementing targeted marketing campaigns and educational initiatives to enlighten potential clients on the diverse applications and benefits of 3D printing. Demonstration Workshops: conducting interactive workshops and seminars to showcase real-world applications of 3D printing, providing businesses with a hands-on understanding of the technology.

- **Dependency on Technology:**

Comprehensive Contingency Plans: Developing robust contingency plans to swiftly address potential technical failures, ensuring minimal disruption to 3D

printing operations. Continuous Training and Technological Updates: Regularly updating staff on the latest technological advancements and best practices to minimize the risk of operational disruptions due to evolving technology

Opportunities:

- **Market expansion and diversification:**

3D printing is a technology that can create many opportunities and applications in various sectors, such as architecture, engineering, education, healthcare, and fashion. The business has the chance to sell more and earn more by reaching out to new and old customers in different kinds of people and businesses. The business can use 3D printing to make products that can meet the changing needs and wants of the customers. The business can also find new markets and areas that can use 3D printing. For example, the business can target fashion, art, or entertainment people and businesses that use 3D printing for clothes, accessories, or sculptures.

- **Industrial Applications:**

Bangladesh's industrial sector is on the rise, and 3D printing can play a pivotal role in supporting various industrial applications. The technology can be utilized for rapid prototyping, creating custom tooling, and even small-scale production. Engaging with manufacturing and design companies can open up a lucrative market where 3D printing can offer cost-effective and efficient solutions compared to traditional manufacturing methods. For example, you can offer 3D printing services for architecture and manufacturing, where we can create models and prototypes of buildings and structures. You can also offer 3D printing services for engineering, where you can create parts and tools for machines and devices.

- **Profitability and efficiency by adopting new and improved technologies, materials, and methods:** The business has the chance to improve its service and products by using new machines, materials, and design methods that can improve the quality and speed of 3D printing. The business can use 3D printing to make products that are stronger, more useful, and more beautiful. The business can also use 3D printing to make products that are more friendly and safe for the environment. For example, we can adopt new and improved 3D printing technologies, such as fused deposition modeling (FDM), stereolithography (SLA), and selective laser sintering (SLS), that can create different types of 3D printing products and services. We can also adopt new and improved 3D printing materials, such as plastic, metal, and ceramic, that can create different types of strong 3D printing products.

- **Market expansion by partnering, collaboration, and networking:**

This means that the business has the chance to grow its business and reputation by working with and connecting with other businesses, organizations, and institutions. The business can share resources, knowledge, and networks with other 3D printing businesses or associations that can help the business save money, increase quality,

and find more customers. The business can also work with other groups that can support the 3D printing business, such as schools, research centers, or government agencies. For example, we can partner with local shops, stores, and outlets where we can sell your 3D printing products and services. We can also partner with schools, colleges, and universities, where you can offer your 3D printing products and services for educational and research purposes. And it can also partner with hospitals, clinics, and laboratories, where it can offer your 3D printing products and services for medical and dental purposes. Again, 3D toys in children's food products can also increase their customer base.

- **Brand image and reputation by participating in events, competitions, and exhibitions:**

3D printing is a technology that can create a brand image and reputation by participating in 3D printing events, competitions, and exhibitions. We can enhance our brand image and reputation by participating in 3D printing events, competitions, and exhibitions, where we can showcase the 3D printing products and services as well as network, learn from, and compete with other 3D printing businesses and users. By doing so, it will help increase visibility, credibility, and popularity in the 3D printing market, as well as attract more customers and clients.

Threats:

- **Competition:**

Niche Specialization: Clearly defining a niche market position, such as specializing in specific industries or offering highly customized 3D printing solutions, to stand out in a competitive landscape. Continuous Innovation Leadership: Ongoing investments in research and development to maintain a leadership position in technological innovations, ensuring a competitive edge over rivals.

- **Regulatory Challenges:**

Compliance Teams: Establishing dedicated teams to monitor changes in local and international regulations, ensuring strict adherence to evolving standards in 3D printing. Legal Expertise: Engaging legal advisors with expertise in intellectual property laws to navigate potential legal challenges related to designs, patents, and emerging regulations.

- **Economic Downturn:**

Diversification of Printing Services: Expanding the range of 3D printing services offered to cater to diverse industries reduces vulnerability to economic fluctuations in any particular sector. Emphasizing Cost-Effectiveness: Highlighting the cost-effectiveness of 3D printing for prototyping and production even during economic downturns helps maintain demand through economic challenges.

- **Rapid technological changes:**

Technology Forecasting Units: investing in dedicated technology forecasting units to anticipate upcoming trends and advancements in 3D printing, enabling proactive adjustments in equipment and processes. Agile Adaptation Culture: cultivating an agile organizational culture to swiftly adapt to technological shifts, ensuring the seamless integration of the latest advancements into 3D printing workflows.

- **Global supply chain disruptions:**

Localized Sourcing Strategies: Exploring opportunities for local sourcing of raw materials and components to reduce dependency on global supply chains. Supplier Diversification: strategically diversifying suppliers to mitigate risks associated with geopolitical events or natural disasters affecting a single supplier, ensuring a stable supply chain for 3D printing materials.

Competition Analysis

- The 3D printing market in Bangladesh is still in its emerging stage, but it has a lot of potential for growth and innovation. According to a report by MarketsandMarkets, the global 3D printing market is expected to reach \$44.4 billion by 2025, with a compound annual growth rate (CAGR) of 21.2%. The Asia-Pacific region is projected to be the fastest-growing market, with a CAGR of 25.3%. Government initiatives, research and development, and foreign direct investment are some of the key drivers for the market growth in this region.
- There are a few local players in the 3D printing market in Bangladesh, such as ISON3D, Trimatrik, and Nax. They offer 3D printing services, products, and training to various sectors, such as education, architecture, engineering, and design. They also sell 3D printers, filaments, and accessories online and offline. ISON3D claims to have produced the most affordable 3D printer in Bangladesh, called Trimatrik, which was designed in the USA and made in Bangladesh. Nax provides 3D printing with different materials, such as ABS, PLA, and PET.
- The 3D printing market in Bangladesh also faces some challenges, such as lack of awareness, high cost, limited availability, and regulatory issues. The adoption of 3D printing technology is still low among the general public and the industries, due to the perception that it is expensive, complex, and inaccessible. The supply of 3D printers and filaments is also limited, as most of them are imported from abroad. The legal and ethical aspects of 3D printing are also unclear, especially when it comes to intellectual property rights, safety, and quality standards.

As it is an emerging market, we also have a very good chance to fit in the market. The pricing of the 3D printing products is comparatively higher. We will try to keep it lower as our target is to gain maximum sales with limited profit.

Detailed Growth Strategy

Growth strategy can be defined as a well-thought-out plan that outlines an organization's approach to achieving sustainable expansion. It involves making strategic decisions, allocating resources, and leveraging core competencies to attain long-term business objectives. Successful growth strategies offer several benefits to organizations, including increased market share, higher profits, improved brand recognition, and access to new markets. A well-executed growth strategy can also boost employee morale, attract top talent, and enhance overall organizational performance.

In the initial year of our 3D model printing startup, we implement a targeted Growth Strategy tailored for startups and entrepreneurial ventures. This strategy is designed to propel our business forward, ensuring a dynamic and sustainable trajectory within the first twelve months.

1. Lean Startup Methodology:

- **Prototyping Efficiency:**

- **Rapid Prototyping Techniques:** Implement advanced rapid prototyping techniques enabled by 3D printing to significantly reduce the time required for turning design concepts into tangible prototypes.
- **Iterative Prototyping:** Develop a streamlined process for iterative prototyping, allowing clients to provide feedback on initial models and facilitating quick adjustments based on their input.

- **Customer Collaboration:**

- **Interactive Design Sessions:** Conduct interactive design sessions with clients, utilizing real-time collaboration tools that allow them to actively participate in the design process.
- **Feedback Loops:** Establish continuous feedback loops to ensure that client preferences and requirements are integrated seamlessly into the evolving 3D model, fostering a collaborative development environment.

- **Iterative Improvement:**

- **Data-Driven Iteration:** Utilize data analytics to track client interactions with prototypes, enabling data-driven decisions for iterative improvements in the design and printing process.

- Agile Development Practices: Adopt agile development practices specifically tailored for 3D model printing, ensuring flexibility and responsiveness to evolving client needs throughout the design and production phases.

2. Scaling through Technology:

- **Advanced 3D Printing Technologies:**

- Multi-Material Printing: Invest in multi-material 3D printing technologies to offer a diverse range of materials, colors, and textures within a single printed model.
- High-Resolution Printing: Integrate high-resolution 3D printing capabilities to cater to clients with intricate design requirements, providing a competitive edge in delivering detailed and precise models.

- **Automation in Production:**

- Automated Print Scheduling: Implement automated print scheduling systems to optimize the utilization of 3D printers, allowing for efficient batch processing and minimizing downtime.
- Post-Processing Automation: Explore automation in post-processing tasks, such as smoothing, painting, or assembly, to enhance overall production efficiency and reduce manual labor requirements.

- **Cloud-Based Collaboration:**

- Cloud-Based Design Platforms: Adopt cloud-based design platforms that enable seamless collaboration between our design team and clients, providing a centralized repository for project files and design iterations.
- Real-Time Project Tracking: Implement real-time project tracking through cloud-based systems, allowing clients to monitor the progress of their 3D models, view prototypes, and provide feedback throughout the design and printing stages.

3. Strategic Partnerships:

- **Material Innovation Partnerships:**

- Collaborative Material Research: Form collaborative partnerships with material science experts and research institutions to explore new materials suitable for 3D printing, expanding the range of materials available for client projects.

- Exclusive Material Agreements: Negotiate exclusive agreements with material suppliers to secure access to innovative materials, providing a unique selling proposition in the market.
- **Industry Collaborations:**
 - Customized Solutions for Industries: Develop tailored 3D printing solutions for specific industries through collaborative ventures, addressing unique challenges and opportunities in sectors such as healthcare, automotive, and architecture.
 - Joint Marketing Initiatives: Engage in joint marketing initiatives with industry collaborators to amplify the reach of our 3D printing services within targeted sectors.
- **Technology Collaborations:**
 - Joint R&D Projects: Initiate joint research and development projects with technology companies to explore the integration of cutting-edge technologies, such as augmented reality (AR) or artificial intelligence (AI), into the 3D printing process.
 - Mutual Technology Transfer: Explore mutual technology transfer agreements with partner organizations, allowing for the reciprocal sharing of technological advancements and expertise to drive innovation.

However, the growth strategy for our 3D model printing business in Bangladesh after five years involves a multifaceted approach, combining market penetration, product development, market development, diversification, and international expansion. Strategic alliances, digital marketing, and a keen understanding of local and international markets will be instrumental in establishing and sustaining a competitive edge in the evolving 3D printing landscape are given below:

1. Market Penetration:

- **Localized Marketing Campaigns:**
 - Launch targeted marketing campaigns tailored to the specific needs and preferences of the Bangladeshi market, emphasizing the unique value proposition of the 3D model printing services.
 - Leverage local cultural insights to create compelling advertisements and promotions that resonate with the target audience.

2. Product Development:

- **Customization and Innovation:**
 - Continue investing in research and development to enhance customization options, offering a wide range of materials, finishes, and design possibilities.

- Explore innovative features and functionalities in 3D model printing to stay ahead of evolving market demands.

3. Market Development:

- **Entry into Neighboring Markets:**

- Initiate market development efforts by expanding into neighboring countries where the 3D model printing market is emerging.
- Establish regional offices or partnerships to facilitate a smooth entry into these new markets.

4. Diversification:

- **Industry and Sector Expansion:**

- Explore diversification by expanding into new industries and sectors within Bangladesh, such as healthcare, education, or manufacturing.
- Tailor the 3D printing solutions to meet the specific needs of diverse industries.

5. New Product Development:

- **Introduction of Advanced Services:**

- Introduce advanced services such as 3D scanning, prototyping consultancy, or specialized design services to broaden our service portfolio.
- Stay at the forefront of technological advancements to offer cutting-edge solutions.

6. Geographic Expansion:

- **International Market Entry:**

- Launch the 3D model printing services in countries with established markets, such as India.
- Conduct thorough market research to understand the local dynamics and tailor the approach accordingly.

7. Mergers and Acquisitions:

- **Strategic Partnerships with Local Businesses:**

- Explore mergers or acquisitions with local businesses that complement our services, providing a strategic entry point into new markets or industries.
- Seek partnerships that offer synergies in technology, distribution, or market presence.

8. Joint Ventures and Strategic Alliances:

- **Collaborations with Indian 3D Printing Businesses:**

- Form joint ventures or strategic alliances with existing 3D printing businesses in India to leverage their market knowledge and establish a foothold in the Indian market.
- Explore mutually beneficial collaborations that enhance our collective capabilities.

9. Understanding the Target Market:

- **Continuous Market Research:**

- Invest in continuous market research to stay abreast of changing customer preferences, industry trends, and technological advancements.
- Adapt our offerings based on the evolving needs of the Bangladeshi and international markets.

10. Crafting a Compelling Value Proposition:

- **Local Relevance in Bangladesh:**

- Craft a compelling value proposition that emphasizes the local relevance and cultural resonance of our 3D model printing services in Bangladesh.
- Highlight the unique aspects that differentiate our services from potential competitors.

11. Utilizing Digital Marketing Channels:

- **Online Presence and Visibility:**

- Enhance our online presence through digital marketing channels, including social media, search engine optimization, and targeted online advertising.
- Utilize online platforms to showcase our portfolio, engage with potential clients, and generate leads.

12. Personalization and Customer Engagement:

- **Tailored Client Interactions:**

- Implement personalized customer engagement strategies, ensuring a high level of interaction and responsiveness to individual client needs.
- Offer customized solutions and personalized experiences to enhance customer satisfaction.

13. Customer Loyalty Programs:

- **Exclusive Benefits for Repeat Clients:**

- Introduce customer loyalty programs offering exclusive benefits, discounts, or early access to new features for repeat clients.
- Foster long-term relationships and encourage repeat business.

14. Exceptional Customer Service:

- **24/7 Support and Assistance:**

- Establish a robust customer service team capable of providing round-the-clock support and assistance.
- Prioritize customer satisfaction through prompt issue resolution and proactive communication.

Pricing Strategy and Detailed Pricing of your products/services

At PRINT-TRINT, our pricing is straightforward and depends on two main factors: the weight of the 3D-printed object and the complexity of its design. Our goal is to provide customers with quality 3D printing services at a fair and reasonable price

Simple Designs:

For the simplest designs that don't require intricate details, we charge a flat rate of BDT 8 per gram. This means you only pay for the weight of the material used to bring your uncomplicated design to life.

Complex Designs:

If your design is more intricate or detailed, the price may increase. We assess the complexity of the design and adjust the price accordingly. This ensures that you get a fair and transparent cost estimate based on the effort and resources needed to create your unique and detailed 3D-printed item.

Business Plan

	UoM	Jan'24	Feb'24	Mar'24	Apr'24	May'14	Jun'24	Jul'24	Aug'24	Sep'24	Oct'24	Nov'24	Dec'24
Total Revenue	000 BD	BDT164,000.00	BDT200,500.00	BDT233,800.00	BDT273,200.00	BDT329,250.00	BDT450,600.00	BDT546,000.00	BDT639,200.00	BDT732,200.00	BDT867,200.00	BDT989,300.00	BDT1,186,250.00
Active Customers		200	300	350	450	600	800	900	1200	1400	1600	1800	2000
Revenue Per Customer Per Month	BDT	150.00	BDT 120.00	BDT 130.00	BDT 130.00	BDT 120.00	BDT 120.00	BDT 140.00	BDT 140.00	BDT 145.00	BDT 150.00	BDT 140.00	BDT 145.00
Number of Sales Order		70	100	110	120	150	170	190	200	210	220	230	250
Average Sales Order Value	BDT	100.00	BDT 120.00	BDT 150.00	BDT 160.00	BDT 165.00	BDT 180.00	BDT 200.00	BDT 210.00	BDT 220.00	BDT 230.00	BDT 250.00	BDT 265.00
Advertising Revenue	BDT	2,000.00	BDT 2,500.00	BDT 2,800.00	BDT 3,000.00	BDT 3,000.00	BDT 4,000.00	BDT 4,000.00	BDT 4,200.00	BDT 4,500.00	BDT 4,600.00	BDT 4,800.00	BDT 5,000.00
Number of retailers		5	5	5	5	5	5	5	5	5	5	5	5
Average products orders from retailers		500	600	650	700	765	800	840	850	870	880	900	1000
Average price of product	BDT	50.00	BDT 50.00	BDT 52.00	BDT 55.00	BDT 60.00	BDT 80.00	BDT 90.00	BDT 100.00	BDT 110.00	BDT 130.00	BDT 150.00	BDT 165.00
Monthly Customer Acquisition		200	250	300	350	400	510	600	700	800	1000	1200	1300
Total Cumulative Registered Customers		200	450	750	1100	1500	2010	2610	3310	4110	5110	6310	7610
% of Active Customer		100%	67%	47%	41%	40%	40%	34%	36%	34%	31%	29%	26%
Total Expense		BDT614,000.00	BDT288,000.00	BDT286,000.00	BDT265,300.00	BDT253,500.00	BDT253,000.00	BDT259,000.00	BDT255,000.00	BDT253,000.00	BDT253,800.00	BDT253,000.00	BDT 259,000.00
IT Expense		BDT331,000.00	BDT 5,000.00	BDT 5,000.00	BDT 5,000.00	BDT 5,000.00	BDT 5,000.00	BDT 5,000.00	BDT 5,000.00	BDT 5,000.00	BDT 5,000.00	BDT 5,000.00	BDT 5,000.00
Server(cloud)	BDT	5,000.00	BDT 5,000.00	BDT 5,000.00	BDT 5,000.00	BDT 5,000.00	BDT 5,000.00	BDT 5,000.00	BDT 5,000.00	BDT 5,000.00	BDT 5,000.00	BDT 5,000.00	BDT 5,000.00
Laptop	BDT	200,000.00	BDT -	BDT -	BDT -	BDT -	BDT -	BDT -	BDT -	BDT -	BDT -	BDT -	BDT -
Printer	BDT	120,000.00	BDT -	BDT -	BDT -	BDT -	BDT -	BDT -	BDT -	BDT -	BDT -	BDT -	BDT -
Router	BDT	6,000.00	BDT -	BDT -	BDT -	BDT -	BDT -	BDT -	BDT -	BDT -	BDT -	BDT -	BDT -
HR Expense		BDT205,000.00	BDT205,000.00	BDT205,000.00	BDT185,000.00	BDT185,000.00	BDT185,000.00	BDT185,000.00	BDT185,000.00	BDT185,000.00	BDT185,000.00	BDT185,000.00	BDT 185,000.00
Engineers	BDT	90,000.00	BDT 90,000.00	BDT 90,000.00	BDT 90,000.00	BDT 90,000.00	BDT 90,000.00	BDT 90,000.00	BDT 90,000.00	BDT 90,000.00	BDT 90,000.00	BDT 90,000.00	BDT 90,000.00
Employees	BDT	45,000.00	BDT 45,000.00	BDT 45,000.00	BDT 45,000.00	BDT 45,000.00	BDT 45,000.00	BDT 45,000.00	BDT 45,000.00	BDT 45,000.00	BDT 45,000.00	BDT 45,000.00	BDT 45,000.00
Benefits	BDT	10,000.00	BDT 10,000.00	BDT 10,000.00	BDT 10,000.00	BDT 10,000.00	BDT 10,000.00	BDT 10,000.00	BDT 10,000.00	BDT 10,000.00	BDT 10,000.00	BDT 10,000.00	BDT 10,000.00
Training and Development	BDT	20,000.00	BDT 20,000.00	BDT 20,000.00	BDT -	BDT -	BDT -	BDT -	BDT -	BDT -	BDT -	BDT -	BDT -
Project Manager	BDT	40,000.00	BDT 40,000.00	BDT 40,000.00	BDT 40,000.00	BDT 40,000.00	BDT 40,000.00	BDT 40,000.00	BDT 40,000.00	BDT 40,000.00	BDT 40,000.00	BDT 40,000.00	BDT 40,000.00
Administration Expense		BDT 73,000.00	BDT 73,000.00	BDT 71,000.00	BDT 71,300.00	BDT 61,300.00	BDT 61,000.00	BDT 66,000.00	BDT 61,000.00	BDT 61,000.00	BDT 61,000.00	BDT 61,000.00	BDT 66,000.00
Rent	BDT	30,000.00	BDT 30,000.00	BDT 30,000.00	BDT 30,000.00	BDT 30,000.00	BDT 30,000.00	BDT 30,000.00	BDT 30,000.00	BDT 30,000.00	BDT 30,000.00	BDT 30,000.00	BDT 30,000.00
Utilities	BDT	15,000.00	BDT 15,000.00	BDT 15,000.00	BDT 15,000.00	BDT 15,000.00	BDT 15,000.00	BDT 15,000.00	BDT 15,000.00	BDT 15,000.00	BDT 15,000.00	BDT 15,000.00	BDT 15,000.00
Office Supplies	BDT	10,000.00	BDT 10,000.00	BDT 10,000.00	BDT 10,000.00	BDT 10,000.00	BDT 10,000.00	BDT 10,000.00	BDT 10,000.00	BDT 10,000.00	BDT 10,000.00	BDT 10,000.00	BDT 10,000.00
Communication Expenses	BDT	3,000.00	BDT 3,000.00	BDT 3,000.00	BDT 3,000.00	BDT 3,000.00	BDT 3,000.00	BDT 3,000.00	BDT 3,000.00	BDT 3,000.00	BDT 3,000.00	BDT 3,000.00	BDT 3,000.00
Maintenance and Repairs	BDT	5,000.00	BDT 5,000.00	BDT 3,000.00	BDT 3,300.00	BDT 3,300.00	BDT 3,000.00	BDT 3,000.00	BDT 3,000.00	BDT 3,000.00	BDT 3,000.00	BDT 3,000.00	BDT 3,000.00
Advertising and Marketing	BDT	10,000.00	BDT 10,000.00	BDT 10,000.00	BDT 10,000.00	BDT -	BDT -	BDT 5,000.00	BDT -	BDT -	BDT -	BDT -	BDT 5,000.00
Miscellaneous Expenses	BDT	5,000.00	BDT 5,000.00	BDT 5,000.00	BDT 4,000.00	BDT 2,200.00	BDT 2,000.00	BDT 3,000.00	BDT 4,000.00	BDT 2,000.00	BDT 2,800.00	BDT 2,000.00	BDT 3,000.00
EBITDA		BDT (450,000.00)	BDT (87,500.00)	BDT (52,200.00)	BDT 7,900.00	BDT 75,750.00	BDT197,600.00	BDT287,000.00	BDT384,200.00	BDT479,200.00	BDT613,400.00	BDT736,300.00	BDT 927,250.00
Investment Required													

	UoM	Y'2024	Y'2025	Y'2026	Y'2027	Y'2028
Total Revenue	000 BD	BDT 1,049,527.08	BDT 3,160,000.00	BDT 7,705,000.00	BDT 14,050,000.00	BDT 27,655,000.00
Active Customers		2000	5000	7000	8000	10000
Revenue Per Customer Per Month	BDT	135.83	BDT 200.00	BDT 190.00	BDT 200.00	BDT 220.00
Number of Sales Order		2020	3000	3500	4000	4500
Average Sales Order Value	BDT	187.50	BDT 200.00	BDT 250.00	BDT 270.00	BDT 290.00
Advertising Revenue	BDT	44,400.00	BDT 60,000.00	BDT 100,000.00	BDT 120,000.00	BDT 150,000.00
Number of retailers		5	15	20	25	30
Average products orders from retailers		779.5833333	1000	2000	3000	4000
Average price of product	BDT	91.00	BDT 100.00	BDT 135.00	BDT 150.00	BDT 200.00
Monthly Customer Acquisition		-	-	-	-	-
Total Cumulative Registered Customers		7610	10000	15000	20000	30000
% of Active Customer		26%	50%	47%	40%	33%
Total Expense		BDT 3,492,600.00	BDT 3,450,000.00	BDT 3,801,000.00	BDT 4,101,000.00	BDT 4,475,000.00
IT Expense		BDT 386,000.00	BDT 130,000.00	BDT 206,000.00	BDT 136,000.00	BDT 206,000.00
Server(cloud)	BDT	60,000.00	BDT 60,000.00	BDT 60,000.00	BDT 60,000.00	BDT 60,000.00
Laptop	BDT	200,000.00	BDT 70,000.00	BDT 70,000.00	BDT 70,000.00	BDT 70,000.00
Printer	BDT	120,000.00	BDT -	BDT 70,000.00	BDT -	BDT 70,000.00
Router	BDT	6,000.00	BDT -	BDT 6,000.00	BDT 6,000.00	BDT 6,000.00
HR Expense		BDT 2,280,000.00	BDT 2,410,000.00	BDT 2,600,000.00	BDT 2,890,000.00	BDT 3,150,000.00
Engineers	BDT	1,080,000.00	BDT 1,100,000.00	BDT 1,200,000.00	BDT 1,400,000.00	BDT 1,600,000.00
Employees	BDT	540,000.00	BDT 580,000.00	BDT 600,000.00	BDT 630,000.00	BDT 650,000.00
Benefits	BDT	120,000.00	BDT 150,000.00	BDT 180,000.00	BDT 200,000.00	BDT 220,000.00
Training and Development	BDT	60,000.00	BDT 80,000.00	BDT 100,000.00	BDT 120,000.00	BDT 120,000.00
Project Manager	BDT	480,000.00	BDT 500,000.00	BDT 520,000.00	BDT 540,000.00	BDT 560,000.00
Administration Expense		BDT 786,600.00	BDT 860,000.00	BDT 940,000.00	BDT 1,015,000.00	BDT 1,056,000.00
Rent	BDT	360,000.00	BDT 380,000.00	BDT 400,000.00	BDT 420,000.00	BDT 430,000.00
Utilities	BDT	180,000.00	BDT 200,000.00	BDT 220,000.00	BDT 240,000.00	BDT 250,000.00
Office Supplies	BDT	120,000.00	BDT 140,000.00	BDT 160,000.00	BDT 180,000.00	BDT 190,000.00
Communication Expenses	BDT	36,000.00	BDT 40,000.00	BDT 50,000.00	BDT 55,000.00	BDT 60,000.00
Maintenance and Repairs	BDT	40,600.00	BDT 45,000.00	BDT 55,000.00	BDT 60,000.00	BDT 61,000.00
Advertising and Marketing	BDT	50,000.00	BDT 55,000.00	BDT 55,000.00	BDT 60,000.00	BDT 65,000.00
Miscellaneous Expenses	BDT	40,000.00	BDT 50,000.00	BDT 55,000.00	BDT 60,000.00	BDT 63,000.00
EBITDA		BDT (2,443,072.92)	BDT (290,000.00)	BDT 3,904,000.00	BDT 9,949,000.00	BDT 23,180,000.00
Investment Required		BDT 2,443,072.00	BDT 290,000.00			

Figure-4: Financial projection from january 2024 to December 2024

Revenue:



Figure-5: Revenue

The graph shows the targeted revenue over the years from 2024 to 2028. We have planned for the gradual growth of the revenue. Our target is to generate BDT 10 million by 2027 and BDT 25 million by 2028.

Expense:

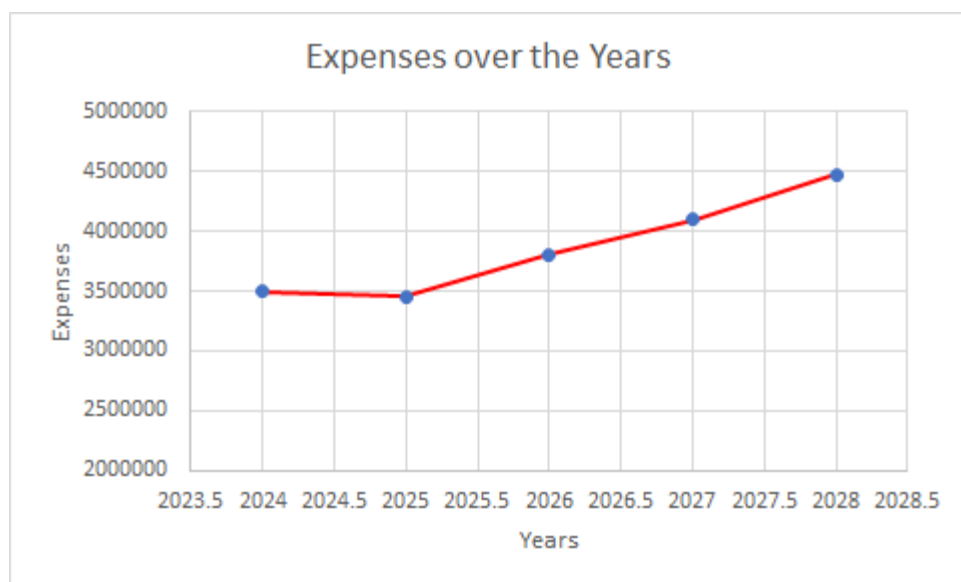


Figure-6: Expense

The graph shows the targeted expenses over the years from 2024 to 2028. We have planned to keep the cost at a minimum range. We can see from the graph that our cost has not increased that much. So, it is good news for us.

Gross profit:



Figure-7: Gross Profit

The graph shows the targeted gross profit over the years from 2024 to 2028. We have planned to gain the maximum profit. We can see from the graph that there is a gross loss in 2024 to 2025. From 2025 the gross profit started to rise. Our target is to get BDT 20 Million by 2028.

Revenue Based Company Valuation Calculation

Revenue-based financials

Year 2024: BDT -2,443,072.92

Year 2025: BDT -290,000.00

Year 2026: BDT 3,904,000.00

Year 2027: BDT 9,949,000.00

Year 2028: BDT 23,180,000.00

The discount rate, considering the startup's risk profile and industry norms, is determined to be 15%.

Using the discounted cash flow (DCF) formula, the present value of the projected cash flows can be calculated as follows:

Company Valuation, PV =

$$\frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \frac{CF_3}{(1+r)^3} + \frac{CF_4}{(1+r)^4} + \frac{CF_5}{(1+r)^5}$$

Where:

PV = Present Value

CF1, CF2, ..., CFn = Cash flows for each year (Year 1 to Year n)

r = Discount rate

Applying the formula to the cash flows of Print-Trint:

$$PV = (\text{BDT } -2,443,072.92) / (1 + 0.15)^1 + (\text{BDT } -290,000.00) / (1 + 0.15)^2 + \text{BDT } 3,904,000.00 / (1 + 0.15)^3 +$$

$$\text{BDT } 9,949,000.00 / (1 + 0.15)^4 + \text{BDT } 23,180,000.00 / (1 + 0.15)^5$$

$$PV = \text{BDT } -2124411.235 + (\text{BDT } -219281.6635) + \text{BDT } 2566943.371 + \text{BDT } 5688373.04 + \text{BDT } 11524556.72$$

So, **PV = BDT 17,436,180.23**

Detailed Gantt Chart with timeline

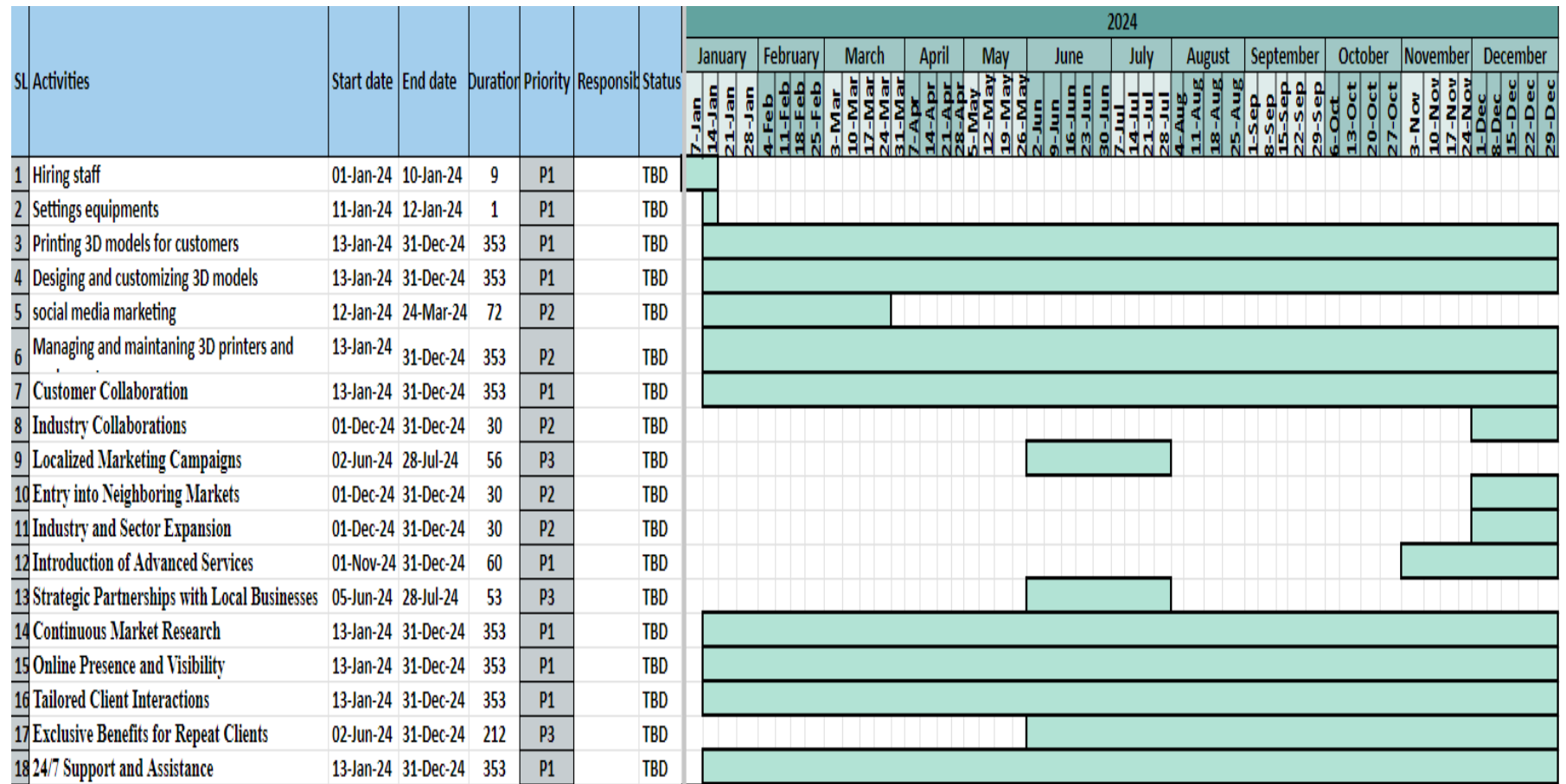


Figure-8: Gantt Chart with timeline

Project Launch (Kick off) Project Charter

Project Charter – PRINT-TRINT		
Project Title: Print-Trint		Project Manager: Mysha Maliha Priyanka
Start Date: 28/8/2023	End Date: 30/8/2024	Project Sponsor: <ul style="list-style-type: none"> • K. M. Safin Kamal • Adnan Morshed • Ahnaf Morshed
Business Need		
<p>Our 3D printing business in Bangladesh is established to be a catalyst for innovation and economic growth. We aim to position Bangladesh as a hub for 3D printing technology, fostering creativity and supporting local industries. Our focus is on providing customized solutions, empowering individuals through education and skill development, and promoting sustainable and eco-friendly manufacturing practices. By catalyzing entrepreneurship and fostering international collaboration, our goal is to shape a future where Bangladesh is recognized for its excellence in 3D printing technology across various sectors.</p>		
Project Scope		Deliverables
<p>The project scope involves establishing and expanding a 3D printing business in Bangladesh to provide innovative and customized solutions across diverse industries.</p>		<ul style="list-style-type: none"> • Established 3D Printing Infrastructure • Diverse Range of 3D Printing Services • Educational and Training Programs • Strategic Partnerships and Collaborations • Market Presence and Recognition
Risks and Issues		Assumptions/Dependencies
<ul style="list-style-type: none"> • Potential disruptions in the supply chain for 3D printing materials and components. • Rapid advancements in 3D printing technology leading to equipment obsolescence. • Challenges in complying with evolving local and international regulations related to 3D printing. • Cybersecurity threats such as data breaches or intellectual property theft. • Increased competition in the 3D printing market from new entrants or existing players. 		<ul style="list-style-type: none"> • Successful availability and timely delivery of 3D printing materials from suppliers. • Continued relevance and demand for 3D printing services in the local market. • Adequate funding and resources for technology upgrades and business expansion. • Positive response and engagement from the local community.

Financials		
The budget to complete the initial cost project is 614000 BDT		
Milestone Schedule		
Milestone		Target Completion Date
Finalizing Target Market		28/09/23
Finalizing Business Strategy and Business Model		11/10/23
Registering the Business		26/11/23
Secure starting capital and funding		26/12/23
Developing the 3D Printing Technology and Equipment		27/12/23
Find and Acquire a Workspace for 3D Printing		27/12/23
Hire Skilled Staff		01/01/24
Developing Online Presence (Website)		02/01/24
Marketing and Promotion Strategy		02/01/24
Initial Operational Setup		07/01/24
Finalize 3D Printing Services		09/01/24
Launching the 3D Printing Business		13/01/24
Project Team		Approval/Review Committee
Project Manager	Mysha Maliha Priyanka	Project Sponsor: <ul style="list-style-type: none"> K. M. Safin Kamal Adnan Morshed Ahnaf Morshed
Team Members	<ul style="list-style-type: none"> K. M. Safin Kamal Adnan Morshed Ahnaf Morshed 	

Figure-9: Project Charter

Project Risk Analysis and Mitigation plan

Technical Risks: These are the risks related to the quality, performance, and stability of 3D printed products and processes.

- **Quality:** This is the risk of the 3D printed products not meeting the expectations of the customers or the standards of the industry. To mitigate this risk, we can use high-quality materials, software, and printers, and follow best practices for 3D printing, such as calibration, maintenance, and post-processing.
- **Performance:** This is the risk of the 3D printed products not functioning as intended or failing under certain conditions. To mitigate this risk, we can test our products for functionality, durability, and reliability, and use appropriate materials and design parameters for the intended applications.
- **Unstable:** This is the risk of the 3D printing processes being disrupted or compromised by technical issues, such as printer malfunctions, software errors, power outages, etc. To mitigate this risk, we can have backup systems,

contingency plans, and security measures in place, and monitor the 3D printing operations regularly.

External Risks: These are the risks related to the factors outside our control that affect the 3D printing business, such as subcontractors, market conditions, and regulations.

- **Subcontractors:** This is the risk of relying on third parties for some aspects of the 3D printing business, such as material suppliers, service providers, or distributors. To mitigate this risk, we can carefully select and evaluate our subcontractors, and establish clear contracts, expectations, and communication with them.
- **Market Condition:** This is the risk of changes in the demand, supply, competition, or prices of the 3D printing products or services. To mitigate this risk, we can conduct market research, analysis, and forecasting, and adapt our business strategies accordingly.
- **Regulatory:** This is the risk of complying with the laws, policies, standards, or certifications that apply to our 3D printing business, such as intellectual property, health and safety, environmental, or quality regulations. To mitigate this risk, we can keep up to date with the legal requirements, conduct risk assessments, and seek legal advice if needed.

Organizational Risks: These are the risks related to the internal factors that affect our 3D printing business, such as funding, resources, and project dependencies.

- **Funding:** This is the risk of having insufficient funds to start, run, or grow the 3D printing business, such as capital, cash flow, or revenue. To mitigate this risk, we can plan our budget, secure the funding sources, and manage the costs effectively.
- **Resources:** This is the risk of having inadequate human or material resources for our 3D printing business, such as staff, skills, equipment, or space. To mitigate this risk, we can plan, recruit, and allocate the resources efficiently, and provide training, maintenance, and optimization for them.
- **Project Dependencies:** This is the risk of depending on other projects or factors for the 3D printing business, such as inputs, outputs, or coordination. To mitigate this risk, we can monitor and manage the project dependencies closely, and have alternative plans or backup options in place.

Other Risks:

- **Health Risks:** 3D printing can emit ultrafine particles (UFPs) and volatile organic compounds (VOCs) that may affect our respiratory system, skin, eyes, or nervous system. To mitigate this risk, we can use 3D printers in well-ventilated areas, wear personal protective equipment (PPE) such as masks, gloves, and goggles, and choose filaments that have lower emission rates, such as PLA.
- **Cybersecurity Risks:** 3D printing involves digital files that contain the intellectual property (IP) and design specifications. These files can be stolen, altered, or counterfeited by unauthorized parties, compromising the competitive advantage, quality, and reputation. To mitigate this risk, we should encrypt the files, use secure

networks and devices, and monitor the 3D printers for any signs of tampering or hacking.

Safety Risks:

- 3D printing can pose some physical hazards, such as burns, cuts, electric shocks, or fire, especially if the 3D printer is not properly maintained, operated, or supervised. To mitigate this risk, we should follow the manufacturer's instructions, use appropriate tools and equipment, and keep children and pets away from the 3D printer.

Funding & Dealing

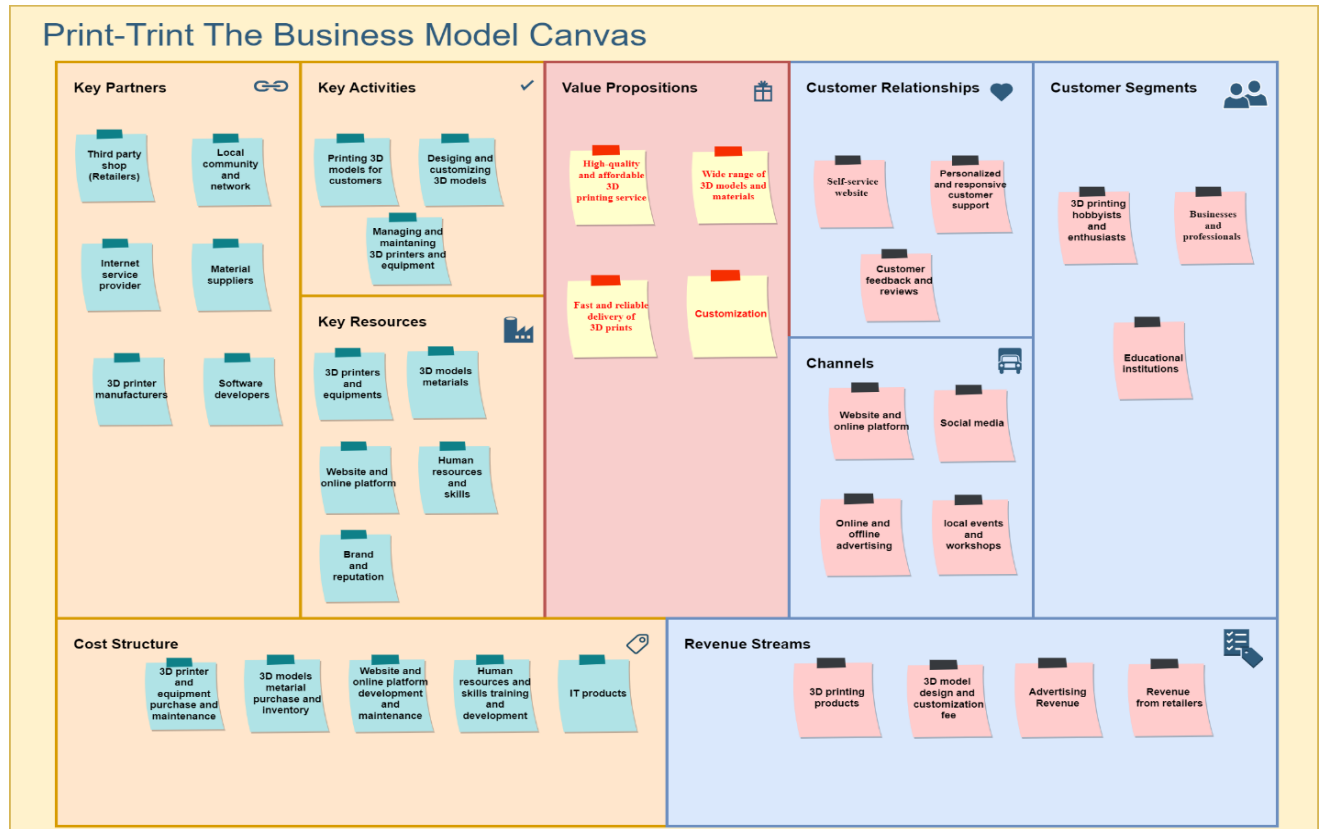
The vision of PRINT-TRINT, a 3D printing business set to revolutionize creativity and innovation in Bangladesh. To bring this vision to life, we are seeking a funding of BDT 2.7 million to sustain and grow our operations over the next two years (2024, 2025). This funding will fuel our business activities, covering operational expenses, technology upgrades, marketing efforts, and the expansion of our product and service offerings. It's a vital investment to ensure the success and sustainability of PRINT-TRINT in the dynamic market. In exchange for support, we are offering a 15.5% equity stake in PRINT-TRINT. The investment will not only contribute to the growth of our business but also make you a valued partner in our journey.

Conclusion

In closing, our 3D model printing venture is not just a business endeavor; it's a pioneering journey into a realm of limitless creativity, sustainability, and educational empowerment. With bespoke products, a signature showpiece, and strategic retail and online platforms, we're not merely selling, but shaping a transformative experience. Our commitment to sustainability and education positions us not only as innovators in the market but as contributors to a brighter, more responsible future. This project is a testament to the fusion of technology and imagination, marking a new era for Bangladesh in the dynamic world of 3D printing.

Annex

Poster:



Pitch Deck:



27/12/2023

1

Problems



**Limited Access to
Customized Products**



**High Costs of
Prototyping**



**Inaccessible Spare
Parts**



**Few numbers 3D
printing company**

2

Solutions

- **Personalized Products**
- **Custom Prototyping for Businesses**
- **On-Demand Manufacturing**
- **Medical Models and Prototypes**
- **Environmental Considerations**
- **Educational Support**

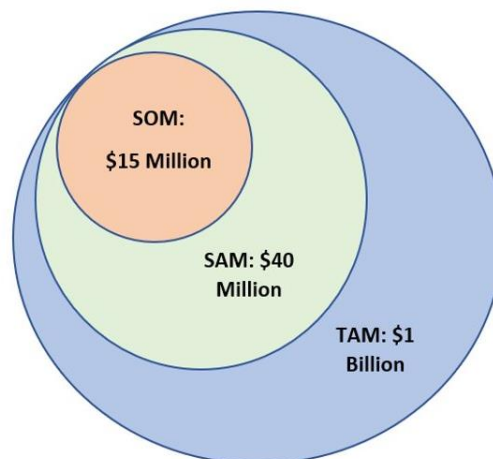
3

Market Size

TAM: Total Addressable Market

SAM: Serviceable Addressable Market

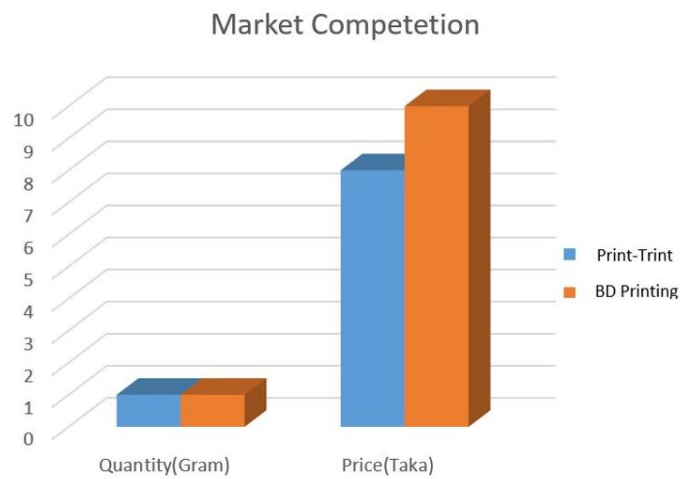
SOM: Serviceable Obtainable Market



4

Competition

Very few number of competitors in Bangladesh



5

Go-To-Market (GTM) Strategy



**PARTNERSHIPS
& COLLABORATIONS**



**EDUCATIONAL
PROGRAMS &
WORKSHOPS**



**TRADE SHOWS &
EXHIBITIONS**



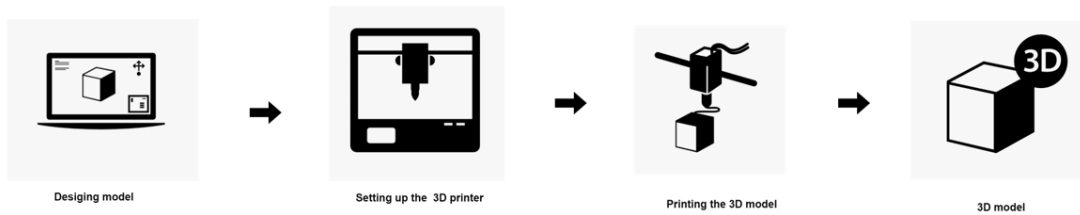
**SOCIAL MEDIA
ENGAGEMENT**



**ADVERTISEMENT &
MARKETING**

6

Product Making Flowchart



7

Business Model

Costs:

- Equipment Cost
- Material Cost
- Human Resources
- Online platform maintains

Revenue:

- Product sales
- Design and customization fee
- Website Advertising
- Revenue from retailers

8

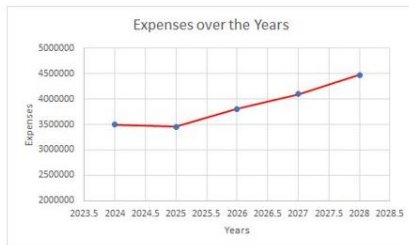
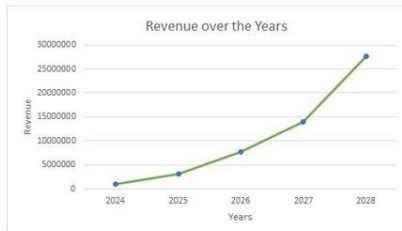


Project Plan/Key Milestones

Finalizing Target Market	28/09/23
Finalizing Business Strategy and Business Model	11/10/23
Registering the Business	26/11/23
Secure starting capital and funding	26/12/23
Developing the 3D Printing Technology and Equipment	27/12/23
Find and Acquire a Workspace for 3D Printing	27/12/23
Hire Skilled Staff	01/01/24
Developing Online Presence (Website)	02/01/24
Marketing and Promotion Strategy	02/01/24
Initial Operational Setup	07/01/24
Finalize 3D Printing Services	09/01/24
Launching the 3D Printing Business	13/01/24

9

Financials



10

Our Ask



Company's Valuation as of today: **BDT 17.5 million**



Our Ask : **BDT 2.7 million for 15.5% equity**

11

Team



Md. Adnan Morshed
ID: 2020-1-60-155

I am a Programmer and AI enthusiast. I love problem - solving and innovating new things.



Md. Ahnaf Morshed
ID: 2019-1-60-008

I love business. I thrive on the dynamic challenges and endless possibilities that the entrepreneurial world presents.



K. M. Safin Kamal
ID: 2020-1-60-235

I have passion for data analysis and machine learning. I have experience working on various projects related to data analysis and visualization.



Mysha Maliha Priyanka
ID: 2020-1-60-230

I am a dedicated individual with strong interpersonal skills, committed to continuous improvement and eager to challenge myself.

12



Q/A



13



Thank you

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THE END