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Intel Corp. (INTC)

Investor Meeting - IAO

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MANAGEMENT DISCUSSION SECTION

Operator: Before we begin, please note that today's discussion contains forward-looking statements on the environment as we currently see it. As such, it does involve risks and uncertainties. Our filings with the SEC, including our most recent earnings press release and Annual Report on Form 10-K, provide more information on the specific risk factors that could cause actual results to differ materially.

Additionally, some of the numbers we will reference in our discussion today are non-GAAP. You will find additional information on our non-GAAP financial measures, including reconciliations where appropriate to the corresponding GAAP financial measures in our most recent earnings release and other filings with the SEC.

John Pitzer

Corporate Vice President-Investor Relations, Intel Corp.

Good morning. I'm John Pitzer, Corporate Vice President and Head of Investor Relations. It's my pleasure to welcome everyone to the next installment of our Investor Webinar Series. The purpose of this forum is to give our outside owners the opportunity to engage more closely with our leadership team and focus on a specific topic that we believe is critical to our strategy, helping our owners better understand how we intend to drive long-term value for all of our stakeholders.

In January, we hosted our first webinar on the PC client business where we highlighted our view of the long-term market and the strategies we are pursuing to capture share and value. In March, we provided a deep dive into our Data Center and AI business, where we addressed the breadth of our product offering, including the launch of Emerald Rapids in the second half of 2023, Sierra Forest in the first half of 2024 and Granite Rapids shortly

thereafter. We also discussed our strategy to truly democratize AI from the cloud through the network to the enterprise client and edge, and from data prep to training to inference with our suite of silicon and software assets.

Today, we turn our attention to our internal foundry model, which will create a foundry-like relationship between our manufacturing groups and our internal product business units. To drive transparency for our owners as of our Q1 2024 earnings, our manufacturing groups, including internal manufacturing, technology development and Intel Foundry Services will be combined into a single reportable segment on par with CCG, DCAI, NEX and Mobileye. I would note today's webinar will focus on the operational transformation we are undertaking with our internal foundry model. While we will touch on Intel Foundry Services as a part of today's discussion, we intend to host a much more detailed and exhaustive webinar on IFS in the second half of this year.

Joining me today are David Zinsner, Intel Executive Vice President and Chief Financial Officer, and Jason Grebe, Corporate Vice President and General Manager of Intel's Corporate Planning Group. Dave will provide some historical context on the evolution from IDM 1.0 to IDM 2.0, which has given rise to our internal foundry model and frame the financial benefits of this model and how it will transform how we run the company. Jason will speak to specific examples that will enable the transformation and be a key driver of our committed $8 billion to $10 billion in savings and efficiency gains exiting 2025. He will also explain how this operational change will be a tailwind to our IFS strategy.

After their prepared comments, Dave and Jason will be happy to address questions. I would remind you that we will report Q2 earnings later in July and we'd ask that each of you limit your questions to the subjects address today. Each participant will be able to ask one question and a quick follow up.

With that let me turn it over to Dave.

David A. Zinsner

Chief Financial Officer & Executive Vice President, Intel Corp.

Thank you, John. It's good to be here with you today to provide an update on our internal foundry model. Based on conversations that we've had with shareholders over the last several quarters, we concluded there was an opportunity to provide more clarity around our internal foundry model that underpins our ongoing transformation from IDM 1.0 to IDM 2.0.

Pat's first focus when rejoining the company was to regain process and product leadership with our five nodes in four years strategy proceeding well, positioning us to regain transistor and power performance leadership by 2025, and strengthen our client roadmap and significant improvements in our data center roadmap. We're now focused on accelerating efforts to drive best-in-class cost structure, which is what the internal foundry model is intended to facilitate.

We first discussed our internal foundry model in Q3 of 2022 as part of our multi-year cost efficiency effort, which includes reducing costs by $3 billion in 2023 and $8 billion to $10 billion exiting 2025. As discussed in Q1 earnings, we're on our way to achieving $3 billion in savings this year, including a $2 billion reduction in OpEx and $1 billion reduction in cost of sales. We'll provide another update when we report Q2 earnings.

The internal foundry model is a key enabler of the incremental savings to achieve our $8 billion to $10 billion we previously committed exiting 2025 and is critical to our longer term ambition of 60% gross margins and 40% operating margins. In our current model, we have P&Ls for Internal Foundry Services (sic) [Intel Foundry

Services] (00:05:57) or IFS and the product BUs of CCG, DCAI and NEX. The manufacturing and technology development groups allocate 100% of their cost out to these P&Ls.

As we transition to the internal foundry model, the manufacturing group will be accountable to a standalone P&L for the first time. The reportable P&Ls will now be the manufacturing group inclusive of IFS, manufacturing and technology development, our product groups of CCG, DCAI and NEX and all other. Under this new structure we'll move from a cost allocation to a market based wafer test and packaging price from our manufacturing groups to our external and internal customers for both front-end fab manufacturing and back-end test and packaging services.

This is a shift from today's practice where cost is allocated from the manufacturing group to the business units. Pricing will be based on comparable industry benchmarks from foundries and OSATs based on performance, power, area and cost. This will provide an economic relationship akin to a fabless and foundry partner and shift the association from today's support model to a customer supplier relationship. It's important to note that this is not only a significant change for our manufacturing groups, but it will also unencumber the business units from a large portion of their allocated cost, allowing them to predictably optimize their own OpEx and investment decisions.

To put a finer point on this today, our manufacturing, technology development and IFS groups comprise roughly 40% of our head count, 25% of our OpEx and more than 90% of our CapEx, yet our ability to benchmark and track the effectiveness of these investments has historically been obscured by the lack of transparency inherent in an allocated cost model. Our pivot to giving manufacturing its own P&L is critical to identifying cost reductions. This new model will add transparency and comparability that exposes the true economics of the business by more directly measuring the financial performance of our teams with peers. It will also drive accountability as we harden the connection between decisions and costs.

For example, the financial impact for decisions around capacity allocation shifts to manufacturing. While the impact of design attributes, an extra stepping or late demand changes will directly impact the business units making those decisions. We are already seeing benefits of this newfound transparency and accountability and expect to see many more as teams are incentivized to drive better financial performance.

This model isn't a panacea to our cost challenges. It's simply a structure that enables us to drive accountability and measure progress. We still need to identify and drive the changes necessary to improve margins. Jason will delve into several of these opportunities, but first I'd like to spend a few minutes explaining how we got here. The rationale for the change and the operational impact we think it will have.

Since our founding in 1968, we have been an integrated device manufacturer or IDM, a company that both designs and manufactures its own semiconductor chips. Intel was tremendously successful executing this strategy, what we call IDM 1.0 for many decades. We had two guiding principles for manufacturing under IDM 1.0.

First, always maintain capacity buffer given our strong market position. And second, move to the next node as quickly as possible aligned with Moore's Law. Additional capacity was key as the cost of ceding market share outweighed the incremental capital cost. Unfortunately, this also had the unintended consequence that the BUs could drive excessive expedited wafers and frequent changes to wafer loadings without economic consequence or accountability.

And we had a rapid ramp up and ramp down approximately every two years where cost reduction was largely achieved by moving to the next node versus optimizing costs on existing nodes. We had leadership in process

technology of up to two years versus competition that led to consistent gross margins in the 50% to 60% range. This was the right strategy for the time and we were highly successful.

The semiconductor industry and computing in general has evolved rapidly and we need to adjust our business operations in response. With the advent of smartphones, the digital network, the intelligent edge, cloud computing and AI, compute demands have diversified. In the latter half of the last decade we competed in diverse end markets with a strategy that was highly tuned to win in a single end market. At the same time, the diversification of workloads, devices and product lines led to development of a vibrant foundry ecosystem, shifting from a niche to the norm. Furthermore, the industry is experiencing a significant increase in capital intensity as cutting-edge nodes grow more expensive.

Finally, there is an ongoing technology pivot to disaggregation that will drive longer tails as some IP will remain on older process technologies that doesn't benefit or require the shrink that would come from the next node. This increases the criticality of cost optimizing existing nodes versus simply moving all capacity to the next node. These changing industry dynamics coupled with our own execution missteps that caused us to lose process leadership have contributed to the shift to IDM 2.0.

On one hand this is a significant change for the organization as we adapt to new market dynamics. On the other hand, our objective remains unchanged to maximize value for our shareholders. While we transition to this new model, we want to be clear about the inherent value of the tight connection across our manufacturing business units and IFS work better together.

The IDM model provides four key advantages. First, it enables our technology development, manufacturing organization and business units to co-develop the process for custom product needs. Second, it enables us to get products to the market faster. Intel's internal CPUs are the ramp vehicle for Intel 18A, which will come to market in 2025 and enable us to regain process leadership.

Third, the model gives us a substantial tailwind as an external foundry by ramping our process nodes on internal volume and derisking the process for external customers. And lastly, under IDM 2.0, we'll have an increased scale and a broader ecosystem of EDA, IP and design services that will further strengthen our IDM capabilities.

To clarify the financial structure, let's review a mock P&L that demonstrates how the new model will operate. In the IDM 1.0 structure manufacturing organizations do not accrue any revenue and only incur cost of sales and operating expenses. Both cost and spending are then fully allocated out to the partner business units, ultimately leaving the manufacturing groups with no gross or operating margins. As such, the sum of all business unit P&Ls equals the IDM P&L.

As we transition to the IDM 2.0, the manufacturing group will have a standalone P&L. Revenue will be based on wafer sales to the business units at market pricing, while cost will continue to be based on true manufacturing costs. As such the manufacturing business will begin to generate a margin. OpEx will no longer be allocated out, but will remain on the manufacturing P&L leading to a manufacturing operating margin. The price based manufacturing revenue will now drive business unit cost of sales. Therefore, business unit margins will be based on market based cost structure.

The intercompany sale of wafers from the manufacturing P&L to business unit P&Ls will be eliminated, causing the Intel level P&L to be consistent between IDM 1.0 and IDM 2.0 in this hypothetical example. Our long-term ambitions are to achieve non-GAAP 60% gross margins and 40% operating margins. The internal foundry model will largely help us to achieve this in the following three ways.

First, having a full P&L will enable clean benchmarks to third parties and highlight opportunities. This changes incentives for leadership, which will further lead to an optimized cost structure for both the manufacturing group and business units. We've highlighted before that our ambitions are to be the second largest external foundry by 2030 that remains our goal. In the new model based off of internal volume, we expect to be the second largest foundry next year with manufacturing revenue of greater than $20 billion.

Second, pivoting from allocated cost to price will change behaviors within the business units. For example, it will encourage business units to move to the next node faster as they won't be burdened by the initial high cost as a new process ramps. It will also incentivize test time optimization, fewer expedited wafers and more selective use of samples as the business units see the direct impact of their choices hit their P&L.

Third, the manufacturing group will now face the same market dynamics as their foundry counterparts. They'll need to compete for volume through performance and price as internal customers will have the option to leverage third-party foundries. And to attract external foundry volume, they must do the same. This will lead to more effective adoption of standard third-party practices.

Over time, our internal business units will have increasing flexibility to choose where their products are manufactured. This is not a new concept for Intel. Today, roughly 20% to 25% of our silicon is manufactured externally, and Meteor Lake, which we'll launch in the second half of this year, benefits from both internal and external wafer supply.

While increased flexibility is the plan of record with five nodes in four years proceeding well and expected leadership on Intel 18A in conjunction with a new accountability driven through the internal foundry model, we're confident that our manufacturing group will continue to be the partner of choice for our internal business units. In fact, we continue to be confident that we will sign up our first Intel 18A external foundry customer this year.

Now, let's pivot to the financials and opportunity in front of us. Intel's gross margins compare unfavorably to industry benchmarks. Leading fabless and foundry competitors combined into a virtual IDM would achieve roughly 70% gross margins, which is 20 points to 30 points higher than Intel's recent results. We took a big step forward this year as part of our efforts to reduce spending.

As we've worked to implement the strategic changes required for our internal foundry model over the last several months, we've already identified multiple cost savings opportunities. While I'm very optimistic about our future and long-term model, it will take time before our manufacturing group P&L is world class. As you can see, we initially expect a negative operating margin percentage, but the significant opportunities stemming from our internal foundry model will begin to drive accretion to Intel.

I'll now hand it over to Jason Grebe, Corporate VP and General Manager of Corporate Planning to address specific examples of how our internal foundry model will reduce costs and drive efficiencies for Intel.

Jason Grebe

Corporate Vice President & General Manager-Corporate Planning Group, Intel Corp.

Thank you, Dave. It's great to be here with you and the investor community. As Dave mentioned in IDM 1.0, our business units would make decisions based on product cost provided by the internal manufacturing teams. In a cost base model, the business unit P&Ls would absorb changes in cost, ramp impacts and allocated expenses that can vary over time.

In IDM 2.0 as we grow Intel Foundry Services, we will leverage our at scale factory network while also providing market-based pricing for our products and services to external customers. The internal foundry model combines the best of both worlds. We will extend the use of market-based pricing to our internal business units, offering them the same stability as our external customers. We maintain the intimacy and deep connection between our product groups and technology development teams, preserving the competitive advantage we had as an IDM.

And finally, we provide a tailwind to our external foundry business by effectively creating the industry's second largest foundry, letting external customers build off our internal scale. For example, we will have more than five internal products being developed on our latest process technology, Intel 18A. Our internal products and the early learnings around them essentially derisk the process for our external customers. As a team, we've already done a lot of internal analysis and benchmarking to identify areas of opportunity.

Let me talk through a few examples we've uncovered and where we've already started to see the benefits of our internal foundry model. Let's start with expedites. Expedites request to the factory to accelerate production or sample materials. While expedites provide faster routes for specific lots of material, they disrupt the efficiency of the factory network and lower the overall output, which leads to incremental capital and spending. Our benchmarking suggests that we expedite materials around 2 times to 3 times more than our industry peers, with an estimated 8% to 10% hit in overall output.

In the internal foundry model, business units will be charged 1.5 times to 3 times the price of a wafer for expedited services, just like a customer would at an external foundry. This will tie the financial implication of an expedite request directly back to the business unit that requested it, giving the decision maker a clear understanding of the return on investment of that decision.

This transparency combined with greater operational controls will drive additional accountability and reduce overall expedite requests while retaining customer service levels. As the number of expedite request come down, the manufacturing group will be able to optimize their factory flows, and we estimate annual savings in the range of $500 million to $1 billion over time.

Next up is test and sort cost. As we shift to the internal foundry model, business units will now be charged the market price based on test time. Historically, Intel has enjoyed a structural cost advantage on its test platforms. This is driven by the high level of parallel testing we have spent years developing. However, due to this capability, we've increasingly grown our test times compared to our industry peers. Currently, we estimate our test times are 2 times to 3 times those of our competitors. Effectively our lower cost testing platform was subsidizing the growth in our test times.

By switching to the internal foundry model, we are uncovering design choices and tradeoffs that have impacted test times and as we sharpen our focus, we are addressing test strategies within design and in partnership with our quality network to reduce overall costs while still preserving the quality that Intel prides itself on.

We anticipate this focus to save around $500 million annually over time. As you can see, we've identified many opportunities for optimization across both our business units and our manufacturing organizations that will lead to significant savings. In the interest of time, I'll briefly review a few other activities we're currently exploring.

Product business units will leverage stable pricing, which will help accelerate our ramp rates, leading to better capital utilization and faster yield curves. We estimate this will save up to $1 billion. The internal foundry model also has benefits beyond the efficiency of our manufacturing network. We are already looking at several areas within our product design environment to improve efficiency there.

For example, we expect to see increased design efficiency as we start to charge industry rates for tool utilization, just like our competitors, which has hundreds of millions of dollars of cost savings opportunity. We also have plans to minimize samples, reduce steppings and economically target our advanced packaging. All areas with massive cost savings opportunities in the range of $500 million to $1 billion annually. We are also implementing industry standard systems and tools to be able to scale up our revenue without increasing operational costs.

Overall, we estimate that internal foundry model will help drive closure on our overall $8 billion to $10 billion savings goal. Beyond the cost and efficiency benefits I've mentioned, the internal foundry model is a significant tailwind for Intel Foundry business as well. Everyone on this call knows that it is critical for our foundry business to be successful. We heard directly from our customers about what they need from us.

Number one, a portfolio of process technology and IPs. Number two, supply assurance. Number three, protection of their data and IP; and number four, world class service levels. We know that IDM 2.0 with our commitment to deliver five nodes in four years will address the portfolio of process technologies that our customers expect while also improving our IP portfolio.

The internal foundry model addresses the next three needs, starting with supply assurance. Intel Foundry Services will have the authority to allocate quarters of capacity to its customers. Overall, by establishing the manufacturing organization as its own business and ensuring it has the decision rights to manage its P&L, we expect to be able to communicate clear capacity corridors and supply commitments to our external customers.

The next concern we hear is related to protection of customer data and IP. The internal foundry model is an arm's length approach that increases the independence of our manufacturing organizations. We will deliver complete segregation for foundry customers' data and IP. As we begin retooling the company for this transformation, we are architecting with a security first mindset, taking data separation as a key tenant in our systems design.

Lastly, our customers expect world class foundry service levels. As we've already begun the internal foundry model shift, we are building the service-oriented mindset that is absolutely required to be a key player in the foundry business. The manufacturing group, including our Intel Foundry Services organization are benchmarking themselves against industry peers to ensure we're on track to provide best-in-class service levels expected from a foundry.

Now, let me briefly summarize what we talked about today. Evolving from IDM 1.0 to IDM 2.0 has been a critical step for Intel to win. On top of that, establishing an internal foundry model is one of the most significant steps we are taking to deliver IDM 2.0. Our internal foundry model is the mechanism that makes IDM 2.0 a success by fundamentally changing the way the company operates and establishing the structure and incentives needed to change our culture and drive new behaviors.

And by leveraging industry standard planning processes, data management strategies, systems and tools, we are building the foundation to be a world class IDM and a foundry provider. Next, giving the manufacturing group their own P&L, along with the associated transparency and accountability, will be a key driver in achieving our target to reduce $8 billion to $10 billion in cost and achieve our long-term profit goals. And finally, the internal foundry model will be a strong tailwind to our IFS strategy.

John Pitzer

Corporate Vice President-Investor Relations, Intel Corp.

Thanks, Dave and Jason. We're now going to transition to the Q&A portion of the webinar. Jason is going to be joining me live in the studio. We have Dave joining us today virtually for Q&A. As a reminder, we will ask each of you to ask one question and a brief follow up question where applicable. With that, Jonathan, can we please take the first question?

QUESTION AND ANSWER SECTION

Operator: Certainly, one moment. Our first question comes from the line of Ross Seymore from Deutsche Bank. Your question, please.

Ross Seymore
Analyst, Deutsche Bank Securities, Inc.

Q

Hi, guys. Thanks for let me ask a question and thanks for all these great details. I guess, for my first question on the manufacturing side, you have the slide, didn't have a scale on it, but you talked about the operating margin being negative initially and then climbing over time. Can you just give us an idea of is that mainly cost dependent, the $4 billion to $5 billion that Jason highlighted or is there a significant revenue dependency within that? And if it is revenue dependent, is that more internal or foundry IFS based?

John Pitzer
Corporate Vice President-Investor Relations, Intel Corp.

A

Dave, why don't you go ahead and start and Jason can follow-up.

David A. Zinsner
Chief Financial Officer & Executive Vice President, Intel Corp.

A

Yeah. Good question, Ross. Obviously, scale is going to matter and level of revenue is going to matter. I would say, as we look out over the next few years, most of our revenue is going to come from internal foundry customers. So, that's really where we're expecting most of the lift from, but there is a significant amount of improvement that we think we can make. And most of the remaining $8 billion to $10 billion after we get through the 2023 portion, which is $3 billion, will be in cost of sales and will be directly benefiting the foundry P&L.

So, those will be a key aspects and obviously also we look at our OpEx as a percent of revenue in the foundry business and it's relatively high given our need to accelerate our node transitions and the investments necessary to do that. And obviously we'll get back on to a normalized cadence and so my expectation is that OpEx starts to improve as a percent of revenue as we progress and that should provide a good tailwind to improving operating margins as well.

John Pitzer
Corporate Vice President-Investor Relations, Intel Corp.

A

Perfect. Ross, do you have a follow-up question?

Ross Seymore
Analyst, Deutsche Bank Securities, Inc.

Q

Yeah. Forgive me for going a little off script on this, but I noticed this morning you talked it about or announced a sale of a portion of your IMS business. Can you just remind us the strategic importance of that business and why you sold a portion of it today?

David A. Zinsner
Chief Financial Officer & Executive Vice President, Intel Corp.

A

Yeah, sure. So, we'll try to stay on the foundry – internal foundry topic. But just since it was newsworthy today, I think I can touch on it. We are really delighted that we were able to close a portion of – sale of a portion of the IMS business for an overall valuation of $4.3 billion. This will turn out to be one of the best acquisitions we've ever made given that level of valuation and the investment we made at the beginning. This business is really in a good spot right now given its multi-beam mask writing toolset, which is essentially directed at EUV and ultimately high-NA EUV. So when Bain came in they saw the upside to the business going forward.

We sold about 20% of the business to Bain. And I think Bain is just a terrific partner for this and I think really reinforces how valuable this business is and the opportunities that are in front of it. By the way, we think this is another kind of example of our focus on unlocking shareholder value. As you know we did our follow on offering for Mobileye [indiscernible] (00:30:44) offerings for Mobileye that have unlocked value for shareholders and created a valuation for the overall business. This will be another opportunity to do that and get some proceeds by selling about 20%, but also establish the value of that business as well.

So terrific transaction has been in the works for some time. We think giving it a little bit more independence having Bain involved who just has – I think a lot of – provides a lot of strategic value working with the team there to drive the business will ultimately yield a terrific result for the company and ultimately also for Intel.

Maybe just since we are talking newsworthy items, maybe I'll just hit on another one, there has been a couple of announcements late on expansions [ph] of our (00:31:42) greenfield sites around the world. And of course, the numbers are big, which will be spent over time. Obviously, they come with incentives, many of which are front-end loaded. So, pretty beneficial to us and all within the idea of getting the cost aligned with our competitors and also helping on the cash flow side.

Nothing that we announced is any different than what we gave as our view in – at the Investor Day and how we talked about it over the course of the quarter. Since then we still believe the investment phase of Intel, which is kind of a 2022, 2023, 2024 timeframe, we will roughly be spending at a net CapEx intensity in the mid-30s as a percent of revenue.

And we still feel like confident that we will be able to modify that thereafter into a level that's somewhere in the mid-20s as a percent of revenue. And that combined with getting back to process leadership, getting back to product leadership in markets that are growing at pretty healthy rates, we think should give us very good free cash flow. We still feel committed to that roughly 20% of revenue coming in the form of free cash flow.

John Pitzer
Corporate Vice President-Investor Relations, Intel Corp.

A

Ross, one thing I might add on IMS, it's a nice reminder that we've been investing as a company in the EUV ecosystem for well over a decade. And as Pat mentioned on the last earnings call with the ramp of Intel 4 and Meteor Lake, we're rapidly closing sort of the gap on EUV. And we think that the IP and kind of industry perspective that IMS gives us becomes even more important as we transition to high-NA in the back half of the decade.

Ross Seymore
Analyst, Deutsche Bank Securities, Inc.

Q

Thank you.

John Pitzer
Corporate Vice President-Investor Relations, Intel Corp.

A

Jonathan, can we have the next question, please?

Operator: Certainly, one moment for our next question. And our next question comes from the line of Vivek Arya from Bank of America. Your question, please.

Vivek Arya
Analyst, BofA Securities, Inc.

Q

Thanks for taking my question and for this informational webinar. So let me paint a hypothetical scenario. Let's say one of your product groups wants to go to an external foundry, what flexibility do they really have? Because these foundry relationships are done years in advance. And even if that product group leaves, who covers that underutilization charge, right. So doesn't in some way this new structure kind of give the illusion of separation and flexibility without actually having the real flexibility that your fabless and foundry competitors are enjoying today?

John Pitzer
Corporate Vice President-Investor Relations, Intel Corp.

A

Jason, maybe you should start on this one and then Dave follow-up.

Jason Grebe
Corporate Vice President & General Manager-Corporate Planning Group, Intel Corp.

A

Yeah, sure. I mean, over time our business units will have increasingly more flexible decisions about where they manufacture and where they drive their IPs. We are actually have our x86 IPs at external foundries today, so that won't be a major change for some of the business units. They do have the ability to flex out where their products require it.

Reminder that we are investing in five nodes in four years to catch up from a process technology perspective. We feel good about that investment and the progress to-date. The manufacturing company on their side of the house will financially incentivize our product groups to want to manufacture on those improving process technologies internally. So we expect the majority of the volume to remain in-house. But the business units for years have had the flexibility to flex out for product needs where they want it. We're actually having products in 2024 begin to start that process. So it's not a major change for us, and it provides them the flexibility and the architectural choices necessary for them to have the best competitive roadmaps from a product perspective. So we feel comfortable with it.

John Pitzer
Corporate Vice President-Investor Relations, Intel Corp.

A

Dave, anything you might want to add?

David A. Zinsner
Chief Financial Officer & Executive Vice President, Intel Corp.

A

That was a good answer, Jason. Maybe the only other thing I would just say, which he pretty much touched on is this – because we're measuring external or internal foundry as a P&L, or a foundry is a P&L, they're highly incentivized now to grow their P&L, which means they're highly incentivized to grow their revenue to load their fabs. They're going to bend over backwards to do that.

And so, yeah, there'll be pressure because of the competition as we progress over time. But that just makes, competition makes people better, it makes companies better. And so, my expectation is that the foundry business rises to the challenge, delivers process technology, delivers service levels, delivers capacity in a way that excites our customers, whether they'd be external customers or they are internal customers and they bring volume because of that.

John Pitzer
Corporate Vice President-Investor Relations, Intel Corp.
A

Vivek, do you have a follow-up question?

Vivek Arya
Analyst, BofA Securities, Inc.
Q

Yeah. Thank you, John. So why shouldn't we think of this as kind of Intel's first step towards potentially breaking up into a fabless and a foundry business? What would be kind of the pros and cons of such a move?

John Pitzer
Corporate Vice President-Investor Relations, Intel Corp.
A

Dave, do you want to start?

David A. Zinsner
Chief Financial Officer & Executive Vice President, Intel Corp.
A

I think – yeah, I'll start. Although, Jason, I think hit on a lot of it in the prepared discussions. We think there is a ton of benefit for having both a business – a product business and a manufacturing business combined. I think it enables better process technology over time. It enables better products because you're working closely with the TD groups on a regular basis.

We think that our ability to use our internal customers as what we call customer zero to ramp volume on the new nodes is a benefit to the external foundry customers who then get to benefit from the use of those nodes that have [ph] been (00:37:29) worked out many of the early [indiscernible] (00:37:33) to the process. We think that we'll be able to leverage EDA partners in a better way, leverage IP in a better way because we have this combined entity. So, we don't see this as a requirement to split the business. We actually think quite the opposite. By doing this, it actually helps bring the businesses together in a more fulsome way.

The other thing we're going to do, we have seen some commentary out there about how external customers will do this and we see this as a tremendous positive for external customers. They do want – as Jason said, they want protection of IP. They want to know their corridor is going to be there for them by creating this separation, but having it under the same [indiscernible] (00:38:21) they get that confidence that we will do that. In fact, we will have two legal entities. We'll have two ERP systems to manage things so that we can either do all the things that our external customers are expecting us as we kind of roll out the foundry model for them. Jason, anything to add?

Jason Grebe
Corporate Vice President & General Manager-Corporate Planning Group, Intel Corp.
A

No. I think that's a good answer. And I would just add improving the accountability, the transparency and the decision making straight back to their P&Ls is going to make both organizations better. So we view it as a better together story.

John Pitzer
Corporate Vice President-Investor Relations, Intel Corp.
A

Perfect. Thank you, Vivek. Jonathan, can we have the next question, please?

Vivek Arya
Analyst, BofA Securities, Inc.
Q

Thank you.

Operator: Certainly, one moment for our next question. And our next question comes from the line of Aaron Rakers from Wells Fargo. Your question, please.

Aaron Rakers
Analyst, Wells Fargo Securities LLC
Q

Yeah. Thank you for doing this conference call and all the details. I guess I just wanted to ask about, as kind of you guys mentioned in the webinar, this diversification and kind of process towards chiplet architecture and process node diversification. How do we think about the Tower acquisition and how that fits into the strategy as we think about evolution around leading edge versus mature nodes and so on and so forth in the IFS strategy?

John Pitzer
Corporate Vice President-Investor Relations, Intel Corp.
A

Dave, do you want to start with that?

David A. Zinsner
Chief Financial Officer & Executive Vice President, Intel Corp.
A

Yeah. I'll start. I think the way I view it is there is kind of three legs to the stool of being in a foundry business. There's participating at the leading edge, which obviously this helps tremendously in – there is then transitioning what was a leading edge to more a lagging edge or legacy node, which we intend to do over time and generate better ROI over time for our nodes because we're extending the length of those nodes. And then there are kind of more specialized offerings that are provided by foundry suppliers to foundry customers. And that's really where we see the Tower business being so important for us. So it will be one of the three legs of our offerings is just being able to provide the more specialized process technologies.

From a P&L perspective, they'll have their own P&L, obviously, that we will track and measure internally, externally, it will consolidate up into the foundry business that we are going to measure and talk about externally beginning next year in the first quarter. And so it will be part of what that group will be driving in terms of improved performance, trying to drive more gross margin and operating margin leverage from every one of those three stools over time.

John Pitzer
Corporate Vice President-Investor Relations, Intel Corp.
A

Aaron, do you have a quick follow-up?

Aaron Rakers
Analyst, Wells Fargo Securities LLC
Q

Yes. I do. I wanted to ask about the expedite or I think sometimes referred to as the hot lot dynamic in the manufacturing process, you mentioned an 8% to 10% output impact that you've seen. I'm just curious as you've already started to go down this path on the IFS strategy how has that already evolved? How has that changed within the operational rigor of the company that 8% to 10% already coming down? Any data points that you can share around that that impact to the model?

Jason Grebe
Corporate Vice President & General Manager-Corporate Planning Group, Intel Corp.
A

Yeah. Maybe I'll take that one. So what we've seen over time is that both on the engineering side or early development as well as the high volume manufacturing side, we drive a lot of expedites into the factory trying to pull in material and expedite material through, which at the end of the day really slows down the factory efficiency and overall full toolset implementations that we're driving. So what we started to do both from a process perspective and from an accountability and traceability perspective was attack that problem right away.

So we've kind of operationalized process flows within Intel to start to minimize those, prioritize those and get those out of the system wherever possible. We've already started that work immediately. And at the same time what we're doing is now being able to track those requests and push back the bill for those back to the business units. So they understand not only that there is an impact on manufacturing, but if they were doing that in an external foundry per se there would be a significant P&L impact to them for the choices that they make around expediting material.

So in 2023, before we stand up the P&Ls we're actually starting to surface those expenses to the business units to say like, hey, if we continue to operate the same way that we typically would this would be the type of impact that you would see on your P&L as we go forward. So we're starting to minimize those things on manufacturing. And in the long run what we hope to do is be able to drive out overall cost because we can take down capital, because we can run our toolsets more efficiently in manufacturing.

John Pitzer
Corporate Vice President-Investor Relations, Intel Corp.
A

Aaron, thank you. Jonathan...

Aaron Rakers
Analyst, Wells Fargo Securities LLC
Q

Very helpful.

John Pitzer
Corporate Vice President-Investor Relations, Intel Corp.
A

...can we have the next question, please, Jonathan?

Operator: Certainly, one moment for our next question. And our next question comes from the line of Mark Lipacis from Jefferies. Your question, please.

Mark Lipacis
Analyst, Jefferies LLC
Q

Hi. Thanks for taking my question and for the great presentation. Really appreciate it. So the first question, does the foundry – does this new strategy require you to retool existing fabs or change how you build fabs going

forward? The reason I ask is my understanding one of the reasons Intel had been so successful in the past and staying at the leading edge is that you were a focused IBM with products focused on x86 processors. So you could design and build factories focused with that product set. So my question is, is there extra CapEx to retool your existing factories or higher CapEx intensity for fabs going forward as you bring foundry customers online?

John Pitzer
Corporate Vice President-Investor Relations, Intel Corp.

A

Jason, why don't you go ahead?

Jason Grebe
Corporate Vice President & General Manager-Corporate Planning Group, Intel Corp.

A

Yeah, I would say there's not an incremental CapEx build to bringing on incremental foundries or incremental customers online for the Intel Foundry Services business. Obviously, we have to deliver PDKs to them so they can develop on top of our process development work that we're doing. But from a CapEx perspective, there's no significant CapEx increase for them other than the fact if we have incremental volume, obviously, we'd have to have a bigger footprint of overall capacity. But again, this is one of the advantages that we have as we have a global network of capacity with space already in our plans. So it would just be us building out according to the demand that we get from our new foundry services customers.

John Pitzer
Corporate Vice President-Investor Relations, Intel Corp.

A

Mark, I might add in the IDM 1.0 model, the cost driver was really maintaining that 2.5 year process lead at almost any cost and it evolved into things like copy exact and fast ramps up and fast ramps down of nodes. In the new reality of IDM 2.0, we're going to look for many other levers to try to drive those cost reductions by trying to run our manufacturing footprint just a lot more efficiently than we did in that IDM 1.0 model. Do you have a follow up, Mark?

Mark Lipacis
Analyst, Jefferies LLC

Q

Yeah, that's helpful. I do have a follow-up, if I may. I think I have and others have viewed Intel as kind of venture capitalist for Moore's Law or the process research. I think you guys were the first to bring high [indiscernible] (00:45:38) and FinFETs to market. My question is, where do those investment dollars hit your financial statements now? Whose P&L were they in, where will they land going forward? Who has responsibility for that? Thank you.

John Pitzer
Corporate Vice President-Investor Relations, Intel Corp.

A

Dave, do you want to start with that?

David A. Zinsner
Chief Financial Officer & Executive Vice President, Intel Corp.

A

Yeah. So most of the ones you referenced, maybe like a future one, might be [indiscernible] (00:46:05) we've invested in, those will still show up when you look at the consolidated P&L as research and development expense. When you look at it by business unit, it will show up in R&D for that, whatever we end up calling the foundry business unit as R&D and it will somewhat be kind of incorporated because that the foundry business has to get a return on all of these investments through their wafer pricing. It will show up in the BU P&Ls ultimately as part of the wafer pricing how that they pay for – to the foundry business unit.

And I'm sure there will be instances where it's – where the more research oriented spend is more of a product investment as opposed to a process investment. And in those cases, it would show up again, on consolidated basis it will show up in R&D. But in those cases, it would show up as R&D in one of the business units or allocated across several of the product business units and likely not show up in R&D for the foundry business unit.

It's a little bit complicated because there are some exceptions. There are some things that there will be investments that are done at the corporate level that Pat will kind of manage on his own. And in those cases, we'll allocate it broadly across all business units if it's one of those kind of projects. But assuming it's something more specific to the product area or the foundry or manufacturing and TD area that will show up in those respective business unit P&Ls.

John Pitzer
Corporate Vice President-Investor Relations, Intel Corp.

A

Mark, thanks for the great question, Jonathan, can we have the next question, please.

Operator: Certainly, one moment for our next question. And our next question comes from the line of Gus Richard from Northland. Your question, please.

Auguste Philip Richard
Analyst, Northland Securities, Inc.

Q

Yes. Thank you very much for taking the questions. The first one I have is, as you go on this journey, you're looking at the external foundries and benchmarking yourself against them. And I was wondering how you are doing, particularly as it pertains to tape in, as I understand, it takes a lot longer at Intel and also cycle time within factory because the way I understand you on your factory, you have limited number of processes, limited number of products and it just makes more sense from a cost perspective in that model to have a longer cycle time than what is typically observed in a foundry. Any help there would be appreciated.

John Pitzer
Corporate Vice President-Investor Relations, Intel Corp.

A

Jason, great question for you.

Jason Grebe
Corporate Vice President & General Manager-Corporate Planning Group, Intel Corp.

A

Maybe I can start. So on the foundry side, obviously, we have to be competitive from a tape in perspective. We have to be competitive from a throughput time perspective and we plan to be world class there. So our customers aren't going to give us a break there from a foundry services perspective. So, we're absolutely attacking those problems. We understand exactly where the foundries are relative to us in that space, and we're attacking those problems and our plan is to be world class and competitive there.

From an internal perspective, obviously, the business units are driving the products that they want to be able to go drive and the factory units need to be able to support those business units and support those tape-ins, that intimacy that we've had for 50 plus years will remain. Obviously, we want to become world class there. And we think by separating out the P&Ls and letting them drive the behaviors independently will get us to a better answer collectively at the company level.

John Pitzer
Corporate Vice President-Investor Relations, Intel Corp.

A

Gus, do you have a follow-up question?

Auguste Philip Richard
Analyst, Northland Securities, Inc.

Q

I do. And just, historically, you guys have had a very high level of equipment reuse. And are you – for each node going to build a new factory with a fresh set of equipment and then just no more hand-me-downs or just reuse the older equipment for older nodes.

Jason Grebe
Corporate Vice President & General Manager-Corporate Planning Group, Intel Corp.

A

Yeah. Maybe I can start. It's going to be a case-by-case depending upon the demand set that we have and the factory network and toolsets in those factories. So obviously reuse does save us some capital and drive some efficiency, we'll obviously drive to that wherever we can. But in the grand scheme of things, it's just going to be a question of what demand sets we have. We are planning for longer tails on our process technologies to try to get more return on those investments. But we'll continue to monitor as we go.

John Pitzer
Corporate Vice President-Investor Relations, Intel Corp.

A

Dave, anything you'd like to add on that?

David A. Zinsner
Chief Financial Officer & Executive Vice President, Intel Corp.

A

No other than to say, it's not – not every node has been identified as a great external foundry [indiscernible] (00:50:44) Intel 16 is – Intel 3 is, but the nodes between those two we determined aren't what we want for foundry offerings. And so in those nodes, we'll have still high reuse of equipment as we progress into more advanced nodes. Those that are clearly targeted as external foundry nodes, clearly we'll attempt to extend the lives and get better ROC.

It is going to drive in some cases more greenfield expansion as part of why you're seeing more greenfield expansion from us and the announcements that were just came out, one of them being [indiscernible] (00:51:29) is in part because of that, we've been trying to extend the lives of some of these fabs. And as everyone knows when you can take these beyond their depreciable lives they generate really great cash flow and have really accretive gross margins to the business. And so that is our goal to drive a better P&L ultimately for shareholders.

John Pitzer
Corporate Vice President-Investor Relations, Intel Corp.

A

Gus, thanks for the questions. Jonathan, can we have the next question, please.

Operator: Certainly, one moment for our next question. And our next question comes from the line of Ambrish Srivastava from BMO. Your question, please.

Ambrish Srivastava
Analyst, BMO Capital Markets Corp. (Broker)

Q

Hi, thank you. Thank you very much for hosting this call. Dave, I wanted to come back to the external versus internal. And you said earlier on, which is correct, you said Intel has been having external foundries, but the whole purpose behind this is to make the P&L more transparent to the product groups. So do you envision a scenario where the external goes from 2025 to 2030, 2040? And if so, what is the implication for how do you modulate your CapEx, capital intensity if the pendulum was to swing in that direction?

David A. Zinsner
Chief Financial Officer & Executive Vice President, Intel Corp.

A

Yeah, obviously, we would adjust capital intensity because that where it could be the case. I would just say that I think that's unlikely. I think that as we progress the foundry business, which will be a combination of internal and external is going to execute really well based on all indications on how a process technology is going with respect to the five nodes in four years. I think that based on the notion that performance will be good on those nodes and pricing will be very competitive for those nodes.

I think the business unit – product business units are going to be – see a lot of financial incentive to want to go with the internal foundry. That said there will be situations where that doesn't align with timing or needs and there is always the flexibility that they have, which they have had for all this time to utilize external foundries, so I think percentages we're throwing around are probably, but be the likely percent of external foundry that we have within the business when we look out [indiscernible] (00:54:04).

John Pitzer
Corporate Vice President-Investor Relations, Intel Corp.

A

Ambrish, do you have a follow up?

Ambrish Srivastava
Analyst, BMO Capital Markets Corp. (Broker)

Q

Yeah. I had a quick one on the savings, potential savings, sorry. Thanks for that. The potential savings of $4 billion to $5 billion, what is the timing that you guys expect to realize those savings?

David A. Zinsner
Chief Financial Officer & Executive Vice President, Intel Corp.

A

Well, there is two answers to that. When Jason showed all these ideas we had and how much they rolled up to some of those ideas we think we can get in the next year or two, some of them are a little bit longer term. That said like I said we had this target of $8 billion to $10 billion of savings exiting 2025. $3 billion of it that we are targeting to get completed this year in 2023. So that would only be roughly $5 billion to $7 billion of cost savings still to go that we expect to get as exit 2025.

Some of that will be the things that Jason highlighted in terms of the benefits of this internal foundry model. Some of it would be quite honestly, blocking and tackling type spending reductions that we'll implement in terms of just driving more efficiencies, we're doing better in terms of [indiscernible] (00:55:28) best cost across everything we buy and those kind of things that will also contribute to the remaining $5 billion to $7 billion.

John Pitzer
Corporate Vice President-Investor Relations, Intel Corp.

A

Perfect. Thank you, Ambrish. Jonathan, can we have the next question, please?

Operator: Certainly, one moment for our next question. Our next question comes from the line of Vijay Rakesh from Mizuho. Your question, please.

Vijay Raghavan Rakesh
Analyst, Mizuho Securities USA LLC

Q

Yeah, hi. Thanks for doing this event. Just a quick question – just a clarification first. Where you're looking at foundry revenues going to $20 billion next year. And when do you expect to start breaking out the internal versus the foundry business? And I have a follow-up. Thanks.

David A. Zinsner
Chief Financial Officer & Executive Vice President, Intel Corp.

A

Yeah. We already provided that the foundry revenue – the external foundry revenue is [ph] that (00:56:12) in our current construct segment reporting, obviously we expect to evolve that next year in the first quarter. I think I don't know exactly how we'll provide it, but our expectation is that we will still provide insights as to how much of the revenue coming from our foundry business unit is coming from external sources versus that it's coming from internal product groups.

John Pitzer
Corporate Vice President-Investor Relations, Intel Corp.

A

Vijay, do you have a follow-up?

Vijay Raghavan Rakesh
Analyst, Mizuho Securities USA LLC

Q

Got it. Yeah, and thanks, John. And I mean, if you look at foundry, it's really a scale business. Is there a risk that when the initial volumes have subscale, that it might be a headwind to the margins versus some of the other foundries that could be running at scale and likewise, you could have some foundries that are pretty good at certain nodes that could be driving a lot of volume and be very competitive and might be a headwind to your process. But just trying to think through that? Thanks.

David A. Zinsner
Chief Financial Officer & Executive Vice President, Intel Corp.

A

Yeah. I mean, we are – obviously we're subscale, that's why our operating margins are where they are – what we highlighted [indiscernible] (00:57:26) profitable they are below zero. So we do have to build out the scale of that organization. Obviously, we're trending below normal trend lines for the overall business. So the expectation is, is that what covers that improves our retail volume for the foundry business – aggregate foundry business.

That said, I think as Pat correctly concluded as he came into the company because this is – this is because the CapEx intensity, more volume is required through those fabs than what can be provided through the Intel product groups and so that's why it's so important that we move into the foundry business to attract more volume, to drive more scale, to make it more profitable. And obviously to allow ourselves to generate more cash flow that we can in a lot of ways we invest back in to advance the process technology and advance the product offerings. I missed...

John Pitzer
Corporate Vice President-Investor Relations, Intel Corp.

A

Vijay – I was going to add Vijay, the idea of talking about $20 billion of foundry revenue in Q1 of next year is to show you that we are an at scale manufacturer of foundry that would make us the second largest foundry in the world. Now, all of that business is coming from internal fabless customers, not external, but as we add those external customers, it just increases that scale. Jonathan, I think we have time for one last question, please.

Operator: Certainly, one moment for our final question. And our final question comes from the line of Srini Pajjuri from Raymond James. Your question, please.

Srini Pajjuri
Analyst, Raymond James & Associates, Inc.
Q

Yeah. Thank you. Hi, Dave. You sounded pretty confident about announcing Intel 18A customer, external customer later this year. Just trying to understand, when you say announcing a customer what exactly that entails. I mean are you anticipating signing a volume agreement? Just if you could give some color on that. And also, what are some of the issues that you still need to resolve before you announce a customer?

David A. Zinsner
Chief Financial Officer & Executive Vice President, Intel Corp.
A

Yeah. Okay. Let me take the first part for that question – sorry, the second part of that question first. I think that the main still to go item in terms of securing a customer is just the maturity of the PDKs. And I think they're getting to where they need to be, but they're not quite there. And I think until they are at the right maturity level, there will be a lot of activity with prospective customers. But having one really sign up for some volume, I don't think that happens until we have the PDKs at a mature level. We're expecting that in the back half of the year and I think that's why we feel – based on early read from customers, I think that's why we feel confident we will be securing a customer in the back half of the year.

Obviously we're talking about Intel 18A volumes, which aren't – it won't be reduced until 2025 and beyond. And so there won't be any incremental revenue you see from an Intel 18A customer this year and next year even early into the following year. So, our guess would be either 2025 or beyond that we start having volume from those customers.

We'll have some formal agreement, that's the way we did it with the other two customers we've secured one on Intel 16 and one on Intel 3, which generally has some sense of what the volume requirements are what that aggregate dollar amount is that we're talking about with what SKUs they're being directed at, those kind of formal items. And we'll have to see obviously then – we'll have to see how things play out. But in all likelihood, we'd be looking for some sort of [ph] prepays (01:01:46) as well in addition so that we can use that working capital improvement to accelerate our investments in Intel 18A.

John Pitzer
Corporate Vice President-Investor Relations, Intel Corp.
A

Srini, do you have a quick follow on?

Srini Pajjuri
Analyst, Raymond James & Associates, Inc.
Q

Yeah. Just more of a longer term, Dave, you kind of talked about the synthetic GM between – in the foundry and the fabless customers being close to 70%. And your long-term target is 60%. And I would say if you get to 60%, a lot of us on this call will be very happy given where you are today. But just curious as to, is there any structural reason as to why you should be below given some of the advantages that you mentioned of being an IDM?

David A. Zinsner

Chief Financial Officer & Executive Vice President, Intel Corp.

A

Yeah. I'd say it's about the way you said it. Let's get to 60% and then we'll worry about how to get to 70%. We think we have a good path to 60%. There are some – when you combine one of the fabless companies that operates more as the leading edge with the best-in-class foundry supplier. That particular foundry supplier has a lot of scale and there is a benefit – just [indiscernible] (01:03:01) scale more than anything. So that's obviously going to impact the relative gross margins. That said there are probably other things that will be more beneficial for us that we can also take advantage of. So we'll have to see how things go. But I think for now, I want to drive the team to 60% and then once we get to 60%, we can think about what the next post would look like.

John Pitzer

Corporate Vice President-Investor Relations, Intel Corp.

Perfect. Thank you, Srini. With that, we've come to the end of this webinar. I'd like to thank everyone for all the great questions and the engagement this morning. We look forward to interacting with you all at the end of July as we report our Q2 earnings. Before we do sign off though, I would love to hear your feedback on today's event and where you'd like us to focus on future webinars. So please take a couple of minutes out of your time to do a brief survey that you'll see on the web link. Thanks again and we'll be talking to you soon. Appreciate it.