

constructsteel

Monthly update for the construction industry

July 2021



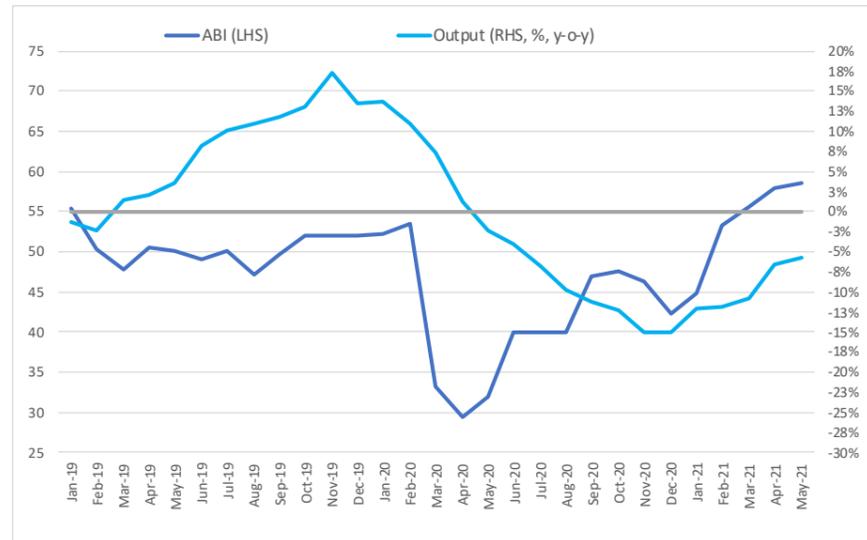
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Construction market trends

United States Confidence in the private non residential sector improving. Decline in residential permits from January 2021 peak leading to slowdown in residential output.

Private residential output flat m-o-m (29% y-o-y) in May and building permits down -3% m-o-m (35% y-o-y). Private non-residential output down -1% m-o-m with y-o-y decline narrowing to -5.8%. The Architecture Billings Index (ABI) expanded for the fourth straight month and to 58.5 (> 50, expansion).

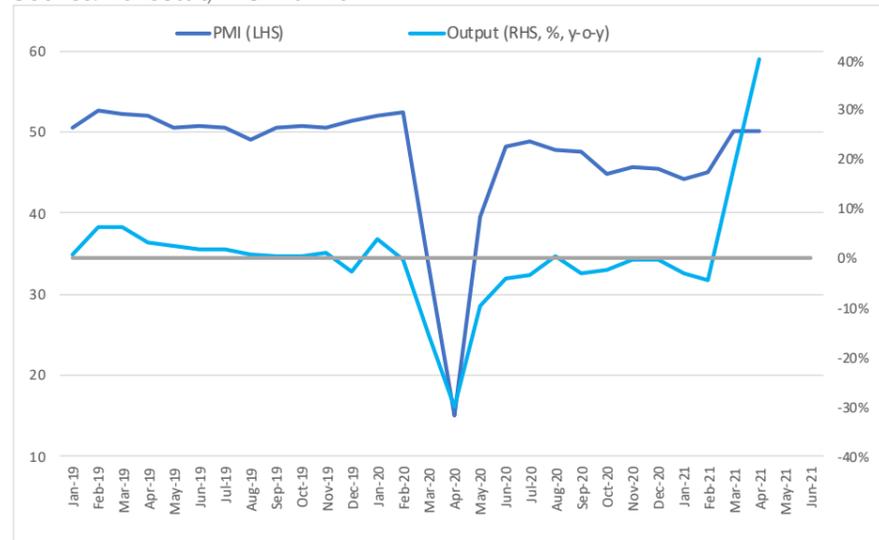
Private non-residential output vs ABI
Source: US Census, American Institute of Architects



Europe Construction improves from COVID lows with housebuilding driving the expansion.

Eurozone construction down -2% m-o-m in April (40% y-o-y). The IHS Markit Eurozone Construction PMI remained at 50.3 in June and expanded for the fourth straight month (> 50, expansion).

Eurozone construction output vs PMI
Source: Eurostat, IHS Markit



China Chinese real estate market bounced back in May.

The 3 month moving average y-o-y growth in newly started floor space jumped by 60% in May and real estate floor space sold was up 110%.

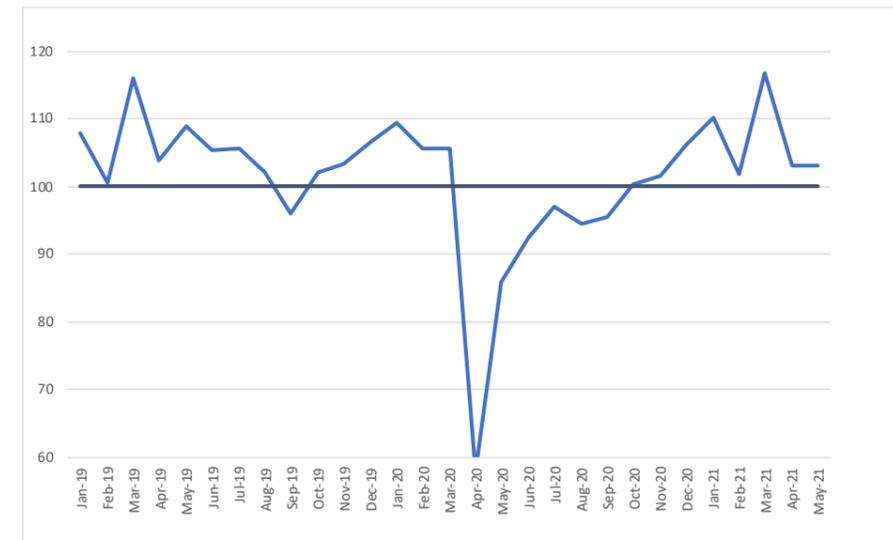
Floor space started (3 month moving average, %, y-o-y)
Source: National Bureau of Statistics of China



India Core sectors output sees strong growth due to weak base of comparison but underlying activity generally weak

The weighted average of eight core industries output increased by 20% y-o-y but declined -4% m-o-m.

Weighted average of eight core industries industrial production (% y-o-y)
Source: Ministry of Commerce & Industry, India



Special topic: Positioning steel in short and medium span bridges



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Increasing the market share for any product can be a difficult task. In its simplest form, an increase in market share requires taking sales from a competitor selling the same or similar products. In almost every industry, the competition is fierce as companies fight for the business of new and existing customers. After all, no one is in business to lose sales.

The bridge industry is no different. The competition for steel is mainly concrete. In most markets, concrete has a well-established network of suppliers, customers, and industry organisations. The concrete industry is typically perceived to be active in working with owners, designers, and contractors to develop cost competitive and simplified solutions for bridge design, fabrication, and installation.

For well over a century, steel has dominated the over 200 m long-span market. It has been a battle ground to compete in the medium and short span market. However, steel can compete and win in this sector. Steel has many attributes which make it the ideal choice for short and medium span bridge construction:

- The light weight of steel provides significant cost savings: smaller abutments, use of local crews, fast installation, and lighter equipment add up to savings.
- Prefabricated steel bridges accelerate construction and reduce on-site labour requirements, traffic disruptions, and overall project costs.
- Steel bridges have service lives of over 100 years, decreasing life cycle costs and the need for replacement.
- Steel is the world's most recycled material and is infinitely recyclable, so it can be repurposed from one bridge project to another.



Steel has many attributes which make it the ideal choice for short and medium span bridge construction.

Unfortunately, some still perceive steel as expensive and sophisticated in the short and medium span market – a misconception that has inhibited the industry for many years. In order to change this misconception and gain market share, a strategic response is required, grounded in a need to change customer perceptions, which includes:

- A persistent strategic marketing and education program to break through the fallacies that exist within the marketplace.
- Standardised designs with simple and repetitive details to expedite and economise the design process.
- Innovative tools and cost-effective solutions to accelerate the design, fabrication, and construction of a steel bridge.
- Sustainability and life-cycle cost analysis that objectively compares steel to concrete in terms of initial costs, future costs, and service life of the structures.

In order to implement such a plan, an organised multi-faceted initiative is required. The initiative necessitates a full steel industry effort working in unison to accelerate change in the marketplace. Fortunately, there already exists such a market development program to assist in transforming global efforts into opportunities – constructsteel. Leveraging the success of the [Short Span Steel Bridge Alliance](#) in the United States, the partners of constructsteel are dedicated to disrupting the global bridge market through the implementation of a strategic plan to grow the market for steel. Over the next few years perceptions will change, innovative solutions implemented, and market share gained for steel in the global bridge market. Get ready.

Technical trends: Road work ahead

The emerging revolution in the road construction industry

Engineering, Construction & Building Materials, McKinsey & Co

When thinking about innovation in transportation, roads will likely not come to mind first. Although construction materials and techniques have been improved incrementally, the basic formulation and construction of roads have remained largely unchanged over the past decades. As a consequence, questions concerning carbon-neutral powertrains, mobility ecosystems, and (semi-)autonomous driving dominate most discussions about the future of transportation, while road infrastructure plays a minor role in these debates, if one at all.

Reliable road networks help economies flourish, but they can equally curb further growth and prosperity if people and goods are caught up in traffic jams. Governments therefore, spend significant shares of civil engineering budgets on road projects, and are highly motivated, among other things, by the interests of their taxpayers to ensure that roads are built and upgraded cost-effectively while meeting the requirements of future transportation.

In recent report “Road work ahead: The emerging revolution in the road construction industry”, McKinsey believes that advances in technology will affect not only the composition and utilization of roads but also the speed and cost of their construction. Four major technology trends in particular will help enable new road realities:

- **Autonomous vehicles enable narrower lanes:** By 2035, 15 percent of light vehicles sold are expected to be fully autonomous. As the share of vehicles capable of functioning without human drivers grows, driving precision is anticipated to increase dramatically. The additional accuracy could eliminate the need for lanes that are much wider than vehicles. Whereas traditional lanes are built wide enough to account for human error, usually between 3.50 and 3.75 meters wide (according to the European Commission), the width of future lanes could be reduced to 2.8 meters and still accommodate passenger cars and heavy-duty trucks. Roads dedicated exclusively to passenger cars could have lanes as narrow as 2.5 meters, making four-lane roads up to 4.0 meters narrower than they are today.
- **Construction automation increases productivity:** Given the still significant amount of manual labor needed to build roads, automation is a promising opportunity to improve productivity in this low-margin industry. The initial surveying, for example, could be further automated through the use of lidar technology, reducing time and costs. Data from multiple sources could be fed into a digital representation of the physical asset—known as a digital twin. Such digital models allow contractors to visualize the entire lifecycle of a road, optimizing its performance. The use of 3-D machine-control excavation systems may serve as a proxy to gauge the potential from automation in the latter stages of road construction. These systems combine geolocation services with digital models to partially automate earthworks. Excavators



equipped with such systems can carry out excavating or grading up to 30 percent faster than machines that don't use a 3-D system.

- **Digitization leads to optimized utilization:** Until around five years ago, road design and construction rarely used any form of digitization or analytics, but these technologies will significantly affect road design and construction in the near future. First, roads will evolve from being a passive medium to a system of measuring and guiding. Sensors, either embedded in the structure of newly constructed roads or positioned around existing roads, will be used to guide vehicles, which will enable them to drive closer together, potentially increasing lane capacity by up to 50 percent. This approach is currently being tested by authorities in China. Roads will also be able to communicate surface conditions—for example, friction levels due to water or cold temperature—to autonomous vehicles. Other types of sensors will be used for predictive maintenance, increasing the operational time of roads while reducing costs and the number of road closures.
- **Advanced materials improve durability:** An increase in road use means that roads will need to be more durable. Newly constructed roads can be built using new construction materials (such as plastic) in their asphalt mix. This construction method can make roads up to 60 percent stronger than conventional asphalt roadways, making them better suited to accommodate more vehicles per kilometer of road. Existing roads will likely also have to undergo significant refurbishment to meet this new demand. Since these upgrades will be limited to a road's top-most layers, they will be cheaper than building new roads from scratch.

Improved process flow decreases construction time and cost

By reducing the number of steps needed to build roads, and by making other steps obsolete, the four technology trends are expected to completely disrupt the traditional road-construction process, decreasing construction time and cost. The new process will likely consist of three key steps (Exhibit):

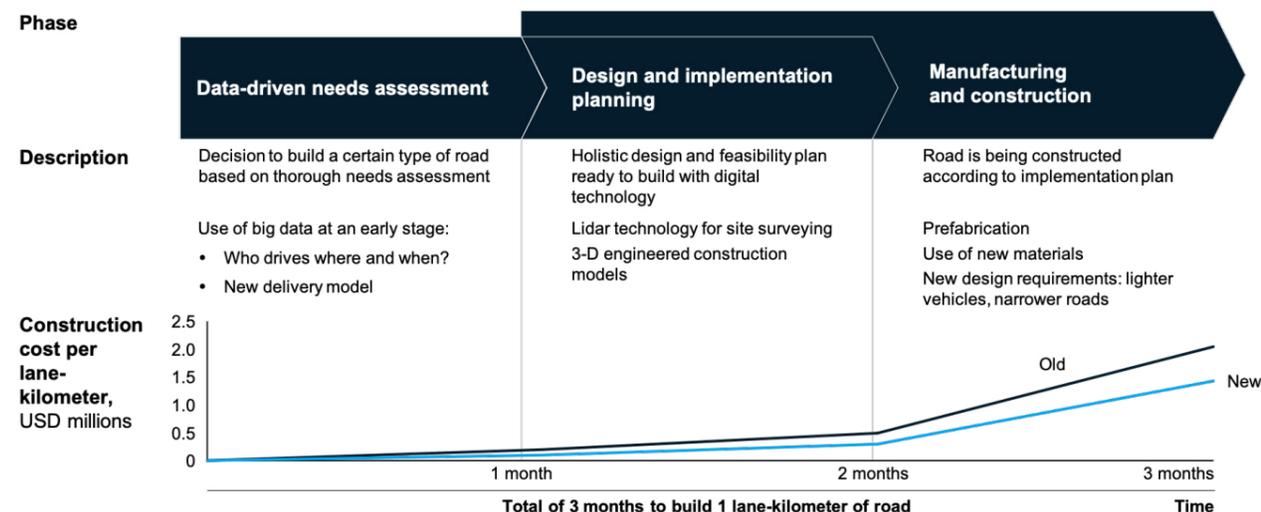
Step 1: Data-driven needs assessment. Big data helps determine the size, timing, and location of the needs assessment, which lasts about one month.

Step 2: Design and implementation planning. Tech-enabled modeling/surveying leads to optimal road design and lasts about one month.

Step 3: Manufacturing and construction. The use of new materials and prefabricated parts means that manufacturing and construction starts before step two ends and finishes about three months after the process begins.

Together, these steps build a distinctive process that is expected to decrease the direct construction cost per lane-kilometer by roughly 30 percent by 2050, compared with today. This cost reduction is evident at each stage of the project and does not require a more costly initial outlay for the project.

The new process flow for road construction will decrease construction time and cost by up to 30%



Quelle: More than 20 expert interviews, McKinsey analysis

Governments and construction companies should act strategically and early

Players that once seemed far removed from the road-construction space are already finding ways to take advantage of new opportunities, particularly the ones made possible by high tech. Governments and construction companies should take key steps to stay competitive in the race toward this next revolution in transport:

- Establish standards for 'smart roads.' European governments could create alliances among relevant private-sector players to define the playing field for digitization.
- Jump-start innovation through public procurement. European governments could fund pilot projects that focus on creative solutions for the construction of digital roads.
- Capture new value pools through partnerships. Traditional construction companies could partner with tech companies, such as sensor manufacturers, or analytics companies to design the data-capture systems, which will be a growing source of value.
- Leverage new financing models. New technologies also create opportunities for revenue generation. Road operators might explore how smart tolls or car-data monetization could be new revenue sources.
- Build requisite skills and capabilities. Traditional players will need to build the capabilities required to play in the more advanced landscape of digital roads, whether it is the skills that, say, construction companies need to deploy automated machines, or the know-how that, say, public-works agencies need to develop standards related to car-data collection and management.

Advances in road construction are fast approaching, and the time to act is now. The learning curve will be steep, but the long lead time—potentially more than 15 years—for planning and creating the conditions for constructing these new roads gives stakeholders time to prepare. That said, the various advances will likely unfold along multiple time horizons. Advances in construction materials are imminent and yield gradual optimization potential. The digitization of roads will likely occur step by step as existing roads are upgraded and modularization in construction kicks in. By contrast, roads may become narrower only after a critical number of vehicles are fully autonomous. Additionally, many of these new features will require significant investments in brownfield upgrades of existing road infrastructure. The growing set of stakeholders in the road-construction landscape should start the collective conversation now in order to best prepare for success in the not-so-distant future.

Construction steel news headlines

construction market and regulations

At the recent G7 summit the governments involved announced a 'Build Back Better' (B3W) plan for infrastructure investment that appears to be positioned as an alternative to China's Belt and Road Initiative. The plan would involve raising hundreds of billions in public and private money to help close a US\$40 trillion infrastructure gap in needy countries by 2035. One of the key pillars of B3W is sustainability, with the investments to be made in a manner consistent with achieving the goals of the Paris Climate Agreement. [Link](#)

President Biden has announced a deal on infrastructure spending – the plan, encompassing \$973 billion of investment over five years and \$1.2 trillion if continued over eight, includes nearly \$600 billion in new spending and focuses on funding for roads, railways, bridges, water facilities and broadband internet. Biden's original infrastructure proposal, released in March, had a price tag of more than \$2 trillion. [Link](#)

The average value of construction disputes increased by 76% during 2020, a year that was dominated by Covid-19, according to a report from Arcadis. The report revealed that the average value of construction disputes in 2020 was US\$54.3 million, up from US\$30.7 million in 2019, but that the average length of disputes continued to decline. Over 60% of survey respondents said their projects were impacted due to Covid-19. [Link](#)

The U.S. will need to add

330 million square feet of warehouse space dedicated to online fulfilment by 2025 in order to keep pace with the expected uptick in e-commerce sales over the same time period, according to CBRE. Vacancy rates for industrial real estate space have been low across the U.S. for months, while a significant amount of new construction will be needed in the next few years just to keep pace with robust demand. Globally, there will need to be an increase of 1.5 billion square feet to keep up with a \$1.5 trillion uptick in e-commerce sales by 2025. [Link](#)

Germany is poised to usurp the UK's position as the leading country in Europe for BIM adoption. 70% of construction firms in Germany now use BIM, compared to 73% of construction companies in the UK. And German developers have already edged ahead, with 80% in the country using the tech compared to 73% in the UK. It has also been mandatory in Germany for all projects worth over €100m to use BIM since 2017. [Link](#)

Major changes to New Zealand's building laws have come into force to speed up the supply of housing. A new scheme for modular component manufacturers will allow offsite building manufacturers who meet certain requirements to be certified, allowing them to sign off their own designs and construction, which could significantly speed up the consenting process. Other law changes include a new requirement for manufacturers and importers

to make information about building products and their uses publicly available. [Link](#) New Zealand's government is also set to start inviting applications for a fund offering access to money to build the pipes and roads needed for housing schemes. [Link](#)

Spanish house sales in April surpassed 2019 levels, official data showed on Tuesday, a sign the property market is not just recovering from last year's slump but is hotter than before COVID-19 struck. Data from Spain's College of Registrars, who underwrite real estate transactions, showed that April's house sales were 3.1% higher than in 2019, and 91% higher than in the same period last year, a near-doubling of activity from Spain's first full month under lockdown. [Link](#)

The pandemic has altered previously dominant trends in the Indian residential market. Notably, it has dented the overall new affordable housing supply share across the top 7 cities. Latest Anarock research indicates that out of the total new launches of approx. 36,260 units across the top 7 cities in Q2 2021, the affordable segment contributed a mere 20% share. The main southern cities of Hyderabad, Bengaluru and Chennai together accounted for at least 72% of the total new premium supply. [Link](#)

construction materials

One of the first 3D printed residential buildings in the US has recently been completed by Peri. According to the company, it is one of the first 3D-printed housing projects

in the US that has fully and successfully passed all regulatory approval processes. The total printing time for the single-storey detached house with approximately 160m² of living space is two weeks. According to current plans, the house will be ready for occupancy in August/September 2021. [Link](#)

UK Network Rail has developed a new footbridge design. The prototype fibre-reinforced polymer rail footbridge has been trial built at a test centre – the bridge can be installed in just days, and its modular design means it can be adapted to different locations. It also has built-in monitoring to assess usage and maintenance needs. [Link](#)

Construction industry executives across Europe have warned that "dangerous" price rises and shortages of many building materials risk undermining the EU's flagship €800bn economic stimulus programme. Prices of construction materials from steel and wood to concrete and copper have begun to rise sharply in recent weeks as the economic rebound both in Europe and elsewhere — including the US and China — triggers a building boom. According to the European Construction Industry Federation (FIEC), bitumen prices have risen 15 per cent in only three months, cement prices were up 10 per cent in a single month and wood prices were up over 20 per cent. [Link](#)

A new steel product for the construction sector has been launched by British Steel – with a lifespan of up to 120 years. Described as self-protecting, durable and attractive, weathering steel is ideal for a whole range of outdoor structures in exposed locations – including bridges, buildings, and catenary gantries on railway lines - used to suspend the

cables providing the overhead electrification. [Link](#)

The China-based manufacturing enterprise Broad Group has managed to construct a 10-storey steel apartment building in just over a day. Constructed in the city of Changsha in China, the company used bolt-together modular units known as its "Living Building System". [Link](#)

construction sector players

Italian Webuild (formerly Salini Impregilo) and its US subsidiary Lane Construction have signed the final agreement for a US\$16bn project that will introduce Japanese bullet trains to the USA. The Texas high-speed railway is one of the single biggest infrastructure projects in the US in terms of value and has faced a number of legal challenges, such as over acquiring land for the project. The project with private developer Texas Central Railroad will connect Dallas and Houston and reduce travel time from four hours to 90 minutes. [Link](#)

Blackstone Group, the private equity giant agreed to buy Home Partners of America Inc., a rental company that owns more than 17,000 houses. The company gives tenants the option of buying their rental at a predetermined price, making it unique among large single-family landlords. Blackstone's acquisition comes at a time when remote work and school have whipped up demand for suburban homes, pricing would-be buyers into rentals and creating consumer appetite for new ways to purchase a house. [Link](#)

Warren Buffett is forging further into modular construction, leveraging the Berkshire Hathaway-owned

MiTek engineered building products and construction software firm to launch a hybrid offsite-on site building model targeted at hospitality, health care, education and multifamily construction. Chesterfield, Missouri-based MiTek announced a partnership with New York-based, modular-focused Danny Forster & Architecture to ship sub-assembly components to jobsites, where contractors would follow simplified instructions and use the firm's software to put them together. [Link](#)

Australia's Boral will sell its North American building products business to a unit of NYSE-listed Westlake Chemical Corp for \$2.15 billion. Boral's shares rose as much as 4% to A\$7.06, their highest since October 2018, after the building and construction materials supplier revealed its deal to sell the U.S.-based business in a disclosure responding to Seven's bid. Boral had already asked shareholders to reject an off-market zero premium bid by Seven Group, a conglomerate controlled by Australian media owner Kerry Stokes, saying it undervalued the company. [Link](#)

Nucor Corp., the largest steel manufacturer in the US, is set to acquire an insulated metal panels (IMP) business from Cornerstone Building Brands in an all-cash transaction of \$1 billion. The offer price implies 10x the pre-pandemic EBITDA, inclusive of expected synergies. The addition of IMP business complement Nucor's growth plans and will bring a complete range of value-added solutions to customers from seven additional manufacturing facilities. [Link](#)

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