Whitepaper - Executive Summary

supply chain constraints: 25 insights into the bottlenecks, challenges & opportunities in the european bicycle industry

2021 independent study

velo|konzept

Velokonzept is an agency for all services around the bicycle in Germany with the focus on consulting, conception and event organisation. Velokonzept offers a neutral and manufacturer-independent platform at physical and digital events and connects players from the industry, politics, research and civil society.

MOTION LAB BERLIN

MotionLab.Berlin is a hard-tech innovation hub and provides direct access to a high-end machine park for prototyping, industry experts, product and business mentors & coaches, pilot projects and financing opportunities within a physical and digital location to foster hard-tech innovation.

a note from the creators

Anna Buchmann

Christoph Neye

The bicycle has the potential to drive sustainability in the mobility sector and greatly contribute to people's health and happiness. Being enthusiastic cyclists ourselves, we have been aware of that potential for a while.

As supporters of the startup ecosystem, and with a focus on hardware innovation, we were able to follow the cycling industry for the past few years. And there was one question that kept coming back to us: how is it possible that cars are often so much cheaper than comparable (cargo) bicycles?

Little did we know that the search for answers would bring us to one of the most pressing topics of the industry right now: sourcing and production. Diving deeper into the supply chain and industry dynamic, we were able to gain a better understanding of the ecosystem, how it has developed, and it's possible future.

Exploring the current situation of supply chain breakdown and taking stock of existing challenges, we hope to present insights and learnings that offer a new level of problem analysis. Based on this, we want to draw attention to the vast untapped potential in the sector, and take a stab at outlining first ideas for driving nothing less but systemic change. With this motivation and inspiration, we are excited to explore the opportunities and potentials we identified and keep the conversations going.

A big thank you to all our interviewees for their time, opinions and insights - we look forward to changing this landscape together for the better.

credits

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published in Berlin, Germany, 2021

glossary of terms

To reduce complexity of industry terminology and improve readability, the Whitepaper uses the following definitions:

sourcing: the process of identifying, selecting, and managing suppliers to gather all necessary materials and components to make products

production: the process of assembling the final product

manufacturers: original equipment manufacturers (OEMs) - companies making and/or selling bicycles made from component parts bought from suppliers (some OEMs produce a few of their own parts)

suppliers: producers of bicycle components

dealers: retail outlets selling bicycles from multiple manufacturers

make parts: parts with specifications exclusively designed by manufacturers for their own products

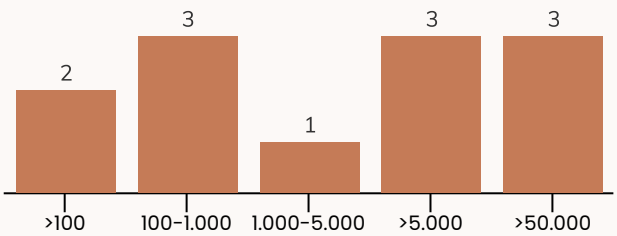
purchase parts: parts designed and manufactured by component suppliers

generic parts: parts that are not specific to the bicycle industry

goal and scope

The goal of this Whitepaper is to provide an overview of current processes, challenges, and opportunities in sourcing and production within the bicycle industry. The focus, thereby, lies in describing the existing constraints, rather than outlining proven solutions. Nevertheless, it is our aim to capture industry insights from people that work within such constraints day in and day out, and thereby start a conversation that may lead to systematic improvements and new ideas with the potential to push the industry forward.

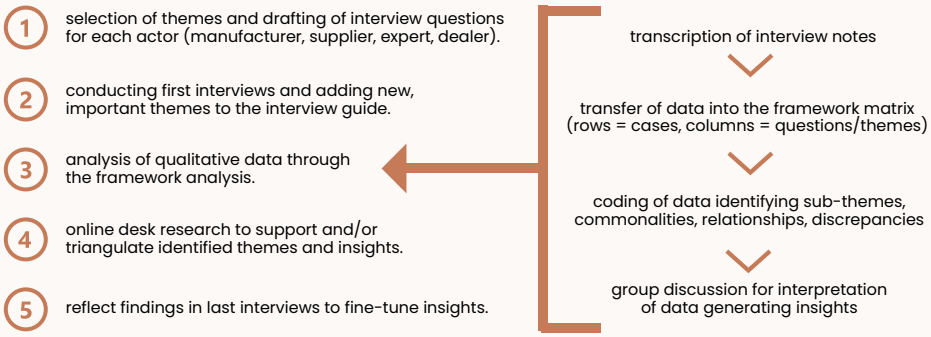
The scope of the Whitepaper research is defined by location, type of interview partner, and size of organisation. All interview partners are based in Europe and work with bicycles, e-bikes and/or cargo bikes. Although the research team sought a variety of industry actors, the majority of interviewed professionals are representatives of bicycle manufacturers (13), followed by experts (4), suppliers (3), and dealers (1). While the size of the bicycle manufacturing businesses involved in the research varies, small- to mid-sized brands are represented in the largest numbers:



current yearly production volume (no. of bicycles) of interviewed bicycle OEMs

research method

Between March and June 2021, the research team conducted 21 semi-structured interviews that focused on past and current processes and challenges in sourcing, production, supply chain, sustainability and collaboration. To analyse the collected data, the framework method, also known as thematic analysis, was applied as follows:



While the research team undertook every effort to eliminate common research biases, the data - and hence analysis - reflects the views of a selected group of industry professionals, mainly from MotionLab and VeloLab's network and some via cold emailing. Furthermore, as the interviews were held between March and June 2021, the research captures the state of the industry over that period of time.

To entangle the complex challenges currently faced by the industry, the Whitepaper first explores perceptions of industry structures (part I). This section describes how manufacturers, suppliers, and dealers experience and interpret industry dynamics and draws a short comparison to the automotive industry. Against this backdrop, the Whitepaper then delves into four challenge areas. Starting off with challenges in planning, part II examines how increased uncertainty and the pressure of model years add difficulty to planning processes. Then, part III outlines current sourcing and production processes and challenges resulting from the consequences of a collapsed, global supply chain. As a much discussed reaction to this breakdown, part IV analyses the opportunities in and barriers to European competitiveness in bicycle and component manufacturing. Finally, part V highlights collaboration and cooperation potential in the industry and how they might be unlocked. Based on the learnings and insights from each part, the Whitepaper concludes by exploring four ideas that have the potential to pose solutions to some of the exposed challenges: facilitation of collaboration and cooperation, data analysis, procurement association and European component production.

executive summary

part I: perceptions of industry dynamics

(1) The dynamic of the bicycle industry and interaction of its actors are seemingly driven by personal relationships, where a high value is assigned to partnership and loyalty. Less common, in comparison, appear to be lengthy agreements and detailed framework contracts.

(2) Larger brands are likely to have more leverage with component suppliers, especially when it comes to purchase parts. Down-payments as well as the power of order numbers are two instances where size could matter. Such industry dynamics and the power of size result in an uphill battle that startups and small bicycle manufacturers face in establishing themselves on the market.

(3) Overall, suppliers emerge as the main drivers of the industry. For example, strong brand positioning not only with bicycle manufacturers, but also with end consumers, means that they are often in a position where they see no need to engage in customer acquisition activities.

(4) Things seem to work differently in the automotive industry, where OEMs drive the technical development and decide on suppliers via tenders and auctions. Furthermore, end consumers are usually less aware of component brands, creating more flexibility and potential for diversification in part sourcing for OEMs.

(5) While vertical integration - the extent to which market actors own upstream and downstream processes - is low in both the automotive and bicycle industry, close collaboration for technical development and industry advancement appears to be much more common in automotive.

part II: challenges of planning and model years

(6) The good news is that there are signs that model year timing - referring to the change in models mid-year during high season - is likely to change, releasing pressure on dealers and hopefully ending discount wars.

(7) Similarly, there seems to be consensus that releasing a new model every single year is neither necessary nor sustainable - both environmentally and operationally. However, the resistance to change appears higher in this aspect.

(8) The bad news is that all bicycle manufacturers mentioned high levels of uncertainty resulting from having to place pre-orders at least two years in advance, coupled with the possibility of normalising demand as Covid-19 restrictions are lifted. As a result, orders are often done based on a stab in the dark, likely to be much higher than needed, and expected to lead to excess stock in the future.

(9) In general, the complexity and rigour of planning processes depends on the size and maturity of the bicycle manufacturer. However, in-depth data analysis and using data insights to make better decisions is reportedly under-utilised across the board.

(10) Learning from the current surprise many experienced as demand increased, followed by a significant supply chain squeeze, the need to leverage data to forecast demand and, for example, soften a possible bust after the boom, becomes apparent.

part III: sourcing and production processes and challenges

(11) While supply chains are mainly built via personal and/or professional relationships, parts of them are pre-set as end customers associate specific component brands of purchase parts with high-quality.

(12) Most OEMs source the majority of their parts from Asia, and (partly) assemble the final product in Europe. Digitalisation is in the very early stages in both processes, but offers the possibility to improve component tracking.

(13) Increased lead times and transportation costs are the two major challenges in sourcing OEMs are facing right now.

(14) Bicycle manufacturers often react by stockpiling components as they become available, bringing more manufacturing processes in-house, diversifying their suppliers, and in the process focusing on building more local supply chains.

(15) As (component) production is likely to increasingly move to the European continent, production challenges - which right now are perceived as non-urgent - including skilled labour, scaling investment and know-how, are likely to become relevant in the future.

part IV: perceptions of european competitiveness

(16) Currently, assembly is often located in Europe, whereas component sourcing from the continent has been described as a challenge. Only vehicles composed of components originating in adjacent industries were sourced mainly in Europe.

(17) The main challenge in sourcing locally was the higher price. In addition to that, capacity and know-how were mentioned as lacking in European component production. However, critical voices pointed towards willingness to accept higher prices as the sole challenge, as quality production at scale is available.

(18) The potential of automation in production is not yet realised - their offerings might not suitable for small and medium OEMs. Quality is not always up to par with manual work, and large initial investment both in designs and machinery take a long time to pay off.

(19) Nonetheless, a few production clusters are emerging in Europe. Next to the traditional players of Germany, Italy and France; Portugal, Poland and Romania are making a name for themselves.

(20) The industry places a lot of emphasis on the creation of green jobs in the future, but for the industry to become truly green, some challenges and bottlenecks remain to be resolved.

part V: collaboration and cooperation

(21) Across the board, willingness to cooperate and collaborate was made clear, with the goal to fill internal knowledge gaps on the one side and accelerate the industry as a whole on the other.

(22) R&D topics such as technological and material development stood out as areas for collaboration and cooperation, while design and brand image are highly guarded.

(23) Despite high willingness to work together, collaboration faces the hurdles of ensuring relative benefits for all parties involved as well as expending considerable resources for project development and management.

(24) The cargo bike segment with high growth and relatively few players was identified as a high potential area for collaboration and cooperation, especially as assembly of (heavy-duty) cargo bikes is going to become crucial to serve growing demand.

(25) Supply chain management has evolved from being viewed as a heavily guarded competitive advantage to becoming a prime area for cooperation as the systemic nature of the challenges in sourcing have been recognised by the majority of market players.

opportunities and potentials

Collaboration/Cooperation management. Identifying collaboration potential, defining projects, outlining commitments and mutual benefit, and then managing the project over time requires a lot of time and financial resources from all parties involved. Yet, technological advancement, material development, and political action are key components in the growth and competitiveness of the industry. Conventions and events bring people together, but the follow-up project development and management is where collaboration often fails. There seems to be great potential for bicycle OEMs in dedicating resources to develop collaboration and/or get involved with cooperation activities. Alternatively, third party matching and project support services that connect suitable partners, give impulses, and manage collaboration projects have the potential to accelerate the entire industry.

Data analysis. Digitisation and Industry 4.0 are likely to gain a substantial foothold in the bicycle industry. One of the great potential that comes with digital processes is data collection and analysis. It already became clear that bicycle manufacturers with more data insights fared better throughout the current supply chain squeeze caused by the Corona pandemic. The ability to digitise supply chains, upgrade planning processes, and make data-driven decisions will not just provide a competitive advantage to single OEMs, but has the potential to accelerate the bicycle industry to similar levels of other mobility industries where data is already commonly used.

Procurement Association. As supply chain management has gained new momentum and attention, the systemic challenges of the bicycle industry need to be addressed for the industry to stay competitive. One possible solution that was also tested within the research of the Whitepaper was the creation of a procurement cooperative for bicycle components. While interviewees frequently mentioned available procurement associations for retailers, no available group could be identified at component level. While the setup would not be without it's challenges, the benefits of larger order volume and thereby lower component price was especially attractive for small and medium-sized OEMs. The value of joint sourcing could be greatly increased when coupled with local European production and partners, as larger brands are looking to move supply chains closer to their market and could bring the required volume.

European component production. To meet rising demand, reduce supply chain vulnerabilities, and meet increased expectations for sustainability measures to be taken, local component production in Europe is likely to experience a revival. To be successful, however, competitiveness with Asian counterparts needs to be achieved - on a price and a quality level. The big question is how this could be done. Experts are increasingly looking towards big component brands and their willingness to invest in European production facilities or set up locally-based joint ventures. Larger OEMs are already co-investing in the prime European clusters. Finally, involving, learning from and partnering with suppliers from the automotive industry offers great potential to drive local competitiveness in bicycle component production.

contact us

Reach out to the team if you have questions or enquiries, want to get involved in realising the opportunities and potentials we identified, and accelerate the bicycle industry together.

click here