

FORTUNE KOREA

DAC

Digitization, Automation, Cross Industry Collaboration

The Window of Opportunity - Insights from Robotics Ecosystem Partners Dedicated to Expanding Collaboration Opportunities Between Two Nations

Interview with the Largest Independent Robotics Hub in the U.S.



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The DAC (Digitization, Automation, and Cross-Industry Collaboration) Global Connection movement was kicked off by BDMT Global in the January 2023 issue of Fortune Korea.

With the goal of facilitating collaboration opportunities between the U.S. and APEC, we are back with another article to shine light on how S. Korean innovators can join the wave.

For example, last year Mayo Collaborative Services explored opportunities with a S. Korean MedTech innovator, while DISHER, a U.S. industrial automation system integrator (SI), collaborated with S. Korean, second-generation AMR leader THIRA ROBOTICS from S. Korea to solve current manufacturing challenges in the U.S.

BDMT, as part of leading the DAC movement, met with Executive Director of MassRobotics, Tom Ryden, to learn about the current status of the U.S. robotics market and what S. Korean innovators are missing today. BDMT plans to continue these discussions with MassRobotics and partners to explore more collaboration opportunities within the movement.

In this issue, we identify the key success factors of S. Korea's robotization leadership, their potential collaboration with the U.S. robotics ecosystem, and the next steps needed for win-win industry development in both countries, which are at very different stages of automation.

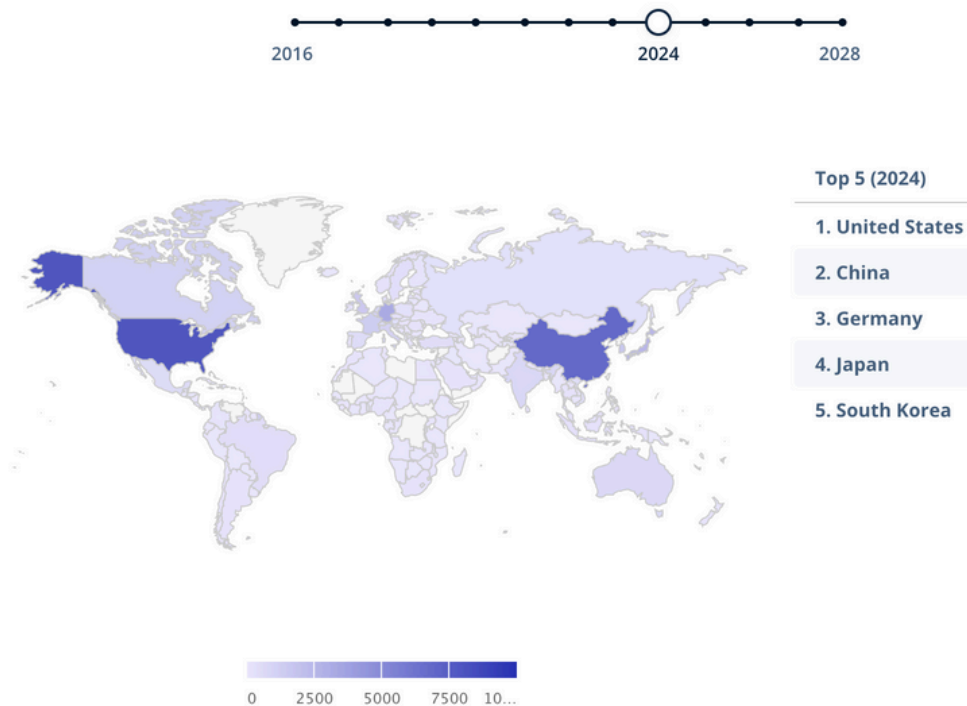
What is the beat of the global robotics market in 2024?

S. Korea continues to lead in the adoption of global robotics automation, with the country taking the number one spot in 2024. On the other hand, the U.S. is just getting started with mass robotics adoption and is much farther behind, not ranking in the top 5.

Following a major drop in robotics spending in 2023, robotics spending is anticipated to rebound in 2024 as an increasing number of U.S. industries seek automated solutions for business challenges. Although U.S. adoption of robotics automation is not ranked high, the U.S. is expected to generate the highest revenue in the **global robotics market, with \$7.85B estimated for 2024.**

The U.S. will Lead Global Robotics Market Revenue in 2024

Source: www.statista.com



Notes: Data shown is using current exchange rates and reflects market impacts of the Russia-Ukraine war.

Most recent update: Aug 2023

Source: Statista Market Insights

U.S. revenue is anticipated to continue to grow at an annual rate of 4.41%, resulting in a market volume of \$9.33B by 2028. However, S. Korean automation companies do not hold even the top 10 positions in market share.

Why are there no S. Korean companies in the top 10?

S. Korea is currently the market leader in robotics adoption, while the U.S. is a dominant market for sales. **This is an ideal match, where S. Korean robotics innovators can provide proven solutions to a market that is lagging behind in adoption.**

As these two nations navigate their distinct trajectories within the robotics landscape, there emerges a compelling opportunity for collaboration and mutual growth.

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What are the top 5 factors of S. Korean robotization domination?

Looking at the origins of the success of S. Korea, that made it number 1 in the world for robotics adoption, we find the following success factors and proof points:

1. Outstanding math and science primary and secondary education: There are two dozen special schools for the mathematically talented and gifted that were funded and established 30+ yrs ago.

2. University education: There are about ~200 universities in S. Korea and 83 of them offer engineering programs.

3. Competitions, challenges, and incubators: Funded by the Korean government, these programs seek to accelerate innovation from every generation of engineers.

4. Government and large corporation investments into local innovators: R&D grants, event sponsorships, and delegations provided at overseas and local trade shows.

5. Systematic and holistic approach: Including creation of public ecosystems like broadband, roads, and more.

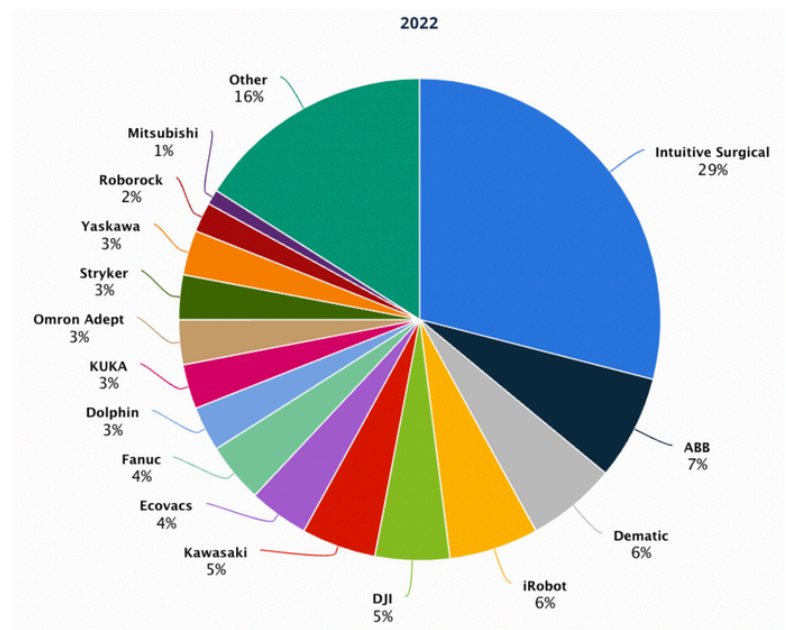
However, it is essential to evaluate S. Korea's progress in entering the U.S. robotics sphere and determine if the countries are meeting their goals or missing the mark.

According to Statista, the 15 robot players with the largest brand share are as follows: Intuitive Surgical (29%), ABB (7%), Dematic (6%), iRobot (6%), DJI (5%), Kawasaki (5%), Ecovacs (4%), Fanuc (4%), Dolphin (3%), KUKA (3%), Omron Adept (3%), Stryker (3%), Yaskawa (3%), Roborock (2%), Mitsubishi (1%).

S. Korean companies are nowhere to be found on this list.

U.S. Robotics Player Brand Shares

Source: www.statista.com



Most recent update: Sep 2023

Source: Statista Market Insights

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At the same time, there are no local S. Korean companies that truly made it. The list mostly consists of other Asian companies. Why?

Our innovators have successfully launched cutting-edge robotics solutions across a range of industries in the local market. However, they are lacking in U.S. penetration.

As more U.S. industries cross the chasm to robotics adoption, S. Korean innovators should strive to obtain a piece of the pie.

Although the 15 prior mentioned companies are leaders in producing shares, the robotics industry is still in its growing stage. Applications are continuing to expand as innovative startups and emerging developers enter the mix to solve unmet needs.

While U.S. industries are still in the early stages of adoption, there is a large window of opportunity for S. Korean innovators to capitalize on today.

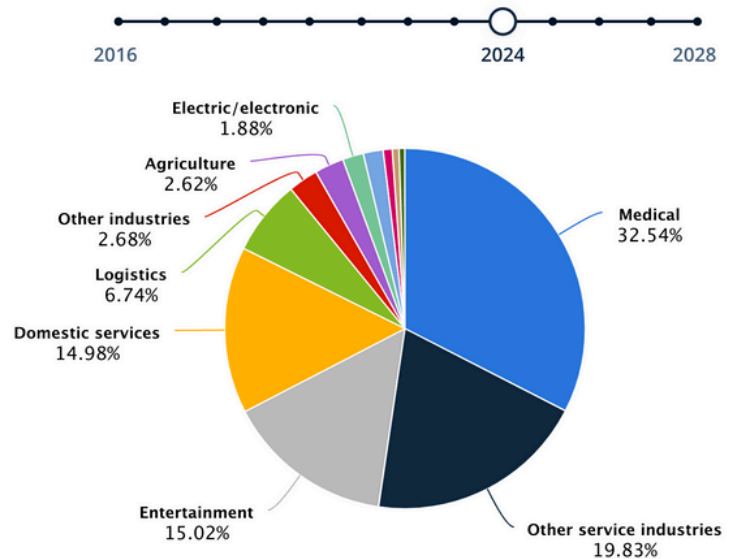
To best support S. Korean robotics companies in U.S. expansion efforts within this window, we interviewed MassRobotics, the largest independent robotics hub in the U.S.

Our interview seeks to answer the following questions for readers:

- S. Korea is #1 for global robotics adoption, but where are they in the U.S.?
- How are organizations like MassRobotics spearheading local industry revival?
- What is the U.S. robotics ecosystem lacking?

Robotics Revenue Share by Industry

Source: www.statista.com



Most recent update: Aug 2023

Source: Statista Market Insights



MassRobotics Feature - Accelerator Program Highlight

Example of a U.S. Robotics Hub That Is Accelerating Global Robotics Adoption

Headquartered in Boston, MA, [MassRobotics](#) is the largest independent robotics hub in the U.S. dedicated to accelerating innovation and adoption in the field of robotics.

Founded in 2015, the leading organization's mission is to help create and scale the next generation of successful global robotics and connected device companies by providing entrepreneurs and innovative robotics and automation startups with the workspace and resources they need to develop, prototype, test, as well as commercialize their products and solutions.

MassRobotics can serve as one of several key potential partners for S. Korea to work with to support U.S. market growth.

The organization offers various opportunities to robotics innovators, including the MassRobotics Accelerator program.

Sponsored by the [Mass Tech Collaborative](#) (MassTech), the accelerator is a competitive program supporting emerging robotics startups with funds and resources.

MassTech [recently launched a \\$5M investment initiative](#) to accelerate the statewide cluster development effort for robotics, including expanding local R&D, testing, commercialization, and workforce development. The MassRobotics Accelerator is one core segment of this plan.

The 2024 MassRobotics Accelerator cohort features robotics innovators with a range of solutions across different markets. See an example of the variety of innovators in the table on the next page.

MassRobotics Accelerator 2024 Cross-Industry Robotics Innovator Examples

Company	Origin	Founder(s)	Est.	Tech Offering	Growth to Date in Market	Industries
 Apparel Robotics Corporation	Cambridge, MA	Demitri Balabanov (CEO)	2022	Robotic Manipulator for handling fabric-like materials	R&D efforts have been recognized and funded by ARM Institute; customers include global apparel/footwear brands.	Fashion/apparel industry; clothing manufacturing; automotive; medical; aerospace.
 brd BOT inc.	Cupertino, CA	Syed Saquib (CEO) & Ninaad Sridharan (CTO)	2023	Robotic kitchen-in-a-box serving fresh fried foods available 24/7	Launching the first robot in California this April.	High foot traffic areas like university campuses, convenience stores, sports stadiums to provide food service for patrons
 Hominid X Inc.	Philadelphia, PA	Thane Hunt (CEO)	2022	Fiber - The assistive grasping device	Hundreds of devices sold.	People with hand disabilities market (medical/at home care/wearables)
 Oligo	Cambridge, MA	Jacob Rodriguez (CEO)	2023	Next gen hardware/ AI software architecture to prepare any payload for any flight vehicle	Presented technology at Jeff Bezos' MAR Conference in March 2024 and launched the first pilot program in April to develop novel science payloads for climate sensing.	Aeronautics/ astronautics, government, academia/research
 Robotics 88, Inc.	Barrington, RI	Erin Linebarger (CEO) & Tyler Lane (CTO)	2021	Autonomous quadcopter for subcanopy fire risk and vegetation mapping	\$1.2M in grant funding (SBIRs and state grants) and an on-going pilot program with prescribed burn agencies in four states.	Land management agencies, wildfire response, disaster response

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The Director of the MassRobotics Accelerator, Marita McGinn explained the benefits of the program for global innovators by highlighting what makes them different.

"Building hardware companies is immensely difficult. At MassRobotics, we know the deep challenges robotics startups face as they are just getting started, and as they scale. Our mission is to aid startups in their growth and help the next generation of robotic technologies commercialize.

At the MassRobotics Accelerator, we bolster technical founders with the business acumen they need to be successful. Our curriculum spans the gamut of customer discovery, value proposition development, fundraising, and more.

We also know access to capital is scarce for robotic startups. Our program is built to be equity-free, and we still fund each startup with \$100,000 in non-dilutive funding, thanks to our partnership with the Massachusetts Technology Collaborative."

Companies located in Massachusetts are given special consideration for the accelerator, adding further incentive for global robot developers to consider opening their local headquarters in the growing Massachusetts robotics sector.



brd BOT's Robotic Kitchen-in-a-Box

Source: brd BOT

Applications for the 2025 MassRobotics Accelerator will open in the Summer of 2024.

Beyond the accelerator, MassRobotics also enables robot innovators to host events at their headquarters, participate in challenges sponsored by leading companies, and more.

We interviewed Tom Ryden, Executive Director at MassRobotics, to learn more about the organization, how innovators from S. Korea can get involved, and the local Massachusetts robotics ecosystem.

INTERVIEW

Interview with Tom Ryden, Executive Director of MassRobotics

With over 20 years of experience in the field, Ryden has been instrumental in the development and introduction of several leading robotics products. Prior to his current role, he served as the Director of Sales & Marketing for iRobot and was the Founder of VGo Communications Inc., overseeing the company through its acquisition by Vecna Technologies in 2015.

**Tom
Ryden**

Executive
Director,
MassRobotics



Source: MassRobotics

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MASSACHUSETTS IS THE LARGEST AND THE MOST WELL-CONNECTED ROBOTICS CLUSTER IN THE WORLD

Suzy: Please introduce MassRobotics. What makes MassRobotics and Massachusetts in general, so prominent in the American robotics industry?

Ryden: MassRobotics is the largest and most well-connected robotics cluster in the world. Our mission is to support the robotics industry as a whole, encourage adoption, and support startups for a few years with space, resources, and assisting technologies. We count over 400 corporate partners and hundreds of community participants who come to events and cooperate. Our primary focus is startups: we work primarily with early-stage companies.

Three main factors are propping robotics in Massachusetts in particular:

1. Initially, there were two U.S.-based companies in M.A. that spawned other robotics companies: Kiva Systems and iRobot.

2. Our state is home to 35 robotics-focused programs in local universities and labs, most are within a walking distance from each other, thereby creating a community of ambitious like-minded founders and engineers.

3. We have built a very good support ecosystem that includes investors, lawyers, accountants, and local state support, which are critical for a well-functioning industry. Facilities available to our resident companies and accelerator startups for robot testing and validation are world-class.

Suzy: How is the Massachusetts robotics ecosystem different from other global robotics clusters?

Ryden: There are many growing robotics ecosystems in different countries. Presently, the Korean Global Robotics cluster comprises 24 regional or national clusters, such as Odense from Denmark, High Tech NL Cluster Robotics from The Netherlands, FFCR from France, APARA from Asia, and others. **We are the largest and the most connected regional cluster given how many companies we connect.**

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Suzy: What were your impressions when visiting S. Korean robotics industry players?

Ryden: I've been to S. Korea on several occasions by invitation from S. Korean officials and to participate in conferences. Last time I visited Korea, I visited the Samsung Robotics division. I met with them to figure out what they needed and which would be the right companies to introduce them.

What they are doing at Samsung, is about 10 years ahead of local U.S. companies, so it's very hard to match anyone from MassRobotics to a S. Korean company like Samsung.

What I find is that Samsung is primarily building robotics for their own use and is not oriented towards making and selling products on the open market. LG is similar in a way that they make robotics for themselves, however, if an external party needs these products, they will sell them. Currently, neither company is specifically or proactively making products for others.

For Samsung to meet market needs, they need to find a problem that's big enough for them, a big enough market. For them, even floor cleaning is a small market.

Besides market leaders like Samsung and LG, there are many smaller robotics companies making great products that our startups could and should know and use in their robots. **MassRobotics Accelerator founders should ideally use the best components sold globally, including from S. Korea, rather than just the components they know from the local market.** Unfortunately, the information about what components are sold globally and from S. Korea is not easily available.

Suzy's Insight: Gaps Persist Despite the New Era of Cooperation

In August of 2023, President Biden declared this time period as a "new era of cooperation" between the U.S., S. Korea, and Japan, promoting growing collaborations on defense, technology, education and other critical areas.

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*Although S. Korean robotics innovators **have the proven technology to create value in the local U.S. market, they need more help getting there.** Innovators struggle to properly connect with and communicate the value of their solutions to U.S. technology partners, buyers, end-users, and more.*

FACILITATING BETTER & STRONGER COLLABORATIONS BETWEEN THE ROBOTICS DEVELOPERS IN S. KOREA AND IN THE U.S. MARKET - KEY BARRIERS AND TIPS TO OVERCOME

Suzy: Why do we not see more collaboration of accelerator startups with S. Korean innovators and leading robotics companies?

Ryden: First, U.S. founders and engineers have very limited time to research the best components or robotics trends in global markets. They are very busy.

Second, while there are also opportunities to learn what's being done in other advanced robotics markets like Korea, it's a matter of the limited budget of startup companies in the U.S. **Unfortunately, they can't travel to S. Korea to an event - even \$2,000 for travel costs is outside of their available budget.**

And third, given the nature of robots, collaboration happens in the building - it can not be done effectively over Zoom or virtually. These are all limits as to why it's not easy to collaborate with anyone overseas.

Natively as well, it's tough to go global for our companies - many are very focused on local markets.

Suzy: How can S. Korean robotics industry experts get more exposure in Massachusetts?

Ryden: Our Robotics Summit is a great opportunity for speaking and sponsorships. We could do a specific Korea-themed event, given a suitable method of funding and support. The key to success is to make it narrow in scope to ensure that attending companies, users, suppliers all work in the same niche and match really well.

There are other opportunities for S. Korean robotics experts and students to participate in our community initiatives. For example, a S. Korean team from Seoul National University was one of the finalists of our school competition "Form and Function" in 2023. Potentially, S. Korean startups could become residents at MassRobotics.

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Suzy: What advice would you give S. Korean robotics industry players if they want to better integrate and collaborate in the U.S.?

Ryden: I would like to propose three main directions:

1. Be Present. S. Korean makers should be physically more present in the U.S., including collaboration spaces like MassRobotics. Most robotics work takes place in the lab—even in the post-COVID world, virtual remote work is not a viable collaboration option.

S. Korean companies should be attending more U.S.-based events and participating in U.S. trade shows. I encourage Korean companies to visit and exhibit at events such as the Robotics Summit in Boston and Xponential by the Association of Unmanned Vehicles in San Diego, where many countries have booths and national pavilions. To be effective, events don't have to be large. Some small events are worth investigating, such as AIM 2024 in Boston.

2. Be Supported. Encourage the S. Korean government to provide support and outreach; MassRobotics is not a government organization, however, other countries' national associations, such as NRP from Singapore, have demonstrated very effective collaboration and ecosystem support and extension models. The S. Korean government could sponsor S. Korean startups to come and become part of MassRobotics.

3. Be Curious. It is critical to understand what other countries are doing rather than just focusing on in-country needs. S. Korean robotics makers should look at what other countries are doing and understand why there are different needs and different areas of focus.

The U.S. does not support U.S. startups that want to go to S. Korea. **Maybe there is an opportunity to allocate some budget that would bring the U.S. innovators and potential collaborators to S. Korea?**

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Suzy: What are the barriers to wider robotics adoption in the U.S.?

Ryden: The main barrier to wider adoption of robotics is the lack of skills to manage robots that are being made now.

Robot makers must make robots more simple to program. At this point, every robot company is using different coding as well as different pendants (programming tablets) and other inconsistent parameters.

The majority of smaller manufacturing or warehousing companies cannot hire a robotics engineer. Their staff consists of recent high school graduates and employees with generally no knowledge of any coding or technology management. Programming a robot needs to be intuitive and not require any specialized skills.

Suzy: What are the types of robotics problems that leading U.S. manufacturers are working on to support future needs?

Ryden: A huge investment is going into humanoids, both in funding and talent pool working on these robots. We are witnessing robotics acceleration in a period when, in the last 5 years, more progress has been made compared to all prior time.

Now, the robotics industry is at the stage of building large-scale self-learning models for robots. There are simply not enough workers for all the tasks that need to be done and it's a critical necessity to show a video of robots performing tasks to a new robot and have it learn how to perform tasks by itself.

It is important to build robots that do not require programming and could learn just by watching others (robots) perform tasks and complete the same tasks, as a result.

Suzy: Are leading U.S. manufacturers already working on unifying their robots' and collaborating on swarm orchestration?

Ryden: Unfortunately, not yet. Mostly, all of the large robot makers are moving in their own directions at this moment.

Suzy's Insight: Successful Robots in the U.S. are Robots that Do Not Require Programming

The gap in programming skills is so huge in the U.S., that even using an intuitive no-code interface to schedule and organize a robot's tasks is a level of effort far above what average available workers can do.

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Most U.S. workers are not highly skilled in robotics and lack basic math and science education.

Therefore, there is growing a focus on robots learning from other robots, not just a human learning curve. This is an imperative for American business—to address a void of technical staff and lack of human staff altogether to train the robots.

Next Steps for S. Korean Robotics Innovators - Act Fast Today to Make an Impact in the U.S.

2024 is a critical window of opportunity for robotics innovators from S. Korea to expand their cutting-edge solutions within the U.S. market.

Right now the U.S. is still lacking in local know-how and government leaders are pushing for strengthened ties with S. Korea to bridge these gaps, but the future is uncertain.

Why is acting before Q4 2024 critical?

Potential changes in presidential leadership during the November 2024 election could cause a sudden shutdown of American re-industrialization in favor of more tax cuts for the rich, potentially defunding investment programs in turn.

S. Korean innovators have a unique window of opportunity to capitalize on opportunities to expand into the U.S. market while they are plentiful. Rather than taking a ride in the passenger seat to see what happens next, robot innovators must take the wheel and drive their own success in the market.

To support U.S. market penetration, S. Korean innovators should seek to engage with, learn from, and partner with robot organizations.

Organizations like MassRobotics and BDMT Global bring pre-existing networks of robotics industry stakeholders, from government leaders to technology end-users, and can serve as core partners to help S. Korean innovators get started with ecosystem expansion.

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BDMT Global is dedicated to leading the DAC Global Connection Movement movement and invites others to join.

Now is the time to act. The U.S. is still in a growth stage and seeking new solutions for challenges across different industry verticals.

Are you ready to join the wave of opportunity in 2024 and beyond?

If you are interested in potential partnerships and long-term relationships with the companies mentioned in this article or others in the U.S. and/or S. Korea, contact Suzy at sim@bdmtglobal.com.

Suzy Im

As the head of BDMT Global in Boston, Im focuses on accelerating the innovative transformation of global companies. She is a Professor of Marketing and a member of the Advisory Board at Emerson College. Im is also co-founder of Sponsors of the Future, a non-profit organization that leads corporate social responsibility, promoting neurodiversity and inclusion.. As a well-known business developer and marketing strategist in the global field for over 20 years, Im merged the two critical global business functions of Business Development (BD) and Marketing Transformation (MT) for the first time. She was recognized for her innovative business model and contribution and received five consecutive awards in the U.S. including the North American Business Awards and TITAN Business Award 2022 in Biotechnology.

