brainchip

ASX Announcement

BrainChip – Annual General Meeting CEO and Chairman's Address

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Sydney 23 May 2023: BrainChip Holdings Ltd (ASX:BRN), appends the Chairman's address, Chief Executive Officer's address and presentation to the Annual General Meeting, in accordance with the ASX Listing Rules.

This announcement is authorised for release by the BRN Board of Directors.

About BrainChip Holdings Ltd (ASX:BRN)

BrainChip is the worldwide leader in edge AI on-chip processing and learning. The company's first-to-market, fully digital, event-based AI processor, Akida™, uses neuromorphic principles to mimic the human brain, analysing only essential sensor inputs at the point of acquisition, processing data with unparalleled efficiency, precision, and economy of energy. Akida uniquely enables edge learning local to the chip, independent of the cloud, dramatically reducing latency while improving privacy and data security. Akida Neural processor IP, which can be integrated into SoCs on any process technology, has shown substantial benefits on today's workloads and networks, and offers a platform for developers to create, tune and run their models using standard AI workflows like Tensorflow/Keras. In enabling effective edge compute to be universally deployable across real world applications such as connected cars, consumer electronics, and industrial IoT, BrainChip is proving that on-chip AI, close to the sensor, is the future, for its customers' products, as well as the planet. Explore the benefits of Essential AI at www.brainchip.com
Follow BrainChip on Twitter: https://www.twitter.com/BrainChip_inc
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Chairman's Address

On behalf of the board of directors, allow me to start by again extending our thanks for not just attending but for your continued support of BrainChip and the mission we are on.

I will start with a promise, a promise that my general comments this year will be shorter than last year. I want to leave more time for Sean to give a comprehensive overview of the past year and how BrainChip is positioned moving forward. Additionally, I want to ensure we answer as many questions as possible.

I started my career in technology in 1991. So, doing the math, I have been engaged in the global tech space in various capacities for better than 32 years. I can say I have experienced all sorts of different markets and conditions. Some really good and strong, and others not so much. While business is business, I will say that technology is quite unique and usually doesn't follow conventional business norms. It is one of many reasons why technology can be both volatile and lucrative. Oddly enough, this uncertainly is what makes the tech industry go, and it is what makes it both exciting and rewarding, and at times, frustrating. It is also a key part of what drives innovation. There is no question though, the past 12-15 months, the post Covid-era if you will allow me to call it, has been the most challenging for tech in general. More challenging than the dragging years of the mid 90s, the dot-com bust of 2001, and the slowdown of 2007/2008.

But what all these slowdowns showed, is that a handful of companies come out stronger and well positioned to take advantage of the next tech surge. It is my hope, my expectation, and my demand, that Brainchip will be one of these companies. Sean will be detailing for you shortly the work the company is doing. On what I have seen and observed over the past 12 months, I, along with the board, am of the position that BrainChip is indeed progressing well, and continues to set the proper foundation for its continued growth.

Let me be clear, nobody at BrainChip is happy or content with our current position. We haven't hit any significant stride yet with respect to revenue. No one is satisfied, and no one should be. However, there is plenty to be positive and optimistic about. BrainChip has done more in the past 12 months to strengthen its development, market position and talent than it has since its inception. Yes, I know that is a strong statement.

As was discussed last year, and has been picked up by many in the press and the tech writing community, BrainChip has spent the last 12 months on a massive commercial effort. The engagements we have been on and the direct market feedback and demand we have received, has led to the product and architecture overhaul we went through this past year. Historically, not uncommon for research and technology companies, development tends to be very internal. This has been the case historically with BrainChip. Again, this is not uncommon, the company has

been focusing hard on proving out its offering. The trick for many companies comes when the move from technology to product takes place. In the past, BrainChip frankly hasn't gotten this right. We haven't had a product that can see its way into end production systems. Additionally, we haven't had a product that forces the market to move toward us. Right now, the AI space is bi-forcated between companies using high-performance, overkill AI solutions and companies simply using existing basic technology and targeted software. On one end, you have over "speced" systems that are inefficient, and on the other end, you have under "speced" offerings that don't yet understand what fully optimized AI can bring to their solutions. Through our recent commercial efforts and ecosystem development, we have gathered the demands to reshape our roadmap and product offering. I will be bold here and say that our newly reshaped roadmap primarily happened through our commercial efforts. BrainChip would not have organically reshaped its roadmap in the way it has.

Is this success? Certainly not, I get that. Success, in my mind, is consistent licensing with royalty-bearing products being created by our customers. We have plenty of work to do and we haven't reached a material degree of success yet. The reality is that the market is still in the discovery and embryonic stage with respect to edge-based AI. Unfortunately, Brainchip historically hasn't executed with respect to an appropriate product mix to accelerate the market. Only through enhancing our commercial standing, can we hone in on the proper product development to accelerate the market. We are in the middle of that now, our commercial teams led by Chris Stephens and Nandan Nayampally are making this happen. Again, more to come on this in Sean's talk.

I would also like to comment quickly on one corporate issue. When I joined the board, I was introduced to the concept of a "strike" which came from the shareholders voting down the remuneration report in the year prior to my joining. I will admit, when I first came aboard, I was surprised at some of the previous compensation models. Rewarding for performance has indeed been something I have been personally focused on since I came here. As I would hope you all have seen in the 2022 Remuneration Report, we now have an active annual bonus program and LTIP (Long Term Incentive Program) for employees and executives that have defined metrics. The plans rewards upside, and strongly incentivizes with upside, but mitigates payments if metrics are not met. In 2022, the annual bonus paid roughly 60% on average. It is too early to comment on the 3 year metrics of the 2022-2025 LTIP. There is a balancing act here. We do need to recognize that we are competing in the **global technology market.** The reality is that the global technology market is incredibly competitive with respect to talent. Hiring proper talent is a MATERIAL RISK for Brainchip, and one which I do not see easing in the future. Tech talent is expensive. I realize this may run counter to Australian norms with respect to other markets - but the cold reality is that we need to be globally competitive. I believe we have now struck the right balance with our current compensation models. Could we raise the bar further? Maybe, but if we make it too high, people leave, then we don't have a company. There is no "available talent pool" in the

current market. The "polar opposite" is the case. We find ourselves constantly trying to recruit talent. In fact, we are constantly trying to pull people away from other companies to join us. The good news is that we have shown success in bringing great people to work here and it is paying dividends.

Aside from an overhaul of incentive compensation, the board has been very active over the past 12 months. We have grown with the addition of Duy-Loan Le. All of us welcome her to the board. Her rich technical experience through her years at Texas Instruments will be leveraged greatly by Brainchip.

I would like to quickly highlight some of the other areas the board has been working actively on these past 12 months: those include, establishing robust processes around Risk Analysis, Development of Global Talent Acquisition strategies along with formal succession planning, beginning work on ESG and other corporate advisement matters and of course, most importantly, commercial and product development guidance. The latter taking precedent against all other matters.

Nobody has greater motivation than the employees of BrainChip to drive market success. That motivation is what drives the endless hours of work the employees are putting in. That motivation comes from multiple areas - technology, corporate culture, working environment, market potential, earning potential and people. The board is certainly driven to see better commercial success and we are demanding this of the company. The board is putting pressure on the executive team. At the same time, the board does see the “forest through the trees” and understands there is work that still needs to be done to make BrainChip a success. I am not ignorant to the shareholders that have been on board for a long time. I get it. Please understand, I can’t change the past. But I am here today to speak the truth and communicate that the trajectory we are currently on is the most promising since BrainChip's inception. I, along with the board, and the employees, remain steadfast to our commitment to making BrainChip a major player in the global technology market.

Chief Executive Officer's Address

Hello, and thank you for attending BrainChip's AGM. My name is Sean Hehir and since our last AGM I have completed my first full year of service with this amazing company. Much has happened in the world and market during this period. On the positive side, the world in many ways has awoken to the possibilities of Artificial Intelligence with the emergence of offerings like ChatGPT, Google Bard, and dozens of promising new companies, tools, models, and dataset advances, as AI becomes mainstream and a new compute paradigm.

However, at the same time, all this has occurred during one of the worst technology economies I have ever seen in my in entire technology career, with virtually all sectors, and specifically the semiconductor sector, seeing a slowing of orders, increased layoffs, and increased tendency for customers to slow down important future technology decisions.

During this interesting period, our company has been on a large transformation from a creator of promising technology to a supplier of enterprise-ready products supported by a robust commercial organization and focus.

Today I look forward to sharing the details about the transformation and have organized my comments into 4 sections.

- **First: The market we serve.** It is always important to set context with the market in which we operate.

- **Second: The year in review** - I'll speak to specific actions we've taken in the past year to build our commercialization engine, which didn't exist prior to my arrival. Additionally, I'll highlight what we have learned from the AI market we serve, and our product market fit.

- **Third: Our 2nd Generation Akida** - I'll share critical feedback we've gathered from the intimate relationships with our existing customers and prospects which has refined our view of product/market fit, and the functionality required to reduce barriers of adoption. In this section, I will also review our 2nd generation product breakthroughs that will make selection and integration of our AI inference acceleration obvious and easy.

- **Fourth: the next twelve months** - In this section I'll provide a view of where the AI market is heading, and our plan to maximize the opportunity for all our shareholders.

In my opening comments I briefly mentioned that during the past twelve months the world has become much more aware of AI as well as some undeniable additional trends, including:

- AI is the future of computing.
- The impact of AI on business productivity and efficiency is massive.
- Edge AI is starting to emerge with its own requirements.
- Seamless hardware and software development and integration is critical for success.

Let's examine these trends and some supporting data. The rapid advancements in AI are affecting all sectors of the world economy – devices are the new computer. For perspective, there are 10,000 data centres in the world, while there are 1 trillion+ edge devices. What were "dumb" devices with sensors that sent data to the cloud (data centres), are now becoming "intelligent" devices capturing and processing data at the point of capture, that can be acted on immediately and efficiently. A recent study from global consulting firm PWC indicated that the impact to global GDP will be greater than 15 trillion dollars by 2030 from greater efficiency and productivity. In many ways, it's the dawn of a new economic revolution similar to the agricultural and industrial ones.

Specifically for the edge market where BrainChip operates, Forbes Business Insights stated that Edge AI technologies will accelerate the AIoT market that is conservatively estimated at over 1.2 trillion dollars, that includes a large addressable market for AI-enabled edge and endpoint silicon solutions, like BrainChip's Akida.

Lastly, this Gartner report diagram does a nice job of reinforcing the emerging technology and trends that are most relevant today and into the next few years. Note that in the Productivity Revolution sector, Edge AI and Edge Computer Vision are in the bullseye of relevance. As well, Neuromorphic Computing is acknowledged as a Critical Enabler.

We are in the right market and BrainChip's technology and IP product are positioned to scale with the market opportunity.

There have been many improvements and changes at BrainChip that are not easily visible to many of you. So let me take some time and share what occurred in the past 12 months.

Human Capital: In an industry where, smart people matter a lot, BrainChip has greatly solidified its team. Critical additions include an outstanding addition to our board with Duy-Loan Le, and several new executives with deep semiconductor and AI expertise, specifically our Chief Marketing Officer, Nandan Nayampally and Chris Stevens, who heads our sales efforts. Adding leaders with deep industry skills was essential for our product development, marketing, and sales efforts to dramatically improve. We have also placed experienced sales leaders in Japan, Korea, Germany, and Silicon Valley and added more critical mass to our presales support team. Additionally, we added several excellent individuals to our critical engineering function.

From a human capital perspective, BrainChip is much stronger and deeper than the last time I spoke with you.

Research: Research is a core element and differentiator of BrainChip's strategy, Research is how we were founded and how we will continue to extend our technology leadership over our competition. We are not building "me too" products. This year, our research team here in Australia has made substantial progress on an exciting network architecture that will make its way into future generations of Akida that will enable real-time learning of new tasks. Part of this architecture has already been patented, and research is proceeding well and holds great promise in future years.

Marketing and Ecosystems: As shareholders I'm confident you've noticed the many partner announcements and amplification of our presence in the market. On the ecosystem front, we solidified our framework of Technology, Enablement, and Integrators. Since our last AGM we added new partners such as Intel Foundry, Prophesee, AI Labs, Edge Impulse, Emotions 3d, and Teksun. These partnerships enhance our ecosystems, allowing our potential customers to have confidence that our technology can be deployed in multiple foundries, workloads are easily ported, and key semiconductor enablers work better with Akida.

Over the past year our marketing efforts accelerated with a refinement of our web presence which started with the launch of the new website. We have solidified product positioning, increased the quality and quantity of collateral such as blogs, whitepapers, and videos. We have increased critical competitive benchmarking and added new thought leadership pieces as well as establishing critical analyst relationships.

Engineering and Development: This past year was an exciting year for our product effort. We have just completed the tape out of another chip, the Akida 1500, in the MCU-friendly 22nm process technology. This configuration, which is different from the AKD1000, is geared towards a companion module for industrial, MCU, automotive and smart home solutions and highlights the configurability and portability of the Akida IP. We've received our first samples and will begin building different demonstration boards and modules for use by our sales prospects immediately. Most importantly, in March of this year, we told the world about our second generations of Akida. This news was widely viewed as incredibly positive with the enhancements in our product, several propriety breakthrough advancements, but most importantly from a commercialization view it allows our sales team to address more customer use cases, more on this shortly.

Sales: As I stood before you last year, just a few months into the role as CEO, I already had determined that radical changes needed to take place in our sales effort. Our processes needed vast improvement, our sales talent wasn't appropriate for this market, and our coverage was limited geographically. Over the course of

the year, I have brought on a new veteran sales leader, retooled, or replaced existing sales personnel and expanded our coverage to a much broader US presence and international coverage including Korea, Japan, and Europe.

We also now further understand the length and complexity of an AI IP sales cycle; it is long, but we are on paths with several leading prospects. Even during this challenging economic environment, world class companies still innovate to exit the down cycle with solid plans for the future and while engagements are not closing at the pace we desire, it is important to note that we are not losing to others - it's just taking longer.

Please be assured that I too am not satisfied with our sales results to date but am highly focused and doing everything possible to accelerate wins. Currently, the number and depth of quality engagements are substantially higher than one year ago today.

While the sales results are not there yet, I am confident these changes coupled with our marketing and new product development efforts will yield results. The market is there, our offering is strong and getting stronger—it's a matter of time.

In summary, the organization is much stronger, processes are in place, and we are closer to customers and the market more than ever. We're clear on our priorities to transform our patented, scalable, and versatile technology into market success and to create shareholder value.

But before I close out the year in review and move to address the very important addition of the 2nd generation of Akida, let me briefly highlight some market feedback/insights from this year that guide our strategy:

- Edge inference AI is happening.
- Power/performance continues to be key for optimized solutions.
- BrainChip Akida solution is performant and recognized as an industry-leading solution.

All of these are positive market learnings but as we increased the number, quality, and types of engagements, we have also learned something very important about Akida 1.0. As we engaged with prospects in the first half of the year, we heard consistent feedback from virtually all engagements, which was while Akida 1.0 was, and is, at leadership levels of performance and power, the addressable number of uses cases was arguably narrow and targeted in places where existing "good enough" solutions were already in place. We simply were not going to be successful with the Version 1 product. This direct customer feedback is what drove our push to the 2nd generation Akida. At its simplest level, Akida 2.0 now allows BrainChip to address many more industry use cases, which means we can now address many more prospects. Net/Net: If you can engage with a larger number of prospects on

a much larger set of uses cases it greatly enhances your revenue prospects. Now let's take closer a look at Akida 2.0

Akida 2nd Generation

Let me begin by expanding on the use case comments I just made (*graphic of all use cases*). Fundamentally, Akida 2.0 is a platform that substantially increases the capacity of fan-less, highly efficient devices at the edge to run complex models and networks. We can now supercharge the edge AI device to efficiently run complex AI computation, untethered from the cloud, and without CPU intervention, and reduced system load.

This platform brings disruptive capabilities to the edge by:

- Adding support for handling more complex networks like RESNET-50 completely in the Akida neural processor hardware, freeing up the CPU for other tasks.
- The 2nd generation architecture introduces an optional vison transformer block that can boost performance of image, vision, and video workloads in hardware.
- Finally, it introduces support for efficient spatial-temporal convolutions with a class of new network models that are radically smaller and more efficient by orders of magnitude for a wide range of 3D and 1D time series data like video object detection and vital signs prediction in healthcare, to name a few.

We have also taken the approach of defining at least 3 distinct product classes driven by our target market.

- An efficiency version (Akida-E) with a low- node count optimized for operation very close to the sensor. This is designed for energy-sipping intelligent sensors that are even capable of performing without a supporting CPU.
- The next product is sensor balanced (Akida-S) which balances the power, performance, and footprint that is ideal for integration into MCUs or smaller ASICs that are designed for detection and classification workloads.
- Third product is max performance (Akida-P), that can scale to a much higher number of TOPS and is ideal for segmentation, prediction and complex model operation that be accelerated in hardware. The performance product can be optionally enhanced with vision transformers, enabling ASICs custom-built for specialized AI applications that deliver high-end performance cost-effectively and efficiently.

I share these details so you can get a sense of how this broader sense of capabilities will allow us to compete on many more engagements and increase our win probability, the subject I know all of you (and I) care the most about. A very simple way to look at it is that there are two generations; Akida 1.0 was mostly targeted at the use cases of the E version; with Akida 2nd Generation we and our prospects can do so much more with versions S and P.

Also, while I'm talking about technology, I invite you to go over the demo section so you can see Akida at work.

BrainChip was born out of research and became a version one product. I just highlighted the scale and capabilities of the 2nd generation of Aida that greatly increases our ability to penetrate accounts. The key to success is the software and tooling, without which customers cannot deliver solutions to market where the maturity of MetaTF and the ease of adoption is a strength. While it is critically important for us to succeed with this platform, there is more to do.

While the engineering team is working very hard to complete Akida 2nd generation, we are already planning Akida 3rd generation. The Product Management function has been tasked to deliver a fully functioning Product Requirements Document for this development before the Akida 2.0 is available for market. They will work with all the customer feedback we have obtained from industry analysts and build on the ground-breaking research coming from our Perth team as the foundation for this next generation of product.

We are in an industry where change is constant, and the pace is accelerating. We will meet or exceed that pace. We will push harder and faster to stay ahead of the market. You can expect major product announcements from BrainChip every twelve to eighteen months going forward. It's all about our speed and execution.

AI is becoming the standard compute model and is now mainstream. Semiconductor design is the foundation of AI capability, and we are driving this sea change.

BrainChip has pioneered a revolutionary alternative to highly efficient and performant edge AI processing. As evidenced by historical technology change, incumbent approaches are often perceived as good enough until they're not… this has been exacerbated by the recent economic downturn, which has impacted adoption of new, and objectively better alternatives.

With the inevitable mainstream adoption of AI in everything, and with BrainChip's transition to full commercialization with our second-generation products, we are positioned to become the silicon standard and incumbent of the future.

I'll close by reinforcing that we have now built a world class organization of research, product development, sales, and marketing with systems and process that are driving the opportunity.

Commercially, we finally have the team and processes in place to engage broadly and deeply. We will aggressively market, partner and sell globally over the next 12 months; and while the transformation will never fully complete, it has put us in a much better position to win engagements.

We are doing the right things; the market is coming, and I am confident that substantial sustainable revenues will occur.

- **END** -

Annual General Meeting
OTCQX: BCHPY | ASX:BRN

Sean Hehir
CEO

May 23, 2023

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Forward Looking Statements

Certain views expressed here contain information derived from third parties or publicly available sources that have not been independently verified. This presentation includes certain statements, projections and estimates of the anticipated future financial performance of **BrainChip Holdings Ltd.** and the size, growth and nature of future markets for the company's products.

Such statements, projections and estimates reflect various assumptions made by the directors concerning anticipated results, which assumptions may or may not prove to be correct. **BrainChip Holdings Ltd.** and its subsidiaries have not sought independent verification of information in this presentation.

While the directors believe that they have reasonable grounds for each of the assumptions, statements, projections and estimates and all care has been taken in the preparation of this presentation, no warranty of representation, express or implied is given as to the accuracy, correctness, likelihood of achievement, or reasonableness of assumptions, estimates, statements and projections that are contained in this presentation. Such assumptions, estimates, statements and projections are intrinsically subject to significant uncertainties.

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Opening Comments…

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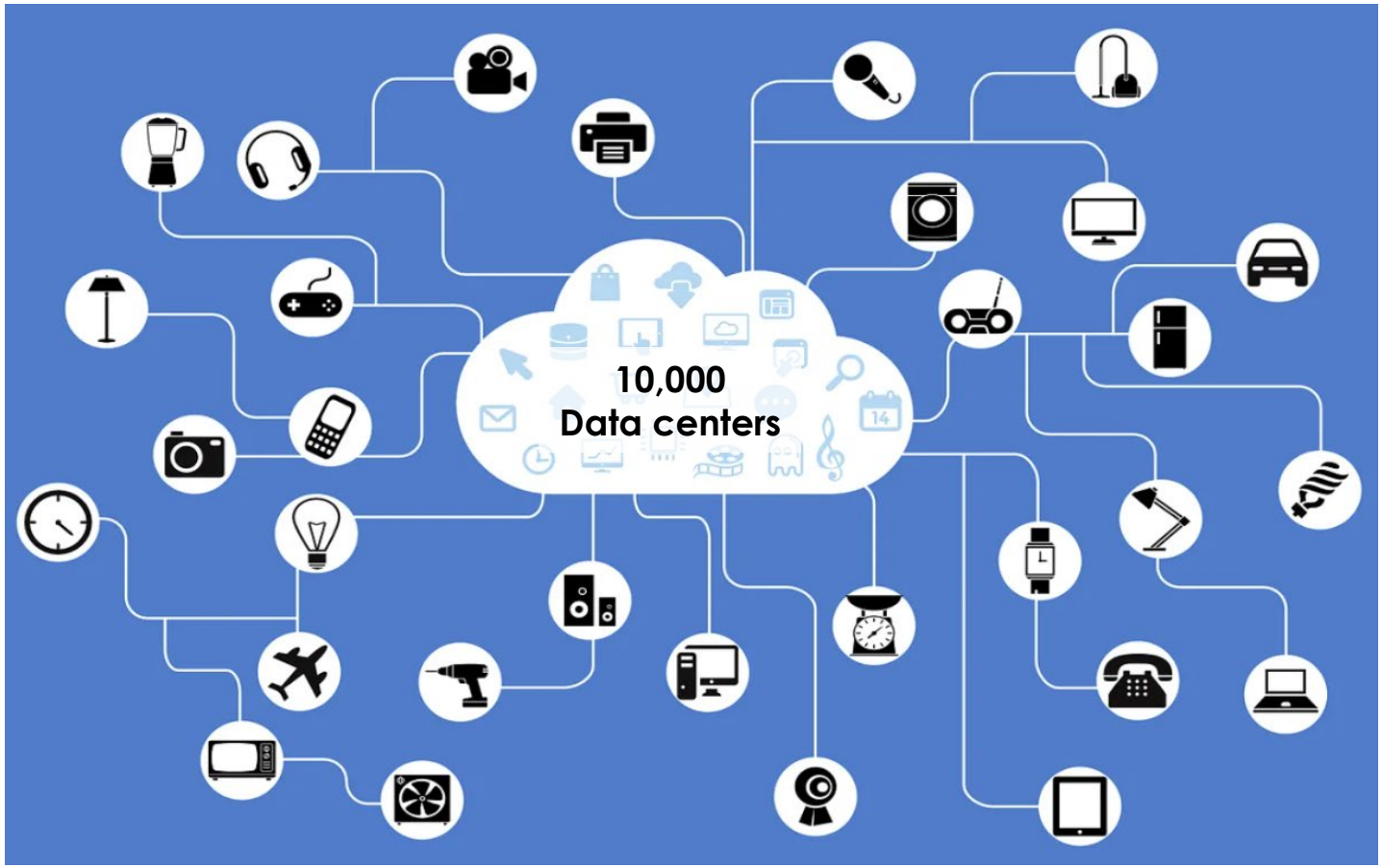
Topics

- The Market we Serve
- The Year in Review
- 2nd Generation Akida™
- The Next Twelve Months
- Q&A

The Market We Serve

The future of computing...

Devices are the New Computer



$15.7T
Global GDP Benefit from AI in 2030*

$1.2T
AIoT revenue in 2030**

1 Trillion+ intelligent Edge Devices

* PWC analysis report

** Forbes Business Insights

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AI is the Future of Computing

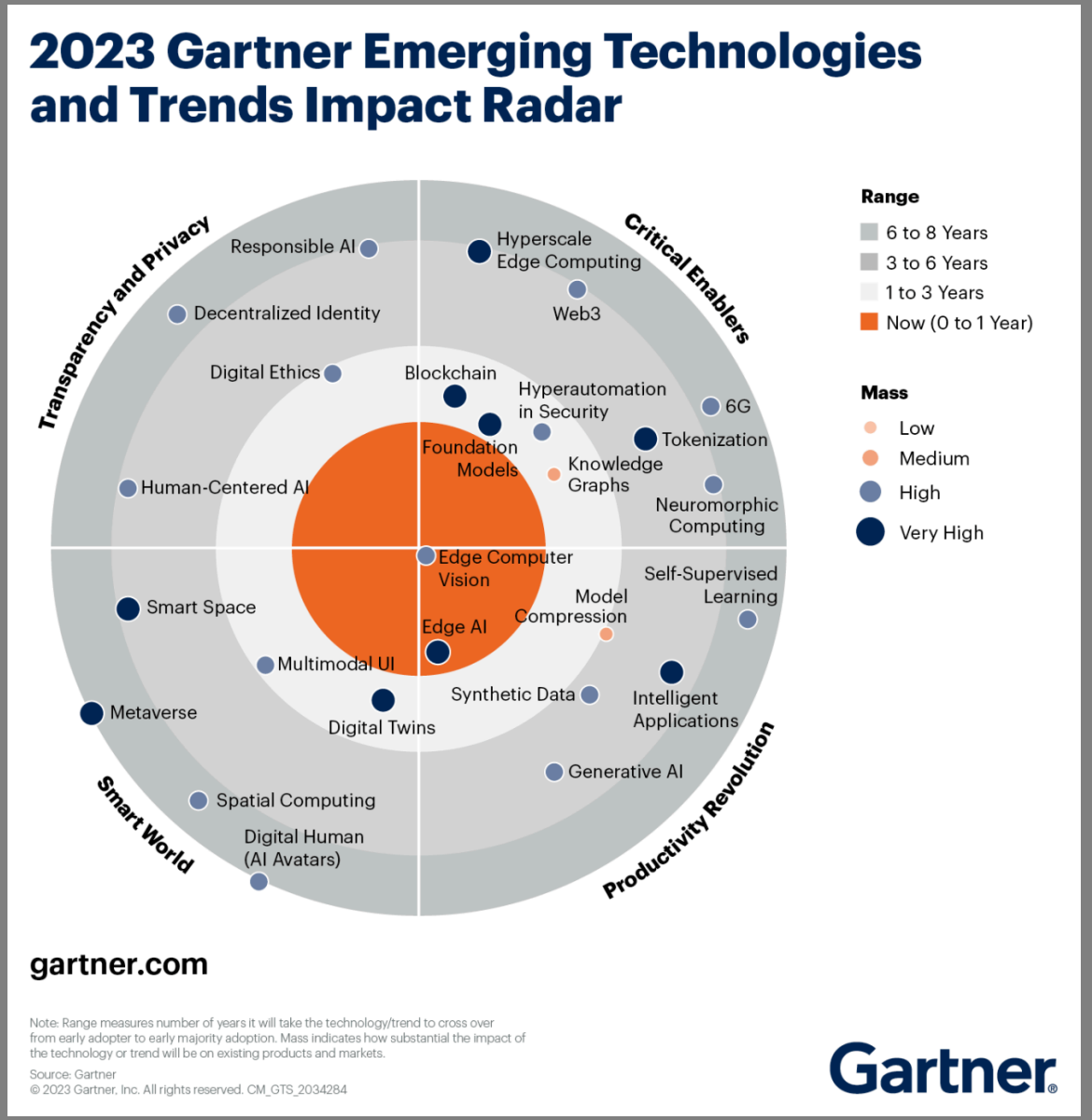
Gartner Emerging Technologies and Trends…

Edge AI is part of the Productivity Revolution

- AI at the edge
- Close to sensor
- Sensor fusion
- Send “information” not data

Neuromorphic Computing is a Critical Enabler

- Efficiency
- Parallelism
- Performance



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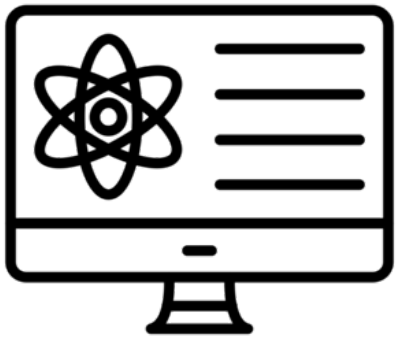
The Year in Review

From research to product to commercialization…

Year in Review

Talent, systems, process…



Research

Marketing

Engineering

Sales

Human Capital

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Market Feedback

What we Got Right

- AI at the edge
- Close to sensor
- Optimize power and performance
- Sensor fusion
- Send “information” not data

Expanding Opportunity

- Beyond neuromorphic
- More use cases
- Algorithms
- Open architecture
- Eased implementation

2nd Generation Akida™

Extending opportunity…

akida: One Platform, Multiple Scalable Products

	akida-E Max Efficiency	akida-S Sensor Balanced	akida-P Max Performance
	1- 4 Node	2 - 8 Node	8 - 128 Node [w/optional Vision Transformer]
	Up to 200 GOPs	Up to 1 TOPS	Up to 50 TOPS
Applications:	@Sensor inference Always On	MCU@Sensor fusion and Application SoCs	@network edge inference And NN accelerators
	Detection/ Classification	Detection/Classification	Classification/Detection/Segmentation/Prediction Complex model operations accelerated in hardware
	Self-managed	*CPU runs Application or Sensor fusion*	*Host CPU computation minimized.*

High performance

Extremely efficient

Very accurate

Self-managing

Easy to deploy

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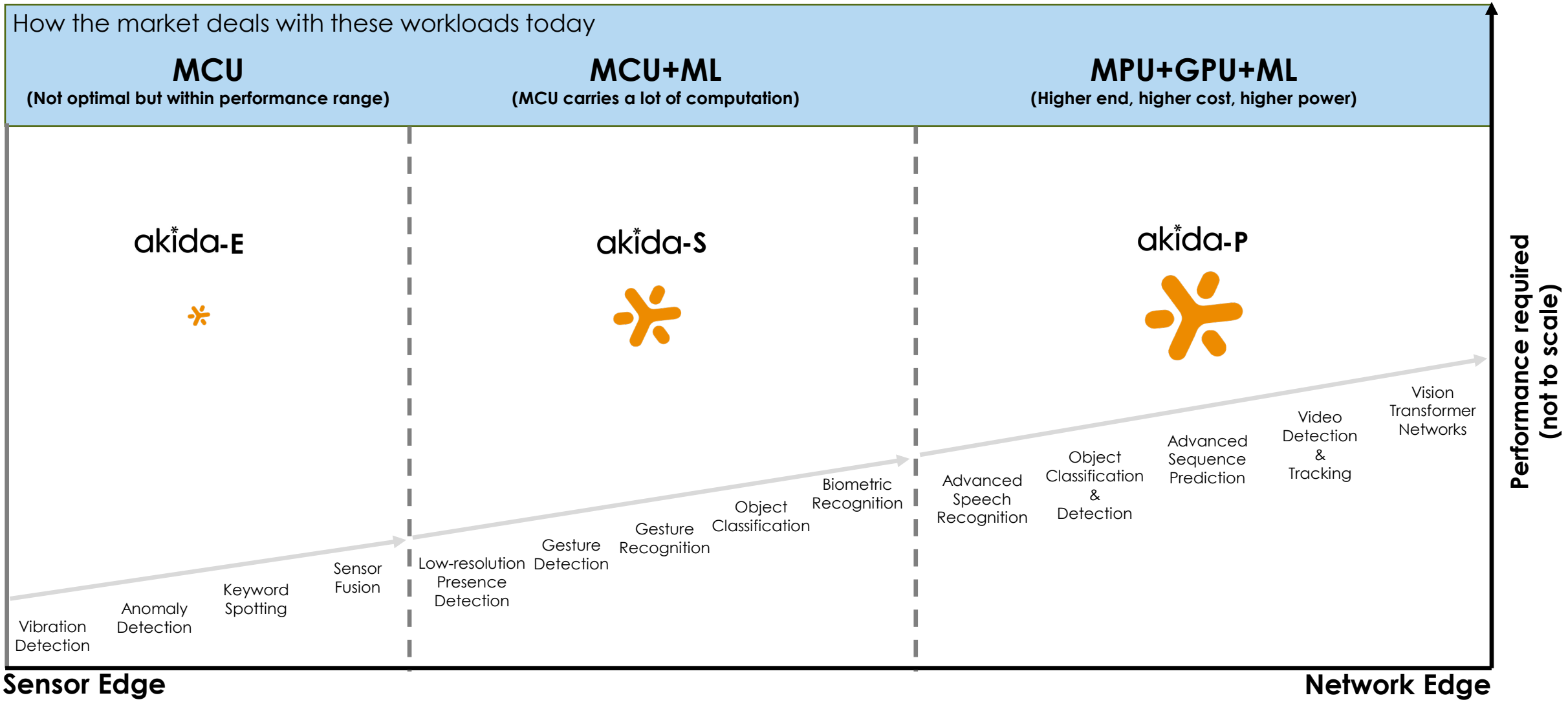
Multiple Configurations, Easy to Implement



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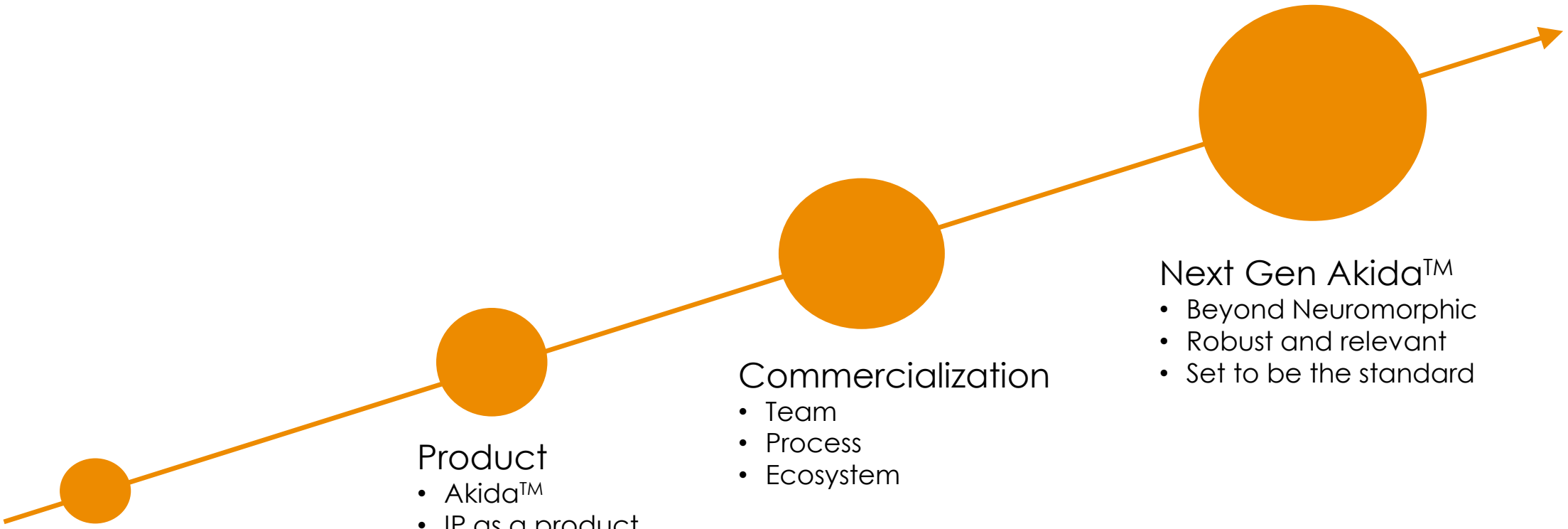
The Next 12 Months

Leveraging, executing, scaling…

BrainChip Evolution



Research
- Neuromorphic
- Architecture
- IP

Product
- Akida™
- IP as a product
- Edge AI inference

Commercialization
- Team
- Process
- Ecosystem

Next Gen Akida™
- Beyond Neuromorphic
- Robust and relevant
- Set to be the standard

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Thank you

Q&A

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