Niobium

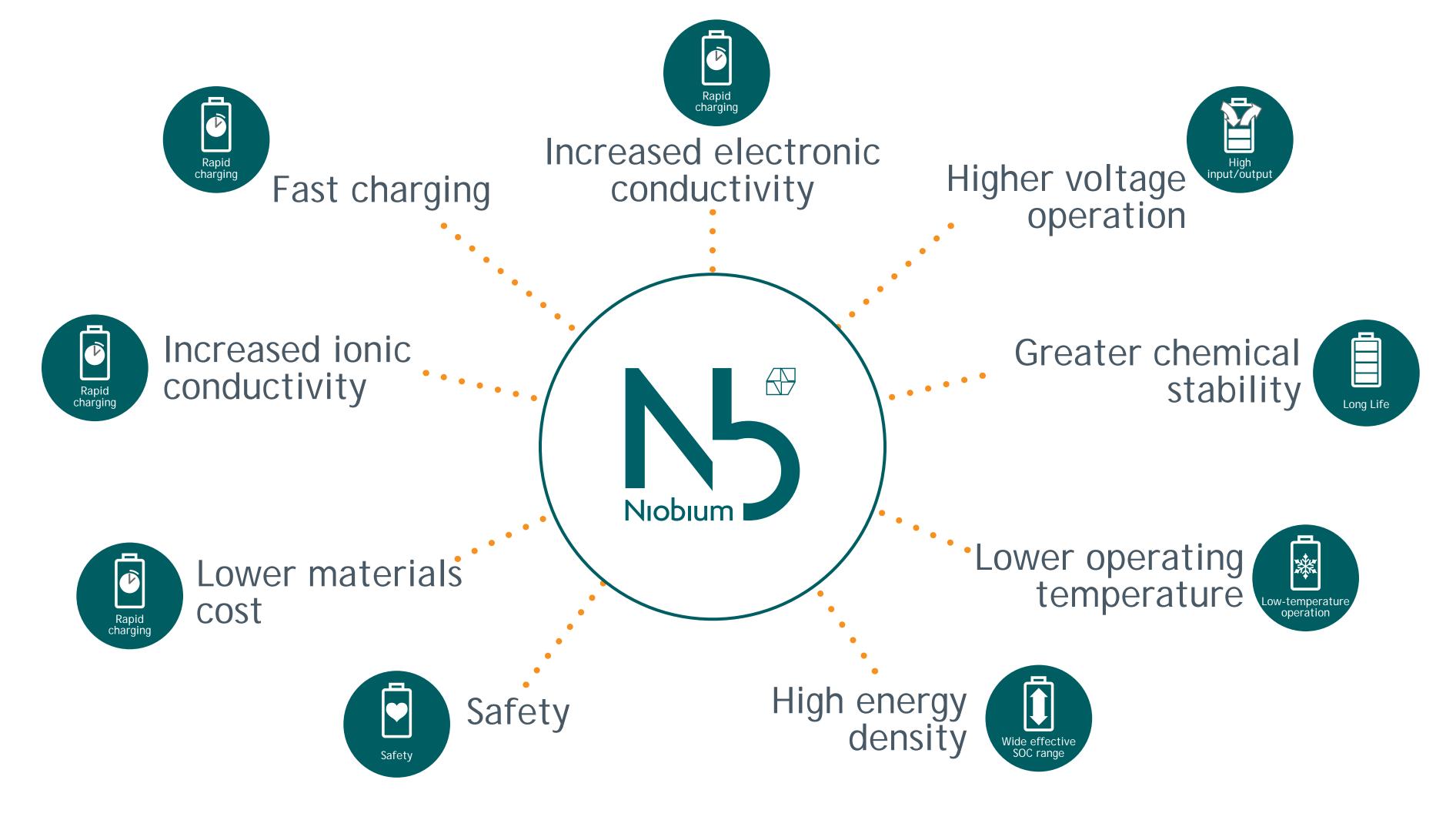
Niobium in Lithium Ion Batteries

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Niobium Benefits for Lithium Ion Batteries





How does Niobium work in Lithium Ion Batteries?

CATHODE

LiNbO₃ coating

Nb and Nb₂O₅ coating

Li₃NbO₄ -based cation-disordered rock-salt structure

> Nb and Nb₂O₅ doping

ELECTROLYTE

ANODE

CHARGE

 Nb/Nb_2O_5 layers on LiLaZrO_x composite

Nb-S glass

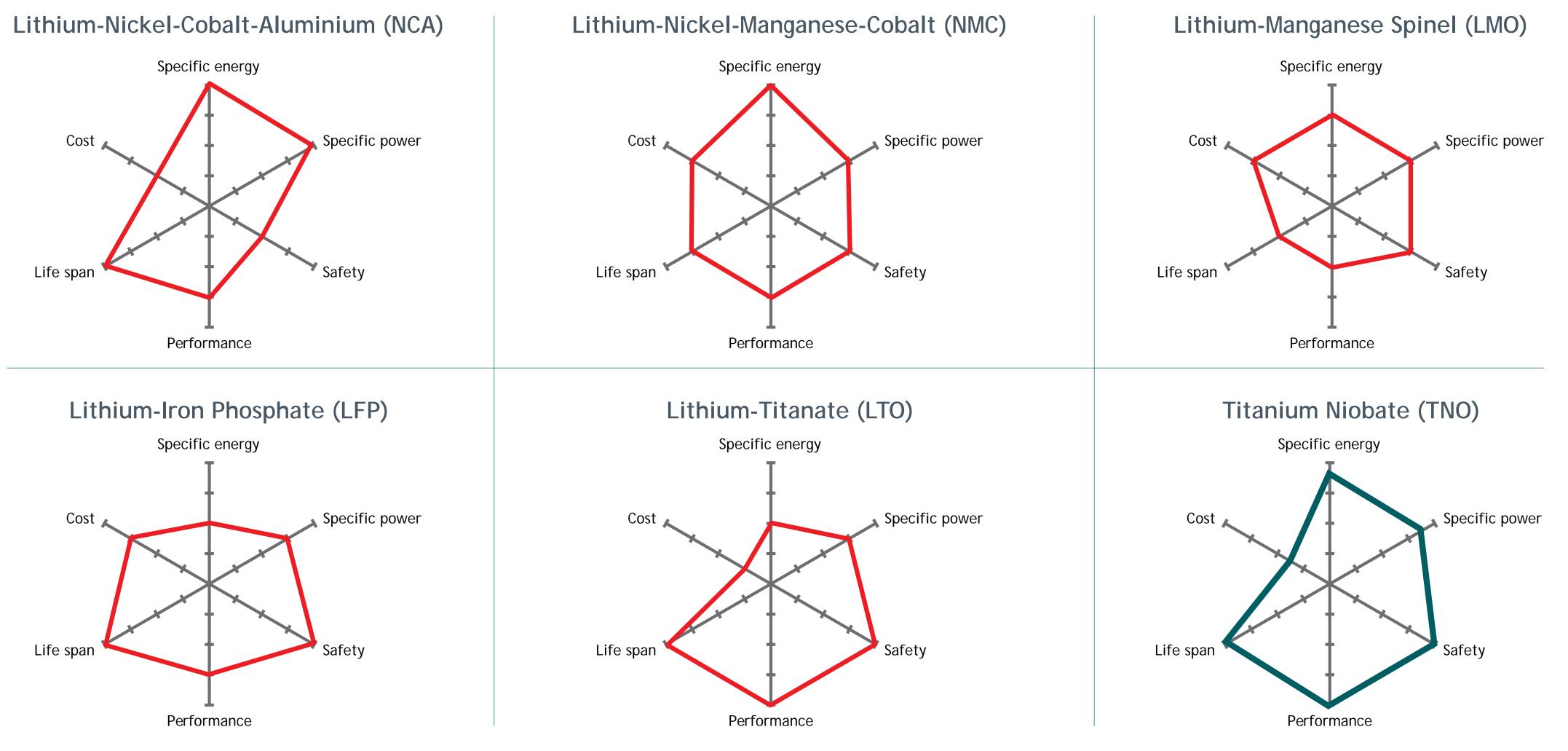
DISCHARGE

TiNb₂O₇ (TNO) composite

 MNb_3O_8 (M=H, Li, Na, K



Tradeoff Profile of Lithium Ion Battery Technologies



Source: The Boston Consulting Group, 2010 / CBMM internal records for TNO

