Innovating in a Downturn:
A Guide for Concrete Producers

A guide to not just surviving an economic downturn, but emerging from it stronger than ever.

Contents

Lessons Learned From Previous Downturns

The construction industry was severely affected by the last recession. Between 2007 and 2013, the number of construction companies fell by nearly 150,000 and over 2.3 million jobs were lost in the U.S. alone. Given the potential impact on world markets caused by COVID-19 and the recent oil price war, many economists believe that we could be headed for another downturn.

For concrete producers, a slowdown rather than a recession is predicted. Regardless of the outcome, business leaders are preparing to alter their strategies to adapt to uncertainty and change.

The strongest business leaders have always seen difficult times as an opportunity.

Companies in the technology industry do this particularly well. They understand that they can't stand still—they must be ready when the economy inevitably rebounds. During the last recession, Intel took the necessary steps to cut costs, laying off thousands of employees worldwide. At the same time, it deprioritized its traditional chip technology and invested $7 billion in new manufacturing facilities in the U.S. to concentrate wholly on next-generation chip technology.

While it's true that technology is slightly more sheltered from economic downturns than the construction industry, Intel's proactive approach holds some lessons for the concrete industry.

Most business leaders focus solely on the first two actions: preserving capital and sharpening business plans. In other words, they cut costs, reining in marketing expenses, reducing headcount, and pulling back on research and development initiatives.

While it's prudent to shore up capital during slower economies, retreating from investment entirely also means retreating from future profits. That's why the third action is equally important as the first two—if not more important. Economic downturns offer a unique opportunity to launch innovative new products. When other firms pull back, unmet customer needs emerge. In fact, the odds on the success of a well-targeted new venture may be higher in a bust than in a competitive boom.

This guide describes how concrete producers can apply these actions to recession-proof their business models.

3 Actions to Take in an Economic Downturn:

1. Preserve capital
2. Sharpen business plans
3. Invest in opportunities that will generate revenue later

1. Preserve Capital

Even when economies are booming, capital efficiency is a good business practice. During a downturn, it's more important than ever to squeeze as much value as possible from every dollar spent.

Concrete producers can take several routes to preserve capital and reduce large fixed costs in the face of a slowing or shrinking economy, including things like adopting new material technologies and mix designs to lower production costs.

While each business will assess its own unique scenario around headcount and other overheads, lowering production costs while retaining quality is something that all businesses seek to do, regardless of the state of the economy.

Since **cement is one of the most expensive ingredients** in concrete, many capital efficiency-centric innovations will aim to replace or reduce the quantity of cement required to produce quality concrete. These innovations include the use of supplementary cementitious materials and, more recently, carbon capture and utilization technology.

Supplementary Cementitious Materials

Supplementary Cementitious Materials (SCMs) act as cement replacements in concrete for various performance-based reasons. However, some of them can significantly reduce the cost of production. Fly ash, for example, **costs significantly less** than cement.

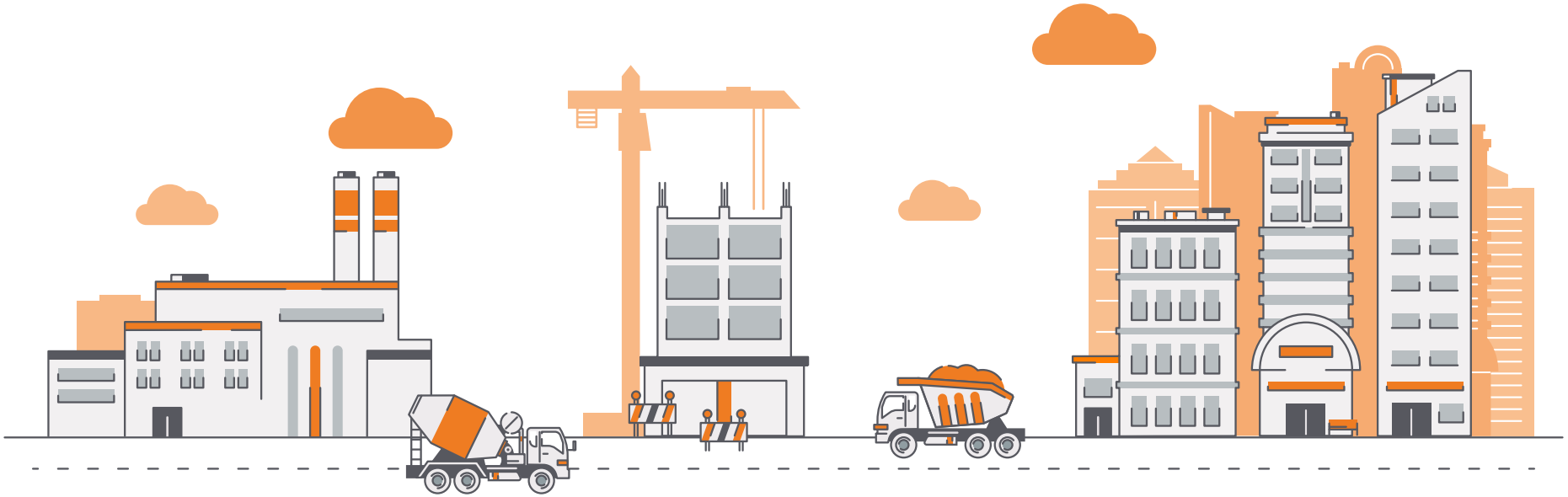
Since their introduction, **studies** and industry testing have proven that SCMs are an effective way to reduce production costs while maintaining the quality of concrete produced with cement. SCMs have an environmental benefit too since they also take post-industrial waste from coal and steel and sequester it for the lifetime of the concrete structure.

Carbon Capture and Utilization Technology

Carbon capture and utilization in concrete has enormous potential to reduce production costs. Carbon mineralization—one form of carbon utilization—uses carbon that has been captured by any other means to create greater value for concrete producers.

CarbonCure is a leader in carbon mineralization. It provides a technology that works by injecting recycled CO_2 into fresh concrete during mixing. Once injected, the CO_2 undergoes a chemical reaction where it transforms into a mineral, improving the compressive strength of the concrete, which enables the reduction of costly cement content in mix designs.

The CarbonCure Solution



1. Waste CO_2 emissions are collected from local industrial emitters by gas companies and then purified.
2. The purified CO_2 is stored onsite at the concrete plant and connected to the CarbonCure Technology.
3. The CarbonCure Technology injects CO_2 into the concrete during mixing to produce stronger, greener concrete.
4. Private and public projects are built with CarbonCure concrete, reducing embodied carbon in new buildings.

2. Sharpen Business Plans

During an economic crisis, business leaders tend to make decisions with what can only be described as a significant information deficit. No one knows what the future will look like for the economy—or for individual businesses.

As such, most concrete producers are adjusting 2020 business plans to keep only the top strategic priorities in focus.

For many producers, the priorities that will remain top of the list are ones that can help them maintain liquidity to weather the storm.

For example, **technology or digital transformation initiatives** that will help automate manual processes or create efficiencies in workflows to save money should remain on the list of priorities.

Customers want the right product according to their schedule. Delivery and quality control process improvements can significantly impact a producer's bottom line while maximizing customer satisfaction and loyalty. For example, if a producer had planned to embark on a new or improved dispatch and quality control system, the team should conduct a cost-benefit analysis to determine if the technology will create enough process efficiency or waste reduction to warrant its cost. It's important to base the cost-benefit analysis on current and future projected sales.

Projects that reduce the cost of sales should also be prioritized. For example, if a producer had planned to trial new admixtures or invest in new retrofit technologies that would cost less but deliver the same quality, those projects should remain on the table.

3. Invest in New Revenue-Generating Opportunities

One upside of a recession is that, in economic downturns, bold business leaders can literally leapfrog the competition by differentiating a product in a simple way that leaves internal teams feeling strong and customers feeling heard.

For concrete producers, the best way to differentiate today is through sustainable concrete products.

Following the global pandemic, there is a **greater appetite for sustainable solutions** in all aspects of life. That's because the world is on track for the **largest drop in carbon emissions** since World War II. In highly polluted places like India, the **Himalayas are visible** from nearly 100 miles away for the first time in almost 30 years. Images like this have been eye-opening to the public at large.

As the economy rebuilds, concrete producers should **keep environmental sustainability** top-of-mind to serve an audience that has reevaluated what "normal" looks like.

Image courtesy of: CNN

Why is Sustainability a Differentiator?

Even before the pandemic, sustainability was on the agenda across the construction industry, driven by initiatives like the **Structural Engineers 2050 Challenge** and **Architecture 2030**. Concrete is a particular area of focus in these initiatives.

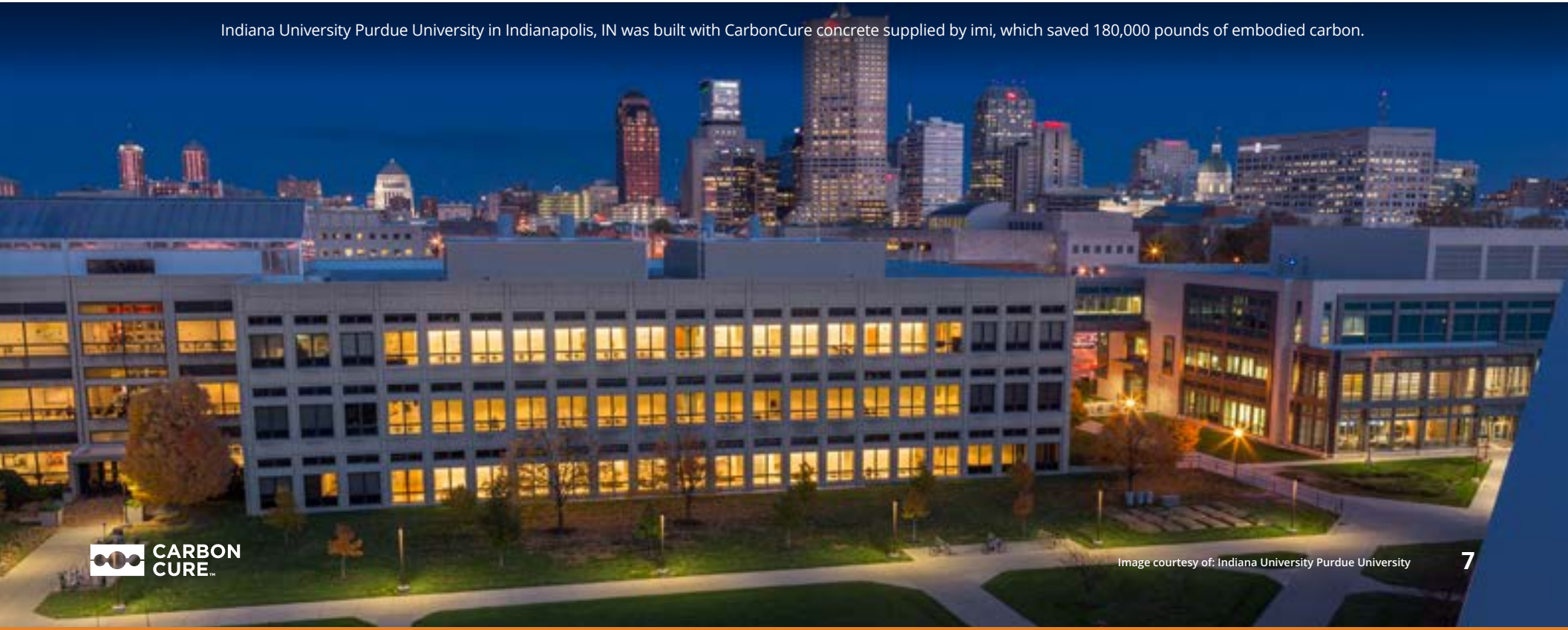
That's because traditional concrete **produces** more CO_2 than the aviation industry. Cement, the key ingredient that gives concrete its strength, has a large environmental footprint. According to the International Energy Agency, cement is responsible for up to **7 percent of the world's CO_2** emissions and 7 percent of industrial energy consumption.

Solutions like **CarbonCure** can help producers differentiate their products. CarbonCure not only reduces the need for cement, one of the most expensive and carbon-intensive ingredients in concrete production, it also injects carbon dioxide into the concrete mix, storing it as a mineral for the lifetime of the structure. CarbonCure's solutions are designed to offer minimal disruption to regular plant operations so they can be adopted widely and quickly.

Producers that are not thinking about developing sustainable concrete mixes may lose significant market share to competitors as more industry associations and government bodies set standards for carbon-reducing building practices.

Irving Materials Inc. (imi) is a great example of a producer that built a competitive advantage in the midwest by being an early adopter of sustainable concrete solutions. Following its launch, imi's green concrete led to a host of new business, including a 6,000 cubic yard pour for the Indiana University Purdue University.

Learn more about imi's sustainable concrete journey in this short webinar.



Indiana University Purdue University in Indianapolis, IN was built with CarbonCure concrete supplied by imi, which saved 180,000 pounds of embodied carbon.

Image courtesy of: Indiana University Purdue University

Be Ready for the Recovery

The concrete industry is one of the oldest industries in the world. The reason for its longevity is its ability to innovate at key junctures to meet the future demands of modern society. Today, the industry is standing at one of those junctures.

Concrete producers that invest in innovations like CarbonCure to offer sustainable concrete solutions will be primed and ready for the recovery.

Already companies like imi, Ozinga, and Thomas Concrete have taken proactive sustainability steps. They've tapped into new innovations like CarbonCure to create a competitive advantage in their markets that will only benefit them as the economy rebounds.

CarbonCure's helps the concrete industry move from being the largest contributor to embodied carbon towards being the solution that actually eliminates carbon from the concrete manufacturing process.

CarbonCure Technologies Inc. is the global leader in CO_2 utilization technologies for the world's most abundant man-made material: concrete. The retrofit CarbonCure Technology chemically mineralizes waste CO_2 during the concrete manufacturing process to make greener and stronger concrete. CarbonCure has partnered with nearly 250 concrete producers across North America and Southeast Asia to create new production cost savings, gain competitive advantages and reduce the carbon footprint of the built environment.

If you have any questions, connect with a CarbonCure rep at info@carboncure.com, or visit carboncure.com to learn more.

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