Jauch®
THE PULSE OF PROGRESS

YOUR CHECKLIST
FOR A SUCCESSFUL BATTERY-RE-DESIGN

JAUCH DEVELOPS

CHECKLIST

CONTENT

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1. WHY BATTERY CELLS ARE CURRENTLY SHORT IN SUPPLY

The global demand for batteries and battery cells is enormous. This is most evident in the automotive industry, where all well-known manufacturers have now committed themselves to the e-mobility market and are expanding their vehicle portfolios accordingly. In other sectors the demand is also high with manufacturers of e-bikes, power tools and energy storage systems ordering in large quantities.

For the manufacturers of battery-powered solutions from other industries, this trend presents dangers. This is because demand now significantly exceeds the global availability of batteries and battery cells. Cell manufacturers around the world are responding to this imbalance by building new production capacities on the one hand and by redistributing existing capacities on the other. In real terms this means, that older cell types are being discontinued, as well as those that are only demanded in small volumes.

Products and companies from all industries are affected by these cells being discontinued. In particular the small and medium-sized companies are those who face a major challenge. The goal is to find re-placements for the discontinued cells as quickly as possible. This means that a re-design of the previously used battery or battery pack is required.

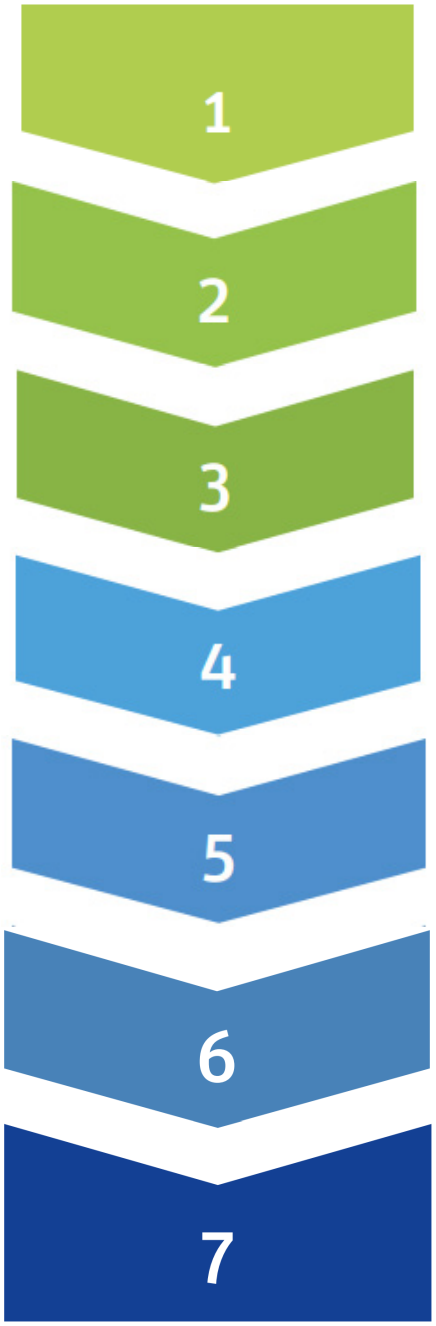
If you are also affected by such a discontinuation, you will find valuable tipps for a successful re-design in this document. The following checklist serves as an orientation guide.

2. HOW LONG DOES A RE-DESIGN TAKE?

How much time it takes to re-design your battery pack depends on its complexity. For example, if your battery pack requires a specially programmed battery management system (BMS) in addition to "ordinary" protection circuitry, this will have an effect on the development time. Re-certification of the new design can also take a long time. Depending on the required standard (e.g. UN38.3, IEC 62133, UL2054, etc.), this process can take several months.

A precise statement about the duration of the re-design is therfore not possible. However, we provide you with a list of the most important steps of the re-design process as a guidance. Based on our experience from previous projects, you will find an approximate time frame for each of the steps listed below.

3. THE WORK STEPS AT A GLANCE



Battery cell selection
Duration: 1-8 weeks, depending on stock

Battery electronics development
Duration: 8-10 weeks, depending on complexity and desired functions

Mechanical Design
Duration: 4-6 weeks

Prototyping
Duration: 8-10 days

Testing phase
Duration: 1-4 weeks

Production of the package workpiece
Duration: 10-12 weeks, only in case of modification of the existing case

Certifying the new battery pack
Duration: 4-18 weeks, depending on the certification

4. YOUR CHECKLIST FOR THE BATTERY-RE-DESIGN

As you can see: Re-designing a battery pack is an elaborate and complex process in which there are many aspects to consider. To help you get an overview, we have compiled a short checklist for you. There is individual space for your notes below the different points.

What goal are you pursuing with the re-design?
Do you want to replicate your existing battery solution with new cells or do you want to use the re-design for further development and add additional functions or intelligence to the battery (higher capacity, charge level, indicator, etc.)?

Have the requirements of your application for the battery changed?
What is the required voltage? What currents are required? How much space is available in your application for the battery?

With regard to the required certifications you should ask yourself, **in which countries you would like to distribute your product**. Are expansions into new markets planned in the forseeable future?

Irrespective of purely legal requirements, **certification according to high safety standards also serves as an important selling point**. In fact, some manufacturers use certifications in marketing. Is this also a consideration for your product?

How much time needs to be considered for the re-design?
Experience shows that further development of battery packs often takes significantly more time than "rebuilding" an existing solution with new cells. In our experience, the time span for a new development ranges from six to twelve months, depending on the complexity of the pack and the certifications required.

Is the long-term availability of the new cells guaranteed?
This question is usually the most difficult to answer, because cell discontinuations can never be completely ruled out. That is why it is advisable to qualify several cells at once. By working with Jauch Quartz, you can further minimize your risk. This is ensured by our long-standing personal relationships with our partners and various cell manufacturers.

If you can answer all the points from this checklist, you are already well on your way with your re-design and you can start with the implementation.

As an experienced battery developer, we at Jauch Quartz are happy to assist you in this process. We accompany you through the entire development process and ensure that your project is a success. Feel free to contact us and tell us about your project!

AUTHOR

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Viktor Sichwardt has in-depth technical expertise and many years of experience in battery technology. As a project manager, he supports Jauch customers in all matters relating to finding the right battery for their application. He has established himself as a competent contact person, particularly in the field of battery transport, and is very familiar with the relevant regulations (UN38.3, ADR, IMO, IATA).
His many years of practical experience cover the entire battery redesign process chain—from cell selection to development and certification to the successful implementation of complex projects. Thanks to his close cooperation with international cell manufacturers and his in-depth understanding of technical and regulatory details, Viktor Sichwardt is a sought-after contact for innovative and safe battery solutions.

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