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dmass

...where's my present?

Nine days out from Christmas, the global supply chain crisis continues — and your holiday presents are still stuck in traffic.

We’re sure you already know this and are keenly aware of the empty space under

your tree (if you've even been able to get a tree).

Or maybe one of the 2 billion 'out-of-stock' messages displayed in October thwarted your gift shopping, too.

But if you *haven't* been following news about the supply chain and the attempts to untangle it, here's a run-on-sentence overview:

> An increase in production costs during lockdown, along with labor shortages, led to reduced production at factories…and this, coupled with underestimated demand (plus, demand for goods continuing to rise) created a manufacturing backlog and meanwhile, shipping container shortages and port traffic jams are preventing fully manufactured products from being delivered.

Whew. And this doesn't even include unsustainable supply chain practices that often, among other negative impacts, slow down trade. (more on that later).

Some gifts that might not make it to your tree:

- **Toys.** Prices for HDPE (high-density polyethylene) — the nontoxic plastic frequently used to make toys — have, in some cases, doubled.
- **TVs,gamingconsoles,computers,cars.** Semiconductor chips, used to power a myriad of electronics, are in short supply. COVID tested the chip industry's manufacturing capacity, which is generally overdue for an update. Chip shortages are expected to persist until 2023.
- **Apparel.**Mandatory factory shutdowns in Vietnam after a COVID surge, combined with the rising price of materials (i.e. zippers), made it more difficult to manufacture clothing and shoes.
- **Furniture.** Logistics issues are causing delivery delays and the rising cost of raw materials (like wood) will be passed on to consumers.

So what happens now?

As it turns out, the eight largest global supply chains produce *over 50%* of greenhouse gasses and, as the World Economic Forum put it, "represent perhaps

the largest opportunity for businesses to reduce their carbon footprint and inspire change."

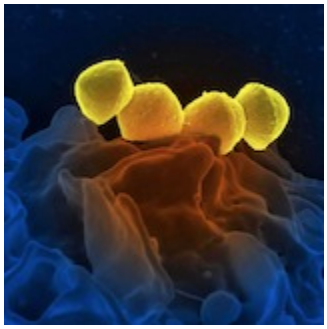
Which brings us to the following question – the very question, in fact, we founded dMASS to answer: Are there innovations out there that could resolve issues around supply, demand, *and* sustainability – all at the same time? And, in this case, for the most-impacted gifts on our list?

To see if we could one day have it all, we turned to the **dMASS AI Innovation bot**.

FYI: We have an AI-powered bot that scans the web to help you find innovations, and alert you when new ones emerge.

What do we mean by **innovations**? We mean the technology, business models, case studies, and research paper findings you might not have heard about yet. The discoveries and insights giving us hope that we'll see a better future...as well as leaner, greener, and cleaner supply chains.

Here's what the dMASS AI found:



Beyond the sea: Collecting microchip materials from ocean bacteria.

Hiroshima University in Japan is extracting essential semiconductor materials from bacteria in the sea – which generates significantly less energy than the usual thin-film and crystallization processes.

Read all about it

The new MORSE code: Predictive analytics for raw materials.

With nearly EUR 5 millionin grants, theMORSE project'spredictivesoftwarehelps manufacturers utilize resources (raw materials, energy) more efficiently at every single stage, from production to delivery.

Read all about it

Autonomous artisans: Robot blacksmiths craft components on-demand.

During alabor shortage,therobotsbeingdevelopedat Ohio State can hammerand shape metallic parts to custom specifications with small tools – just like a real blacksmith.

Read all about it

When ‘overseas’ is out-of-reach: Microfactories fill in supply chain gaps.

Manufacturerscan adoptFast Radius’ CustomMicrofactory Solution tosetup production facilities anywhere – which can lower costs, boost speed, and reduce CO2 emissions.

Read all about it

Almost zero: Knitting machine sensors identify defects to eliminate textile waste.

Smartexleverages AI,data,and computer vision to reduce theamount of defective fabric manufacturers produce…to almost 0%. The startup recently won a Siemens pitch contest for its vision.

Read all about it

Just for fun: The modular DIY furniture kit redefining "flat-pack."

Inresponse to the12 millions tonsoffurniture tossed outeach yearin the US, Loose Parts released its Original Assembly Kit: a set of shelves, rails, fasteners, and rods you can assemble into a built-to-last dining table, console, bookshelf, and more.

Read all about it

And there you have it.

If these innovations were implemented at scale...do you think they could make global supply chains significantly more sustainable? *While* helping companies better respond to sudden changes in supply or demand?

Also, what kinds of challenges and emerging innovations would you like our AI to explore next? Speaking of which...

You can receive **free, tailored innovation alerts from our AI**. The dMASS bot will send you a roundup of emerging developments, in fields you care about, once per week. **Subscribe here**

All the best,

The dMASS team

P.S. To see what you *can* get in time for Christmas, we recommend The Strategist's supply-chain-issue-proof gift guide.

P.P.S. Have a colleague or friend that would enjoy this newsletter? Here's the link to subscribe.
