thinfilm

Energizing Innovation™

for wearable devices & connected sensors

February 2021

Safe Harbor Statement

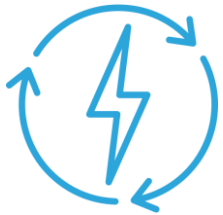
This report includes forward-looking statements covered by the Private Securities Litigation Reform Act of 1995. Because such statements deal with future events, they are subject to various risks and uncertainties and actual results for fiscal year 2017 and beyond could differ materially from the Company's current expectations. Forward-looking statements, including estimates of capacity, selling price and other material considerations, are identified by words such as "anticipates," "projects," "expects," "plans," "intends," "believes," "estimates," "targets," and other similar expressions that indicate trends and future events.

Factors that could cause the Company's results to differ materially from those expressed in forward-looking statements include, without limitation, variation in demand and acceptance of the Company's products and services, the frequency, magnitude and timing of raw-material-price changes, general business and economic conditions beyond the Company's control, timing of the completion and integration of acquisitions, the consequences of competitive factors in the marketplace including the ability to attract and retain customers, results of continuous improvement and other cost-containment strategies, and the Company's success in attracting and retaining key personnel. The Company undertakes no obligation to revise or update forward-looking statements as a result of new information, since these statements may no longer be accurate or timely.

Thinfilm financial reports may be accessed via the following web page:
https://thinfilmsystems.com/investor-relations/presentations-webcasts/

our focus – superior energy density, longer life

Disrupting the market with steel, stacking, scale



Premium microbatteries superior to lithium-ion

- 2x volumetric energy density (VED)
- 3x recharge cycles
- Fundamentally safer

Leveraging proprietary IP & unique technology platform

- Unmatched expertise on steel
- Validated roll-to-roll process
- Multi-cell stacking innovation
- Company owned, fully equipped manufacturing facility with ISO9001 QMS certification

Addressing unique market requirements

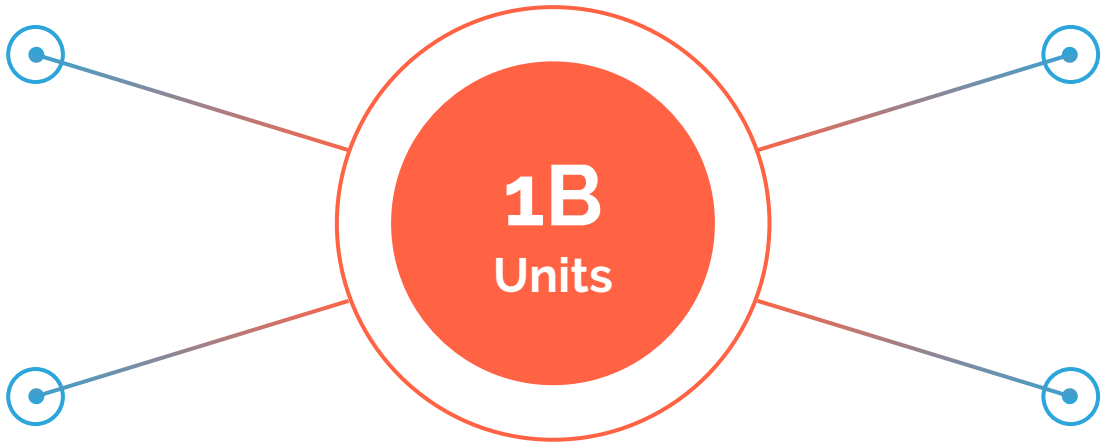
- Form factor & energy density for wearables
- Long lifetime & reliability for hearables and connected sensors

microbatteries – our entry market

Established, growing markets; well aligned to existing factory

Hearables
350M Units
Hearing assist, wireless headphones

Medical Wearables
150M Units
Continuous glucose monitoring, temperature monitoring, physiological monitoring



Sports & Fitness Wearables
350M Units
Activity measurement, smart apparel

Connected Sensors
250M Units
Environmental sensors, commercial smart buildings, smart manufacturing

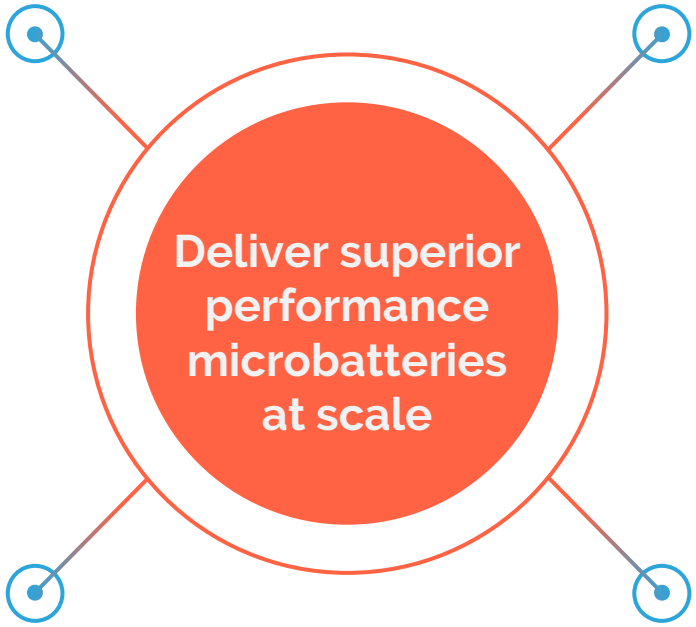
Initial focus
Premium pricing
Focused market, direct sales to OEMs
Customization potential

Subsequent expansion
Broader customer base
Leverage partnerships
Standard products

novel architecture transforming microbatteries

Established anode-less solid state chemistry

- Invented in 1990s
- Requires no further invention
- Core longevity and safety advantages
- Thinfilm demonstrated entitlement energy densities within months



Innovative cell stacking & packaging

- Thinfilm innovation enables thinner form factors, high volumetric energy density
- Leverages steel hermeticity
- Enables form factor customization

Proven ultrathin steel substrates

- Proprietary Thinfilm development
- Maximizes volumetric energy density vs. ceramics & silicon
- Roadmap down to 10 microns
- Reliably shipped millions of EAS units

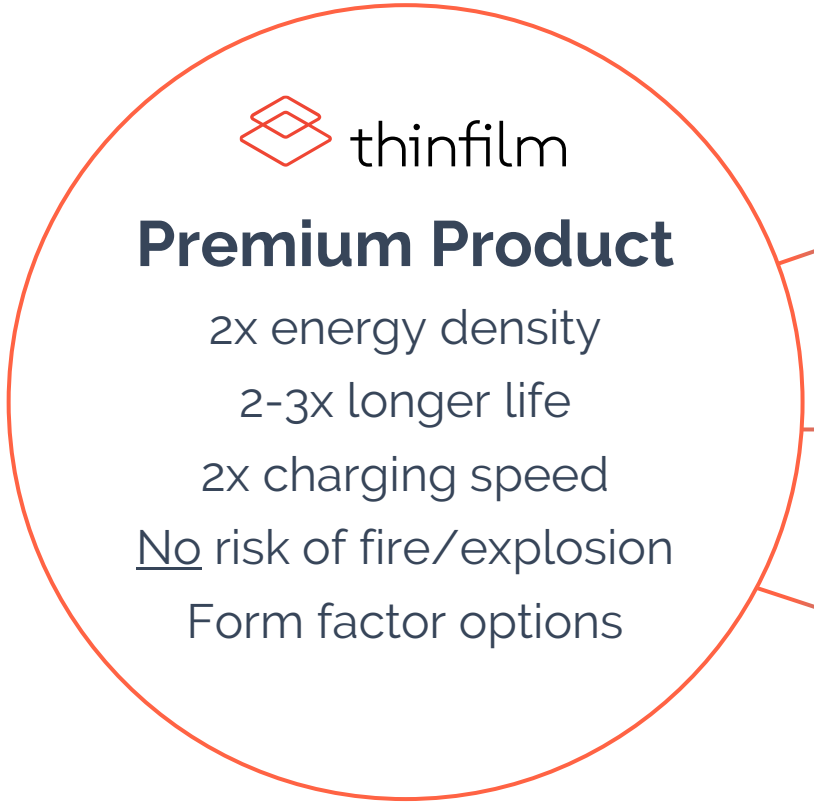
Installed ~$40M scale-up R2R factory

- Sheet-to-sheet development line
- Cost-effective path to high volume
- Supports technology roadmap

recent achievements

- First product design taped out based on customer requirements
- Evaluation agreements signed
- Process enhancements to increase energy density up to 600 Wh/L
- Product platform to support customer product customization
- Battery experts hired to support …
  - roll-to-roll factory bring up and production ramp
  - customer technical and commercial engagements

delivering value to target markets



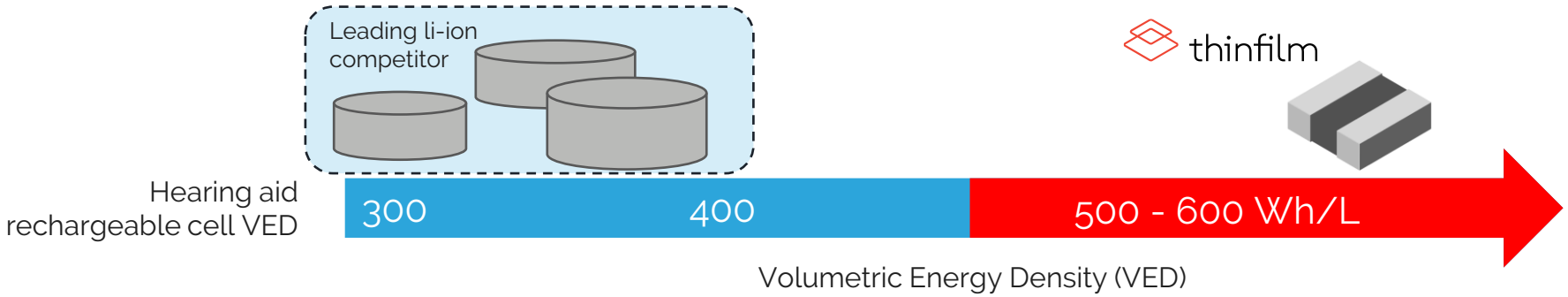
Hearables: lower OEM costs with longevity
SSLB 1000+ cycles (vs. 300-400 for li-ion)
- supports full nightly charge over 3-4 years
- reduces OEM warranty/service expenses

Wearables: never-before-possible form factors
SSLB energy densities allow same battery life in ½ current volume
SSLB shape options match wearable preferences

Sensors: safe, robust, perpetual operation
SSLB cycling enables long-life trickle charging via energy harvesting
- minimize or eliminate sensor maintenance costs due to failed battery
SSLB safety allows placement in hard-to-reach areas
Steel robustness adds reliability for defense markets

hearing aid market overview

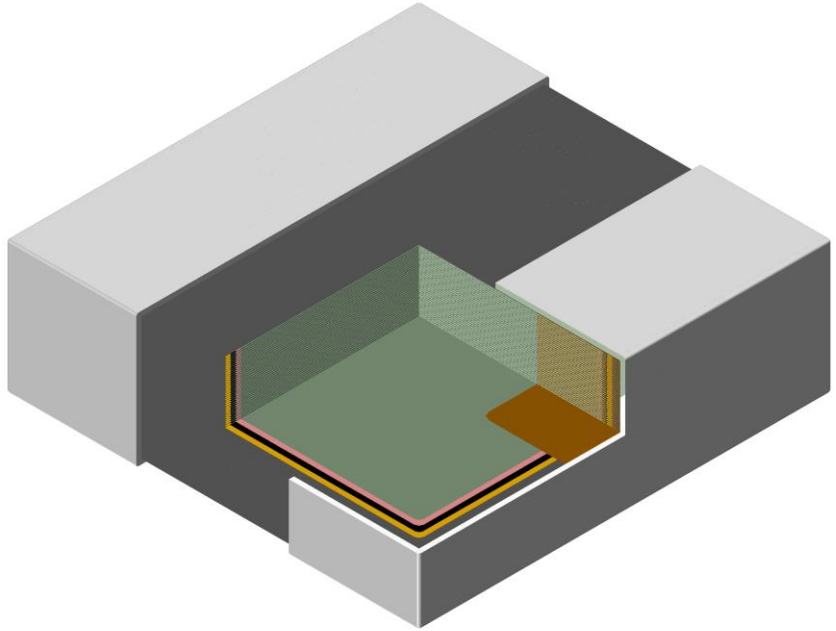
Market characteristics	Premium product ASPs: US$1000 - 2500 Rechargeable is fastest growing market segment Improved functionality (Bluetooth, streaming audio) needs higher capacities
Battery usage	Single use: zinc air button cells – frequent replacements required Rechargeable: lithium-ion button cells – low lifetimes; inadequate energy density
Primary players	Big Five (>$1B) : Sonova, Demant, WS Audiology, GN, Starkey Innovative startups: 5-10 strong candidates
Battery requirements	All-day battery life | User comfort (form factors) | Longevity (low lifetime cost) Reliability (weather, sweat resistance) | Safety

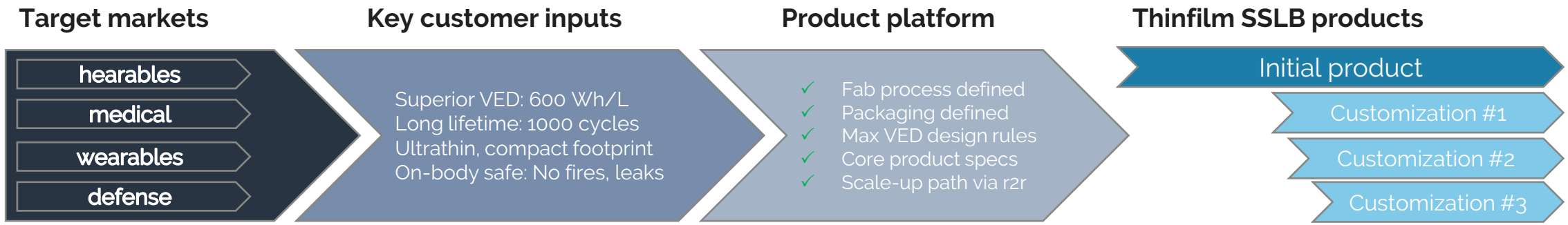


product platform strategy

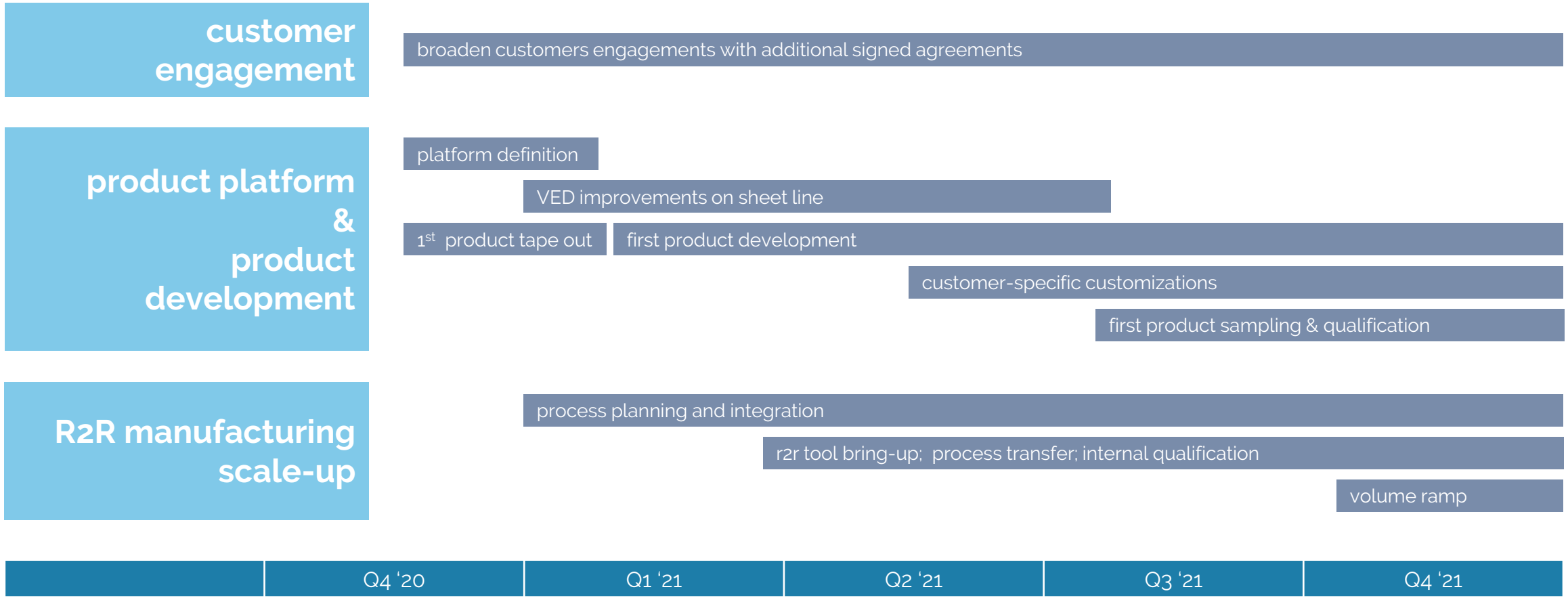
Microbattery product platform encompasses customer requirements & process innovation

- **Complete**: baseline process defined, Thinfilm design rules, initial product taped out for fabrication
- **In progress**: steel thinning, high-resolution patterning, next-gen packaging
- **Scale-up**: via transfer to r2r line
- **Enable customer defined products**: custom sizes & shapes spanning target markets





commercialization timeline



strategic investments

Producing premium microbattery products

- Ultrathin product platform enables premium, ultrathin, long-lasting batteries
- Initial product design targets premium rechargeable hearables market
- Innovative packaging methods enable stacking and encapsulation of completed cells
- 2x volumetric energy density, 3x cycling, superior safety to li-ion

Ramping to production scale with roll-to-roll line bring-up

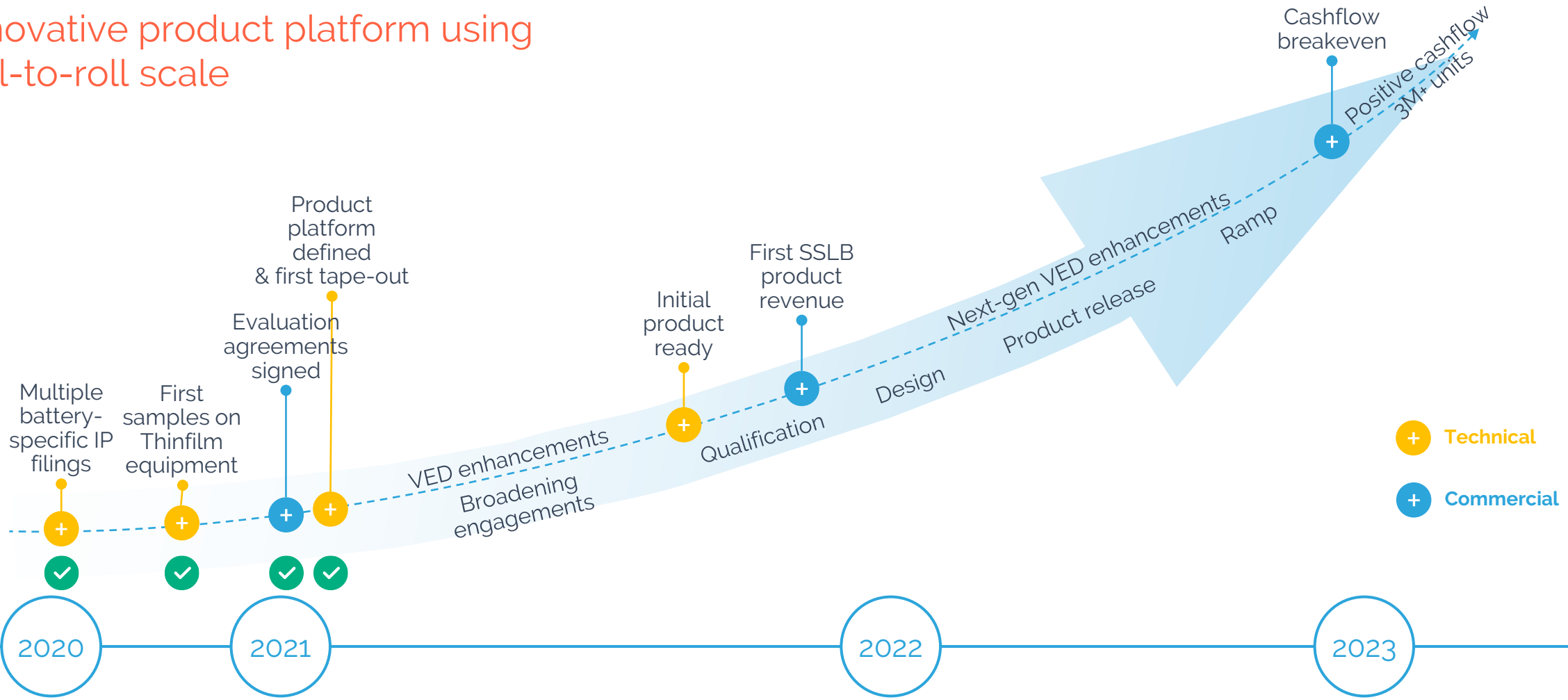
- 10s of millions of mAh annual capacity
- Efficiency and consistency
- Focused team growth to manage transition

Executing targeted go-to-market strategy

- Prioritizing hearables, medical wearables, other form-factor-constrained markets
- Significant growth potential in adjacent wearables and connected sensor markets
- Incremental applications engineering & biz dev headcount to increase customer support resources

execution

Premium microbatteries built on an innovative product platform using roll-to-roll scale



energizing wearables & connected sensors

Winning through steel, stacking, scale

Opportunity

- Billion-unit end markets
- 3-4B USD addressable opportunity
- 3-10 USD premium pricing in initial target markets

Differentiation

- Premium microbattery products
- 2x energy density
- 3x recharge cycles
- Safe and reliable
- Customization potential → stickiness

Sustained cash generation based on defendable technical differentiation

Full factory EBITDA potential $100M+

contact

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