

The logo for SIMMOL, featuring the word "SIMMOL" in a bold, white, sans-serif font. The letter "O" is replaced by a power button symbol (a circle with a vertical line and a semi-circle at the top).

SIMMOL

THE LEADERSHIP CELL MANUFACTURING COOK BOOK

RECOMMENDATIONS & SERVICE MENU

SIMMOL - STEFAN LOUIS

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SETTING UP CELL MANUFACTURING

A strategic framework to establish a competitive and sustainable cell manufacturing operation

Objective - Setting up an organisation with a focus on continuous innovation, quality assurance, and a customer-centric approach



MARKET ANALYSIS AND BUSINESS PLAN

- Market Demand
 - Analyse the current and future market demand for cells. Will you focus on key sectors such as electric vehicles (EVs), consumer electronics, and/or energy storage systems, or are you targeting more niche markets?
 - Simmol can translate market requirements into technological requirements and recommend the best technologies for you. Those are usually not what the customer is using or asking for today.
- Competitive Landscape
 - Identify and study competitors, their strengths, weaknesses, market share, and technological advancements.
- Business Model
 - Develop a robust business model, outlining the target market, revenue streams, and growth projections. Ensure you have sufficient uniqueness in your value proposition
 - Simmol can help to define and test the business model, value proposition(s) and business environment through workshops based on the proven Strategyzer[®] model. This significantly reduces the business risk at a low cost.

FINANCING & INVESTMENT STRATEGIES

- Business plan development
 - Develop clear CAPEX/OPEX planning over time
 - Detail funding options (investors, grants, loans)
 - Include risk mitigation in the financial planning
 - Focus on anchor customers or captive business that support the business plan (MOU or conditional supply agreement)
 - **Simmol can provide the technical input for the above aspects**
- Intellectual property
 - Plan IP protection, patent strategies, and trade secret management to safeguard proprietary technologies.
 - **Simmol can outline the broadest IP definition that protects your business, without revealing your valuable trade secrets**

TECHNOLOGY AND R&D

- Technology Selection

- Choose the right technology based on performance requirements, cost, and scalability. Consider technologies which still have runway for years to come or emerging technologies such as LMFP, solid-state, sodium-ion, ...
- Simmol can define your cell chemistry roadmap & form factor and model your product architecture.

- Research and Development

- Invest in R&D to innovate and improve cell chemistry, energy density, and lifecycle. Collaboration with universities and research institutions can be beneficial
- Simmol can help you to quickly develop a technology, first time right

TECHNOLOGY AND R&D

- Technology License
 - A license can help to accelerate but ensure that the technology is TRL 7-9. So-called mature technology might be obsolete by the time your plant is ready
 - Even with a license a significant R&D effort will be required to understand and further develop it
 - Simmol is aware of technology providers and can help to develop the right relationships
 - Simmol can also help in the due diligence efforts for a certain technology to ensure your funds are well spent
 - Simmol can take responsibility as an owner's engineer during a technology transfer
- Engineering services
 - Having in-house R&D capabilities is a must, but to jumpstart this activity outsourcing R&D work is a common solution
 - The technology can be tuned to your customer segment(s)
 - Cost is typically lower compared to licensing, and free of royalties
 - Simmol has experts that design cells every day. We don't start from scratch, and can develop state-of-the-art technology in a matter of months, well within the critical path of setting up a plant
 - Performance & production can be witnessed on a pilot production line

SUPPLY CHAIN MANAGEMENT

- Raw Material Sourcing

- Secure, reliable and sustainable sources for raw materials such as lithium, cobalt, nickel, and graphite. Consider partnerships with mining companies.
- Simmol has a deep understanding of the material supply chain and can help you to setup the best partnerships, particularly in China

- Supplier Relationships

- Develop strong relationships with suppliers to ensure quality and consistency. Implement a robust supplier evaluation process.
- Simmol offers holistic supplier evaluation services with a focus on the technical aspects.

MANUFACTURING INFRASTRUCTURE

- Facility Location
 - Choose a strategic location ideally with proximity to raw material suppliers, skilled labour, and transportation hubs. Consider regional incentives and regulations.
- Manufacturing Plant
 - Design a state-of-the-art manufacturing facility with advanced automation and quality control systems. Ensure scalability to meet increasing demand and flexibility to meet market changes.
 - Simmol can help to design & implement R&D, proto & pilot lines as well as mass production. For the latter we manage your cooperation with a fine selection of larger equipment players: equipment definition & selection & contract review
- Equipment and Technology
 - Invest in high-quality manufacturing equipment for electrode fabrication, cell assembly, and testing.
 - Simmol offers services to audit your equipment suppliers pre-order and performs FAT and SAT.
 - Simmol engineers, with its partners, will guarantee that cell design, production process and equipment is seamlessly tuned

QUALITY CONTROL AND COMPLIANCE

- Quality Assurance
 - Implement stringent quality control processes throughout the manufacturing cycle. Use statistical process control (SPC) and Six Sigma methodologies.
 - Simmol can audit your QA system and report on improvement points.
- Certifications and Standards
 - Ensure compliance with international standards (ISO 9001, ISO 14001) and industry-specific certifications (UL, CE).
- Safety Protocols
 - Develop and enforce comprehensive safety protocols to protect workers and ensure product safety.
 - Simmol has developed several safety training modules that can be integrated with your onboarding process.

WORKFORCE DEVELOPMENT

- Skilled Labor

- Hire and train a skilled workforce. Develop training programs in collaboration with technical institutes and universities
- For higher technical profiles, we can join the interview process and assess your candidates

- Continuous Improvement

- Foster a culture of continuous improvement and innovation among employees

SUSTAINABILITY AND ENVIRONMENTAL IMPACT

- Sustainable Practices

- Implement sustainable manufacturing practices, focusing on energy efficiency, waste reduction, and recycling
- Plan for recycling strategies, second-life applications and relevant compliances
 - This will help to hedge the supply chain risks

- Environmental Compliance

- Adhere to environmental regulations and aim for minimal environmental impact. Consider green certifications and carbon footprint reduction

MARKETING AND SALES STRATEGY

- Brand Development
 - Build a strong brand identity focused on quality, reliability, and innovation.
- Customer Relationships
 - Develop strong relationships with key customers in the EV, consumer electronics, and energy storage markets.
- Sales Channels
 - Establish robust sales channels, including direct sales, distributors, and partnerships with OEMs (Original Equipment Manufacturers).

THE COST OF NOT GETTING INTO CELL MANUFACTURING

Strategic & facts-based arguments

The cost of getting in may be high, but the cost of staying out is potentially existential. The question isn't "can we afford to invest?", but "can we afford to be left behind?"

Owning the cell isn't just a manufacturing decision — it's a data and services play. It allows companies to control how the battery performs and how it's monetized over time.

That's what opens the door to high-margin digital services and new business models.



FACTS-BASED ARGUMENTS

- **Loss of Strategic Control**

- **Dependency on suppliers:** Without cell manufacturing, companies rely on external suppliers for a core component of their products, risking availability, quality, and pricing.
 - Cell manufacturers continuously capture a bigger part of the value chain, both upstream and downstream. Will cell manufacturers continue to see value of a “cells only” business model as it further commoditizes?
- **Limited influence on innovation:** Companies that don't manufacture cells are often price-takers and technology-followers, not leaders.

- **Margin Compression**

- The cell represents 30–60% of the total cost of a battery pack. If a company is not capturing that value, margins will shrink as competition increases and prices fall.

FACTS-BASED ARGUMENTS

- Exposure to Supply Chain Volatility
 - From COVID-19 to geopolitical tensions, the battery supply chain has shown it can be fragile. Not owning a piece of it increases vulnerability to disruptions and delays.
- Competitive Disadvantage
 - Market leaders (e.g., Tesla, BYD, CATL) invest in or control cell manufacturing because it gives them performance differentiation, cost advantage, and scalability.
 - Without cell capabilities, companies are constrained in form factor, chemistry choice, and system-level integration.
- Missed Funding & Incentives
 - In the EU and US, billions in subsidies (e.g., IPCEI, IRA) are tied to cell manufacturing. Not participating means missing access to funding and favourable treatment in tenders.

STRATEGIC ARGUMENTS

- Future-Proofing the Business: “It’s not about being cost-competitive today - it’s about being in control of your roadmap tomorrow.”
 - Entering cell manufacturing isn’t just an economic decision, it’s a strategic one. As storage becomes more commoditized, differentiation will depend on cell-level IP and system co-design.
- Risk of Irrelevance: “In five years, those without control over the battery core might simply be integrators - and easily replaced.”
 - As the value chain consolidates, the middlemen get squeezed. Being outside of cell manufacturing risks being marginalized, especially as vertically integrated players gain dominance.

STRATEGIC ARGUMENTS

- Building Ecosystem Value: “The cell is not just a component; it’s a platform.”
 - Owning the cell means owning part of the data layer, the performance envelope, and the service lifecycle. This opens up monetization options in diagnostics, leasing, second-life use, etc.
 - If you're buying off-the-shelf cells, you often get limited or filtered data. But if you make the cells (or co-design them), you can purpose design them, instrument them with sensors. This enables:
 - Predictive maintenance algorithms based on real degradation curves.
 - Selling performance guarantees backed by real-world data.
 - Asset/Fleet-level analytics for warranty optimization.
 - And the data will be available to the company much sooner than companies not getting into cell manufacturing.

STRATEGIC ARGUMENTS

- Understanding Your Value Chain Neighbours Better
 - In every value chain, each participant seeks to maximize their share of the total value created. This includes suppliers, customers, technology providers, and even integrators who may become competitors. As you evaluate your position in the battery or energy storage ecosystem, it's critical to ask: "How are others trying to capture part of the value that we are enabling today?". Examples include:
 - Cell manufacturers moving into systems (e.g., BYD, CATL offering packs and EMS).
 - Integrators developing in-house battery analytics, reducing reliance on OEM diagnostics.
 - Energy service companies offering leasing and performance guarantees, shifting value upstream.
 - Software providers embedding control logic, thereby locking in customer relationships.
 - By mapping the ambitions and movements of your neighbours, you gain:
 - A clearer view of where value is migrating.
 - Insight into which parts of your offering are at risk of commoditization.
 - The foresight needed to protect your margins and reposition strategically.

The background is a solid green color with a subtle gradient. In the four corners, there are decorative white line-art patterns resembling circuit boards or neural networks, with lines and small circles connecting them.

THANK YOU