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# TTM Technologies, Inc. (TTMI)

TD Cowen Aerospace & Defense Conference

## CORPORATE PARTICIPANTS

**Daniel L. Boehle**

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**Catherine A. Gridley**

*EVP, President-Aerospace & Defense Business Unit, TTM Technologies, Inc.*

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## MANAGEMENT DISCUSSION SECTION

**Operator:** Thank you for joining us today at TD Cowen's 46th Annual Aerospace and Defense Conference. Presenting next, we have TTM Technologies, a leading global manufacturer of technology solutions, including mission systems, RF components, microwave and micro electronic assemblies. Presenting on behalf of TTM, it's my pleasure to introduce Dan Boehle, Executive Vice President and CFO; and Cathie Gridley, Executive Vice President.

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**Daniel L. Boehle**

*Executive Vice President & Chief Financial Officer, TTM Technologies, Inc.*

Thank you, Chris, and thank you, everyone, for joining us today. We will go through the investor deck that's on our website, but we will spend – I'm lucky enough to have Cathie with me today. So we'll spend a majority of the time talking about aerospace and defense and market. However, we'll go through the slide deck.

There's our disclaimers as everyone knows. These are meant to be Safe Harbor or forward-looking statements. We also use non-GAAP measures. You can look at the reconciliations and other risk factors within our SEC filings.

Who's TTM? We're a leading technology solutions provider of mission systems, PCBs and specialty components. Our scale is about \$2.4 billion of revenue in 2024. We are a critical supplier to today's fastest growing technologies and advanced defense radar, cloud infrastructure, air data centers, automobile technology, industrial automation and the Internet of Things. We have a significant global footprint. We'll talk about that a little bit later in the slides. And about 18,000 employees across the globe.

The right side of the slide shows you our – the end markets that we discuss within our filings and some of our key customers and those, the data center and semiconductor computing, networking, aerospace and defense, semiconductor capital equipment and medical and industrial automation as well as automotive technology.

This a bit of history just shows you that we've grown quite a bit over the years, much of that through acquisitions as well as then divesting some of the industries or end markets that we didn't want to be in because of their cyclical nature or their lower complexity as far as printed circuit board technology. We are trying to transform the business through those strategic transactions and those strategic divestitures to differentiate TTM from a business model standpoint.

We are not a commodity PCB board maker, very complex board maker. We are a highly valued partner to our customers. We are involved with them early in the design stage. So we've acquired engineering, technology, IP

and knowhow through these acquisitions to build a strong and diverse portfolio with leading technology that makes us embedded well with our customers and then gives us greater stability.

The exposure AMD business gives us greater stability and growth and some of our divestitures was to get out of more volatile consumer ended products. So we got out of the mobility business, out of EM Solution and then backplane manufacturing.

So we are now continuing to invest in our engineering technology knowhow as well as our footprint, which we believe is another differentiator and strategic focus for us is to have a diversified footprint for the China Plus One strategy we've built in Malaysia. So we do a lot of our manufacturing on the commercial side in China. But we've just built Penang Malaysia facility last year and it's coming on, coming up, ramping up this year. And then in the aerospace and defense market, we are expanding in the Syracuse area. We have an existing site there and we're adding another one to our campus there.

So and Cathie can speak more about that.

Again, our strategic focus is diversification across diverse end markets. And our most near-term focus through acquisitions as well as our organic growth has been the aerospace and defense industry, as well as data center computing and networking. The GenerativeAI boom that's been going on has benefited us quite a bit on the data center and networking site.

We'll start and I'll hand it over to Cathie a bit to just talk a little bit more in depth about our aerospace and defense market, which has grown to about 45% of our net sales in 2024. We see increased growth in that area through these radar, increased military equipment building, as well as more electrification and technology, complex technology in some of our aerospace and defense products. Primarily defense, right. There's a chart here, well, later will show you that here. Our aerospace and defense is largely defense, less commercial aero.

And what we show in these charts is about the next, the five-year growth CAGR expectation from a third party that we use, Prismark. They expect this market to grow 3% to 5% over the next three years. Our growth in the last couple of years and going into 2025, we expect to be above that. We don't give annual guidance. So this is kind of how we guide you a little bit to where we think we're going this year. We only give one quarter out of guidance, primarily because on the commercial side, we don't have visibility past two or three, or one or two quarters. But so, we give you the year just where we think we will be in comparison to those third party expectations.

I will now hand it over to Cathie Gridley to talk a bit more detail about Aerospace and Defense.

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### Catherine A. Gridley

*EVP, President-Aerospace & Defense Business Unit, TTM Technologies, Inc.*

Sure. I'll let you keep that clicker. You'll keep me moving.

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### Daniel L. Boehle

*Executive Vice President & Chief Financial Officer, TTM Technologies, Inc.*

Sure.

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### Catherine A. Gridley

*EVP, President-Aerospace & Defense Business Unit, TTM Technologies, Inc.*

Thank you, Dan. So really thrilled to be here today to talk about our Aerospace and Defense business. So as Dan mentioned, this sector of our portfolio, 45%, 46% right now and growing. You know, it's an exciting history here. So acquisition of Anaren took place in 2018 and then Telephonics in 2022. Both of those moves really shows the progression up the value chain. So [indiscernible] 00:06:24 circuit board, strong foundation of electronics. If you think about defense modernization, a lot of movement towards electronics. So we are well-positioned there, very well-known, strong concentration in North America from a manufacturing perspective, and defense ranked 38th in US defense companies right now in terms of the A&D sector of TTM's portfolio. Strong book-to-bill.

So we ended 2024 with bookings of about \$1.56 billion, which was up about \$230 million from 2023's year-end. Gives us great line of sight. So for 2025, already strong at over 82% booked when we finish the year. It really gives us the opportunity to manage the supply chain and understand what is required in order to get that execution moving in the right direction.

When we think about defense programs, and the next chart does show that a little bit more, but we can stay here for a minute, we feel really good about our position on franchise programs. So we are on the right programs. We feel confident about the national security support that we bring with our products. But the other side of that is we have a nice breadth of programs. So no one program, no one franchise program is more than 6% of our A&D revenue. So we've got that right balance across the primes, across the major programs, across the services.

When we look at our strategy, so it is really, one, to build on the strength of the PCB foundation that TTM is built on, moving up the value chain into RF microwave capabilities where we have a good foothold, especially in rad-hard and high-reliability products in space, as well as in defense, and then also microelectronics. So our microelectronics business is outpacing the rest of our growth. It is a small niche element of our portfolio, about \$80 million in 2024, up from in the \$60 millions in 2023. We are seeing that continue to grow.

One of the other opportunities that we have, so with the Telephonics acquisition, we brought in mission systems capability, but we also brought in integration capability. So we have software development capability in there, which is allowing us to integrate software with hardware. We now have system-to-platform integration capability, which is a strength in our overall engineering portfolio to our primes.

Our objective here is not to compete with the primes. It is really to have that know-how so that we can integrate anywhere within the vertical. So we can play at the Tier 4 level on the PCB, all of which is very high-tech PCB content. So we're not talking about the more sort of simplistic boards. We're talking about highly engineered product, and then integrating that through and up to the systems themselves.

So when we look at some of our strategy for growth, it is rounding out in between the systems capability in the board, a bit more modules, maybe some subsystem capability, depending on opportunity from an acquisition perspective.

And then, in addition to that, it's a bit more broad. So we have a high radar content, but we are also in surveillance and comms guidance systems. We have some excellent capability related to indication friend or foe and sensors. Dan mentioned our AESA. We are working on that capability, including a sense and avoid capability, which is a great EV toll opportunity for us as well as defense.

Just thinking through. A few more things related to our blend. So we are less than 50% PCB and we'll continue to grow above the board whilst – while maintaining that foundation and pulling the board through from an integration perspective. You see the break down 90% is defense. So the big D, we are growing on the space side both in

national security space and commercial space. And then on the commercial aerospace side, we do still have a footprint there, but it is clear that the portfolio is much more to [indiscernible] 00:10:31

Perfect. So again, just talking very briefly about the key customers that we do run, the breadth of OEM customer relationships. We have had long histories with these customers. We get very good visibility from the forecasting perspective. We are in early engagement discussions when it comes to engineering and design. In particular, they rely heavily on us for discussions around the integration of the board and what they can do with the board, and battling of passive and active components, some other attributes as well as what we do from a process manufacturing and material set perspective.

So we bring a lot of that know-how to the table for them. And then when it comes to our microelectronics capability, we are very specific in terms of what we will undertake for them. So, we take on the hard statement of work, and we also look at across our portfolio they may do low rate production, so the primes tend to keep low rate production. TTM stands at the ready to take on when they're ready to outsource because of the relationships that we have with those customers.

And then, when we look at direct government customers, so with the acquisition of Telephonics, we did vault the DoD into a position of top 10 customers for us.

and we expect that will continue to grow. And we are seeing good opportunity from a foreign military sales perspective.

Anything else that you wanted me to touch on, Dan?

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**Daniel L. Boehle**

*Executive Vice President & Chief Financial Officer, TTM Technologies, Inc.*

Maybe just that we had, I think, multiple components on some of these...

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**Catherine A. Gridley**

*EVP, President-Aerospace & Defense Business Unit, TTM Technologies, Inc.*

Sure.

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**Daniel L. Boehle**

*Executive Vice President & Chief Financial Officer, TTM Technologies, Inc.*

...certain platforms and where we see potential to maybe pull through more of that and grow.

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**Catherine A. Gridley**

*EVP, President-Aerospace & Defense Business Unit, TTM Technologies, Inc.*

Yeah, absolutely. So when we look at our program position and our approach on program management and franchise programs. So one of the great opportunities that we have is through the program connectivity and the program office connectivity is to expand our position by program. So when we look at growth potential, it's not just growth with a particular customer or growth in a particular product line. It is looking at that franchise program and the potential for growth through, say, additional footprint on SPY-6 where we have a strong footprint today, but there is room and opportunity for growth. Same thing with SPY-7. We look at the tech modernization on F-35, for example. This is also another place where we're finding really good opportunity in terms of the continuing tech refresh and modernization of that platform and the position that TTM has.

**Daniel L. Boehle**

*Executive Vice President & Chief Financial Officer, TTM Technologies, Inc.*

Very good. Yeah.

**Catherine A. Gridley**

*EVP, President-Aerospace & Defense Business Unit, TTM Technologies, Inc.*

Yeah. Great. Thanks, Dan.

**Daniel L. Boehle**

*Executive Vice President & Chief Financial Officer, TTM Technologies, Inc.*

May – bring you back for a few...

**Catherine A. Gridley**

*EVP, President-Aerospace & Defense Business Unit, TTM Technologies, Inc.*

Sure.

**Daniel L. Boehle**

*Executive Vice President & Chief Financial Officer, TTM Technologies, Inc.*

There are some slides later that you might feel to add.

**Catherine A. Gridley**

*EVP, President-Aerospace & Defense Business Unit, TTM Technologies, Inc.*

[indiscernible] 00:13:08 expansion coming up.

**Daniel L. Boehle**

*Executive Vice President & Chief Financial Officer, TTM Technologies, Inc.*

We do.

**Catherine A. Gridley**

*EVP, President-Aerospace & Defense Business Unit, TTM Technologies, Inc.*

Great.

**Daniel L. Boehle**

*Executive Vice President & Chief Financial Officer, TTM Technologies, Inc.*

So that's the AESA as we discussed, we are heavily involved in growing strategically from an organic and inorganic standpoint in that area. The other side of our business, so we're about half and half right now. I guess still about a little over half of commercial, 55%. And we're involved in some of the major megatrends going on. So across the top, we talk about the Internet of everything in increasing electronic content across the automotive, medical, industrial and instrumentation markets. Automotive is probably the one there that's most soft right now for us. Continue to be lower adoption of EV than what was originally expected here in the US and across Europe.

China sources their own out there. So we do not supply into that market, although we manufacture there, but we supply into US and European markets primarily on auto. But those other areas, the diagnostic equipment and

robotics, the medical stuff, starting to grow, starting to come back this year and we expect to be growing at the expected rates there and factory automation, starting to come back.

The bottom is probably the hottest thing going right now, the data center, cloud, hyperscalers, Generative AI. And that has grown, I think, in Q4 we grew 44% year-over-year and for the year, we're high double-digit growth there as well. So a very good growing area for us. We are adding capacity so that as we go into next year, we continue to grow with that market opportunity.

So and this is the chart to kind of show you how we round out those other areas. We talked about aerospace and defense. As I mentioned, automotive currently, about 13% of our business in 2024 revenue. The Prismark forecast is that that will grow about 3% to 5% over the next few years. Our experience probably flat to slightly, slight growth. So a little bit under that benchmark. Data center and computing, on the other hand currently about 21% of our business for 2024. It will continue to grow. It's got a 7.9% expectation, we think in 2025 and will continue to grow above that rate. Medical industrial and instrumentation represented about 14% of our business currently, and we think we'll grow in line with that 2% to 4% as we go into 2025.

The networking, 6% of our business now. It had a lot of inventory buildup over the last couple of years and that's slowly starting to come out of that. I think the data center computing and generative AI is also carrying along networking with it, so we expect we'll get better growth in that 2% to 5% [indiscernible] 00:16:16 benchmark going into 2025.

So that right column there, I noticed is mislabeled because that should be 2025. I thought I was the only one still stuck in 2024.

So, going through our other pillars of strategic focus, differentiation. And Cathie alluded to this a little bit earlier, engineering depth, being early, engaged with our customers in the design phase and carrying them all the way through their prototyping and full production, then having that global footprint. If you don't know TTM, the name means time to market, right? So we have always wanted to be engaged early, help our folks design the product and get that product into [ph] full 00:17:02 production as quickly as possible. So we work together and the design and the manufacturing of that so we can get our customers products out there quickly.

We also talked about this a little bit. Just a bit of a few pictures to show you the different products that we are involved in. And you can see commercial, we stay at that kind of lower, and that left side PCBs, conventional, advanced and RF components. I would say that there's less conventional, more advanced and more complexity. We tend to play at the high end of the PCB market. Then aerospace and defense, we pull across all these product markets and more into that engineering and higher, higher value-add in mission systems. You want to add any other You want to add any other color on that product?

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## Catherine A. Gridley

*EVP, President-Aerospace & Defense Business Unit, TTM Technologies, Inc.*

Yeah. I think that this picture is – this graphic is a really good indication of where it is from an A&D perspective that we're focused, thinking, again, highly engineered earlier engagement with the customer, greater line of sight to the longer-term opportunity is very well rounded here and, from a programmatic perspective, aligns up well with key franchise national security programs. So it's a good footprint with our primary customer base.

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## Daniel L. Boehle

*Executive Vice President & Chief Financial Officer, TTM Technologies, Inc.*



This just shows you why that's – why this is our strategic focus. I think it's probably obvious to most folks here, understanding that there's a very long life cycle in aerospace and defense products. And so if we can be embedded early into that design prototyping phase and pilot into production, aerospace and defense products have a much longer life cycle and duration than some of our other markets. The consumer market, which is very short, we've mostly divested out of that. The automotive, networking, and MII markets are kind of in the middle there where you have maybe a two- to five-year lifespan – life cycle. But as we know, aerospace and defense can be very sticky and keep you in there for a while. So that's why we've strategically focused on that.

Picture of our global footprint, again. So the commercial plants are green, and you can see that those are mostly in Asia, a couple in the – three or four, three in the US and then one in Canada. And then the orange are our North America operations, which do all of our aerospace and defense. So that's important to note.

Obviously, all of our aerospace and defense manufacturing is done in the US, and these – but we offer a good global footprint for our commercial customers. The technology that is developed in those commercial markets tends to help aid us in our engineering and design for the aerospace and defense market. But it only flows that way, never flows back the other way, so. And if we have a – you know, if there's more pressure towards onshoring and what have you, we've got 18 sites in the US that can – which – some of which have additional capacity that we can take on more onshoring, and with a large footprint in the US. And then we also, as an alternative to China, have our Malaysia facility that is up and running now, 800,000 square feet, has the opportunity to do about \$200 million in annual revenues. And this is the year of ramp for that. So ramping up quite heavily this year, not to get to that full \$200 million by the end of this year. But into next year, we'll expect that, so. And in the other facility, I'll let Cathie talk about it. [indiscernible] 00:20:32.

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## Catherine A. Gridley

*EVP, President-Aerospace & Defense Business Unit, TTM Technologies, Inc.*

Sure. So really exciting opportunity. We announced in November 2023 the intent to break ground in central New York, an ultrahigh density interconnect greenfield factory, broke ground in July, well on track from a schedule perspective. It looks like we'll have cold shell hopefully around June. Equipment is starting to go in. Intention is to start low-rate production in the first half of 2026. We feel very confident about line of sight in terms of the demand for this facility. Earlier engagement with key strategic customer led to this development. A lot of encouragement to increase the size of this footprint, as you can probably imagine. So great funding stream came in for us from DPE, Title 3 money as well, some state funding, so covering maybe about half of the total investment. This is an exciting opportunity for us. We feel confident that our ability to stand up this facility, drawing in talent from our existing footprint, as well as a strong local footprint in Aerospace and Defense in Central New York to get this up, ramped and in great position for more steady state by 2027.

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## Daniel L. Boehle

*Executive Vice President & Chief Financial Officer, TTM Technologies, Inc.*

Very good. And then finally, I'll talk a little bit about more our financial discipline, which is that the last pillar here of our strategic focus. Operational execution, increasing our earnings power, and then, good cash flow generation and how we allocate those resources. So just a historical pattern of our revenue and operating margin. The down on there in 2020 was primarily because of the mobility sales. So we exited again some of that volatile market in Mobility. We've also, shrunk our footprint a little bit. So revenues did contract a little bit over those years, but we kept our margins up and we're getting up into the double-digit operating margins in certain quarters. Still, haven't cracked that for a full year, but we're getting close to that and we'll talk about the roadmap to get into that.



These are our long-term targets. Top line growth expectations, 4% to 6% over our long-term is what we expect. 2024, we exceeded that primarily because of, driven by Aerospace and Defense market as well as the Data Center and Computing with the Generative AI driving that.

Non-GAAP operating margin. Our targets are get to 11% to 13%, as I mentioned, get into the double-digits. We finished the year at 9.6%. So knocking on the door of double-digits. And Penang is probably the, certainly is the largest lever to pull to get to – get into that range that we're looking for. And then, that will drive adjusted EBITDA of 15% to 17%. The difference there being the CapEx, 4% to 5%, which will replace, the depreciation, amortization which takes that difference in EBITDA.

Cash flow from operations, our goal is to get 10% of revenue. Finish the year in 2024 at 9.7%. Again, knocking on the door of those long term goals. And so we are gradually, incrementally stepping towards that. And I think we'll be there in the next couple of years. And that will drive high return on invested capital of 13% to 15% so.

This is that bridge on that margin. So as you can see right in the middle there, Penang is the biggest, lever there. It was about a 180, 170 basis points drag on most of 2024 as we had the facilities there or going through full depreciation of all the assets and equipment, ramping up labor there. And so incurring a lot of cost, not a lot of revenue yet. So as we go into this year, 2025, that revenue will ramp up, get to break even by the second half of the year. And that will turn 220 basis points in our operating margin by the time we get to the end of this year so. And that will drive primarily that increase from the 96 we're at right into that 11% to 13% range.

Incremental revenue needs to come from the commercial side. Some of those markets have been a little bit slow. We do see the opportunity for those to increase. Right now, generative AI is kind of making up for some of the other slowness in the other markets. But we do see some growth on its way through networking and MI&I.

And then the Syracuse plant over time, once we get through the build, it'll start driving incremental operating margin as well. So all within our control, which is what makes us feel good about the ability to get to those target margin. Maybe incremental revenue is not as much in our control. But the other two very much are as we build and then scale up our greenfield facilities.

We'll go quickly through some of these and try to leave some questions – time for questions. But cash flow from operations has been strong again. You can see that there were some periods where we were above that 10%, and then that allows us to invest in our footprint, invest in our infrastructure, and do the things that we need to be ready for our customers, signal the growth in the A&D market, as well as, on the Asia side, being ready for that continued push probably out of China and into other alternatives. And so that Penang facility is ready and starting to ramp up.

Our capital structure right now very strong. Our targeted net leverage is 1.5 times to 2 times. We're only – we're about 1.2 times now, so good position there, probably underleveraged. And so we have plenty of dry powder to make an acquisition. We're always active looking in the M&A market. We grew our A&D business through acquisitions. We'll continue to be looking for the right assets at the right price. We're very disciplined, but we have the dry powder, we have the balance sheet to make an acquisition if it comes along.

We have no debt maturing into 2028. You can see that. So liquidity is good, and our allocation of that balance sheet, as I mentioned, we've been talking through this presentation initially internal investment. So new product and technology, we didn't talk as much about that, and maybe you can talk a little bit about that, what we're doing right now in technology...

**Catherine A. Gridley**

*EVP, President-Aerospace & Defense Business Unit, TTM Technologies, Inc.*

Sure.

**Daniel L. Boehle**

*Executive Vice President & Chief Financial Officer, TTM Technologies, Inc.*

...investments in our portfolio.

**Catherine A. Gridley**

*EVP, President-Aerospace & Defense Business Unit, TTM Technologies, Inc.*

Sure. So, when we look at the A&D portfolio, we're spending a decent chunk of our investment looking at AESA radar development. We're also working through software development in specific areas, engineering, modeling, and again towards the sense and avoid capability. But capability, but on AESA front, so we've got a really nice line of sight in terms of opportunity for that development. So it's scalable and it fits both within the Defense world from a helicopter application perspective as well as on EV front, from an unmanned perspective. It is a key element of our digital radar emphasis. And then, in addition to that, continuing to spend time on the process and material sets and speed to market from a product perspective.

**Daniel L. Boehle**

*Executive Vice President & Chief Financial Officer, TTM Technologies, Inc.*

Thanks, Cathie.

**Catherine A. Gridley**

*EVP, President-Aerospace & Defense Business Unit, TTM Technologies, Inc.*

Yeah.

**Daniel L. Boehle**

*Executive Vice President & Chief Financial Officer, TTM Technologies, Inc.*

So and then, as I mentioned, looking at strategic acquisitions when the right opportunity comes. Repaying debt down to less than 2. As I mentioned, we're already there. So we're not currently going to be paying down much debt. We don't have maturities 'till 2028. And so, we look well, look good on the leverage side. And we do have the ability to return capital to our shareholders. We have an active \$100 million share buyback program, about a \$41 million left as of the year-end. And so, we will be returning some of that cash to shareholders as well.

Going forward, continue to focus on those markets. The first markets that we've identified, again, continue to be strong and are focused on A&D. And then, the commercial footprint again, Generative AI has been good. We'll continue to ride that. We see good opportunity, good growth in there as well. So we're increasing capacity there. And ongoing investments in, as you mentioned, RF and Advanced Technology capabilities and EV engineered products within our manufacturing footprint. So as much as we're also – we're investing in growing that footprint, we've also at the same time looked at where it makes sense to consolidate some of those factories.

to consolidate some of those factors. And so we are completing the consolidation of the factors we acquired from Telephonics back in 2023. That's ongoing right now. We'll be finished with that in the middle of this year. So that brings your engineering and your manufacturing together in one place, improves efficiencies, improves that speed from beginning to end of that production process. So it will continue solid financial management of our balance

sheet, invest where the right places and continue to allocate the resources and provide returns to our shareholders so.

That's the end of the presentation. Did I miss anything that you want to touch on?

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**Catherine A. Gridley**

*EVP, President-Aerospace & Defense Business Unit, TTM Technologies, Inc.*

I think you did okay. Yeah.

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**Daniel L. Boehle**

*Executive Vice President & Chief Financial Officer, TTM Technologies, Inc.*

Okay.

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## QUESTION AND ANSWER SECTION

A

Questions? Mostly for Cathie.

Q

What is the timing for the margin improvement to come through on the new plants [indiscernible] 00:30:17

A

Yeah. It doesn't have a date on there right on that chart. It's really – I'd say it's a two to three year outlook. Penang, again, we'll get to break even this year, but then ultimately it'll be accretive to get to that 220,000. There's an accretive portion of that. Those – that business will generate good margins for us. I'd say that's – yeah, I think a two to three year window to get to that.

Q

And I think you said the biggest one revenue target for the [indiscernible] 00:30:52 facility is a \$100 million. Is there another page of what's kind of the full revenue potential of that facility?

A

Yeah. So when we built the facility, I think I mentioned that there was some strong customer encouragement to make it bigger. So on the screen it said, and I think a 160,000 square feet. We already know that it's going to be over 210,000 square feet. So we do have plans for a Phase 2. We have not framed that out. My good friend over here hasn't seen a business case yet for that. So it would be poor form for me to speculate on overall growth but we felt the footprint and we see the demand is there.

Q

You talked about [indiscernible] 00:31:35-00:31:42?

A

Sure. You mean in A&D? Yeah, absolutely. So, radar is a strong footprint for us, but we see really good growth in surveillance, sense and avoid indication friend or foe, identification friend or foe 00:31:59. And then on top of that, we know that we've got from a guidance perspective, revenue growth coming on the missile side of the portfolio.

A

We do guidance systems.

A

Guidance systems.

Q

And the near-shoring trend, do you expect that to continue [indiscernible] 00:32:17-00:32:23?

I mean, it does.

A

Yeah. So for TTM, we are in a strong position. So as Dan mentioned, we've got a strong manufacturing footprint here, but it also puts us in the right position from a value-add perspective. So as we're hearing more and more about onshoring, we're already seeing onshoring behaviors from the customer base. It's about being measured and deliberate in terms of where we can add value. So, more highly complex PCB, for example, some of the microelectronics growth potential. So it gives us we are in a nice position to be selective. We have capacity, opportunity and sort of continuing to reshape our portfolio so that we continue to drive up that value chain. Definitely a lot of chatter about that subject.

A

Yeah.

Q

[indiscernible] 00:33:11-00:33:16.

A

Yeah, sure. So when I talk about the A&D strategy, we're very solid on the PCB side. But as you move up the vertical and we look at RF microwave and microelectronics. And then we sort of leap through subsystems into niche for small form factor systems, it's building out the middle, right? So, there's two things that we're really eyeing up, which is building out the middle a bit more in terms of additional microelectronics, which is a key focus for us as well as module and some subsystem capability with test capability. But then it's also a bit of broadening. So, moving more deliberately into comms and navigation and surveillance from radar.

Q

Could you put some color or contrast to surface HDI capabilities versus what we currently have in general [indiscernible] 00:34:17?

A

Sure. So, for TTM, ultrahigh density interconnect in the defense side and in North America in general, not just for TTM is almost nonexistent. So, it's outside, it's over in Asia. But the demand that's coming from the defense industry for ultrahigh density interconnect is significant, right? So, it's a very steep curve up from a demand signal perspective. And at scale production, it does not exist in the United States. So, for us, it is a new capability onshore with strong demand, which is what is different from what we – don't do ultrahigh density interconnect in Chippewa Falls except – or anywhere else, for that matter, in the US, except maybe on a small demand perspective.

A

Yeah. We're – to get prepared for that facility and demand that's there, we are doing this in small batches, prototyping at a couple of our facilities, two or three of them throughout the country. But, yeah, they don't have the scale and ability to...

A

And we'll actually continue to keep that capability because one of the other key attributes for TTM is we offer attributes for TTM is we offer dual source for our prime, so for the customers. So, as opposed to them having to mitigate one facility or one location for supply, we are able to do that for them. So, when we stand up the Syracuse facility, that will all be new growth while we will maintain sort of smaller-scale capability in these other factories to ensure a level of dual-source support to the supply chain.

Q

With the ultrahigh density that you're pursuing, are you looking to move at all into building those modules to develop an advanced packaging capability if possible?

**Catherine A. Gridley**

*EVP, President-Aerospace & Defense Business Unit, TTM Technologies, Inc.*

Sounds a little bit like phase two.

A

**Daniel L. Boehle**

*Executive Vice President & Chief Financial Officer, TTM Technologies, Inc.*

Correct. That's the business plan...

A

**Catherine A. Gridley**

*EVP, President-Aerospace & Defense Business Unit, TTM Technologies, Inc.*

So yes.

A

**Daniel L. Boehle**

*Executive Vice President & Chief Financial Officer, TTM Technologies, Inc.*

...but that is with that excess capacity...

A

**Catherine A. Gridley**

*EVP, President-Aerospace & Defense Business Unit, TTM Technologies, Inc.*

Yeah.

A

**Daniel L. Boehle**

*Executive Vice President & Chief Financial Officer, TTM Technologies, Inc.*

...in that building should be 4.

A

**Catherine A. Gridley**

*EVP, President-Aerospace & Defense Business Unit, TTM Technologies, Inc.*

That's right.

A

**Daniel L. Boehle**

*Executive Vice President & Chief Financial Officer, TTM Technologies, Inc.*

Yes.

A

Q

I have two questions. One is I think – I'm sorry. I didn't catch the first part of your thought, but so TTM is getting to full-scale design development, manufacturing employee assistance. Is that what you said?

**Catherine A. Gridley**

*EVP, President-Aerospace & Defense Business Unit, TTM Technologies, Inc.*

Yes, that's correct.

A

Q

So that means, in some ways, you're competing with the customer.

**Catherine A. Gridley**

*EVP, President-Aerospace & Defense Business Unit, TTM Technologies, Inc.*

Yeah. So, in reality, we are not competing with the major primes, right? So we're talking smaller scale in application, right? So one...

A

**Daniel L. Boehle**

*Executive Vice President & Chief Financial Officer, TTM Technologies, Inc.*

Different platforms.

A

**Catherine A. Gridley**

*EVP, President-Aerospace & Defense Business Unit, TTM Technologies, Inc.*

It is different platforms, so more oriented towards rotary craft, and also the capability, in particular with the sense and avoid capability, will also be oriented towards EVTOL. So it is not the same scale that we might see from the likes of a Raytheon or Northrop or what have you.

A

My second question is 00:37:47...

Q

Right.

A

... [indiscernible] 00:37:47-00:37:49...

Q

Yes.

A

... [indiscernible] 00:37:50...

Q

That's right.

A

... [indiscernible] 00:37:52...

Q



A

Understood. Yes.

Q

... [indiscernible] 00:37:54-00:37:59...

A

Right. We...

Q

... [indiscernible] 00:38:00?

A

Yeah, we put – so we put a lot of thought and discussion into that as we went through the Telephonics acquisition. And as we advanced, we had a number of conversations with our customers as well to make sure that we do have those air gaps. So we have dedicated engineering oriented towards the mission side, the system side versus dedicated engineering associated with the RF microwave microelectronics side. And then if you step further back to our front engineering on PCB, again separated. And so we have ensured the right processes and the right firewalls and air gaps, so that's the great, great word for it, to bring that level of confidence to our customers that the mission system that we design won't compete, but the trade secrets that we have shared with us, because we have those strong strategic relationships, we protect those with our lives, frankly.

Q

[indiscernible] 00:38:56- the game is changing for our [indiscernible] 00:39:26. So I personally count [indiscernible] 00:39:28-00:39:34. I hope that the rest of the day is successful and continues to grow and is proliferated both by our architecture changes the game. And the price of our space and this little space infrastructure in aerospace infrastructure and what we put back there today or aerospace. And not to the extent, if you look at the price of that spacecraft for tranche 2 and tranche 3 for [indiscernible] 00:40:00. It is vastly different than what products [indiscernible] 00:40:07 for example.

So again, that is – I'm still getting calls from TTM for [indiscernible] 00:40:15-00:40:19 for AESA. That are even [indiscernible] 00:40:20 \$5,000 a piece and I have to build the rest. But I can tell you, for some [indiscernible] 00:40:27 for commercial aircraft industry that we're also competing in. That just doesn't cut it. I have that product line, it's a [indiscernible] 00:40:39-00:40:42 so therefore, I can actually, build and find one and build it.

And I'm getting samples of PC boards that are the same exact 24-layer PC boards for \$350. \$5,000, \$350 [indiscernible] 00:40:55 and I know you have a facilities in China, but I can't build it in China for what it was. And so, I think, this is something TTM needs to address. And that's all, maybe I can [indiscernible] 00:41:09-00:41:09

**Daniel L. Boehle**

*Executive Vice President & Chief Financial Officer, TTM Technologies, Inc.*

Yeah. I think, we're out of time on our presentation, and we don't want to get into price negotiations with you up here, but maybe we'll be talking to you sometime later in an appropriate sometime later in appropriate...

Q

Both friends here [indiscernible] 00:41:27. But and lastly, I think your investment in HDI seems to be an underestimation of where the market is headed. I think that's great that you're making that investment. But I think if you look at the next 10 years, both in aerospace and defense and what we're trying to do with the new administration and hopefully beyond this administration, with the new focus on arsenal of democracy, I think you'll see that that that investment needs to be multiplied by 10. That's my comment to you.

A

I think just to — I know we're out of time, but just to round that out. So, we don't disagree in terms of the ultra-high density demand. And I think that in terms of what TTM's A&D business is bringing, there's a lot of focus on certainty of supply, right? And so, prices, cost, price, one aspect of what is really a very critical piece of the supply chain. So certainty of supply, quality, the ability to actually build it and to give our customers the confidence that they will get it from TTM versus maybe the rest of the competition. So, we do take those things into consideration, but we're really pretty excited about that new facility in Syracuse, no doubt, as well as what we're hearing in terms of programmatic.

A

Yeah, absolutely. We believe you're right about the demand continuing to grow and we'll be ready.

**Catherine A. Gridley**

*EVP, President-Aerospace & Defense Business Unit, TTM Technologies, Inc.*

All right. Thank you very much, everybody. Really appreciate your time.

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