THE NEAR FUTURE REPORT

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How to Profit from Elon Musk's Robotics Revolution

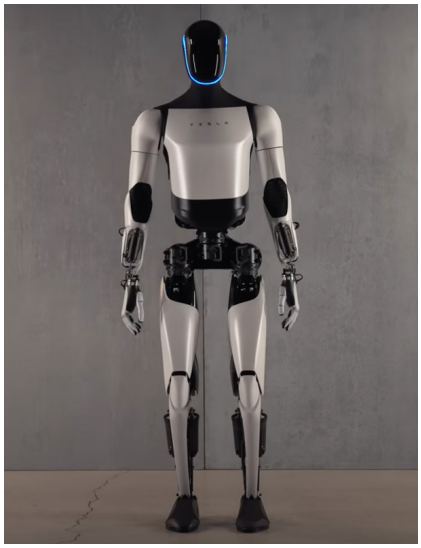
By Jeff Brown, Editor, *The Near Future Report*

A $25 trillion market in the making...

I'm on record with a prediction that there is market demand for at least 1 billion humanoid robots. And at Elon Musk's price point of around $25,000 per robot, that's a $25 trillion market.

Researchers at Goldman Sachs are saying robots could become the next "must-have" device, much like smartphones today.

This future isn't decades down the road. The robotics revolution is happening right now. Tesla's Optimus robot is already "working" at Tesla offices and inside Tesla factories.

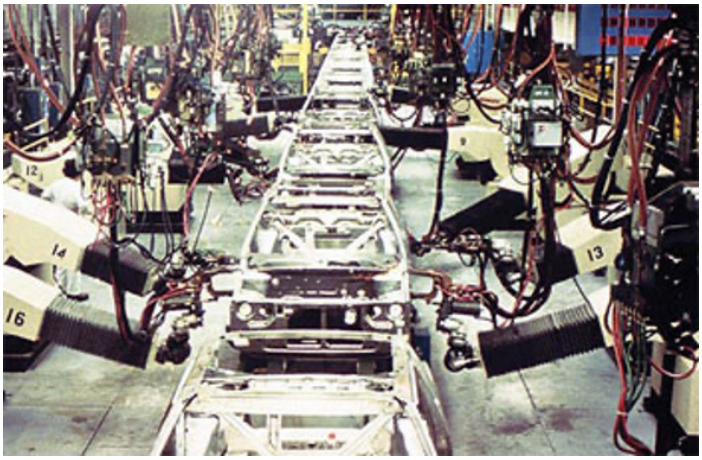


Tesla's second-generation Optimus robot | Source: Tesla

Factories will be the first to adopt humanoid robots – they've already used robots for decades – and we're already starting to see some early adoption.

General Motors installed the first large manufacturing robot back in 1962. It was called the UNIMATE. The machine was designed to emulate a human arm and was used for tasks like diecasting – a highly dangerous and undesirable job – and spot-welding.

After seeing how well it worked, GM ordered 60 more.



GM Unimate-powered assembly line | Source: Automate

Most factories today have some form of robotic automation. But these robots have limitations.

They can only perform specific, repetitive tasks and often lack awareness of their surroundings. If something – or someone – gets in the way, the robot doesn't know to stop.

With advancements in artificial intelligence (AI), specifically large language models (LLMs) and computer vision, robots are learning to adapt. They're becoming more aware of their surroundings and can safely interact with humans.

We've seen this with the Optimus robot working alongside Tesla employees. Optimus also has an advantage over the rest of the industry.

They have a head start because the Optimus robot's core software, its "brain," is built on the same full self-driving (FSD) technology that empowers Teslas to "see," "understand," and safely navigate their surroundings.

Corporations will be the first to adopt these humanoid robots.

The cost savings are clear. A robot that works nearly all day (only stopping to recharge) could replace two workers. If they earned a combined $100,000, it pays for itself in months.

Considering the ongoing labor shortage in the warehousing and manufacturing industries, the potential there is huge.

The productivity boost and cost savings mean lower prices down the line. And as prices decline, humanoid robots will be accessible to a much larger part of the market for in-home use.

For example, for a family that spends $5,000 a year for help around the house, a humanoid robot that sells for $20,000 will pay for itself in a few years, and the consumer will be able to use it for a much wider range of tasks like laundry, meal prep, fixing appliances, etc…

These robotic assistants can be a babysitter, housekeeper, and executive assistant all in one… for around $25,000 and eventually less than $20,000 at scale. And the only cost to operate the robot will be the electricity to power it.

So, it's easy to see the market demand for humanoid robots exceeding 1 billion. And the company, or companies, that dominate this market will be worth trillions.

That's one of the reasons why I'm so bullish on Tesla right now. It's leading the way in humanoid robotics. Elon Musk even said that "the majority of Tesla's long-term value will come from Optimus."

But while I'm still bullish on Tesla, it is already a $715 billion company. The reality is that there's an even better way to play this trend – by investing in one of Tesla's key suppliers at a dramatically lower valuation with far more room to grow.

This company provides critical sensor technology that enables Tesla's self-driving cars to "see." It also supplies more than 300 power and analog solution products to Tesla.

It's a natural progression for it to supply Optimus with sensors and power solutions as well. It's already a strategic supply to Tesla, and the reality is that there are a lot of similarities between an autonomous electric vehicle and an autonomous electric humanoid robot.

And we're not the only ones who see what's happening in the background. Morgan Stanley recently recommended this stock as one of the best ways to play the robotics trend.

The company is On Semiconductor (ON).

Electronics Wouldn't Work Without ON's Products

ON has historically focused on sensors, power semiconductors, and "standard products." The last category is for highly commoditized, low-cost semiconductors. They are vital to the industry, but they also come with much lower margins.

Power semiconductors are a kind of specialized standard product for power applications, and they do come with better margins. For the better part of 60 years, the building blocks of power semiconductors like MOSFETs (metal–oxide–semiconductor field-effect transistors) and IGBTs (insulated-gate bipolar transistors) remained relatively unchanged.

These chips were built on a pure silicon foundation. And this worked well for decades… especially for low-power applications.

MOSFETs are typically used in lower-voltage applications like adapters, power supplies, and low-voltage consumer products. They are normally found in applications ranging from 10 to 500 volts.

Super-junction MOSFETs are used in 500- to 900-volt systems. And IGBTs are used in high-voltage situations, like electric vehicles (EVs) and solar panels. They are typically used for 1.2- to 6.6-kilovolt applications.

As the industry has moved toward higher-power applications, silicon-based MOSFETs and IGBTs aren't optimal for high-power applications like electric vehicles… and other new technologies like 5G wireless networks.

As a result, the industry has shifted toward new material solutions that perform much better in high-power applications. And this is an area that On Semi is particularly strong in.

One solution is a semiconductor material called gallium nitride (GaN). GaN field-effect transistors (FETs), using practically the same design, provide anywhere from 5–50 times performance improvement over today's silicon MOSFETs.

As a semiconductor material, GaN is 10 times faster than silicon. It can operate at much higher voltages and is a more efficient material to manage power conversion.

And GaN has another advantage – it produces less heat, even at higher power levels. That's critical because managing heat is one of the biggest challenges in electronic equipment.

Another material that's gaining traction, especially for even higher-voltage applications, is silicon carbide (SiC). SiC offers similar improvements over traditional silicon, just like GaN, but can handle a much higher voltage level than GaN.

ON Semiconductor has a strong presence in both GaN and SiC semiconductor markets, and with these products comes much higher gross margins.

These solutions also have ON expanding its presence in data centers.

Power and heat management is very important, especially in high-performance AI data centers. If the processors get too hot, they will slow down. And that's the last thing companies want when they're running $40,000 Nvidia H100 GPUs.

Nvidia is a client of ON's. And so are other data center companies like Dell, Lenovo, Google, Cisco, and Asus. This is a small but high-growth line of business for ON.

But let's talk about its biggest end market…

Automotive Now Totals 52% of ON's Sales

Sales to automotive customers are ON's bread and butter and the reason that Tesla chose ON Semi as such a strategic supplier.

ON provides power management semiconductors for electric vehicles. Its chips control how the power from the battery turns the axles, which move the wheels.

It also manages the flow of power during charging, enables advanced driver-assist systems (ADAS), and soon, it will play a big role in full self-driving technology.

But it's not just the big things. ON's chips handle smaller tasks too, like in-vehicle networking, lighting, and various internal sensors.

Tesla is not the only company working with ON. It has contracts with just about every major automaker worldwide.

One large client is the world's second-largest automaker – Volkswagen (VW) Group.

Volkswagen has been making a dedicated push into EVs. By 2030, VW plans on EVs being 50% of its sales in the U.S. and China… and 70% in Europe.

ON also has contracts with Hyundai Kia Motors, Bosch Automotive, Denso, Nio, Aptiv, BorgWarner, Veoneer, Li Auto, and BYD – now the world's largest producer of EVs by volume.

Autonomous vehicles tend to be electric vehicles because EVs are simpler with fewer moving parts. So ON Semi is already well positioned for the autonomous market. But Tesla and other car companies developing autonomous vehicles also like ON Semi because of its imaging sensors.

Tesla has already been using ON's imaging sensors for more than five years now. Here's what they look like…

ON Sensor | Source: Jeff Brown, Brownstone Research

ON added these sensors to its product lineup with the $400 million acquisition of a company called Aptina. This made ON a leader in image sensors for automotive and industrial applications.

We're focusing on Tesla because it's the leader in EV production, produces the world's best-selling car (the Model Y), and is the most advanced technology company when it comes to autonomous driving technology, which we believe will be widely deployed by the end of 2024.

Right now, my own Model Y Tesla has the latest full self-driving software version. The current technology is already almost near perfect. I rarely have to touch the steering wheel at all when it drives me to my destination. Most of my trips now require no effort at all. I just need to pay attention and watch the road.

What sets Tesla's autonomous driving technology apart from all other approaches is that its software operates based on vision, just like the human brain.

Each Tesla has eight cameras, each with a 250-meter field of vision. These cameras capture everything around the car, and that data is fed into Tesla's FSD neural network. The AI processes and makes sense of this data in split seconds.

Because of Tesla's approach to self-driving, its EVs aren't limited by geofencing – they can drive anywhere. Tesla's full self-driving system allows its cars to navigate roads that have never even been driven by another Tesla.

This is possible because Tesla's full self-driving (FSD) AI has learned how to drive based on billions of miles of real-world video collected by Teslas operating on Autopilot or full self-driving mode. The system applies those lessons to any driving environment.

In many ways, it's similar to how we, as humans, learn and adapt to new situations.

So, it's only natural that Musk and his team would apply this system when developing Optimus' "brain." The autonomous technology needed to operate a large electronic device (like a car) on wheels is not dissimilar to the autonomous technology needed to operate a smaller electronic device (humanoid robot) that needs to navigate the real world.

Elon Musk Isn't Stopping at EVs

Tesla isn't just an automotive company… or a robotics company. It is one of the world's most advanced and successful artificial intelligence companies.

After billions of miles of data collected from Teslas driven on autopilot and FSD mode, Tesla has developed an AI system capable of seamlessly driving a vehicle from point A to point B. It can infer the right actions in a split second, even in unstructured environments where no Tesla has ever driven before.

This same autonomous software is the foundation of Optimus, Tesla's humanoid robot "brain." And it's very likely that Tesla will want to use the same power semiconductors and image sensors for its robots that its FSD AI was trained on.

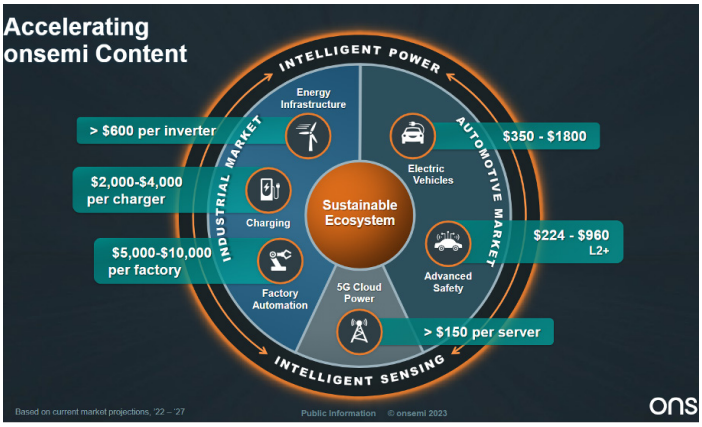
These humanoid robots will also run on batteries, just like Tesla's EVs. That makes power management essential to ensure a long lifespan. Without it, these robots would have limited usefulness.

That puts ON Semiconductor in a prime position.

It's likely ON will supply some of the power semiconductors inside the Optimus robot, just like it does for Tesla's EVs. This means there will be a significant amount of semiconductor content inside each robot.

How much content? We can't know for sure yet – it depends on a multitude of factors. But we can estimate by looking at ON's semiconductor content in EVs.

Here's a picture of the dollar amount of ON content in multiple applications…



Source: ON Semiconductor

In the automotive space, ON provides between $350 and $1,800 worth of semiconductors per EV. On top of that, there's an additional $224 to $960 for advanced safety features, including image sensing and reaction capabilities.

Now, robots are smaller than cars, so they'll probably require less semiconductor content. But some of the semiconductors they do use will likely be more compact and complex.

To stay conservative, let's use the minimum values. We'll assume $350 for power semis and $200 for safety features for a total of $550 in semiconductor content per humanoid robot.

The humanoid robot market will eventually outgrow the automotive market. Right now, there are 43 million electric passenger cars, vans, trucks, and buses on the road. But with a total supply of 1 billion robots and an average lifespan of 10 years, we'll need around 100 million robots each year.

ON won't supply all of them, of course. But it's not inconceivable to believe its semiconductors would get into 30% of these humanoid robots.

ON already commands 46% of the image sensor market in the auto industry and 27% in industrial applications. It also holds a 24% market share in silicon carbide (SiC) power devices. It's a major player in automotive and is well-positioned to play a key role in the robotics revolution.

If ON supplies content to 30%, or 30 million humanoid robots a year, at $550 per robot, that could add $16.5 billion in revenue to its topline. That's twice as much revenue as the whole company will bring in during 2024.

And here's the kicker… Wall Street analysts don't seem to be factoring in this robotics growth yet.

They're only projecting 60% revenue growth for ON from now until 2028, mostly from increased EV production – not robotics.

This gives us an incredible opportunity to get into ON before this massive market opens up. It could be like buying Tesla in 2017 before Model 3 revenue kicked in… or Nvidia in 2022 before the AI boom took off.

Action to Take: Buy shares of **ON Semiconductor (ON)** and use a 40% trailing stop.

Risk Management: At time of publication, ON is not in the portfolio so we will not provide regular updates unless we officially add it. But if anyone buys ON, make sure to use a trailing stop. We use volatility-adjusted trailing stops – meaning more volatile stocks have wider stops to avoid getting stopped out during normal market fluctuations. For more details please see our risk management guide.

The volatility-adjusted trailing stop for ON is 40%.