

EXPERT INTERVIEW: DEEP-TECH ENTREPRENEURSHIP IN THE UNDERWATER TECHNOLOGY DOMAIN

Introduction

Deep-tech entrepreneurship demands scientific insight, risk-taking, and long-term commitment, especially in highly specialised sectors where technological limitations pose significant barriers. Coratia Technologies, founded by Mr. Debendra Pradhan, represents one of India's pioneering efforts in the underwater robotics and communication space—an area where global innovation is limited and domestic solutions are scarce. Driven by the motivation to solve critical gaps in underwater exploration and defence applications, the venture stands as a model for India's emerging deep-tech ecosystem.

Profile of the Expert

Mr. Debendra Pradhan is the Co-Founder of **Coratia Technologies**, a Hyderabad-based deep-tech startup specialising in underwater robotics and communication systems. A graduate with strong engineering credentials, he previously worked as an **R&D engineer at Mercedes-Benz Research & Development, Germany**, while his co-founder Mr. Biswajit served as an **R&D Manager in South Africa**. Their journey began as a student project during a national competition organised by **NIOT Chennai under the Ministry of Earth Sciences**, where their team won first place in India for consecutive years, and later secured **second place globally in Singapore**. This exposure revealed the huge technological gap in underwater systems—where traditional signals such as EM waves, GPS and radio fail—leaving a large unmet need in the market. Motivated by this need, they exited well-established corporate roles and formally launched Coratia Technologies full-time in 2021.

Prof. Ananya: Sir, could you tell us about your entrepreneurial journey and what inspired you to start Coratia Technologies?

Mr. Debendra Pradhan:

Our journey actually began unintentionally when we were university students in Hyderabad. A competition by NIOT Chennai on developing underwater solutions sparked our curiosity. After winning nationally and later ranking second internationally in Singapore, we realised how little was known about underwater technologies—simply because regular signals like GPS or radio waves do not work underwater. The gap between demand and available solutions was massive. That insight stayed with us for years. Even though both of us had stable corporate positions abroad and in India, the need of the hour and the potential impact inspired us to finally exit our jobs and start Coratia full-time in 2021.

Prof. Ananya: What were the biggest challenges you faced while setting up your business, and how did you overcome them?

Mr. Debendra Pradhan:

The biggest hurdle was **capital**. Underwater sensors and components cost almost **ten times more** than their aerial equivalents, and there are very few suppliers. Although we received support through various government schemes, funds were always limited.

Another important challenge was **investor mindset**. Deep-tech is not like traditional startups—returns take time, the technology is niche, and customers are specialised. Early investors kept asking about profits and revenue, which is unfair for a deep-tech venture.

Over time, with careful planning, disciplined execution, and a strong belief in our vision, we overcame these challenges and kept moving forward step by step.

Prof. Ananya: *Entrepreneurship involves risk. How did you assess and manage risks while taking critical decisions?*

Mr. Debendra Pradhan:

Risk and reward always go together. Deep-tech startups face extremely high risk because the customer base is narrow, the technology is complex, and investments are heavy.

To manage risk, we rely on:

- detailed **market surveys**
- **feedback from potential customers**
- careful **fund management**
- and most importantly, **collective decision-making** within the team

I'm not the only decision-maker—my co-founder, advisors, and core team members all contribute. Different perspectives help us take more balanced and informed decisions.

Prof. Ananya: *Could you share a story of a failure or difficult moment that taught you an important lesson?*

Mr. Debendra Pradhan.

One such moment was when we had successfully completed pilots and started receiving multiple work orders. Around that time, we also received an opportunity to collaborate with the defence sector. Choosing the defence project meant **letting go of several existing work orders worth lakhs**, which was extremely difficult for a young startup that had barely completed one year. And the defence project itself was a long-term, high-risk engagement of nearly 1.5 years.

But we took the chance. Thankfully, the hard work of the entire team paid off, and the project became a major turning point for our company. That experience taught us that **high-risk choices, when taken with conviction and preparation, can transform the future of a startup.**

Prof. Ananya: *Sir, how do you identify business opportunities or gaps in the market before launching a product or service?*

Mr. Debendra Pradhan:

In the underwater domain, the gaps are quite visible once you start engaging with the ecosystem. During our early competitions with NIOT, we realised that India—and even the world—has limited solutions for underwater communication, deep-water navigation, or reliable sensing. Conventional technologies like GPS, radio waves or electromagnetic signals simply do not work underwater, yet industries such as defence, marine research, port authorities, disaster management, aquaculture, and offshore energy require accurate and robust underwater systems.

So, identifying opportunities for us begins with **problem observation**. We speak directly with potential users, understand their pain points, and analyse what existing solutions fail to deliver. A lot of our insights come from **continuous field exposure, pilot trials, and technical feasibility studies**. Before launching any product, we validate whether the solution addresses a real gap, whether the customer is willing to adopt it, and whether our technology can perform reliably in harsh underwater conditions. This structured approach of listening, testing and validating helps us ensure that every product we develop solves a meaningful, high-impact problem.

Prof. Ananya: *What role does innovation play in your business model, and how do you encourage creativity within your team?*

Mr. Debendra Pradhan:

Innovation is the backbone of our company. Since underwater technology is still in its infancy, especially in India, we cannot rely on ready-made components or traditional engineering solutions. Every product we build requires **original design, experimentation, and new engineering methods**.

Innovation for us is not optional—it is the only way to survive and grow in deep-tech. We ensure continuous innovation by promoting open

discussions, encouraging the team to challenge assumptions, and involving everyone—engineers, advisors, interns—in decision-making. Creativity is nurtured by giving people room to experiment, fail, learn and try again. We maintain an environment where ideas are valued irrespective of hierarchy. Our team knows that a better idea can come from anyone.

This culture of collective innovation, mutual respect and shared problem-solving keeps our solutions ahead of the market and ensures that we are constantly evolving with technology.

Prof. Ananya: *In your opinion, what qualities or skills should every entrepreneur develop to succeed today?*

Mr. Debendra Pradhan:

The most important qualities are **determination, patience, and consistency**. Everything else—skills, technology, market knowledge—can be learned over time. But the determination to continue, especially in tough domains like deep-tech, is what defines long-term success. And above all: **never give up**.

Prof. Ananya: *Finally, what advice would you give to young and aspiring entrepreneurs starting their journey today?*

Mr. Debendra Pradhan:

Dream big and work hard—but work intelligently. Convert your vision into actionable steps. Take care of your team and value them more than profits. A company grows only when its people grow. If you want to go a long way, put your team first and the company second.