

Marketing for Deep Tech Startups

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Abstract: *Deep technology startups are companies rooted in breakthrough scientific research and engineering such as in life sciences, energy, clean technology, computer sciences, materials, and chemical sectors. However, unlike companies focused on business model innovations such as Uber, Netflix or Amazon, marketing deep tech companies requires a unique approach due to the complex nature of the products, hard to understand value proposition, long sales cycle and the niche audience they serve. The term ‘deep tech’ is also differentiated by the fact that often there is an Intellectual Property (IP) involved which cannot be easily copied.^[1] This white paper delves into the challenges faced by deep tech startups in marketing their products and provides strategic insights and actionable recommendations to help them effectively reach their target audience, build brand awareness, and drive growth.*

Keywords: Deep Tech Marketing, Business Development for Deep Technology Startups, Marketing for Artificial Intelligence (AI) /Machine Learning (ML) Startups, Marketing for BioTech Startups, Marketing for Robotics Startups, Marketing for Life Sciences Startups, Customer Acquisition for Deep Tech Startups, Revenue for Deep Tech Startups

1. Introduction

Deep technology innovations have a profound impact on the future of mankind and seek to achieve disruptive solutions to everyday problems such as carbon capture storage (environment), alternative - proteins (food), biodegradable fabric (textiles), self - driving cars (automotives) or finding a cure for cancer (life sciences). However, the effort in marketing these deep tech innovations is often underestimated and causes growth problems down the line especially when the founder is trying to fundraise for the next round.

Challenges in Marketing Deep Tech Startups:

- **Resource Constraints:** Deep tech startup founders are mostly technology focused and often allocate most of the available funding to R&D thus leaving very little budget to be allocated for marketing efforts. Therefore the earliest marketers for a company are the founders themselves.
- **Complexity of the Technology:** Deep tech products often involve technical concepts and founders use a lot of engineering jargon which may be difficult for non - technical audiences to understand and relate to.
- **Long Sales Cycles:** The path to commercialization for a deep tech startup is very long, risky and expensive due to lengthy evaluation and testing phases. Correspondingly, finding the initial customers and investors is challenging as well.
- **Limited Market Awareness:** Deep tech startups often operate in niche markets with limited awareness among potential customers and investors.
- **Regulatory Hurdles:** Compliance with industry regulations and standards can pose significant challenges for deep tech startups, affecting their marketing strategies.

2. Key Marketing Strategies

Inspite of the challenges highlighted in the previous section, there are solutions to address each hurdle strategically. The main idea is to demystify the ‘deep technology’ itself and break it down to the level which a layman can understand and relate to.

a) Identify the Who, Why, How and What:

- Identify the target market. This comes after doing a thorough primary and secondary market research which includes understanding the competitive landscape. Evaluate the market for its attractiveness and potential in terms of growth, profitability and accessibility. At the end of this exercise, the company should be able to answer ‘who is it marketing to and why?’ Once the target market is nailed down, define your segmentation criteria.
- Segment the target market. It is critical to understand that marketing for a deep tech startup needs to address a niche audience and not everyone in general. E. g. the customer profile of decision makers buying a semiconductor product will be very different from those buying a space tech or a 3D product. For each segment, develop a detailed customer profile that includes demographic, geographic, psychographic, and behavioral information.
- Articulate the problem you are solving and break down the complex terms into understandable and relatable benefits for the target audience. The importance of storytelling when trying to communicate a differentiated value proposition cannot be overstated. Tailor your marketing messages to specific profiles, making them more personalized and relevant to each segment identified in the previous step.
- Test the message drafted for different segments and iterate on it till you successfully receive positive feedback from a focus group and achieve message - market fit. This is critical since if people can’t understand what problem you are solving and how it adds value to their life, the rest of the marketing journey is meaningless.

b) Identify the Where:

Once a clear and differentiated value proposition is developed, the next step is to continuously educate the market, especially the key decision makers. This can be done by creating high quality content assets and then distributing them through the various marketing channels. Typical online distribution channels are email, website, social media and events. It is important to note that distribution channels which work for one deep tech startup may not work for the other. The right channels are the ones where your target audience is present.

- Build an easy to navigate website with persuasive copy and call to action buttons. The copy on the website should speak to a niche audience and not everyone in general.
- Develop digital content assets such as white papers, case studies, and webinars to explain the technology and its applications in simple terms. Place these assets on various pages of your website with optimized keywords for Search Engine Optimization (SEO) and lead generation. Test the website's forms and call to action buttons to ensure that submissions are being received by a human in a reliable manner for further follow up.
- Distribute content through email and social media. You can start building a list from the leads received through the website and send them monthly newsletter updates. If your target audience is active on social media, plan a social media calendar to promote relevant content in an engaging manner.
- Identify the right early adopters (from the target audience identification exercise done in Step a.) and offer product demonstrations or complimentary proof of concept trials to build credibility.
- Host, Network and Participate in events, workshops, industry conferences and tech talks which aim to educate the target audience (Refer to Step a.) about the problem and the best solution (yours!). Further, in - person events are great opportunities to help get early validation and direct feedback from potential customers. e. g. Gozen's CEO takes the stage to talk about sustainability in fashion at Institut Français de la Mode - *The premier fashion design and management institute in France.* [2]

c) Develop a Community

This is the most economical way to get traction in the early days on a low budget.

- Start or actively participate in an online community which is focused on a cause similar to the problem you are solving. A good example is the AirMiners [3] community which is focused on carbon removal. AirMiners offers multiple programs which are very valuable for early stage deep tech founders.
- Seek support from investors, startup accelerators and funding partners who may have a larger network and more resources to support you in your journey. e. g. a VC Fund will have in - house marketing talent who can help you establish a solid marketing foundation in the initial days. This group of people can also act as your brand ambassadors and facilitate introductions between other founders, investors, potential partners or customers.

d) Strategic Partnerships:

- Collaborate with industry partners, research institutions, and academic organizations to gain credibility and access to new markets. e. g. Impossible Foods' partnership with Starbucks led to an increased demand for its products. [4]
- Explore strategic alliances with complementary technology providers to offer integrated solutions and expand market reach. e. g. Nuro's partnership with ARM Holdings to scale the commercialization of autonomous vehicles with AI. [5]

e) Thought Leadership and Public Relations:

- Position the company's founders and technical experts as thought leaders in the industry by participating in

speaking engagements, panel discussions, and industry conferences. E. g. Upside Foods's CEO Uma Valeti spoke at SynBioBeta in 2024. [6]

- Engage with journalists, media outlets, thought leaders and industry publications to secure press coverage and raise awareness of the company's innovations and achievements. e. g. For early stage startups, a great signal of success is usually a funding announcement or a follow - on round from leading investors

f) Regulatory Compliance and Certification:

- Address regulatory requirements proactively and obtain necessary certifications to demonstrate compliance with industry standards and regulations. E. g. announcing an FDA clearance. [7]
- Highlight the company's commitment to quality, safety, and ethical practices in its marketing communications. e. g. Modern Meadow's 2022 Impact Report [8]

3. Case Studies

While many real - world examples have been provided above, this section provides two startup examples in more detail highlighting key marketing tactics and outcomes. The first startup has great consumer appeal and caters to both B2B and SMB clients. The second startup addresses the challenge of removal of carbon dioxide from the atmosphere and is primarily meant for enterprises and SMBs though the company has factored an indirect way to serve B2C clients as well. Both startups are working to mitigate climate change and thus leading the way for the world to transition to a sustainable future.

TômTex is a leading material science company dedicated to developing a cutting - edge platform technology for creating sustainable textiles sourced directly from waste materials, not fossil fuels. [9]

Starting with its website homepage [10], TômTex's tagline '*Waste is the New Luxury*' is a clear value proposition which makes the reader feel curious to know more. The copy on the website appeals to the environmentally conscious consumer and words like 'cruelty free' and 'naturally biodegradable' convinces the reader that the company is addressing a genuine problem. The website shares TômTex's mission by highlighting the key operating theme as 'circularity'. It also invites the visitor to participate in sustainable practices such as repurposing old clothes and purchasing from brands that promote extending the life of their products. TômTex has won multiple awards and covered extensively in the media indicating the excellent network which the founding team has built across the country.

The 'Products' page [11][12] describes TômTex's two products in simple language - TômTex Series M and TômTex Series WS. Mentioning the key ingredients as mushrooms and shell seafood waste respectively, the description '*We are working at the intersection of design, chemistry, and biology to create a material that is as luxurious as it is regenerative*' stands out as a unique perspective on materials.

At the center of TômTex's entire positioning is the founder's story [13]. TômTex was founded in 2020 by Uyen Tran. '*As a*

student at Parsons and later a designer at some of the US' top fashion houses, Uyen developed a sincere appreciation for and dedication to the form and design techniques that allow imagination and innovation to meet practical application on the human form. ' This introduction itself lends credibility to the founder's subject matter expertise by way of her education and professional background. While at work, Uyen realized that the fabrics she would have dreamed of buying herself were being discarded without a second thought. Deriving inspiration from growing up in Vietnam where the focus was to fix things that broke instead of throwing them away, she eventually discovered how to make 'a leather alternative' from shrimp shells, mushroom waste, and other biomaterials, including coffee grounds. Uyen has personally won multiple awards and is also very active on social media. ^[14] Recognized by Forbes 30 Under 30 Asia, she shares frequent updates on TômTex's collaborations and media coverage. Most recently on Earth Day, TômTex's biomaterials were featured on the Drew Barrymore Show for their Earth Day segment on green innovations. ^[15]

Apart from the founder, other key hires in the company - Chief Scientific Officer ^[16] and Chief Strategy Officer ^[17] are also very active in speaking at conferences and promoting the brand.

In February 2024, TômTex secured \$4.15 million in funding and the media coverage ^[18] included two quotes from investors - Happiness Capital and Earth Venture Capital thus adding solid support to the company's future potential and opening the gateways to get additional investors, new customers and partners.

Climeworks was founded in 2009 by Christoph Gebald and Jan Wurzbacher. It is a Swiss company specializing in carbon dioxide removal from the atmosphere through a process known as direct air capture (DAC).

When you visit Climeworks' website ^[19], the copy is crisp and the visitor immediately understands the value proposition. Climeworks has done the work of identifying its target audience and therefore there are two call to action buttons indicating personalized paths for both enterprises and individuals. As you scroll down further, you realize that information has been presented in an easily digestible format with no heavy technical jargon. Further there is social proof through logos which highlights Climeworks' current list of customers and adds credibility to its name. Customers like Microsoft, J. P. Morgan Chase & Co, PwC and Boston Consulting Group are not easy names to acquire or partner with and indicates Climeworks' focus on high quality work.

Climeworks has also been featured extensively in all the reputed media outlets such as Forbes, Bloomberg, WSJ, BBC, TIME, Financial Times and The Economist.

Moving on to Climeworks' offering for businesses, not only does the dedicated page ^[20] highlight a customer testimonial from Boston Consulting Group, but it also helps the reader understand on why an enterprise company should choose Climeworks. Climeworks does not forget individuals and has a dedicated page for them too. The page for individuals ^[21] emphasizes the community aspect, informs about the

affordable subscription based options and even highlights the Frequently Asked Questions to address issues upfront.

Next, to establish a high level of trust, Climeworks' website has a customer page ^[22] and lists testimonials from various leading companies such as Shopify, UBS, Stripe, Accenture and Microsoft. Interestingly, nowhere on the website is the word 'Buy' or 'Purchase' used. The key call to action button on the top right says 'Act Now' tying back the website visitor's action to a meaningful purpose instead of just a regular, financial transaction.

Educating the target market is a critical requirement which deep tech startups need to address early on and Climeworks has done a great job by having a dedicated page titled 'Ask the Experts'. ^[23] Hearing from independent experts on basic questions like 'Why does a net zero goal require carbon dioxide removal?' adds a vote of confidence on doing business with Climeworks. Further, the company has individual Community ^[24], Blog ^[25], Publications ^[26] pages which are very well - written and establishes Climeworks' thought leadership in climate action. Climeworks has also participated in various events around the globe and positioned the takeaways from those events as 'Insights' on its website. e. g. World Economic Forum Annual Meeting 2024. ^[27]

In terms of quality control, Climeworks has kept the public updated about its certifications. In 2021, DNV validated ^[28] Climeworks direct air capture and storage methodology. In 2023, Climeworks announced ^[29] to work with Puro. earth to certify Climeworks' carbon dioxide removal (CDR) services under the Puro Standard.

Lastly, Climeworks has got a lot of media attention due to its two cutting - edge projects - Orca and Mammoth. Both projects are crucial and represent the advancements in carbon capture capabilities. Orca's successful implementation provided proof of concept at a larger scale, while Mammoth represents the next step in commercializing and scaling up the technology to make a significant impact on global CO₂ emissions.

Climeworks' last funding round was an equity round in April 2022 where it raised USD 650 million from leading investors such as Global Founders Capital, John Doerr and Swiss Re. This event marked a major milestone in the history of Climeworks and an even bigger step for the carbon removal industry. ^[30]

4. Conclusion

It is important to note that the stage of the startup (early stage vs. late stage) and the founder's buy - in determines the budget and attention paid to the marketing efforts. Both TômTex and Climeworks crafted a compelling story around their technology making it easier for the target audience to get excited about their innovations, used media coverage wisely to build an effective brand presence and aligned themselves with reputed companies to enhance their credibility and visibility in the market.

At the end of the day, marketing is a vital component for deep tech startups as it bridges the gap between complex

technological innovations and market adoption. It facilitates communication, builds trust, educates stakeholders, attracts investment, and drives revenue. By leveraging the step by step approach recommended above, a deep tech company with a strong product can grow, thrive and ensure commercial success in the market.

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