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THE SHIPPING STANDARD

OUR EXPERTISE YOUR ADVANTAGE

AN INDUSTRY LESSON FROM PANAMA'S DROUGHT AND WHAT IT MEANS FOR OUR FUTURE

INTERVIEW WITH AN EXPERT

COMIC STRIP
I AM KAI

HAMBURGERS
FUN FACTS

ABOUT
OEC GROUP

AN INDUSTRY LESSON FROM PANAMA'S DROUGHT AND WHAT IT MEANS FOR OUR FUTURE

The latest drought in Panama has just put all logistics professionals on high alert as to how climate change can negatively affect the business side of the industry.

This eye-opening weather problem has pushed water levels far below historical norms, and in turn, Panama Canal operators have been forced to impose significant draft restrictions on vessels travelling the throughway. Long-term climate patterns suggest that this issue may be partially self-inflicted. According to the International Energy Agency, the industry produced nearly 8 Gt—over 20%—of global greenhouse gas emissions in 2021, and it is likely that the industry's negative contribution to climate change is growing.

A recent report from the U.S. Environmental Protection Agency (EPA) shows that overall warming is changing climate patterns and gradually drying out the Central American region, specifically Panama, making this a critical industry issue because lower water levels in the Panama Canal will hinder the movement of vessels and significantly delay cargo deliveries.

"It is clear that, in some ways, we are our own worst enemy, and the industry is indeed a significant contributor to climate change," said Anthony Fullbrook, President of OEC Group's North region. "If this weather trend continues and becomes the norm, then our industry is looking at a potentially nightmarish situation. This will be especially true when demand begins to increase, as drier conditions and capacity restrictions may permanently alter trade lanes and completely change the way we operate."

In basic terms, historically low rainfall has meant that ships can only sit so deep in the water before there's a dangerous chance of bottoming out. Draft restrictions in the canal have been reduced from 50 to 44 feet so ships can pass through safely. While Neo-Panamax containerships are designed with canal passage in mind, experts expect that the six feet between normal and current draft levels will force capacity cuts of up to 30%. If this is the new normal, then only smaller vessels with less freight than the industry is used to will be able to traverse the canal – making it more challenging to ship cargo to U.S. East and Gulf Coast ports.

"The real problem is, in the next six to seven years when there may be another major labor issue on the West Coast, then shippers could be left without any easy, efficient, or cost-effective alternative routing options because larger ships will simply not be able to go through the Panama Canal," said Steve Myers, Vice President of Operations for OEC Group's Northeast Region. "Everyone in the industry should be concerned because our actions are not just affecting the planet, but our industry,as well."

INTERVIEW WITH AN EXPERT

Experts from The Environmental Protection Agency (EPA) discuss the drought surrounding the Panama Canal, its possible relation to global climate change, and its potential long-term impact on the ocean shipping industry.

Q: Is there any conclusive impact of global warming on the current drought around the Panama Canal?

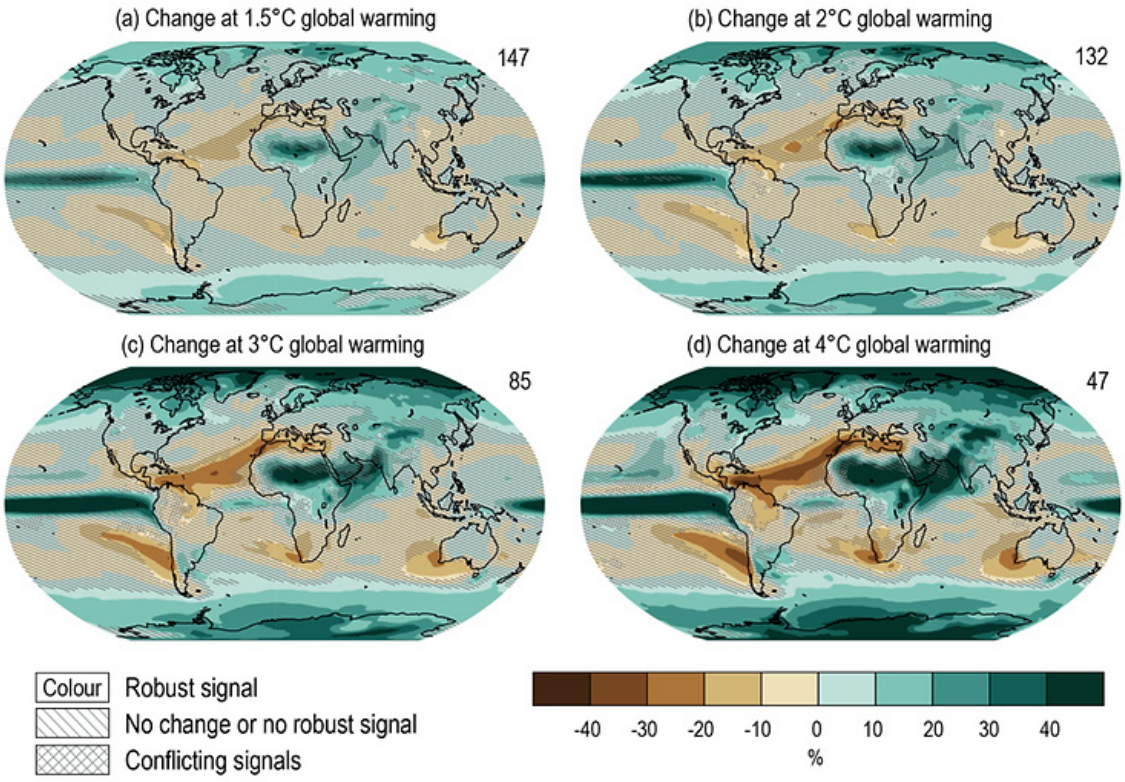
A: We are not aware of any specific analyses that have attributed a portion or likelihood of the current Panama Canal drought to climate change. Additionally, for a small region over a short time frame, there are many sources of variability that can contribute, such as El Nino.

Q: How has climate change impacted the Central American region and, if there was any change, did emissions from the shipping industry's vessels play a role?

A: Precipitation in that part of Central America is expected to decrease with warming. In addition to changes in precipitation, warming will also lead to increased evaporation. While the international shipping industry cannot be conclusively tied to the current drought, greenhouse gas emissions from the sector directly contribute to global warming.

Q: Are there any models and/or charts that can highlight the areas of warming and changing precipitation patterns?

A: Yes. The climate models below illustrate how precipitation patterns will change around the world as the Earth warms. As you can see by the tan area around the Panama Canal, warming is expected to directly decrease precipitation levels in the region. The models also show that precipitation will decrease further as warming increases.



While we cannot conclude that the current drought is influenced by global warming, these models show that, over time, warming will significantly impact rainfall in that specific Panama Canal region. In addition to changes in precipitation, warming will also lead to increased evaporation.

Q: How can climate change impact the global shipping industry?

A: Climate change can disrupt transportation networks, stress infrastructure, and even pose safety risks to those involved.

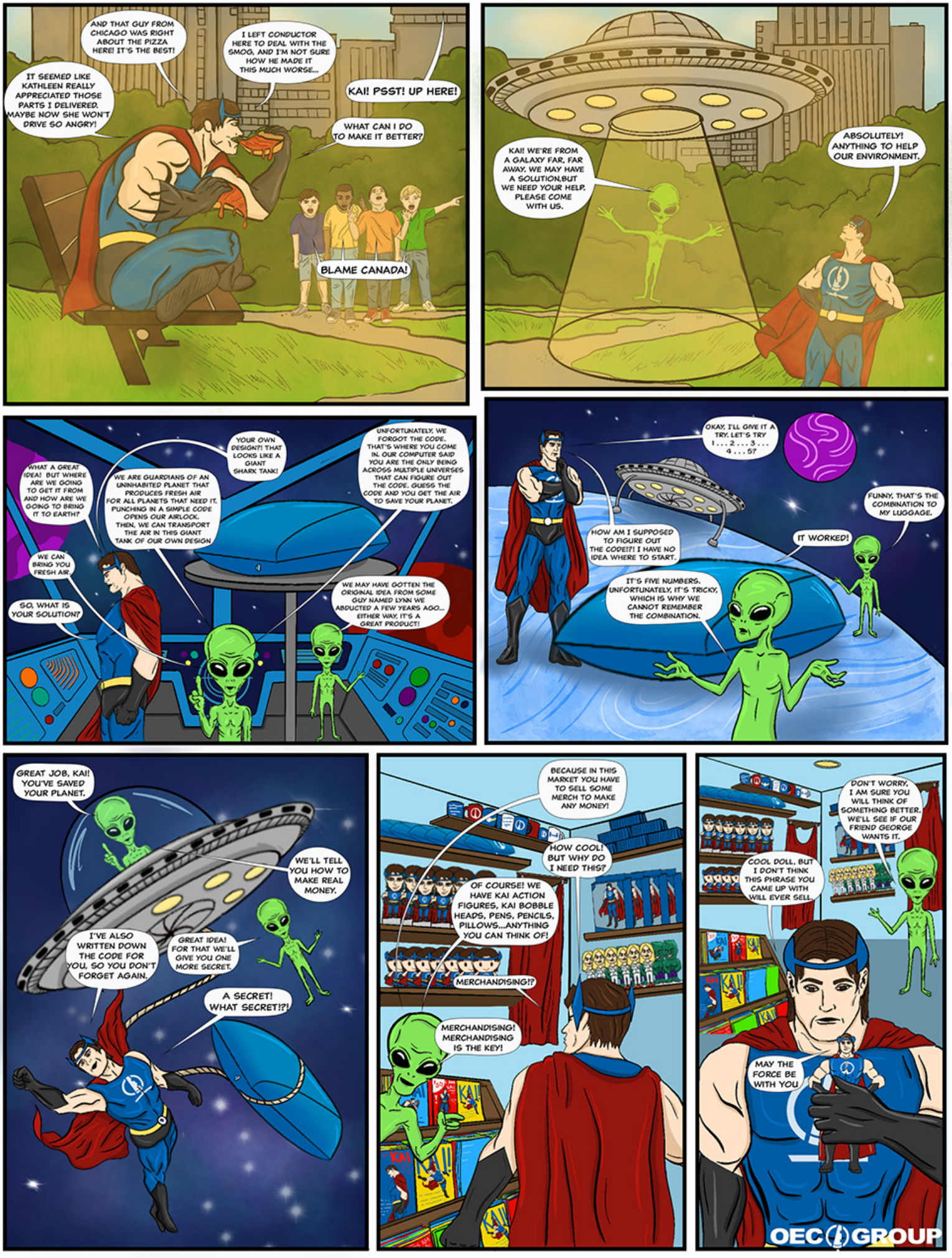
Q: If the ocean shipping industry transitioned completely to alternative fuels like ammonia and LNG, would it have a positive impact on the environment, cutting greenhouse gas emissions, etc.?

A: Most ocean shipping vessels use diesel fuel as a fuel source to power the ship. By replacing the diesel fuel with ammonia, there would be considerably less CO2 during combustion as ammonia does not produce carbon. By replacing diesel fuel with LNG (methane), this would result in a lower carbon content than diesel, so a reduction in CO2 emissions is expected.

Q: On the flipside of this coin, warming also causes increased precipitation in some regions and melting at the poles. How much would average water levels have to rise for port operations to be impacted?

A: Climate change is already impacting ports: every additional inch of sea level rise will increase the frequency and severity of those impacts. Global sea level rise is caused by heating of the oceans ("thermal expansion") and by melting of glaciers and ice sheets on land. Local sea level is also impacted by land uplift or sinking (mostly caused by response to the melting of the ice sheets from the last ice age, but also augmented by groundwater extraction and other effects), changes in ocean currents, and even by gravitational shifts resulting from the melting of the ice sheets.

These changes have already led to increases in coastal nuisance flooding, particularly along the East and Gulf Coasts – see https://www.epa.gov/climate-indicators/climate-change-indicators-coastal-flooding. The National Climate Assessment (NCA) highlighted potential impacts to ports & harbors – "Ports, which serve as a gateway for 99% of U.S. overseas trade, are particularly vulnerable to climate impacts from extreme weather events associated with rising sea levels and tropical storm activity" and "Freight movement at major international ports can be delayed under extreme weather events that include heavy rains and/or high winds affecting crane operations and truck service" (https://nca2018.globalchange.gov/chapter/12/). The NCA did also mention the possibility for some positive impacts, namely "Milder winters will lengthen the shipping season in northern inland ports, including the Great Lakes and the Saint Lawrence Seaway".


AND THAT GUY FROM CHICAGO WAS RIGHT ABOUT THE PIZZA HERE! IT'S THE BEST!
I LEFT CONDUCTOR HERE TO DEAL WITH THE SMOG, AND I'M NOT SURE HOW HE MADE IT THIS MUCH WORSE...
IT SEEMED LIKE KATHLEEN REALLY APPRECIATED THOSE PARTS I DELIVERED. MAYBE NOW SHE WON'T DRIVE SO ANGRY!
KAI! PSST! UP HERE!
WHAT CAN I DO TO MAKE IT BETTER?
BLAME CANADA!
KAI! WE'RE FROM A GALAXY FAR, FAR AWAY. WE MAY HAVE A SOLUTION,BUT WE NEED YOUR HELP. PLEASE COME WITH US.
ABSOLUTELY! ANYTHING TO HELP OUR ENVIRONMENT.
WHAT A GREAT IDEA! BUT WHERE ARE WE GOING TO GET IT FROM AND HOW ARE WE GOING TO BRING IT TO EARTH?
YOUR OWN DESIGN?! THAT LOOKS LIKE A GIANT SHARK TANK!
WE ARE GUARDIANS OF AN UNINHABITED PLANET THAT PRODUCES FRESH AIR FOR ALL PLANETS THAT NEED IT. PUNCHING IN A SIMPLE CODE OPENS OUR AIRLOCK. THEN, WE CAN TRANSPORT THE AIR IN THIS GIANT TANK OF OUR OWN DESIGN
UNFORTUNATELY, WE FORGOT THE CODE. THAT'S WHERE YOU COME IN. OUR COMPUTER SAID YOU ARE THE ONLY BEING ACROSS MULTIPLE UNIVERSES THAT CAN FIGURE OUT THE CODE. GUESS THE CODE AND YOU GET THE AIR TO SAVE YOUR PLANET.
WE CAN BRING YOU FRESH AIR.
SO, WHAT IS YOUR SOLUTION?
WE MAY HAVE GOTTEN THE ORIGINAL IDEA FROM SOME GUY NAMED LYNN WE ABDUCTED A FEW YEARS AGO... EITHER WAY, IT'S A GREAT PRODUCT!
OKAY, I'LL GIVE IT A TRY. LET'S TRY 1...2...3...4...5?
FUNNY, THAT'S THE COMBINATION TO MY LUGGAGE.
HOW AM I SUPPOSED TO FIGURE OUT THE CODE!?! I HAVE NO IDEA WHERE TO START.
IT WORKED!
IT'S FIVE NUMBERS. UNFORTUNATELY, IT'S TRICKY, WHICH IS WHY WE CANNOT REMEMBER THE COMBINATION.
GREAT JOB, KAI! YOU'VE SAVED YOUR PLANET.
WE'LL TELL YOU HOW TO MAKE REAL MONEY.
I'VE ALSO WRITTEN DOWN THE CODE FOR YOU, SO YOU DON'T FORGET AGAIN.
GREAT IDEA! FOR THAT WE'LL GIVE YOU ONE MORE SECRET.
A SECRET! WHAT SECRET!?!
BECAUSE IN THIS MARKET YOU HAVE TO SELL SOME MERCH TO MAKE ANY MONEY!
HOW COOL! BUT WHY DO I NEED THIS?
OF COURSE! WE HAVE KAI ACTION FIGURES, KAI BOBBLE HEADS, PENS, PENCILS, PILLOWS...ANYTHING YOU CAN THINK OF!
MERCHANDISING!?
MERCHANDISING! MERCHANDISING IS THE KEY!
DON'T WORRY, I AM SURE YOU WILL THINK OF SOMETHING BETTER. WE'LL SEE IF OUR FRIEND GEORGE WANTS IT.
COOL DOLL, BUT I DON'T THINK THIS PHRASE YOU CAME UP WITH WILL EVER SELL.
MAY THE FORCE BE WITH YOU
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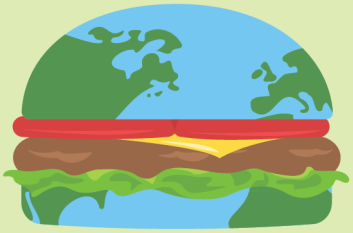
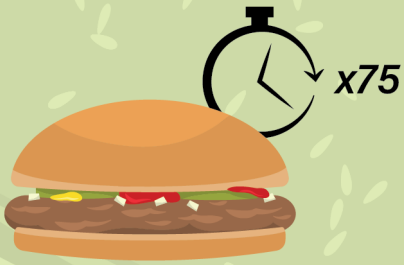


60% of all sandwiches sold globally are hamburgers.

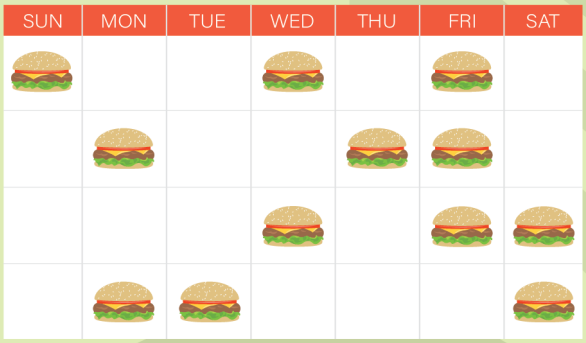


On average, McDonalds sells at least **75 hamburgers** a second.

The Hamburger Hall of Fame is located in Seymour, Wisconsin.

White Castle

Founded in **1921**, White Castle is the oldest hamburger chain in the U.S.



The average American eats **3 hamburgers** a week.

Americans eat more than **50 billion hamburgers** a year.

A hamburger once sold for **$6,000**, making it the most expensive hamburger ever.

To date, McDonalds has sold more than **300 billion hamburgers**.

ABOUT OEC GROUP

At OEC Group, we have demonstrated our commitment to customer service in trans-Pacific trade for more than 35 years. Founded in 1981, OEC Group had a vision to provide comprehensive logistics services to clients. Today OEC Group serves destinations throughout the world and has grown into one of the leading logistics providers in North America. With over fifty offices worldwide, we take pride in being close to your cargo at all times.

OEC Group is monitoring and adapting to the changing market. We are well positioned to make continuous improvements to your supply chain using the fastest, most efficient and cost-effective services available. We work tirelessly to stay on top of the ever-changing logistics industry with the goal of delivering the most current information and services to you, our customer.

Our business is making our logistics expertise, your competitive advantage.