



Services Master Class

MASTER CLASS SERIES
September 22, 2022

Forward-Looking Statements and Other Information

This presentation contains forward-looking statements, including those regarding anticipated growth and trends in our businesses and markets, industry outlooks and demand drivers, technology transitions, our business and financial performance and market share positions, our capital allocation and cash deployment strategies, our investment and growth strategies, our development of new products and technologies, our business outlook for the fourth quarter of fiscal 2022 and beyond, and other statements that are not historical facts. These statements and their underlying assumptions are subject to risks and uncertainties and are not guarantees of future performance.

Factors that could cause actual results to differ materially from those expressed or implied by such statements include, without limitation: the level of demand for our products, our ability to meet customer demand, and our suppliers' ability to meet our demand requirements; transportation interruptions and logistics constraints; global economic, political and industry conditions, including rising inflation and interest rates; the effects of regional or global health epidemics, including the severity and duration of the ongoing COVID-19 pandemic and government imposed lockdowns and other measures taken in response; global trade issues and changes in trade and export license policies; consumer demand for electronic products; the demand for semiconductors; customers' technology and capacity requirements; the introduction of new and innovative technologies, and the timing of technology transitions; our ability to develop, deliver and support new products and technologies; the concentrated nature of our customer base; acquisitions, investments and divestitures; changes in income tax laws; our ability to expand our current markets, increase market share and develop new markets; market acceptance of existing and newly developed products; our ability to obtain and protect intellectual property rights in key technologies; our ability to achieve the objectives of operational and strategic initiatives, align our resources and cost structure with business conditions, and attract, motivate and retain key employees; the variability of operating expenses and results among products and segments, and our ability to accurately forecast future results, market conditions, customer requirements and business needs; our ability to ensure compliance with applicable law, rules and regulations; and other risks and uncertainties described in our SEC filings, including our recent Forms 10-Q and 8-K. All forward-looking statements are based on management's current estimates, projections and assumptions, and we assume no obligation to update them.

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Services Master Class

WELCOME

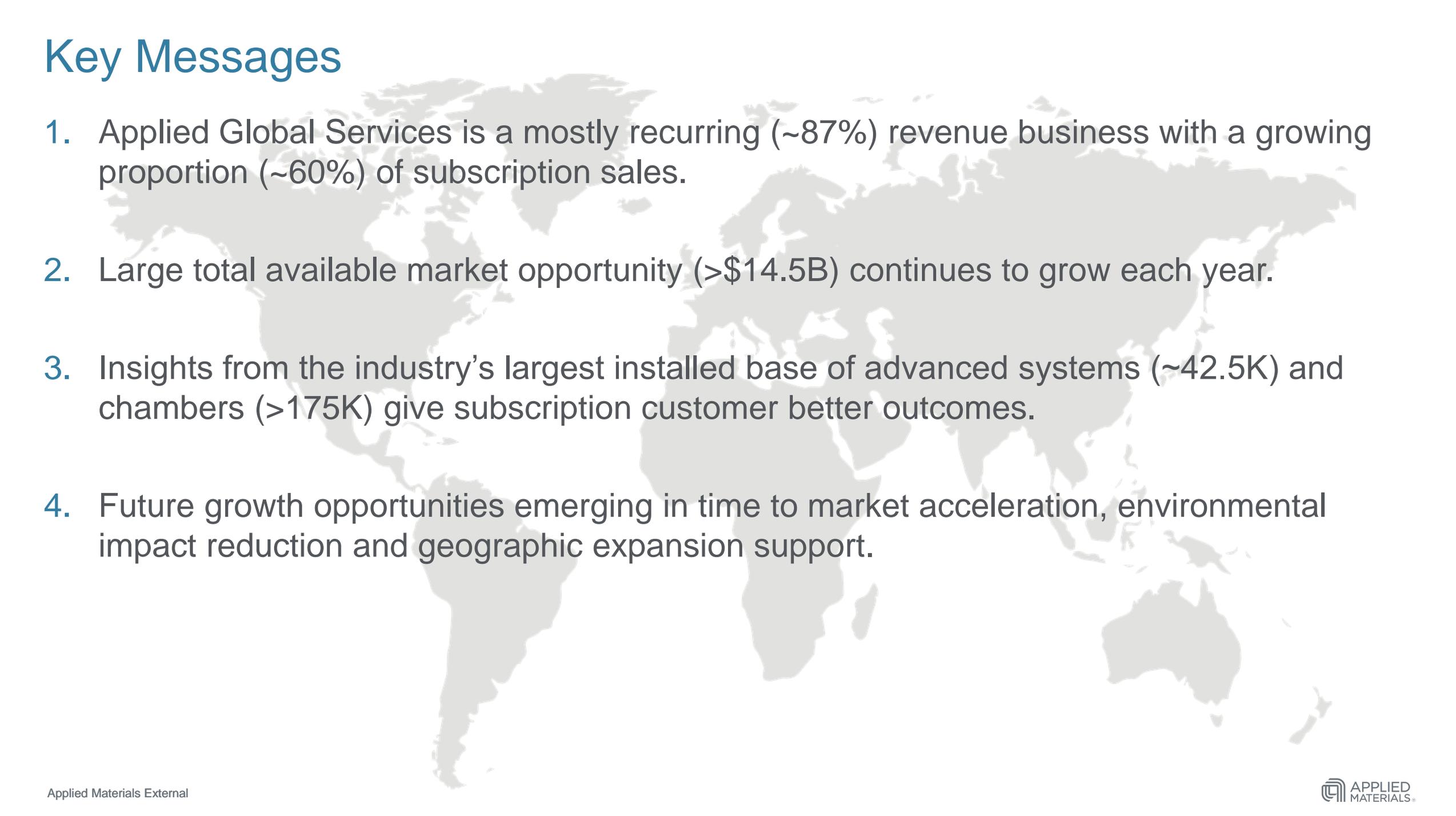
Michael Sullivan

Corporate Vice President

Head of Investor Relations

SERVICES MASTER CLASS | SEPTEMBER 22, 2022

Key Messages



1. Applied Global Services is a mostly recurring (~87%) revenue business with a growing proportion (~60%) of subscription sales.
2. Large total available market opportunity (>\$14.5B) continues to grow each year.
3. Insights from the industry's largest installed base of advanced systems (~42.5K) and chambers (>175K) give subscription customer better outcomes.
4. Future growth opportunities emerging in time to market acceleration, environmental impact reduction and geographic expansion support.

AGENDA

9:00

PART 1

Mike Sullivan

Introduction and Fireside Chat with Sanjiv Mittal, Ph.D.

9:05

PART 2

Jeremy Read

Services Growth Opportunity and Strategy

Joseph Werner

Digital Tools

Tzu-Fang Huang, Ph.D.

Surface Technology

Roberta Tonini

Network of Experts

Michael Wang

Tailored Supply Chain

9:45

PART 3

Michael Daly

Services Growth Model

10:00

PART 4

Q&A

Michael, Jeremy, and Mike

AGS Background Information



FIRESIDE CHAT



Sanjiv Mittal, Ph.D.
Corporate Vice President
Applied Global Services



Services Growth Opportunity and Strategy

Jeremy Read

Corporate Vice President

Applied Global Services

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Economics of Semiconductor Manufacturing

Leading-Edge Fab Investment

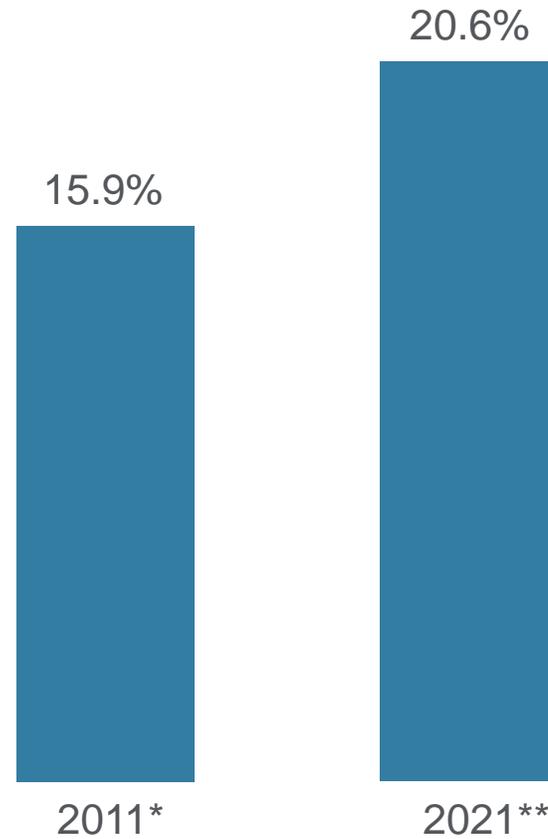


Logic
>\$20B*

Memory
<\$10B*

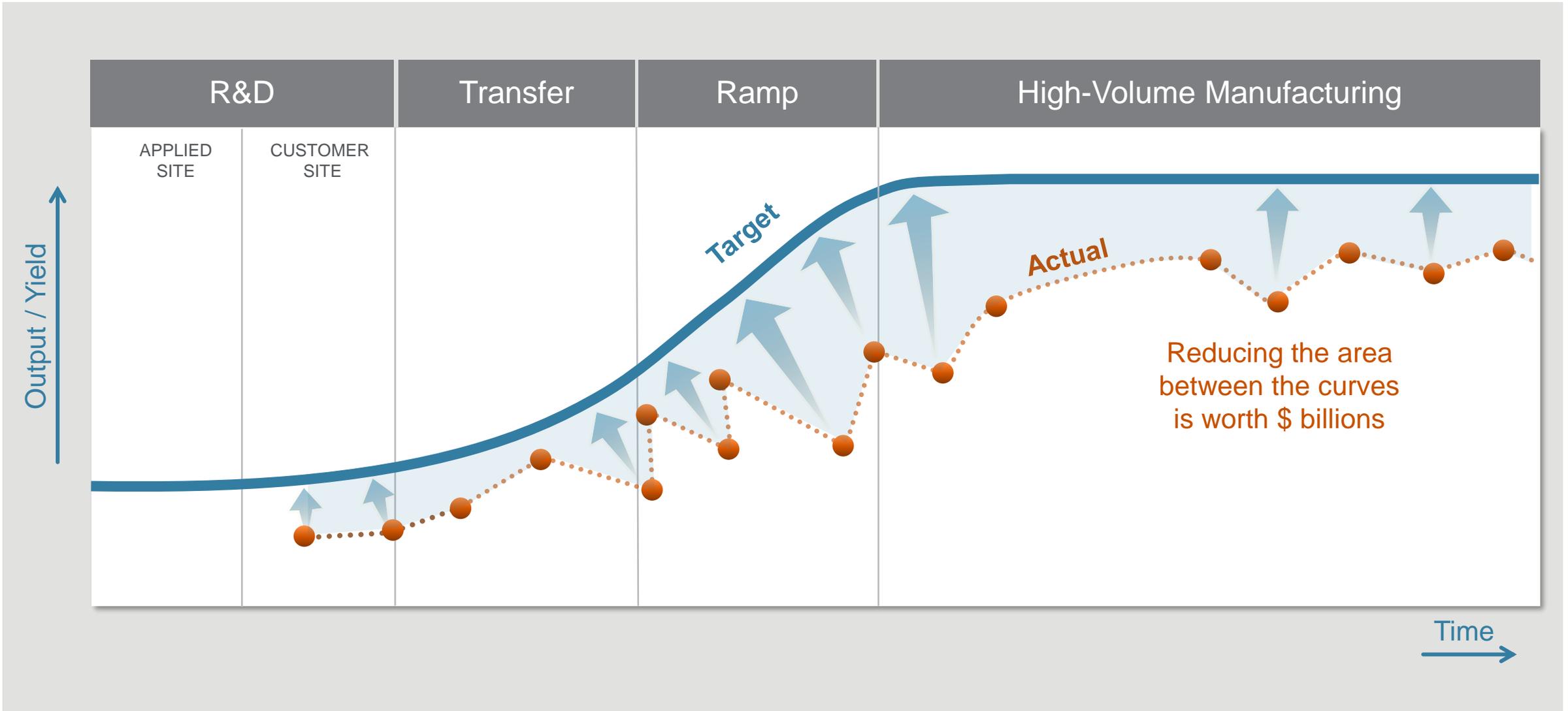
*Equipment cost per 100K wafer starts per month

Applied WFE Market Share

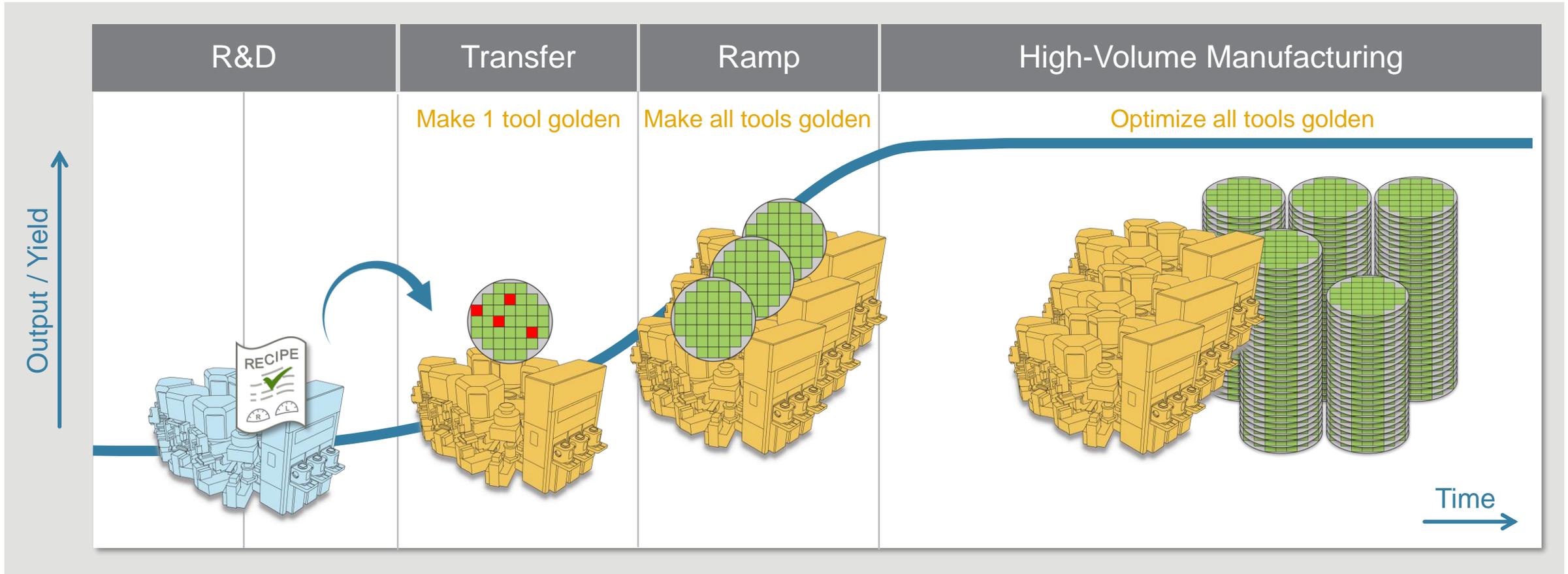


*Source: Gartner Group; **Source: TechInsights

Lifecycle of a Semiconductor Process Node

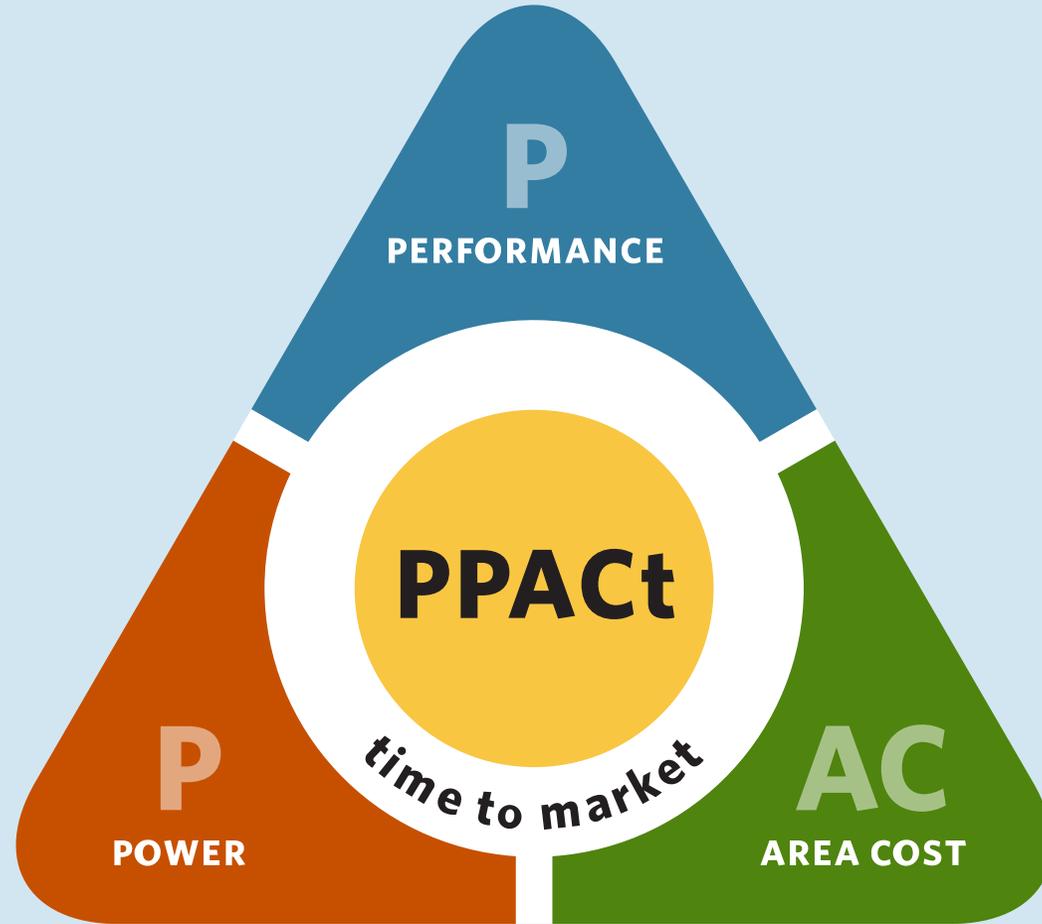


Lifecycle of a Semiconductor Process Node

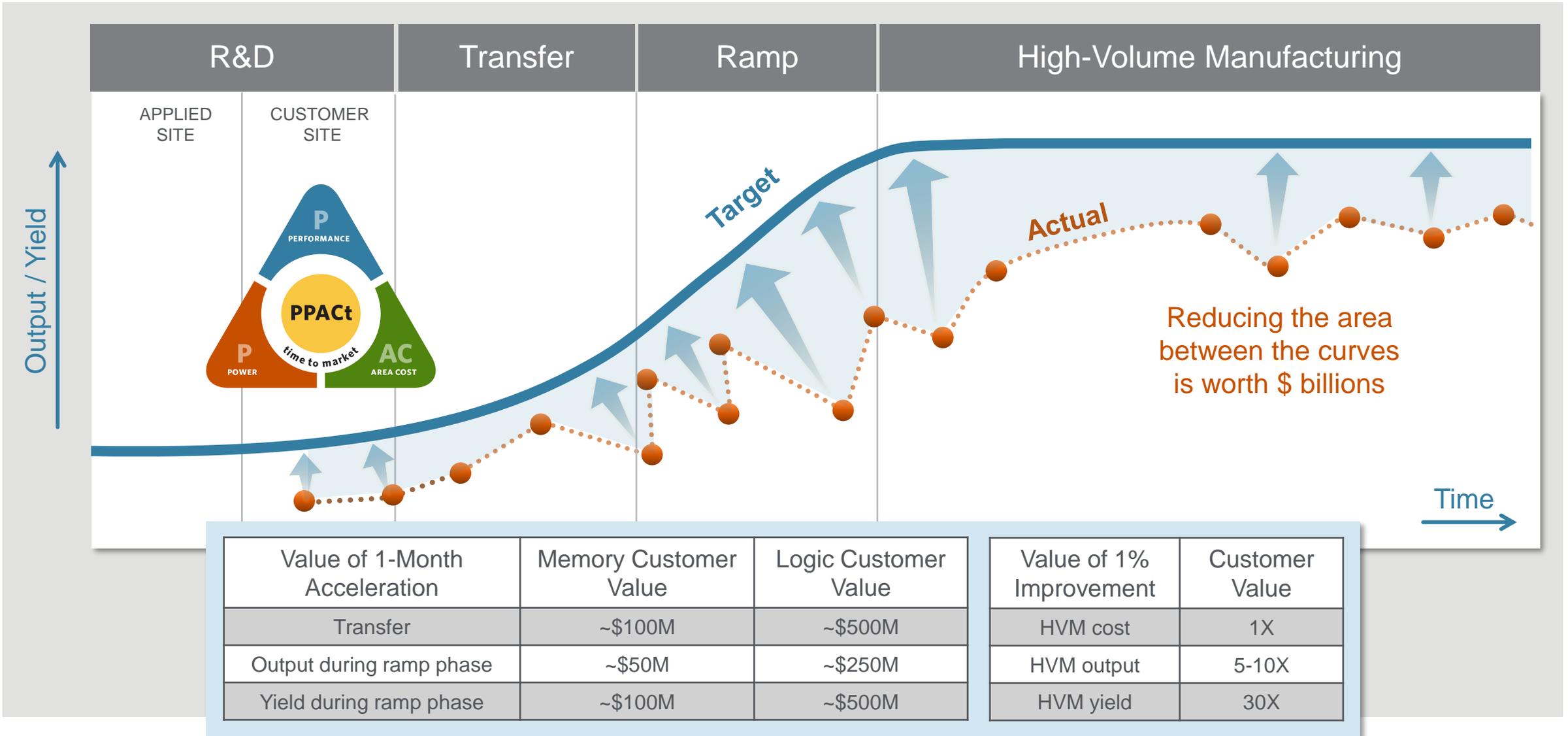


- “Golden” tools refer to tools that are production-ready and can process wafers with high production-level yields
- “Yield” refers to the percentage of chips on each wafer that meet recipe processing specifications

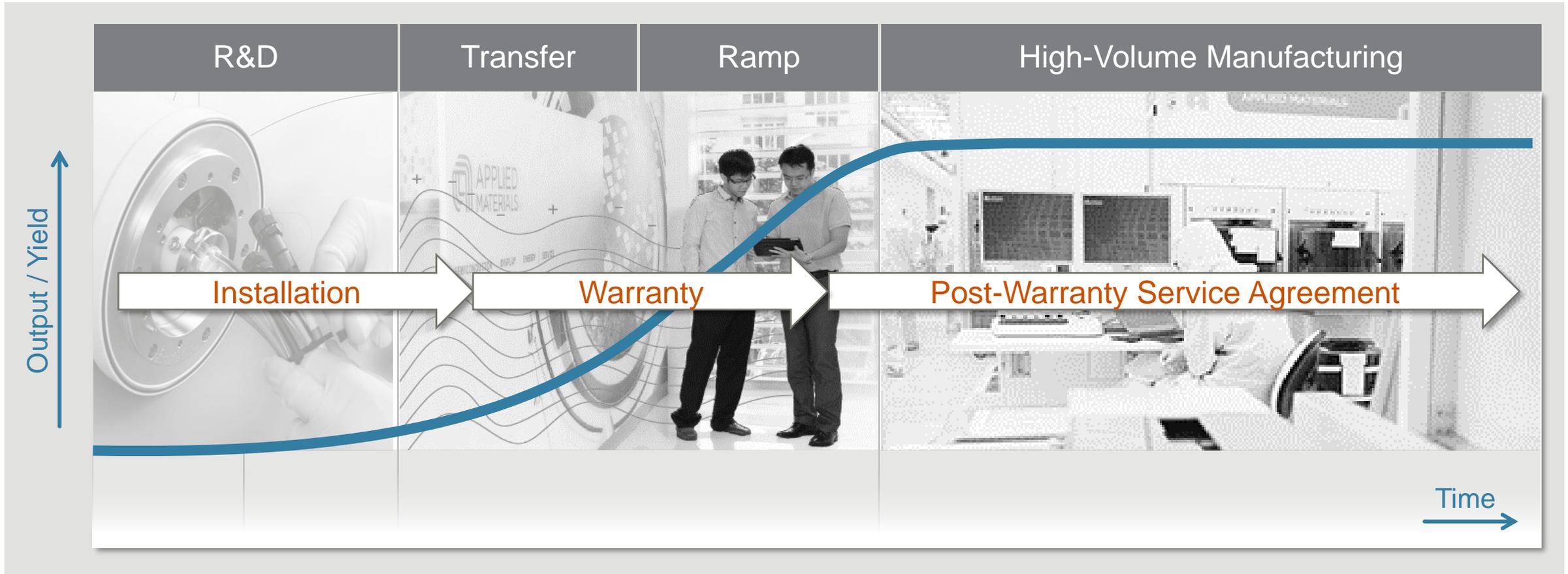
The Value of “t”



Lifecycle of a Semiconductor Process Node

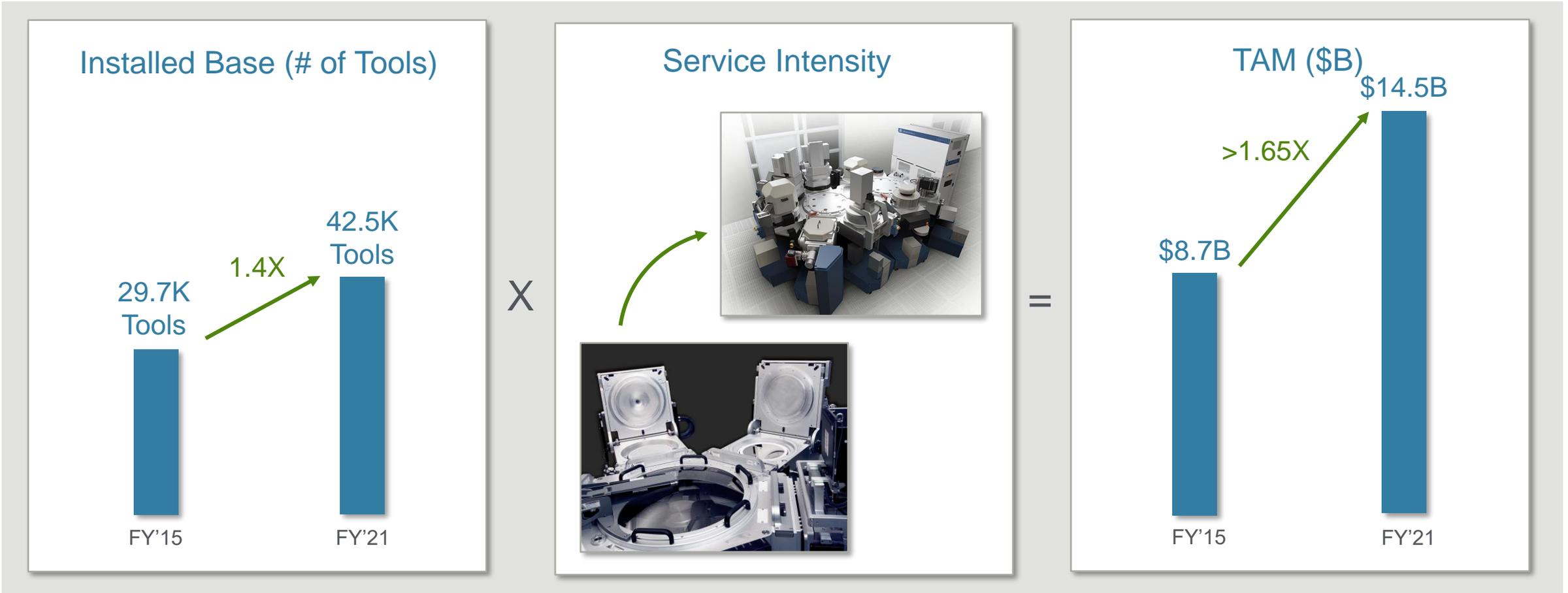


Lifecycle of a Semiconductor Process Node

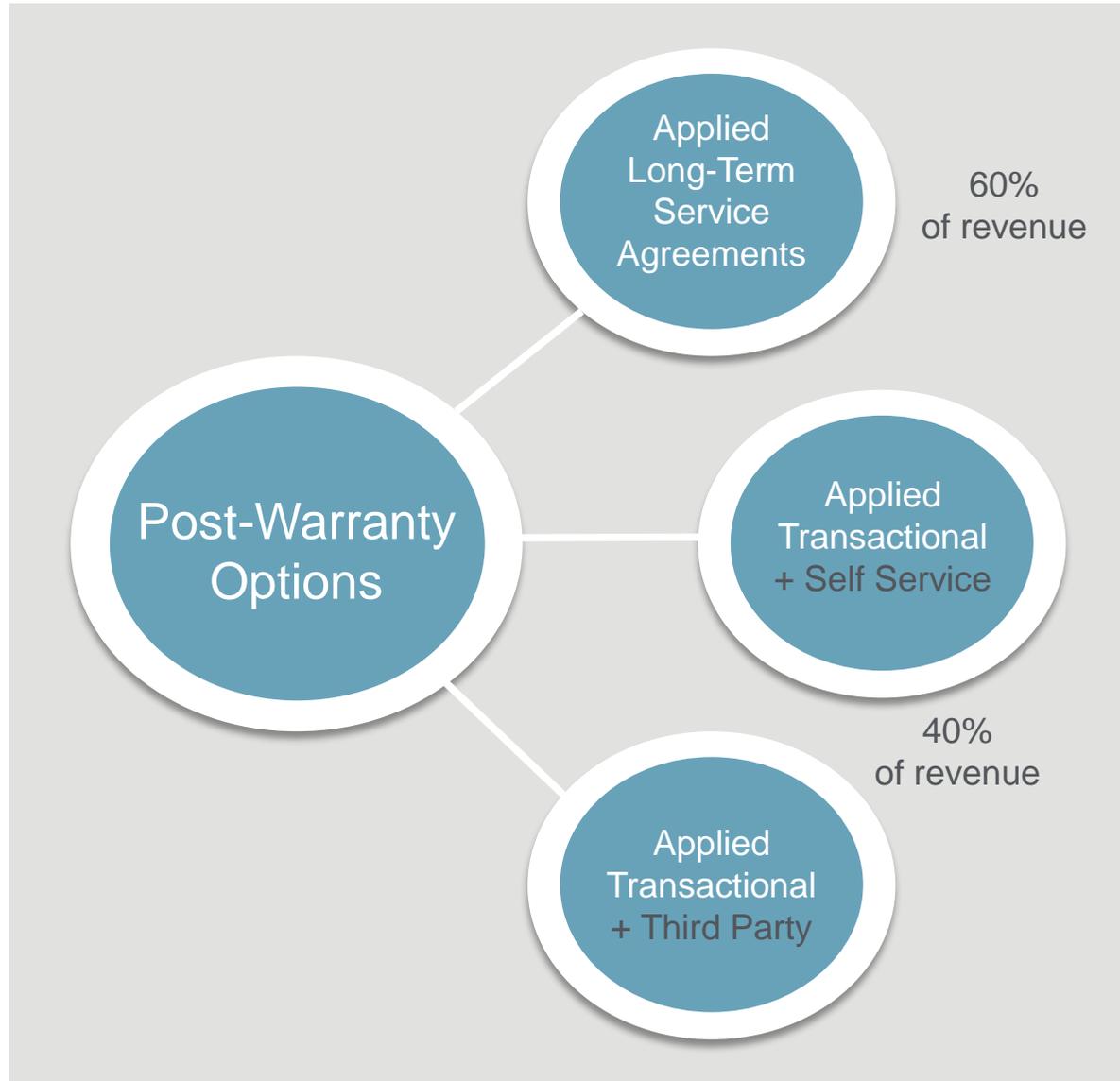


- AGS can reduce tool installations by up to 30 days for faster time to market
- Key ramp activities include chamber matching and defect reduction
- HVM goals include maximizing output, increasing mean time between maintenance and reducing maintenance downtime

Applied Parts and Services Total Available Market



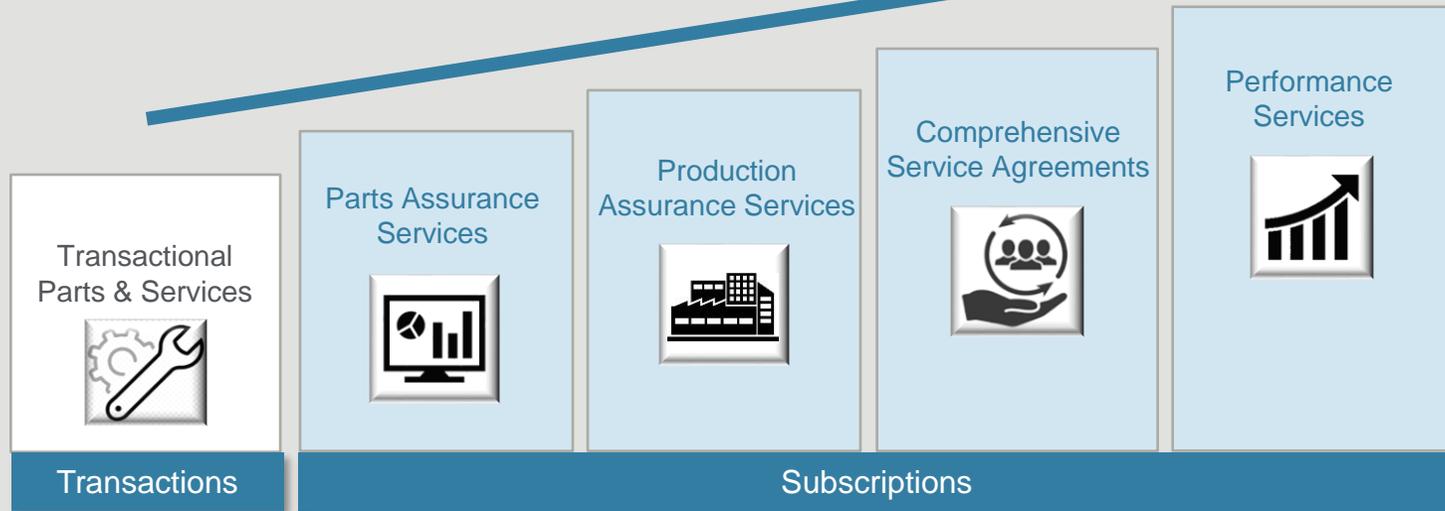
Share of Parts and Services TAM



- A standard 1-year warranty is included in the price of a tool
- With long-term parts and service agreements, AGS provides preventative and corrective maintenance and generates subscription revenue
- AGS transactional services augment customer and 3rd party maintenance activities with on-demand parts and services

Service Offerings Continuum – Today & Tomorrow

AGS Service Offerings



AI^x[™]: Actionable Insight Accelerator



ChamberAI[™] ML algorithms



AppliedPRO[™]

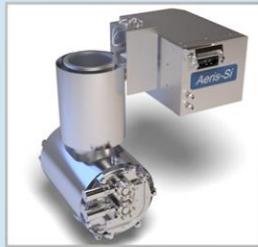


Digital twin models



Integrated controls

Environmental Products



Aeris[®] Si
Clean gas injection system



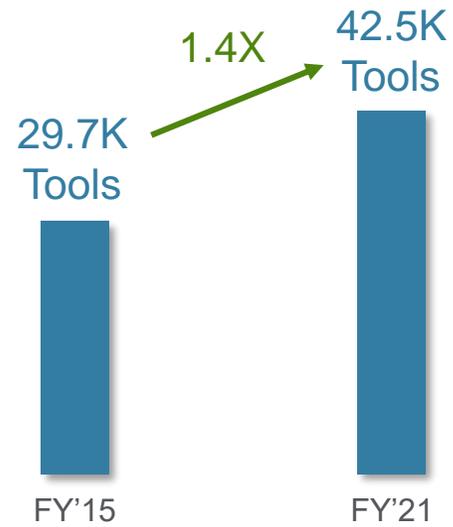
iSystem[®]
Intelligent sub-fab resource management software



Aeris G
GHG zero footprint plasma abatement system

Driving Parts and Services Growth

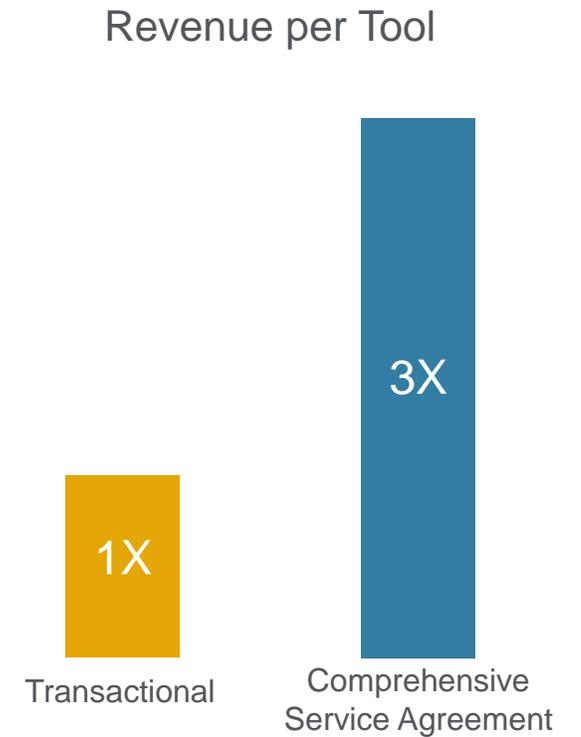
1. Installed Base Growth



2. Service Intensity (TAM) Growth

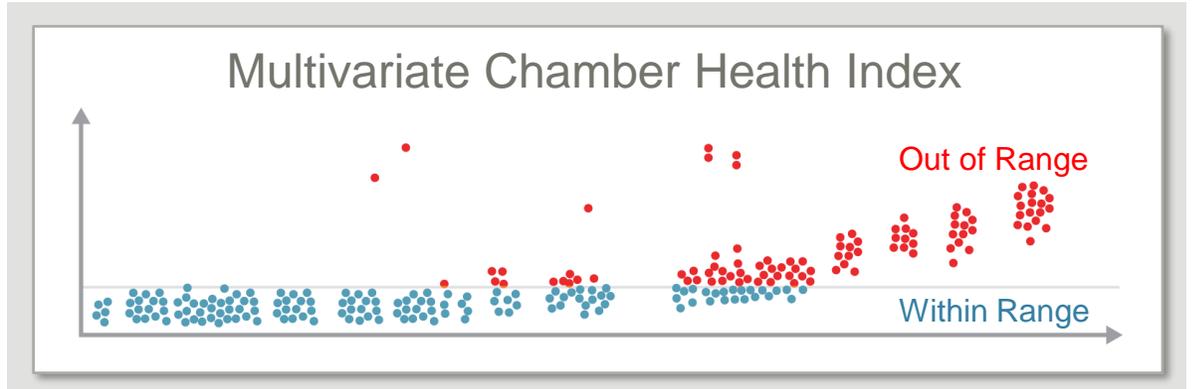


3. Share Growth



Subscription Customer Benefits

Proprietary Tool Data Analysis



AGS Warehouse Footprint

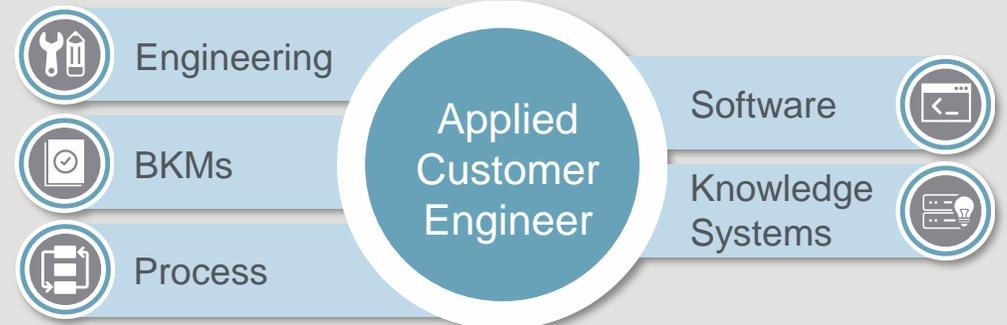


3 Continents
13 Countries
35 Locations
1.4M Square Feet

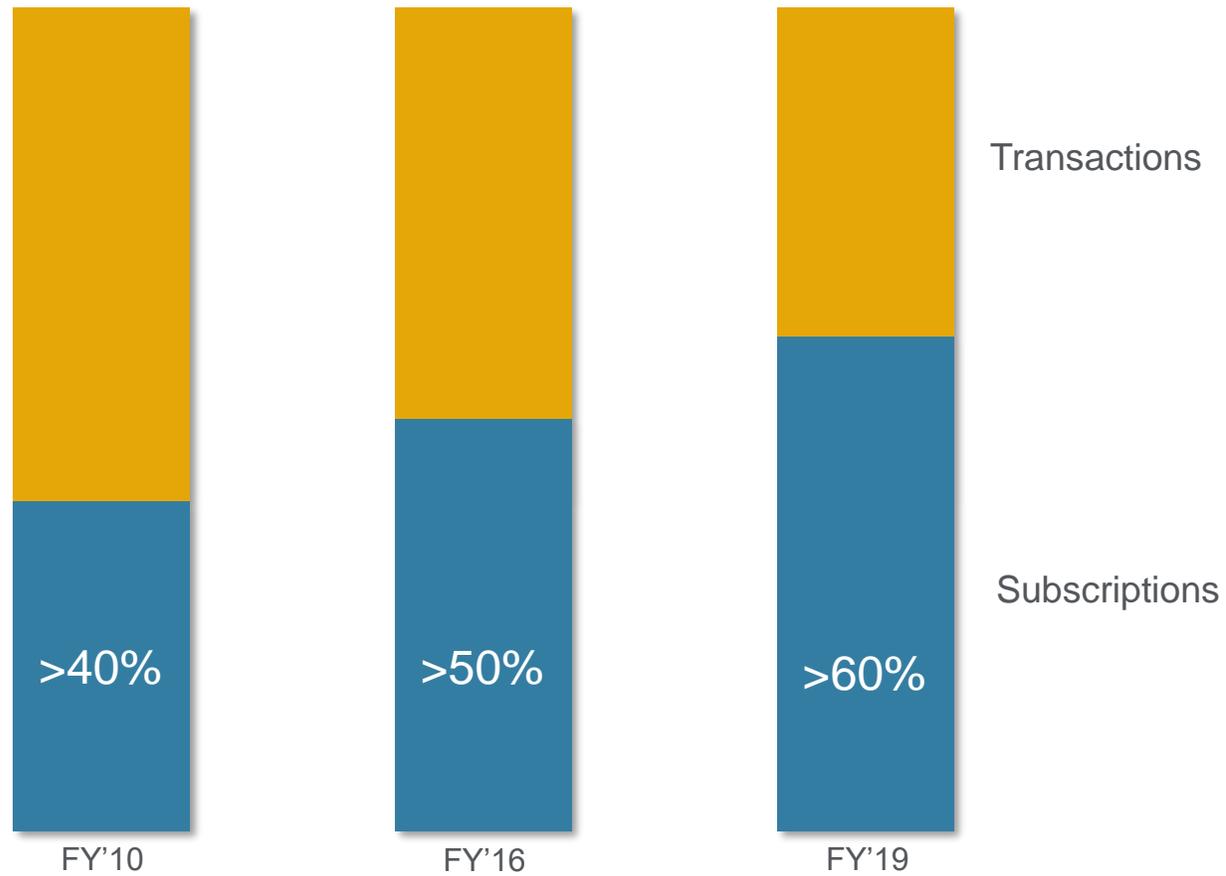


Supply Chain Assurance

World's Best Experts



Subscription Agreements Growing as a % of Recurring Revenue



Technology-Enabled Services: The “Four Pillars”

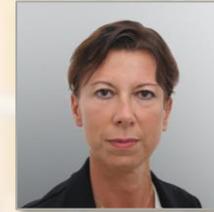
Digital Tools



Joe Werner
Vice President
Applied Global Services



Network of Experts



Roberta Tonini
Senior Director
Applied Global Services

Surface Technology



TzuFang Huang, Ph.D.
Senior Director
Applied Global Services



Tailored Supply Chain



Michael Wang
Senior Director
Applied Global Services



Digital Tools

Joe Werner

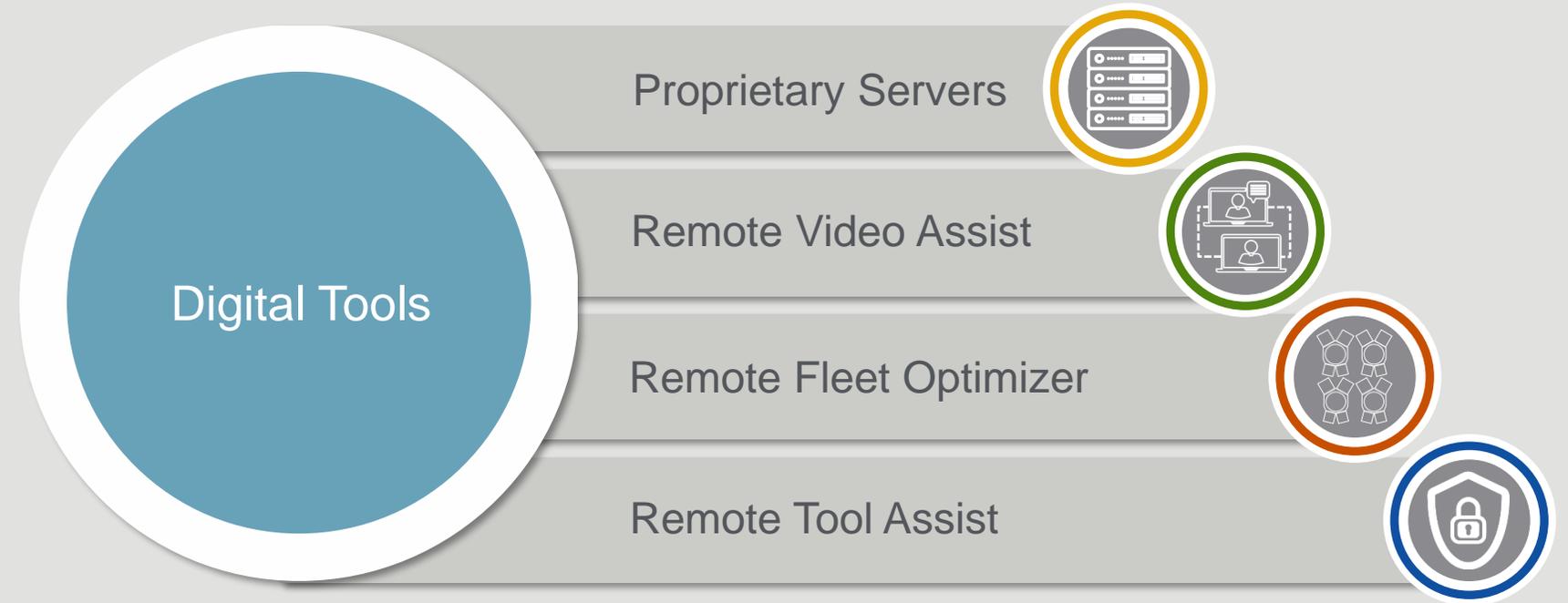
Vice President

Applied Global Services

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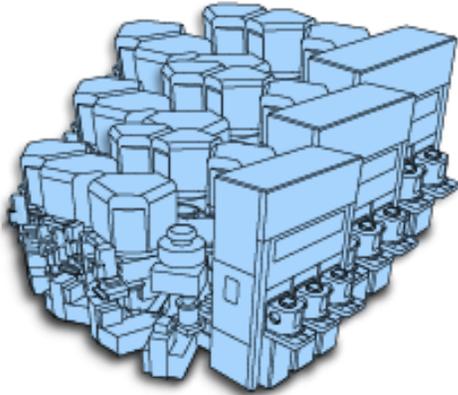
Digital Tools: The 1st Technology-Enabled Service Pillar

Digital Tools are a combination of IT hardware, analytical software and communication technologies



Applied Servers Connect Engineers to Analytics

Applied Fleet

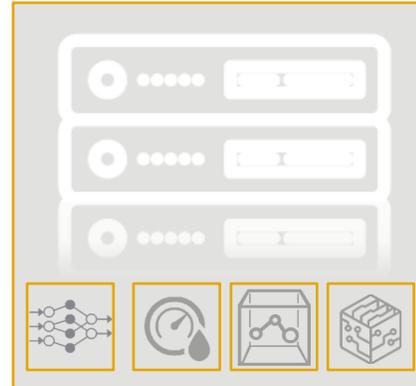


- ~42,500+ tools in the field
- 1,000s of processes
- 350+ sensors per chamber

Big Data



Applied Servers



- >5,500 tools connected to field servers
- >1PB of secure data per tool per year

Advanced Analytics



Applied Customer Engineers



- 7,000+ certified experts
- 1,000+ global locations
- >400 app services

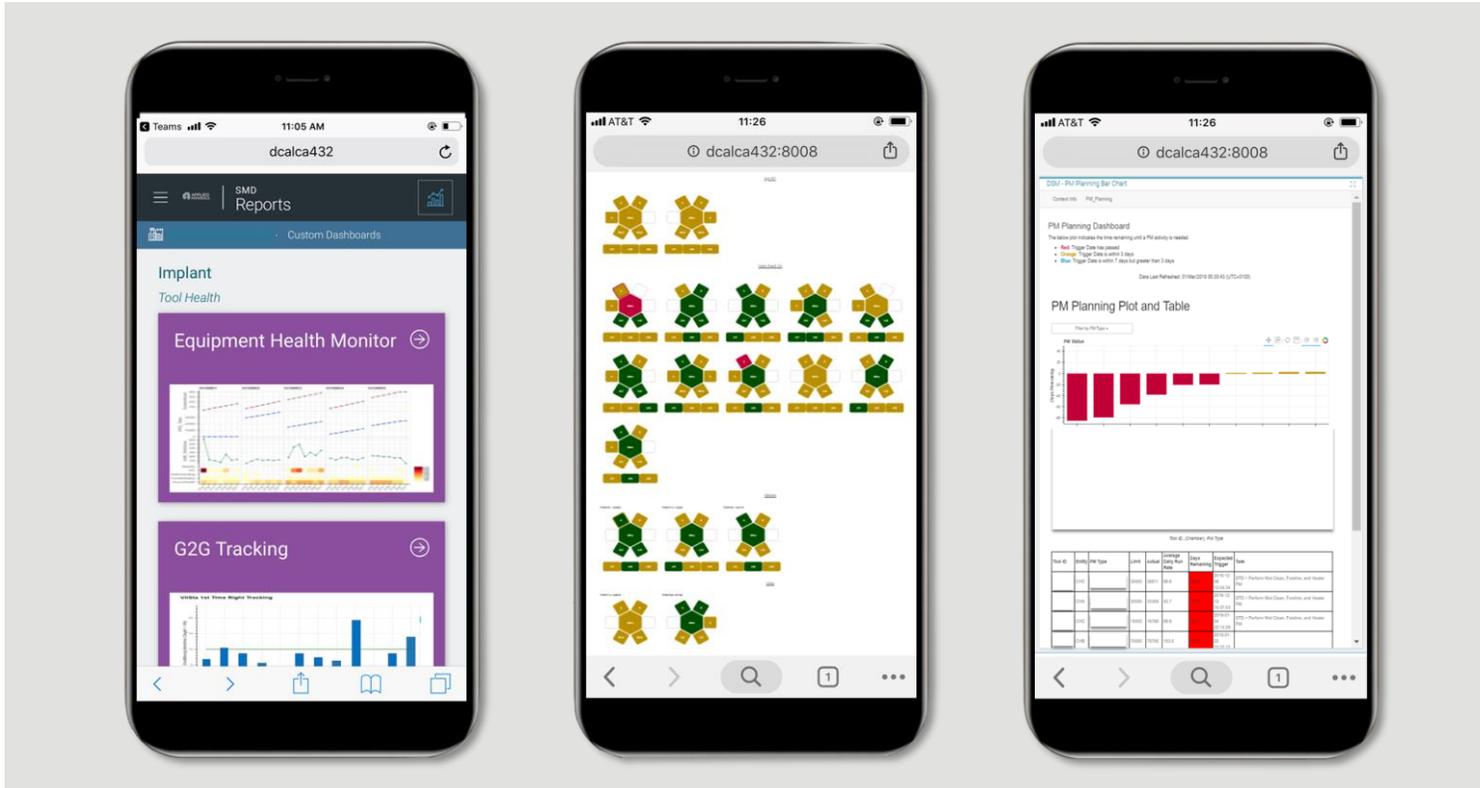
The advanced analytics engine that drives Applied's dashboards and service reports are shaped by our deep equipment knowledge and years of learning

Remote Video Assist Connects Experts



Remote video assist enables Applied's global network of experts to deliver augmented reality (AR) visual support to local service engineers, reducing barriers like location, travel restrictions and time in order to reduce unscheduled down time

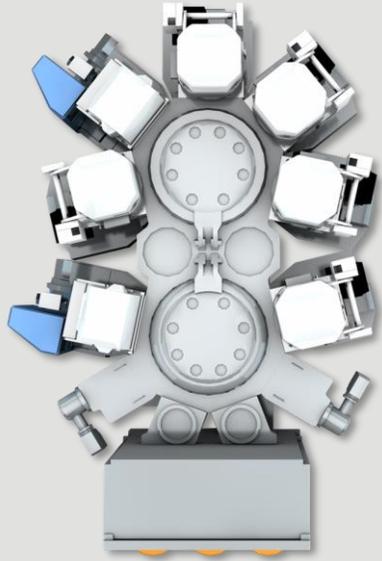
Remote Fleet Optimizer Connects Engineers to KPMs



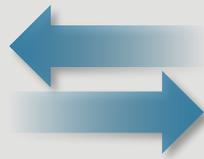
Remote fleet optimizer monitors the key performance metrics of individual tools and entire fleets

- **2x** increase in preventative maintenance outcomes
- **75%** reduction in preventative maintenance variability
- **13%** increase in equipment availability
- **Hundreds of thousands** of wafers per year in increased output

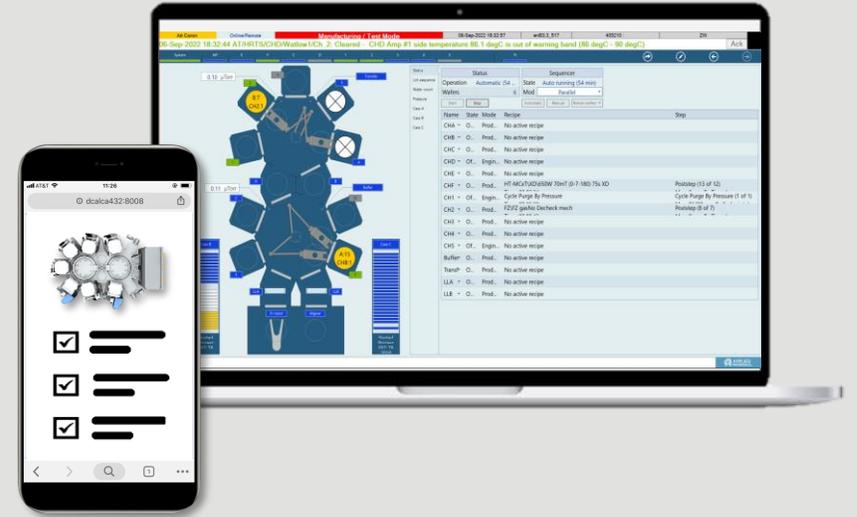
Remote Tool Assist Connects Tools to Experts



Secure
Protocols



Access to on-site server and tool data is fully controlled by customers to maintain data security and protect IP



Remote tool assist allows users to monitor operating status in real time, review event logs, adjust tool parameters and recover from minor errors

Technology-Enabled Services: The “Four Pillars”

Digital Tools



Joe Werner
Vice President
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Network of Experts



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Surface Technology



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Tailored Supply Chain



Michael Wang
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Applied Global Services



Surface Technology

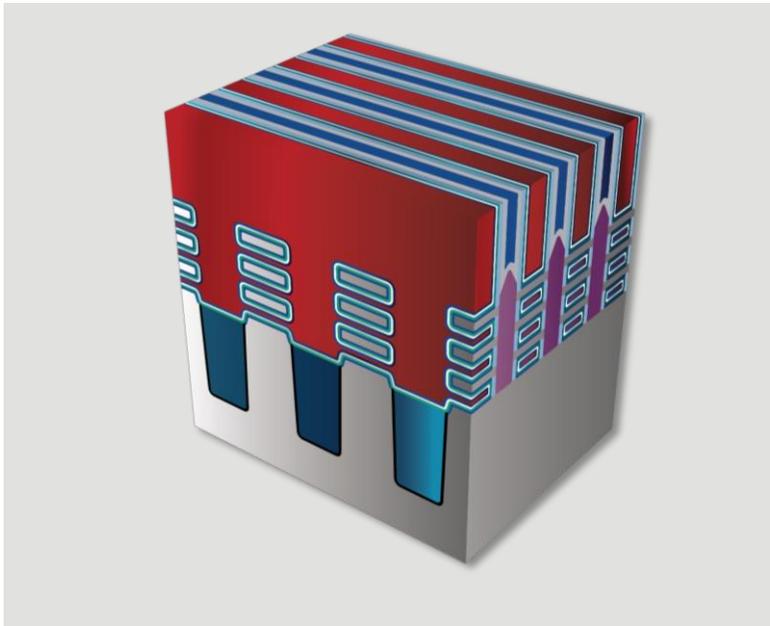
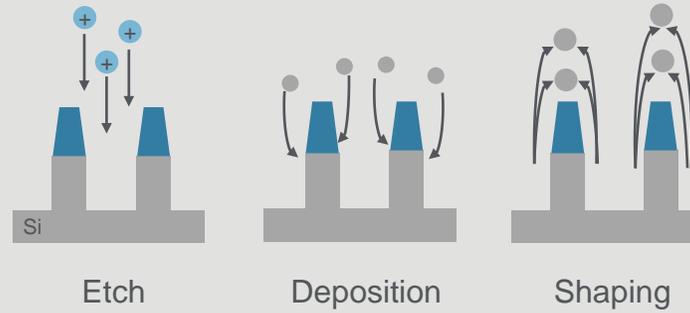
TzuFang Huang, Ph.D.

Senior Director

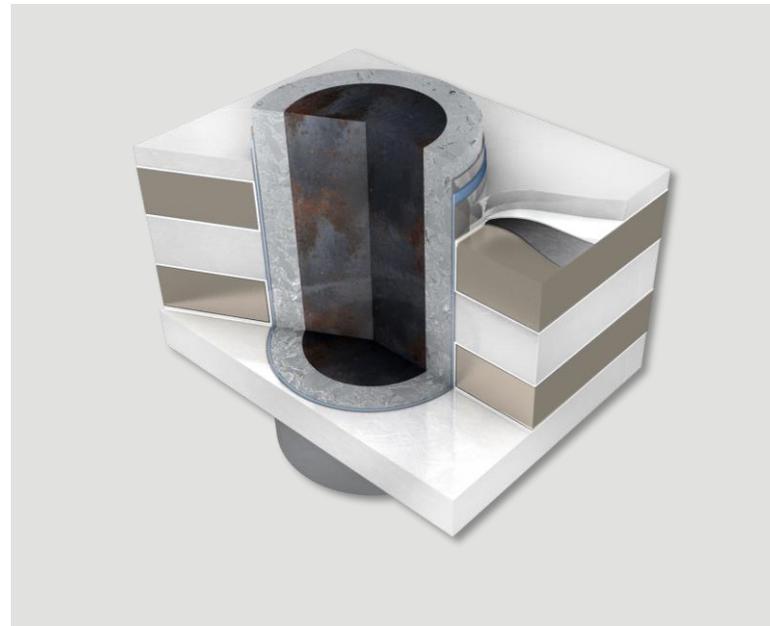
Applied Global Services

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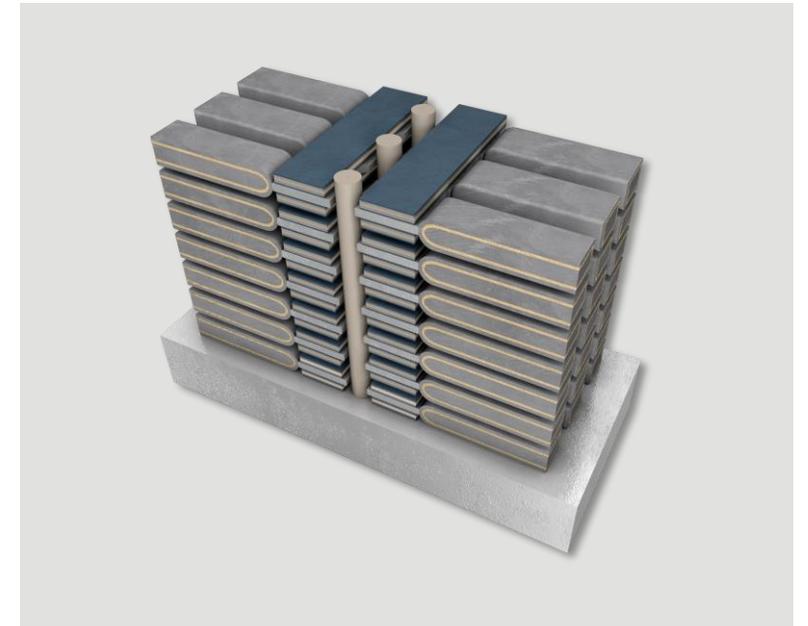
Surface Technology: The 2nd Technology-Enabled Service Pillar



GAA Transistor

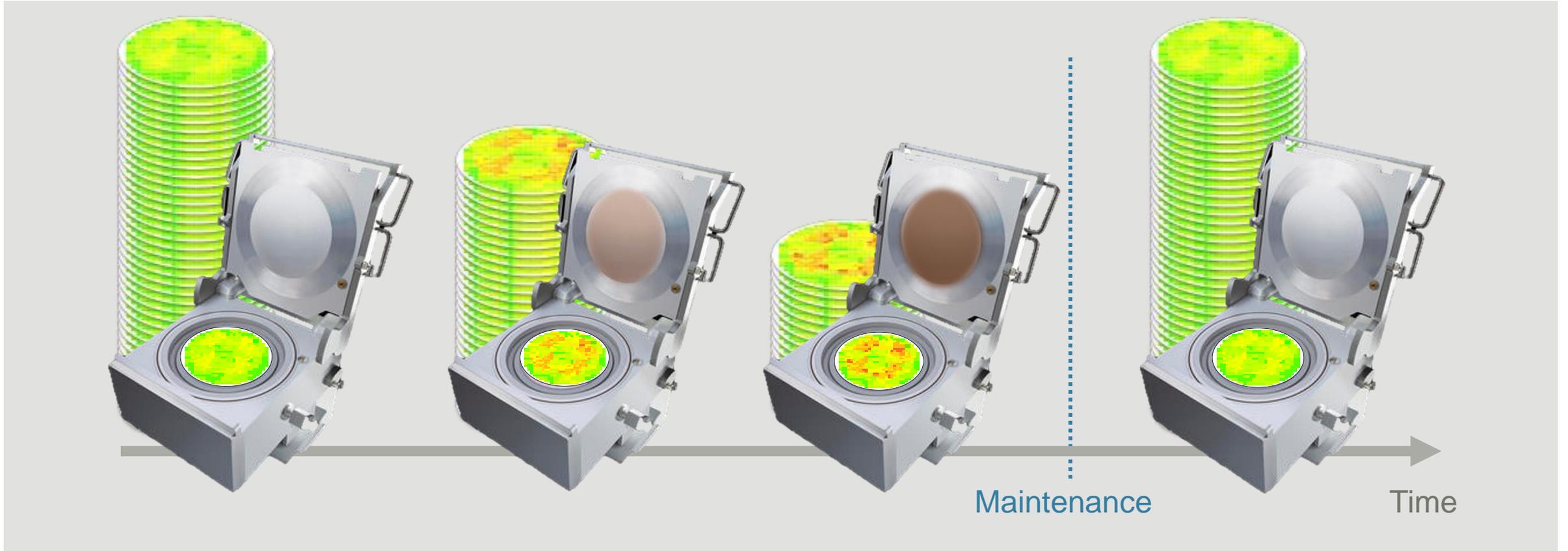


3D NAND



3D DRAM

Maintaining Chambers for Maximum Output & Yield



Chamber maintenance includes minimizing impurities and particles that reduce yield, as well as cleaning and restoring parts to pristine condition

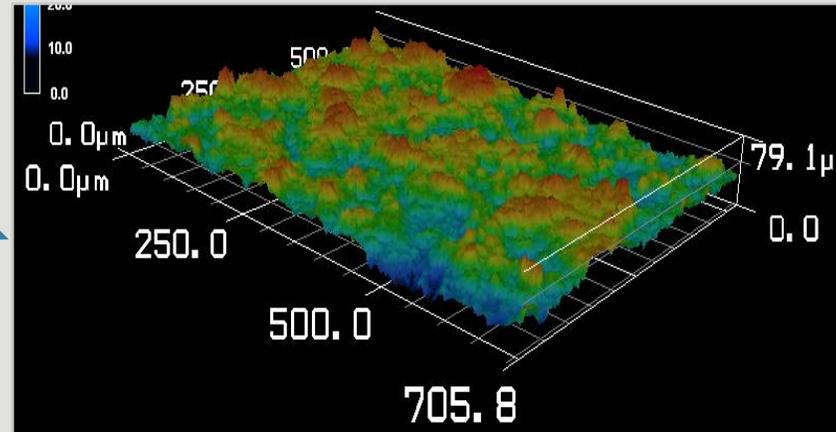
Engineering Surface Chemistries

Evaluation

1 H Hydrogen	2 He Helium																	18 He Helium
3 Li Lithium	4 Be Beryllium											13 B Boron	14 C Carbon	15 N Nitrogen	16 O Oxygen	17 F Fluorine	18 Ne Neon	
11 Na Sodium	12 Mg Magnesium											31 Ga Gallium	32 Ge Germanium	33 As Arsenic	34 Se Selenium	35 Br Bromine	36 Kr Krypton	
19 K Potassium	20 Ca Calcium	21 Sc Scandium	22 Ti Titanium	23 V Vanadium	24 Cr Chromium	25 Mn Manganese	26 Fe Iron	27 Co Cobalt	28 Ni Nickel	29 Cu Copper	30 Zn Zinc	31 Ga Gallium	32 Ge Germanium	33 As Arsenic	34 Se Selenium	35 Br Bromine	36 Kr Krypton	
37 Rb Rubidium	38 Sr Strontium	39 Y Yttrium	40 Zr Zirconium	41 Nb Niobium	42 Mo Molybdenum	43 Tc Technetium	44 Ru Ruthenium	45 Rh Rhodium	46 Pd Palladium	47 Ag Silver	48 Cd Cadmium	49 In Indium	50 Sn Tin	51 Sb Antimony	52 Te Tellurium	53 I Iodine	54 Xe Xenon	
55 Cs Cesium	56 Ba Barium	57-71 f-block Lanthanides and Actinides	72 Hf Hafnium	73 Ta Tantalum	74 W Tungsten	75 Re Rhenium	76 Os Osmium	77 Ir Iridium	78 Pt Platinum	79 Au Gold	80 Hg Mercury	81 Tl Thallium	82 Pb Lead	83 Bi Bismuth	84 Po Polonium	85 At Astatine	86 Rn Radon	
87 Fr Francium	88 Ra Radium											101 Nh Nihonium	102 Fl Flerovium	103 Lv Livermorium	104 Ts Tennessine	105 Og Oganesson		
57 La Lanthanum	58 Ce Cerium	59 Pr Praseodymium	60 Nd Neodymium	61 Pm Promethium	62 Sm Samarium	63 Eu Europium	64 Gd Gadolinium	65 Tb Terbium	66 Dy Dysprosium	67 Ho Holmium	68 Er Erbium	69 Tm Thulium	70 Yb Ytterbium	71 Lu Lutetium				
89 Ac Actinium	90 Th Thorium	91 Pa Protactinium	92 U Uranium	93 Np Neptunium	94 Pu Plutonium	95 Am Americium	96 Cm Curium	97 Bk Berkelium	98 Cf Californium	99 Es Einsteinium	100 Fm Fermium	101 Md Mendelevium	102 No Nobelium	103 Lr Lawrencium				



Characterization



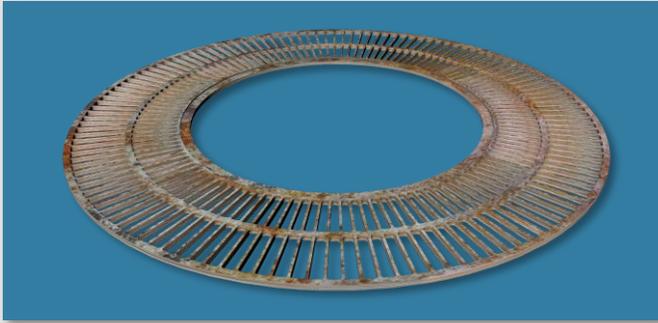
Selection



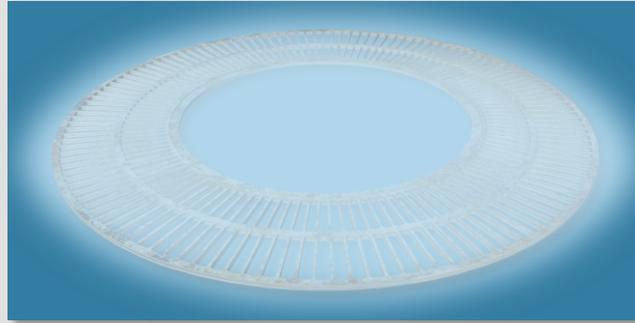
Surface engineering involves characterizing the chemical, electrical and mechanical properties of materials

Specialized Cleaning Restores Parts to Applied Specifications

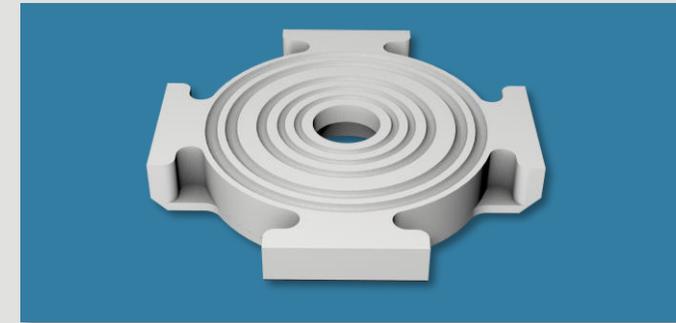
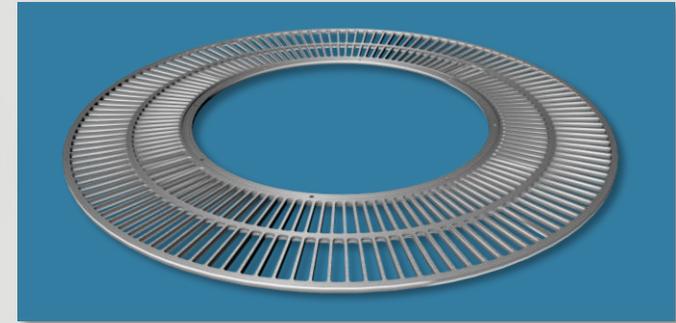
Before



Cleaning

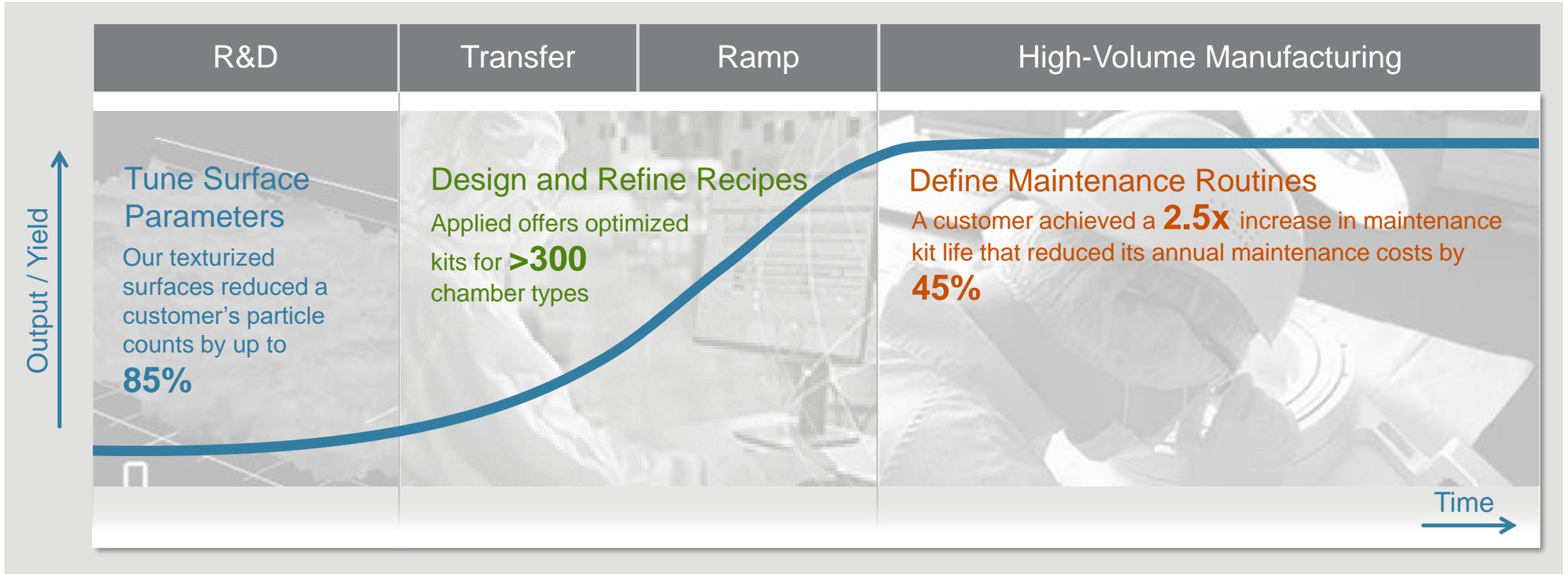


After



Cleaning and coating processes and chemistries are proprietary -- and in some cases patented

Lifecycle of a Semiconductor Process Node



The Surface Technology team participates during the entire lifecycle and has been proven to increase time between cleaning without impacting process results, accelerate post-maintenance chamber recovery, extend part lifetimes and improve cost of ownership

Technology-Enabled Services: The “Four Pillars”

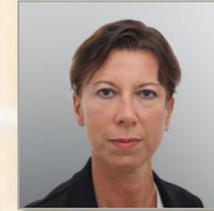
Digital Tools



Joe Werner
Vice President
Applied Global Services



Network of Experts



Roberta Tonini
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TzuFang Huang, Ph.D.
Senior Director
Applied Global Services



Tailored Supply Chain



Michael Wang
Senior Director
Applied Global Services



Network of Experts

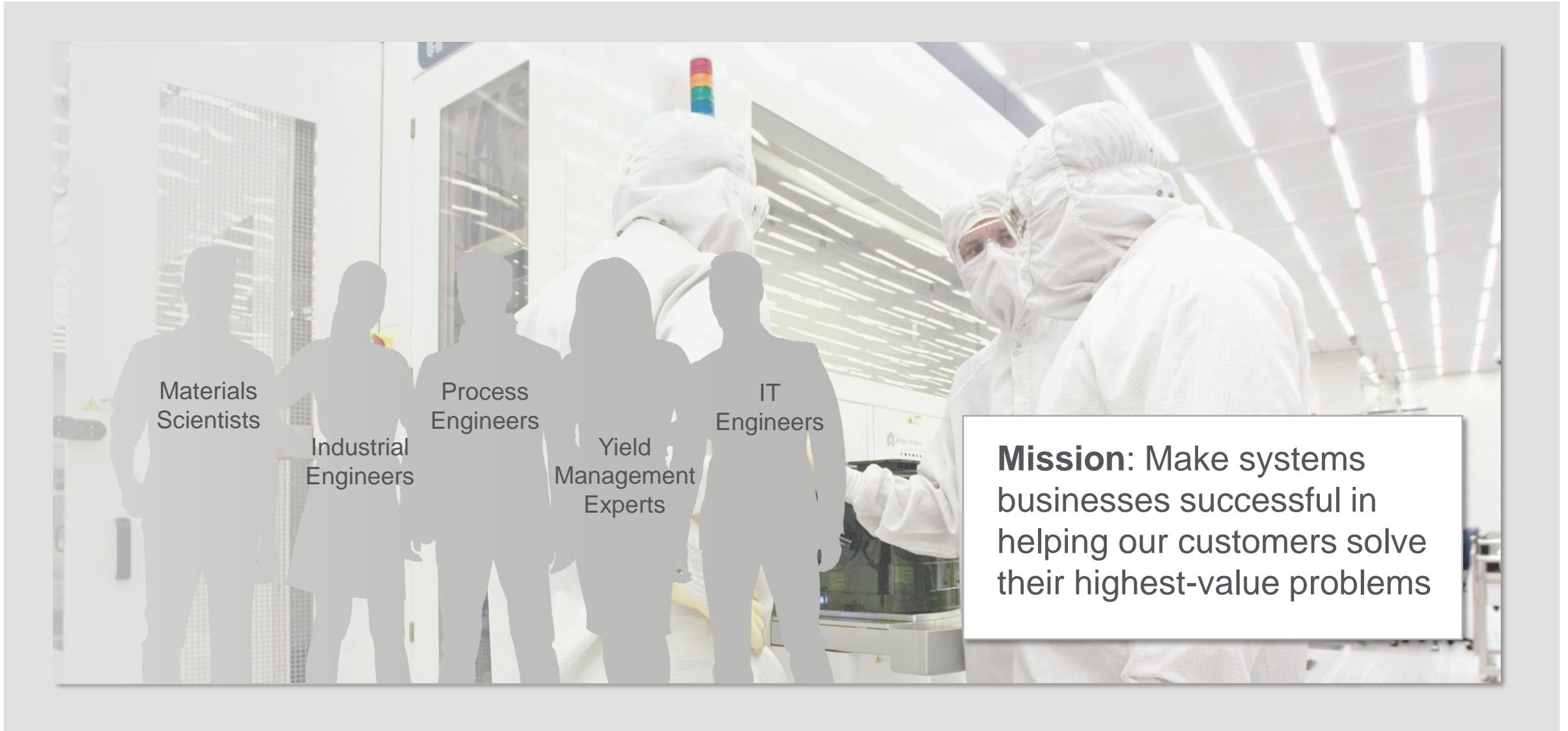
Roberta Tonini

Senior Director

Applied Global Services

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Network of Experts: The 3rd Technology-Enabled Service Pillar

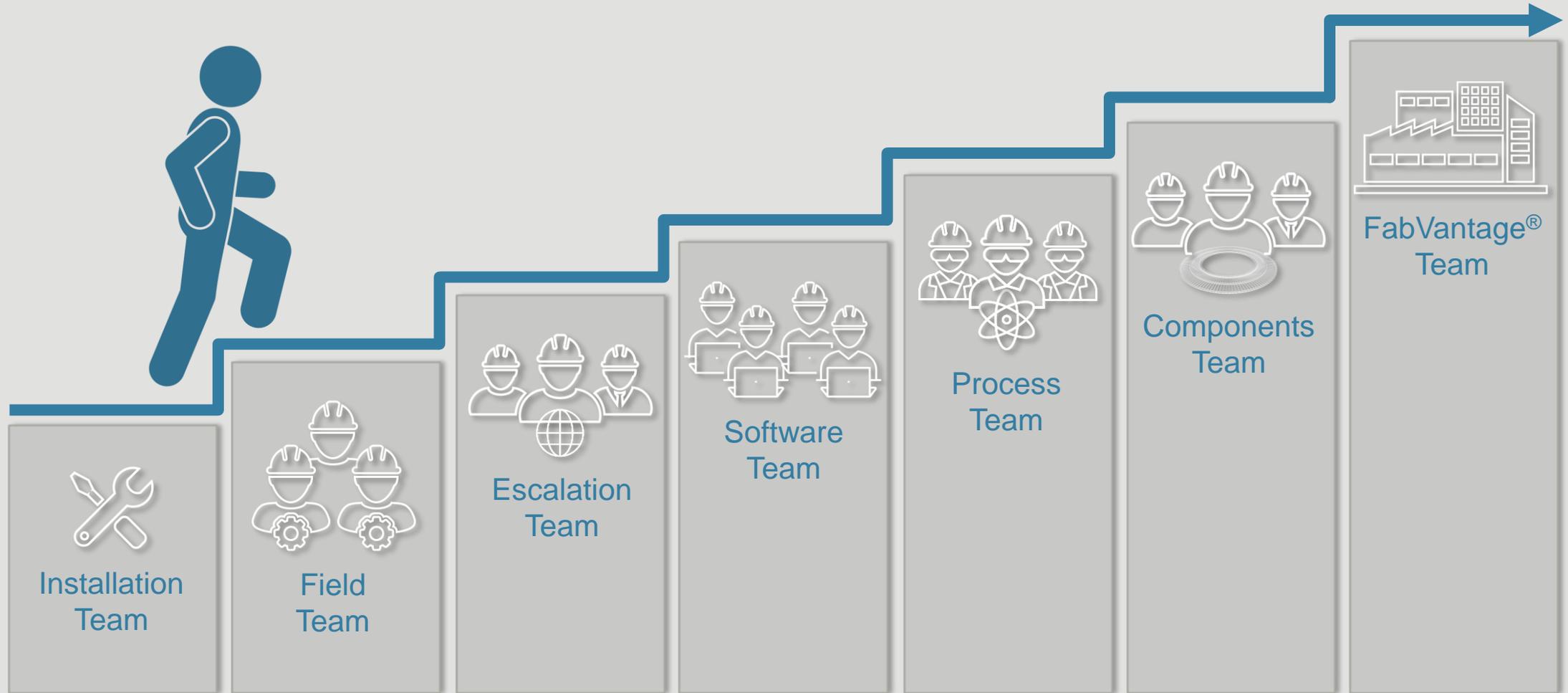


Supporting Over 1,000 Fabs Worldwide from 77 Applied Offices



Global Multidisciplinary Teams

Teams of experts work at various levels to bring customers one step closer to **Maximum ROI**



Applied's Global Network of Experts is Evolving



- >7,000 field engineers
- >500,000 operations per year

Network of Experts



IoT



Machine Learning



Artificial Intelligence



AI^x



Technology-Enabled Services: The “Four Pillars”

Digital Tools



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Tailored Supply Chain



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Senior Director
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Tailored Supply Chain

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Senior Director

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Tailored Supply Chain: The 4th Technology-Enabled Service Pillar



Tailored Supply Chain

- Certified Applied parts
- Advanced logistics
- Localized inventory
- Guaranteed parts availability

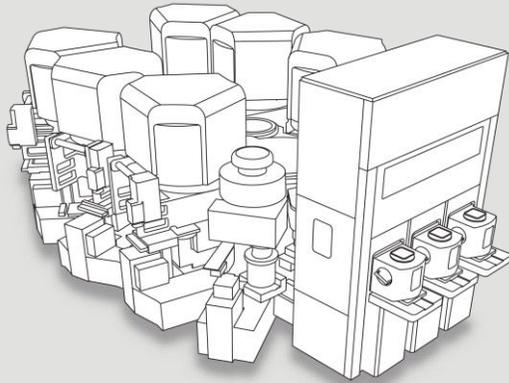
Data Engine Drives a Global Supply Chain



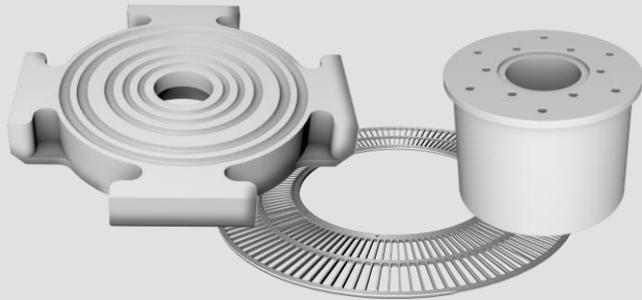
Applied's proprietary data engine forecasts demand, plans supply and schedules logistics execution to deliver over 2 million parts per quarter

Subscription Agreements Provide a Competitive Advantage

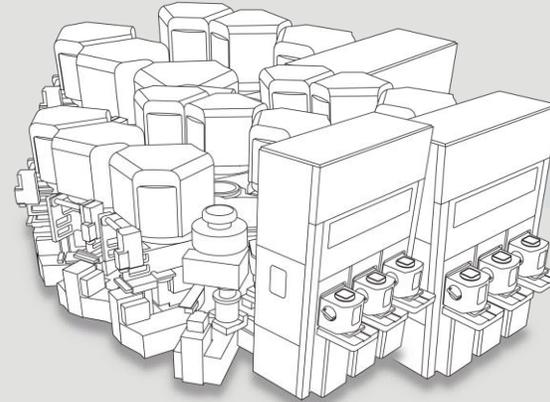
Transactional



Which parts are needed? When?



Subscription Agreement

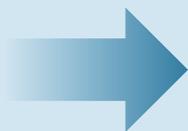


Parts Distribution and Sourcing Network



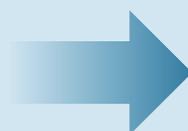
3

Continental Hubs



35

Regional Hubs



135

Inventory Locations



99%

On-Time Delivery

Technology-Enabled Services: The “Four Pillars”

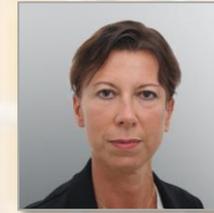
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Services Growth Model

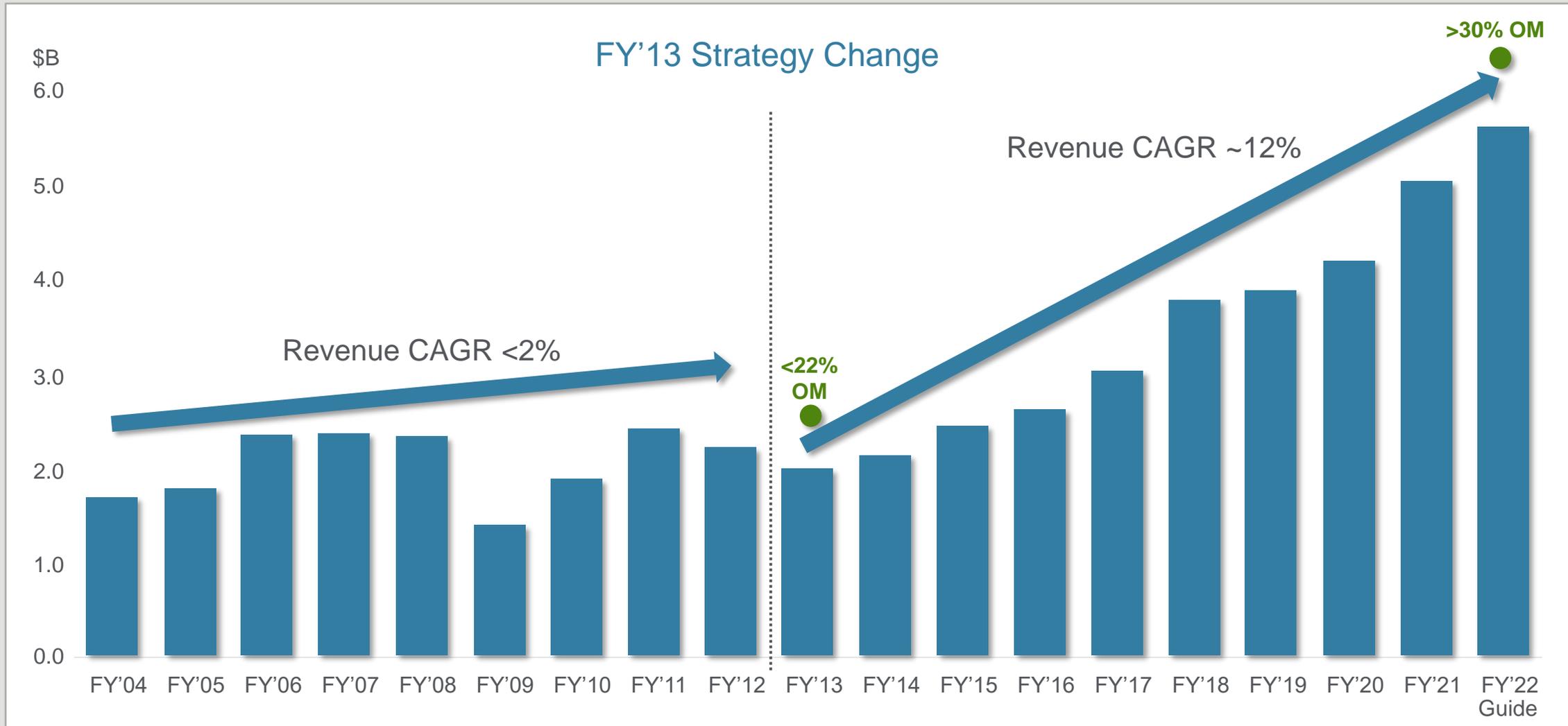
Michael Daly

Corporate Vice President

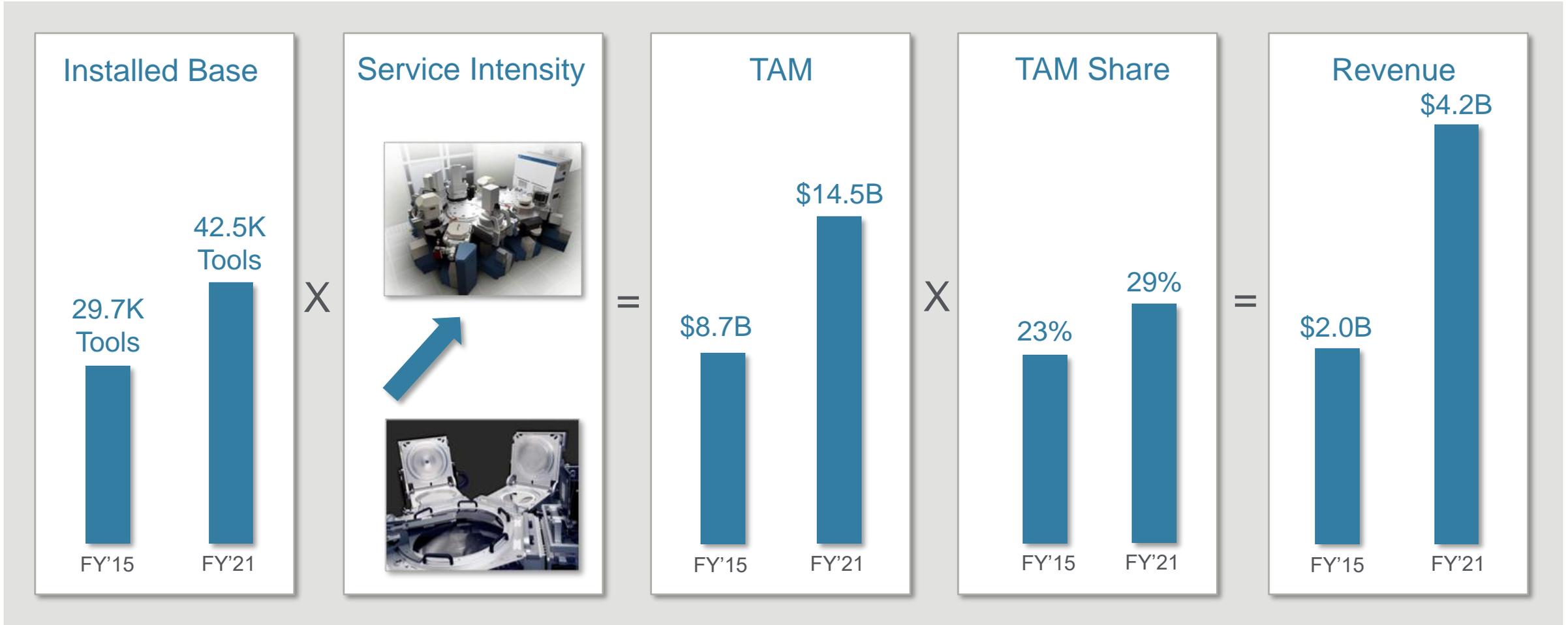
Applied Global Services

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Applied Materials Services Business



AGS Recurring Parts and Services Growth Formula



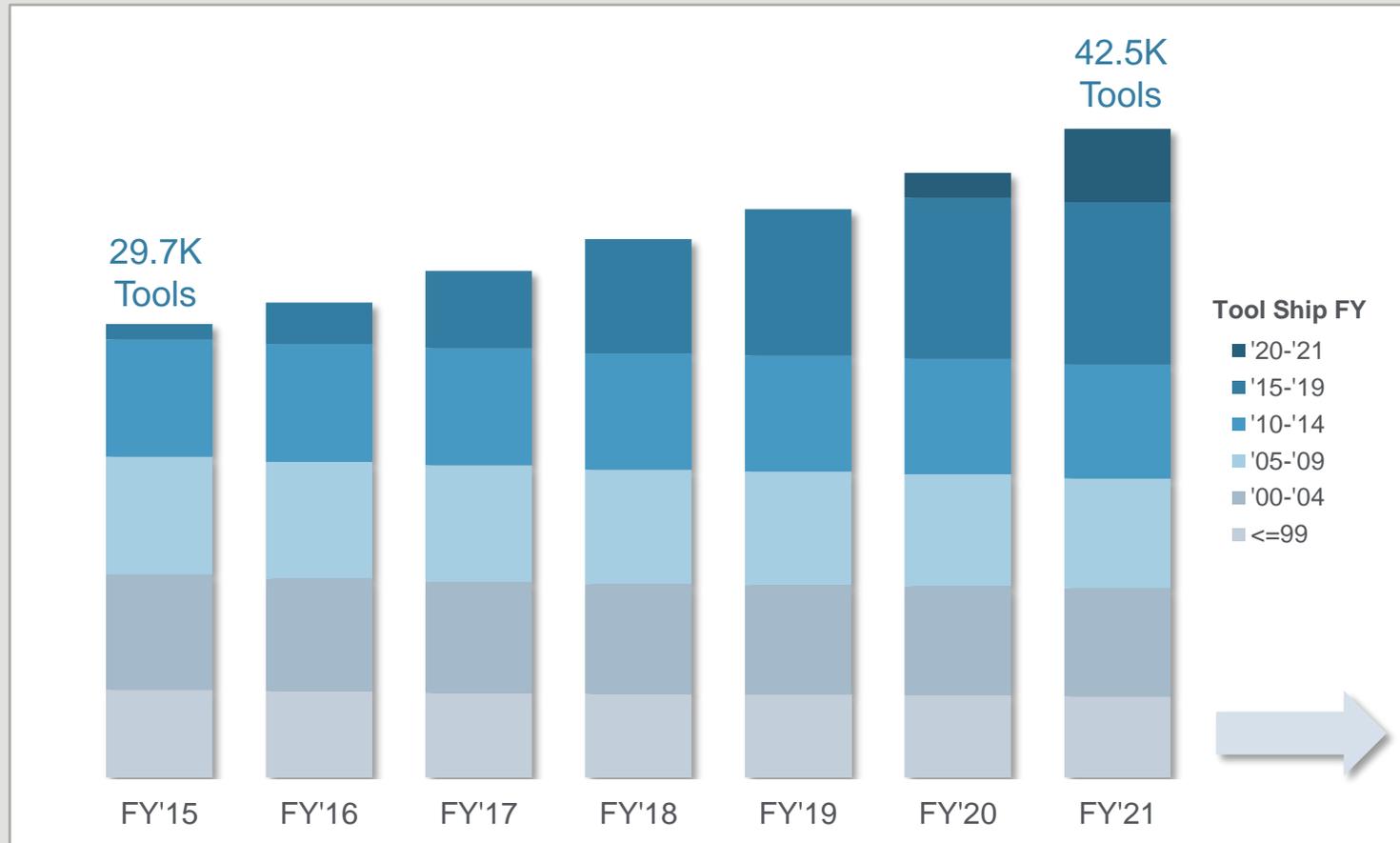
(Installed Base) x (Service Intensity) = (TAM) x (Share) = **Revenue**

Installed Base Growth



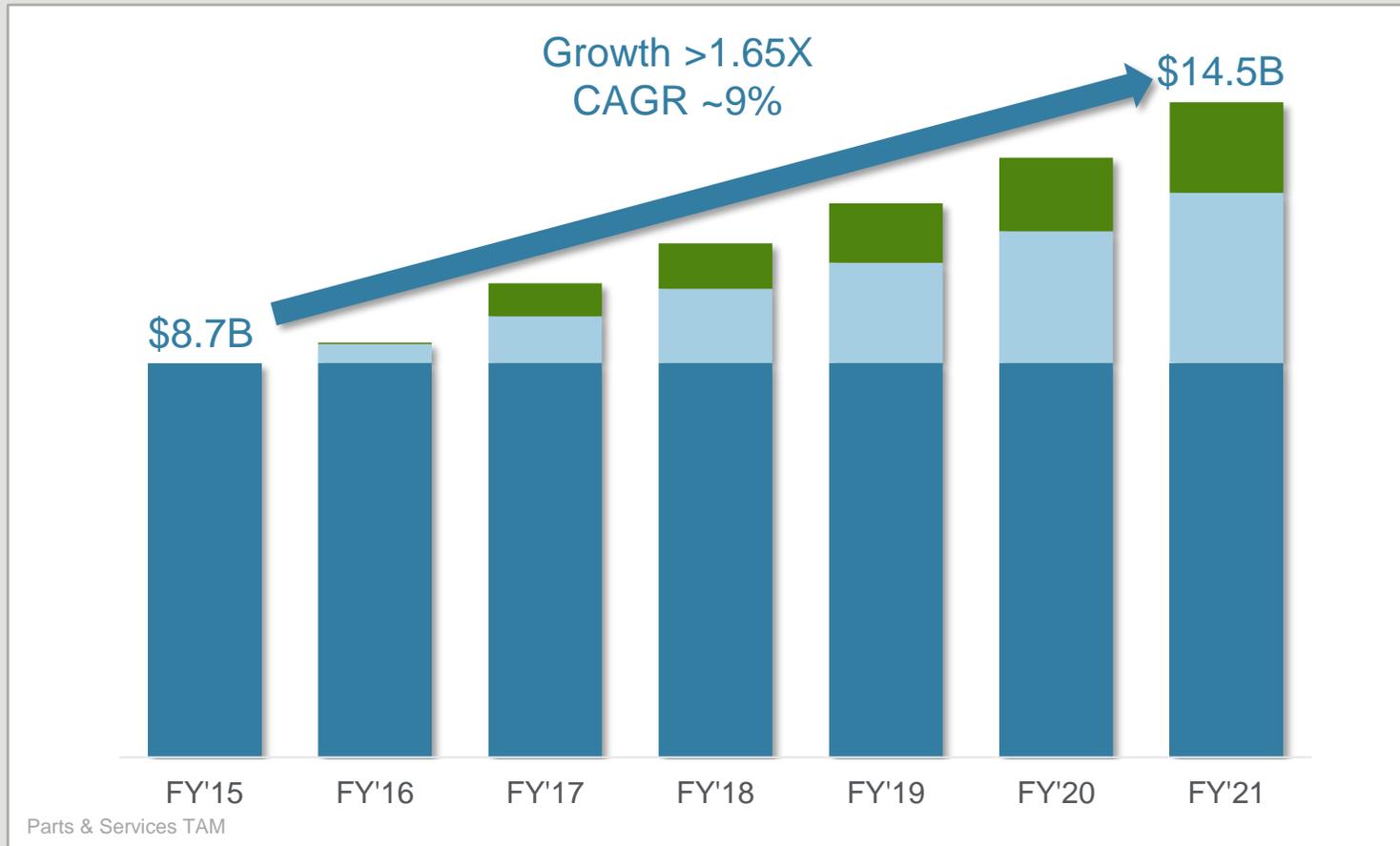
Every shipped tool is a lifetime revenue opportunity for AGS

Installed Base by Tool Ship Year



Longevity of Applied tools far exceeds depreciable lifetime

Service Intensity Growth Further Increases TAM



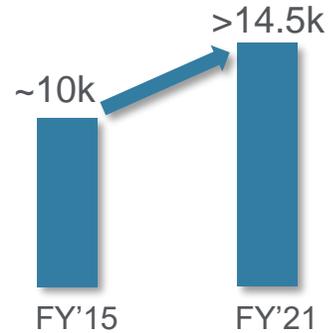
FY15-FY21
TAM Growth:

- 2/3 from installed base growth
- 1/3 from service intensity growth

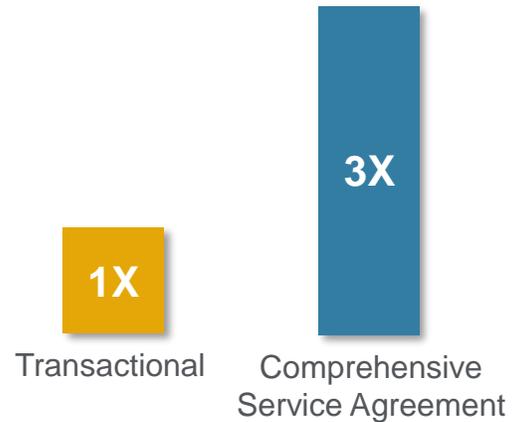
$$(\text{Installed Base}) \times (\text{Service Intensity}) = \text{TAM}$$

Parts and Services Share and Revenue Growth

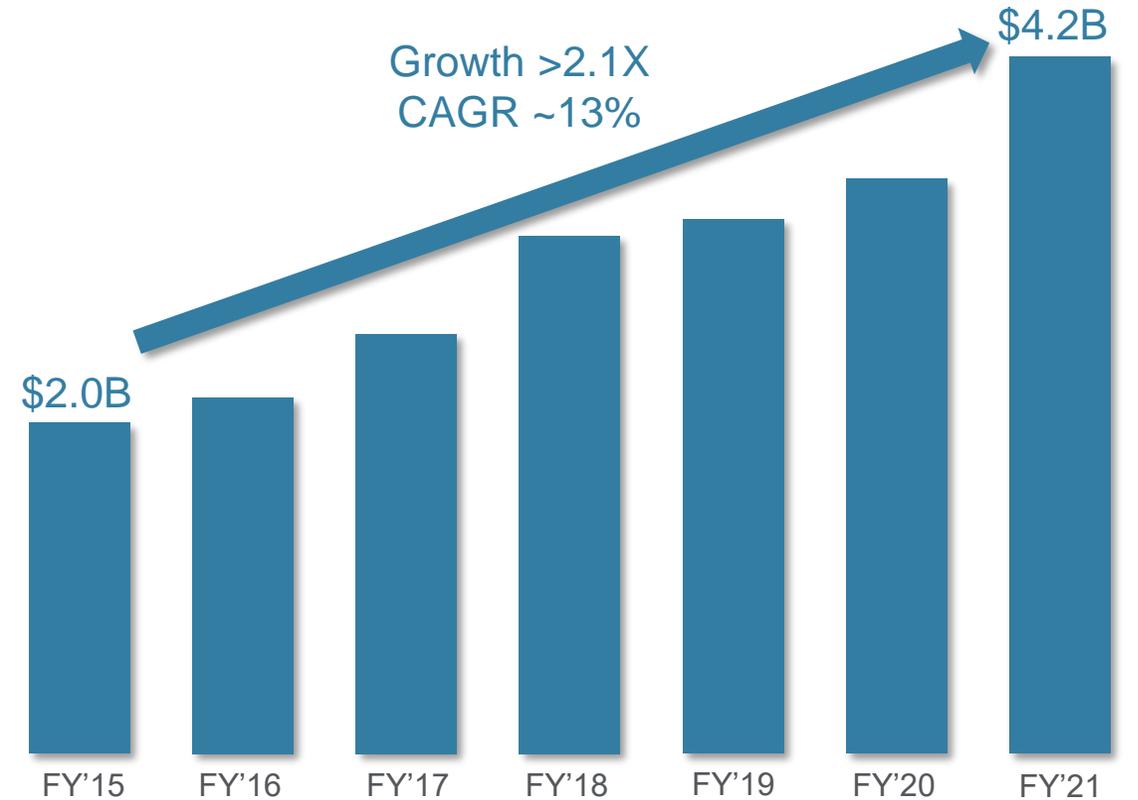
Systems Under Subscription Agreement



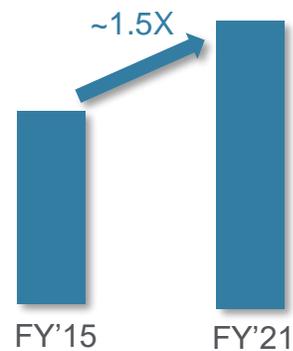
Revenue per Tool



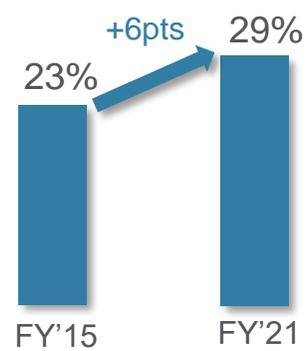
Parts & Services Revenue Growth



Revenue per Tool



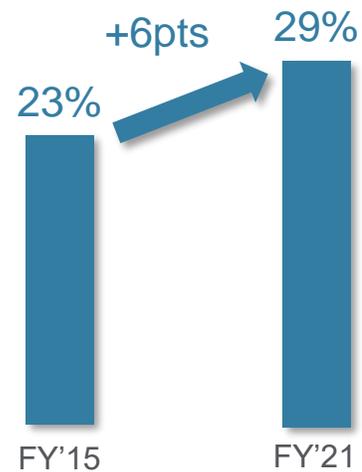
Share of TAM



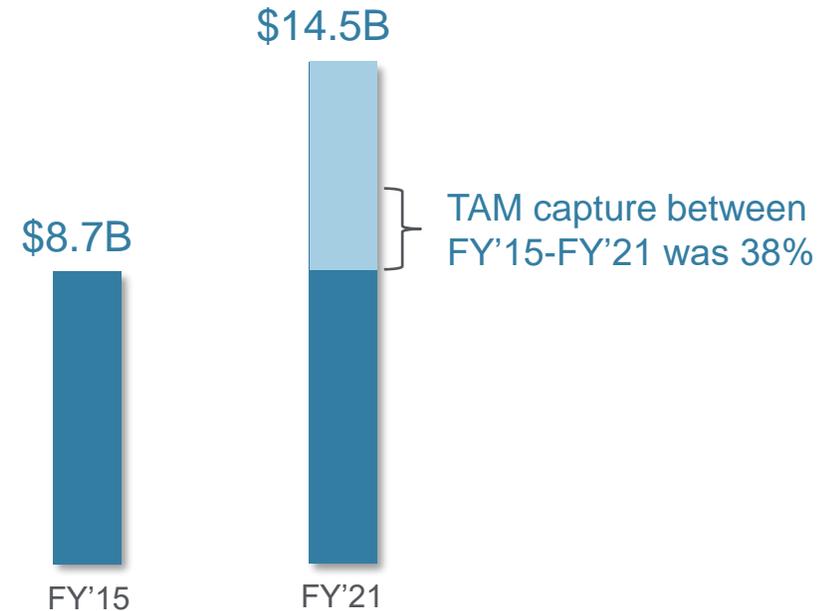
Capturing TAM Share

- >1,700 200mm tools under subscription agreement
- 200mm parts and services revenue up >20% FY'15 to FY'21

TAM Share



TAM Capture

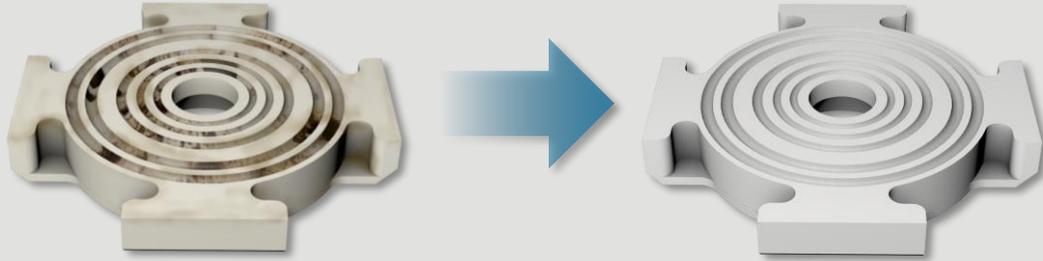


Growing 200mm tools

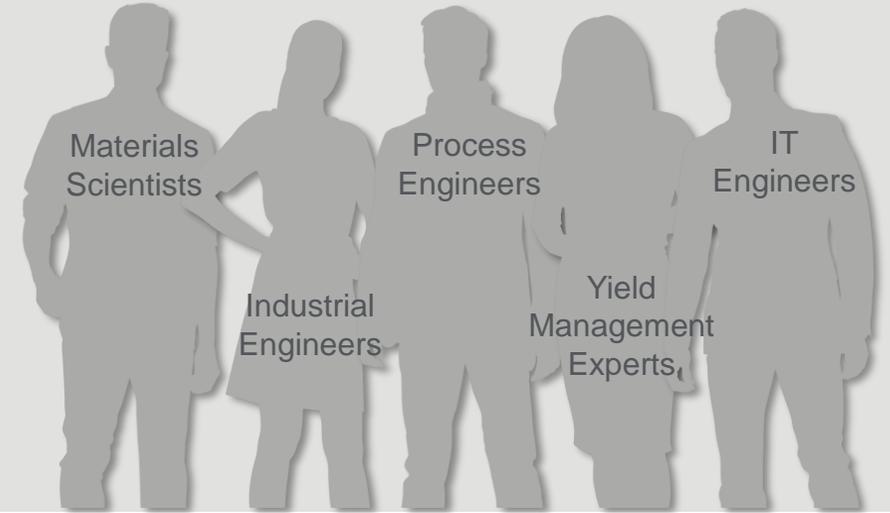
Capturing higher share from newer tools

TAM Capture Opportunities

Surface Technology



Network of Experts



Digital Tools

Proprietary Servers 

Remote Video Assist 

Remote Fleet Optimizer 

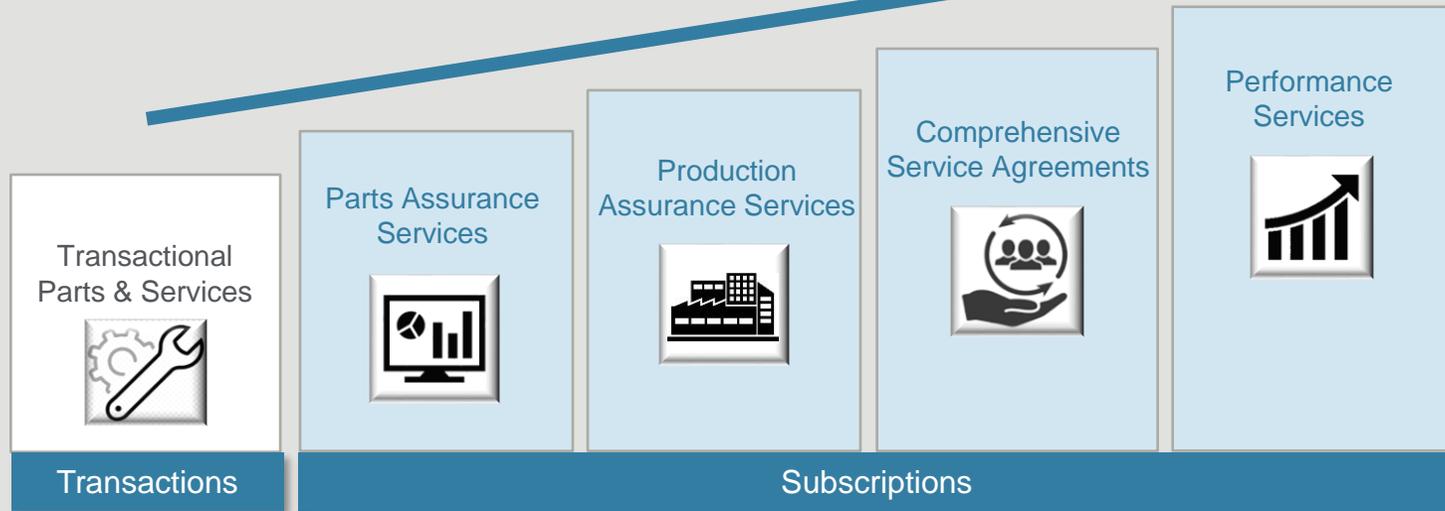
Remote Tool Assist 

Tailored Supply Chain



Service Offerings Continuum – Today & Tomorrow

AGS Service Offerings



AI^x[™]: Actionable Insight Accelerator



ChamberAI[™] ML algorithms



AppliedPRO[™]

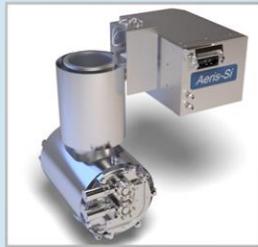


Digital twin models



Integrated controls

Environmental Products



Aeris[®] Si
Clean gas injection system

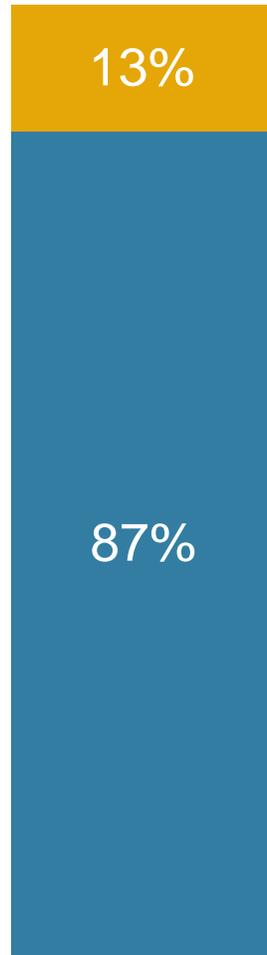


iSystem[®]
Intelligent sub-fab resource management software



Aeris G
GHG zero footprint plasma abatement system

Resiliency of AGS Services Model



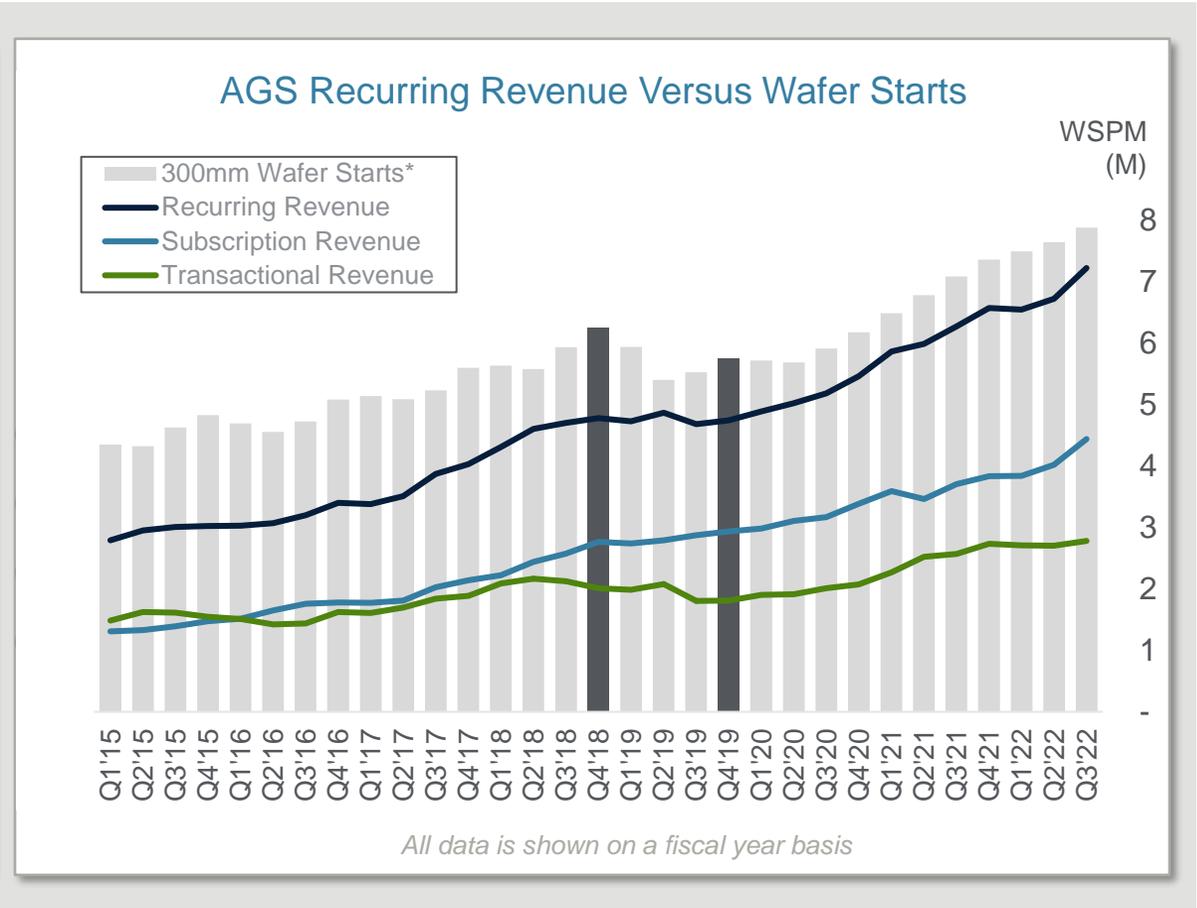
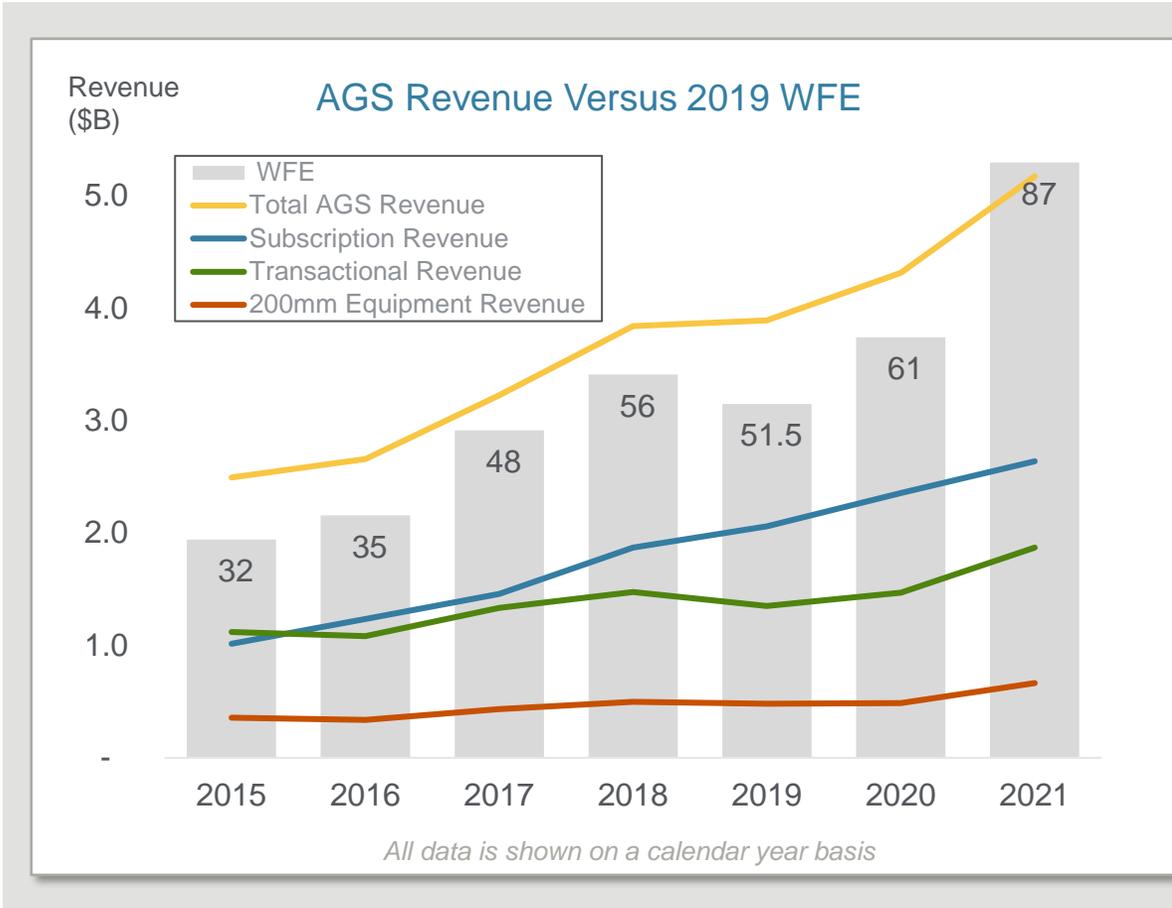
200mm and below systems

- Correlated with fab capacity additions

Recurring parts, services and software

- Correlated with wafer starts and fab utilization
- Tends to deliver steady revenue growth

AGS Performance During 2019 WFE Correction

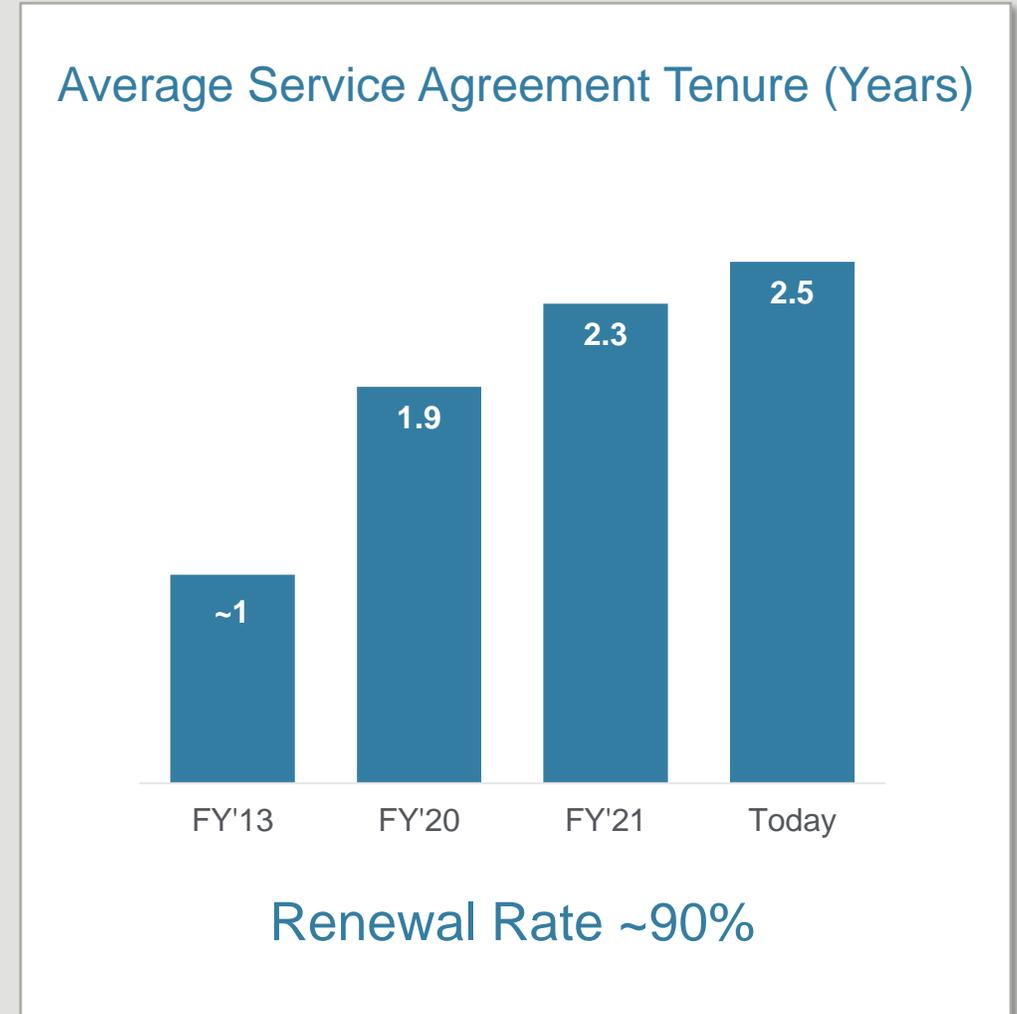
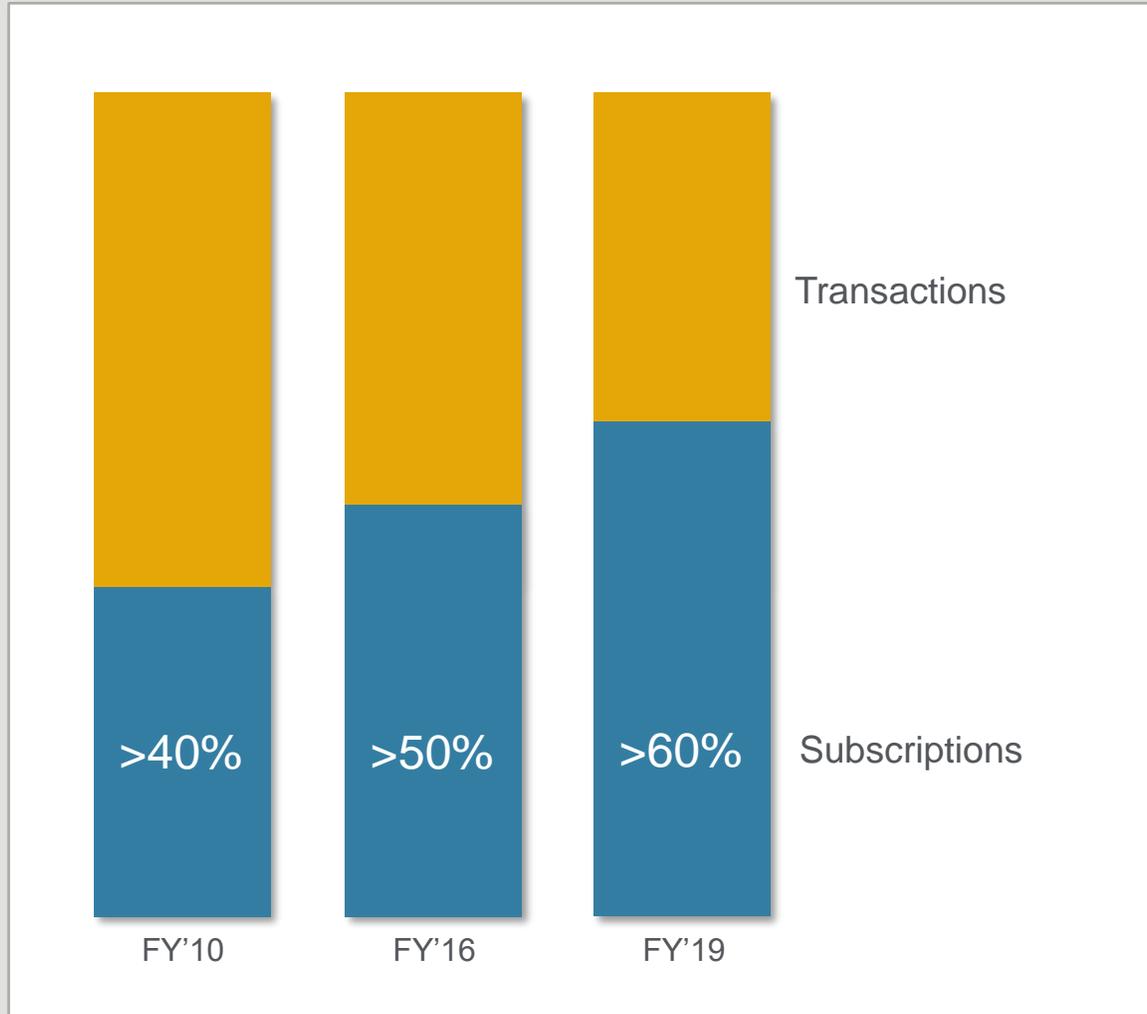


AGS revenue grew as WFE declined 8%

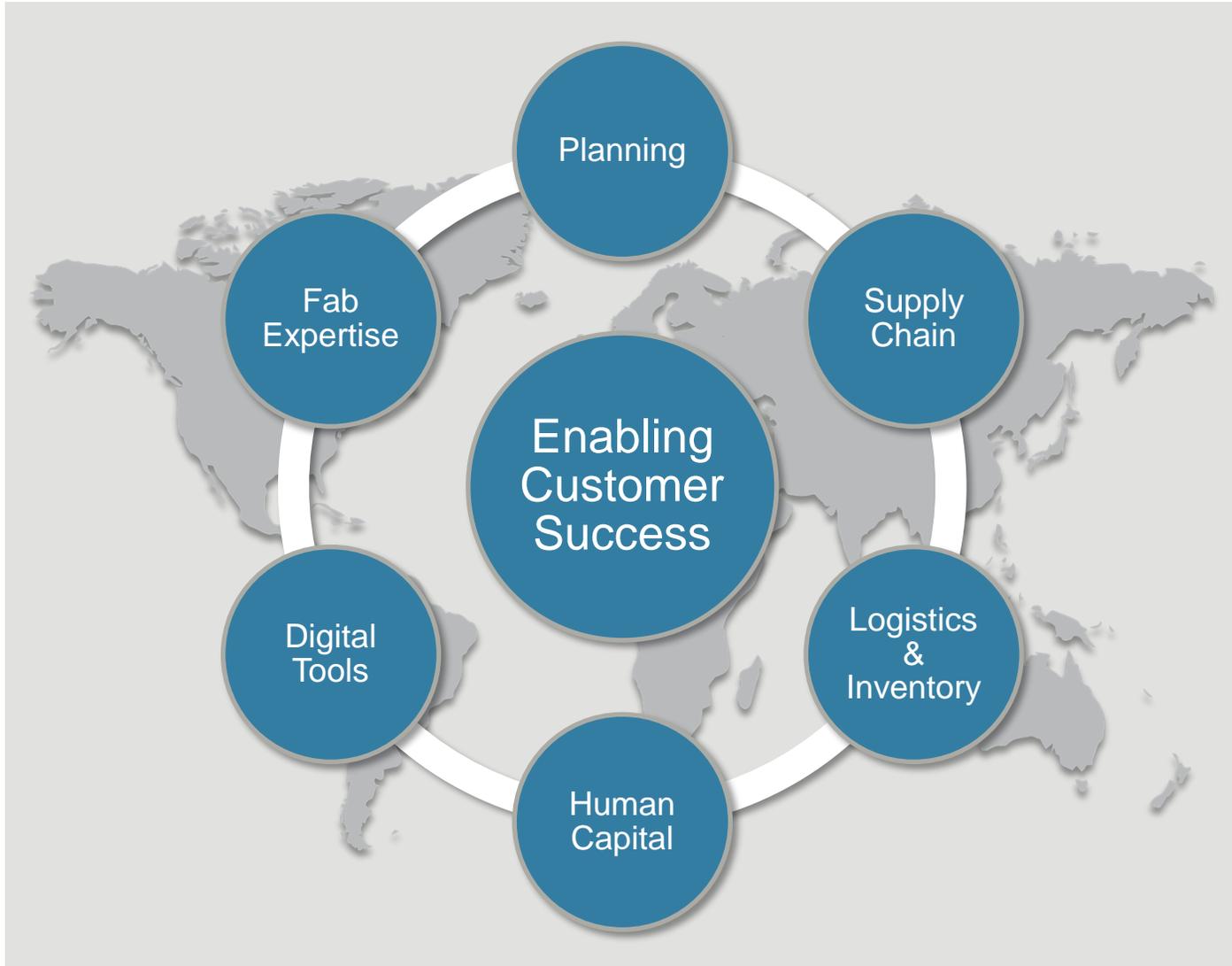
Subscription business is particularly resilient

* Source: TechInsights 300mm wafer starts, two-quarter rolling average

Subscription Agreements Growing as a % of Recurring Revenue

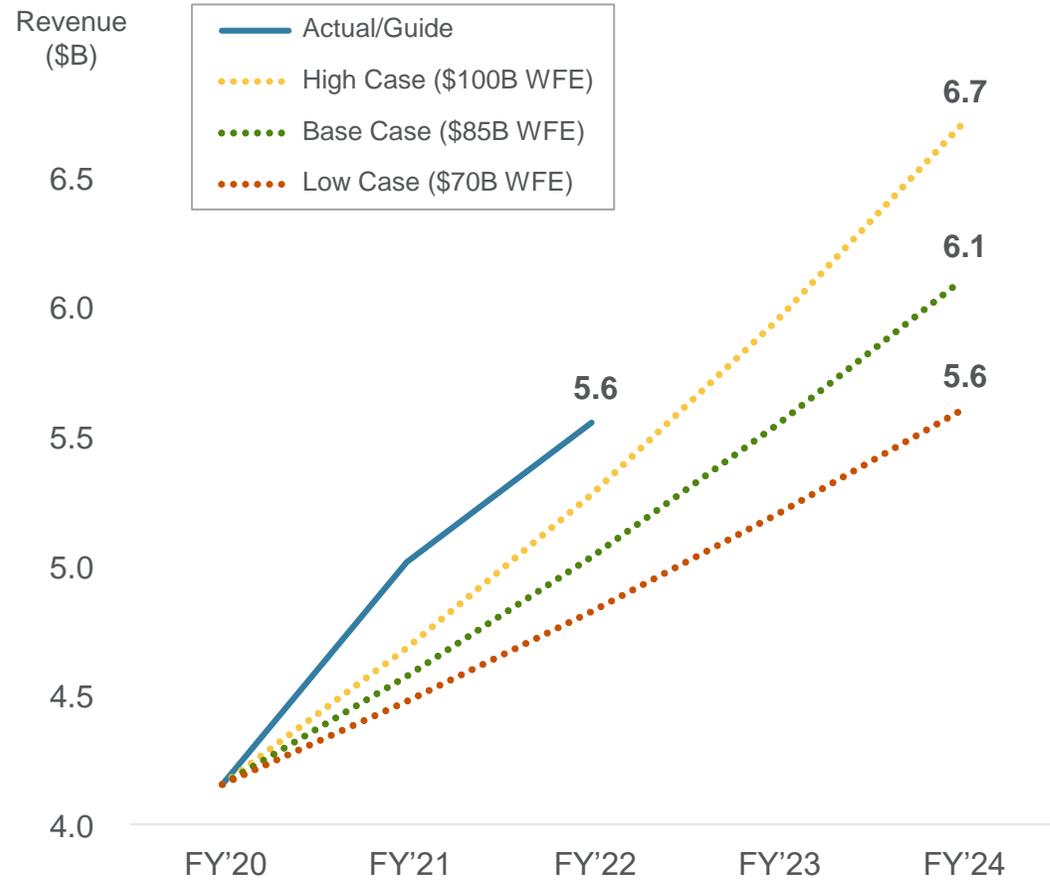


Fab Regionalization



- AGS delivers resources to customers as they ramp fab projects in new geographies
- Ability to support global customers has grown substantially in recent years
- Signed largest subscription agreement earlier this year: comprehensive service for >900 systems across multiple geographies

AGS Revenue Tracking Ahead of Analyst Day Goals



- Tracking **\$500M** ahead of base case
- Tracking **\$250M** ahead of high case

AGS KPIs

	FY'15	FY'20	FY'21
AGS Recurring Revenue (Parts, Services, Software)	\$2.1B	\$3.7B	\$4.4B
Recurring Revenue under Subscription Agreement	47%	62%	59%
Installed Base	29.7k	39.7k	42.5k
Parts and Services Total Available Market (TAM)	\$8.7B	\$13.3B	\$14.5B
Recurring Revenue per Tool	\$70k	\$92k	\$103k
Systems under Subscription Agreement	10.0k	13.1k	14.6k
Average Subscription Agreement Length	~1yr	1.9yrs	2.3yrs
Subscription Agreement Renewal Rate	93%	93%	90%
Connected Tools		3.7k	4.7k
Remote Connected Tools		2.4k	3.4k
AGS Backlog	\$0.8B	\$2.6B	\$4.3B

Recurring revenue per tool = recurring revenue divided by installed base

TechInsights Revenue Reporting: WFE and Services

Total Rank	Company	WFE + Service (\$M)				Adjusted WFE **				Service *			
		2018	2019	2020	2021	2018	2019	2020	2021	2018	2019	2020	2021
1	Applied Materials	14,016	13,468	16,365	22,387	10,869	10,224	12,540	17,878	3,147	3,244	3,825	4,509
2	ASML	12,816	12,770	15,396	21,078	10,176	10,075	11,764	16,148	2,640	2,694	3,632	4,930
3	Lam Research	10,871	9,549	11,929	16,524	9,004	7,701	9,723	13,743	1,867	1,849	2,206	2,781
4	Tokyo Electron	10,455	9,248	10,890	16,357	8,584	7,271	8,373	13,631	1,871	1,976	2,517	2,726
5	KLA	4,174	4,628	5,355	7,374	3,225	3,626	4,197	6,041	949	1,002	1,158	1,333
6	SCREEN	2,316	2,200	2,189	2,727	1,948	1,823	1,771	2,224	368	377	418	503
7	Kokusai Electric	1,486	1,138	1,455	2,228	1,189	831	1,048	1,783	297	307	407	446
8	ASM International	991	1,261	1,516	2,043	771	1,020	1,198	1,663	220	241	317	381
9	Hitachi High-Tech	1,363	1,490	1,662	1,567	1,126	1,162	1,258	1,181	237	328	404	386
10	Canon	765	692	854	1,043	669	563	712	881	97	129	142	162
...	...												

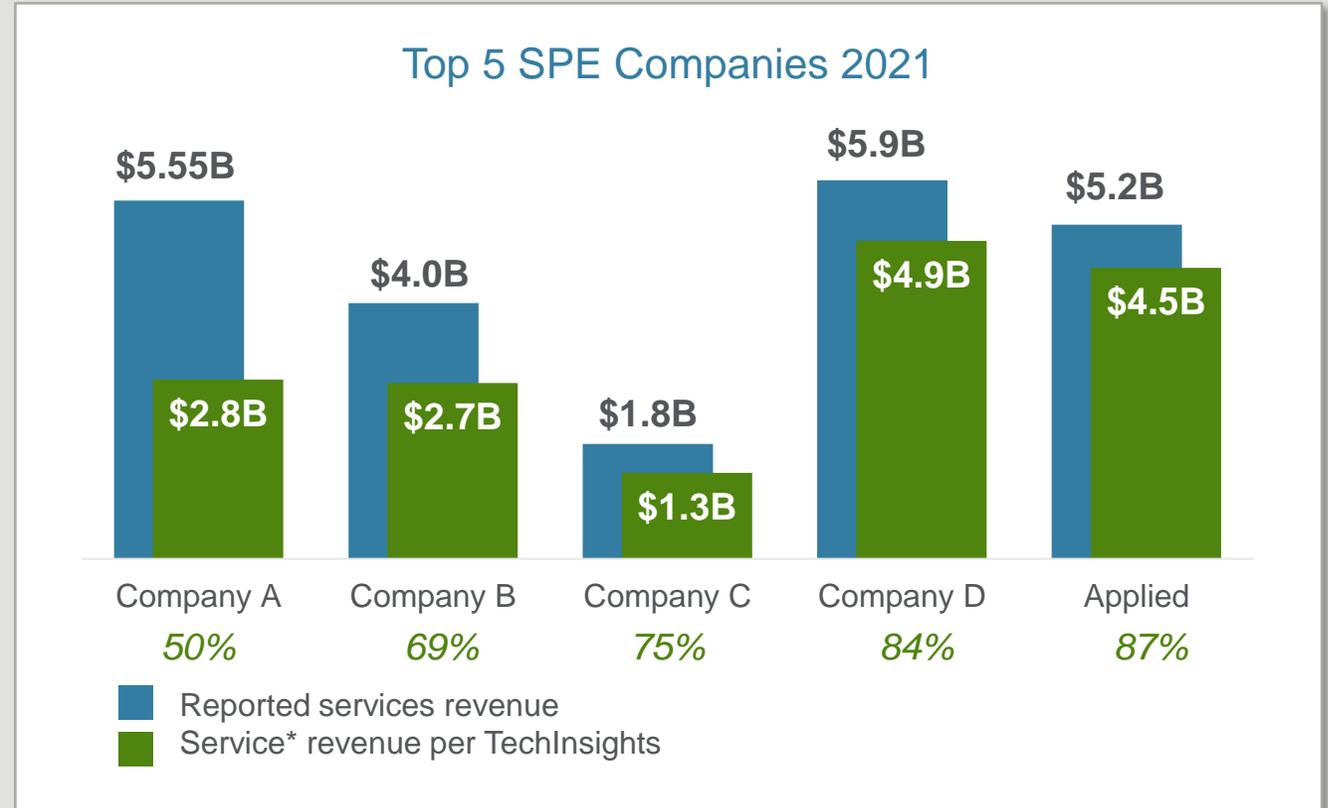
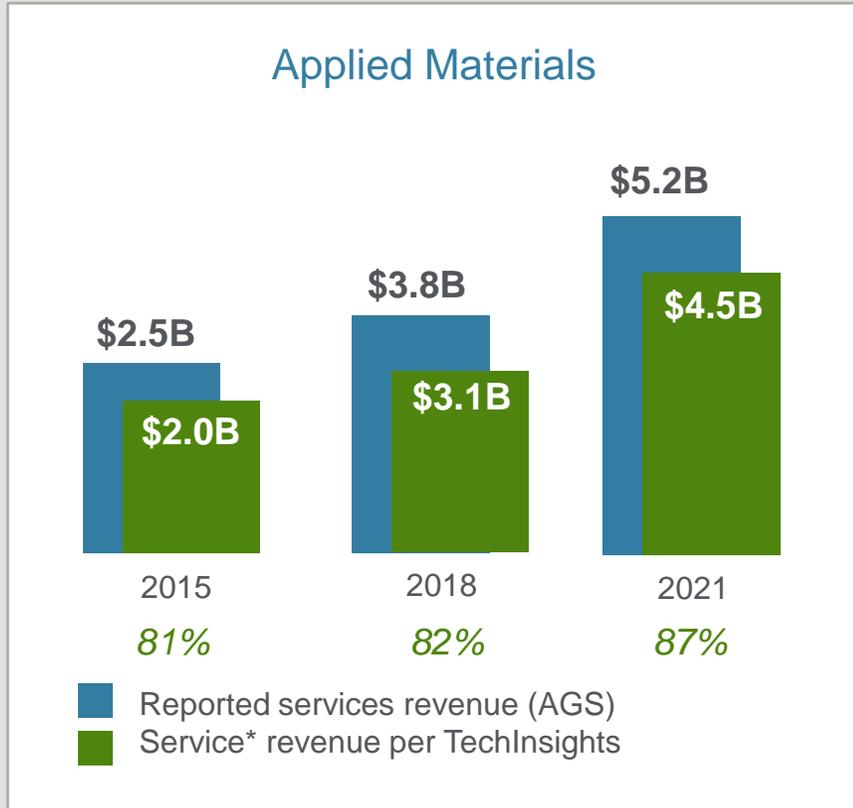
Source: TechInsights (formerly VLSIresearch), 2021 WFE Market Database; Released April 7, 2022

Contact: Risto Puhakka, rpuhakka@techinsights.com

* Service = Service, Support, Software

** Adjusted WFE excludes other equipment primarily related to fab automation hardware

TechInsights Services Revenue Analysis



Applied reported services revenue consists 87% of recurring revenue

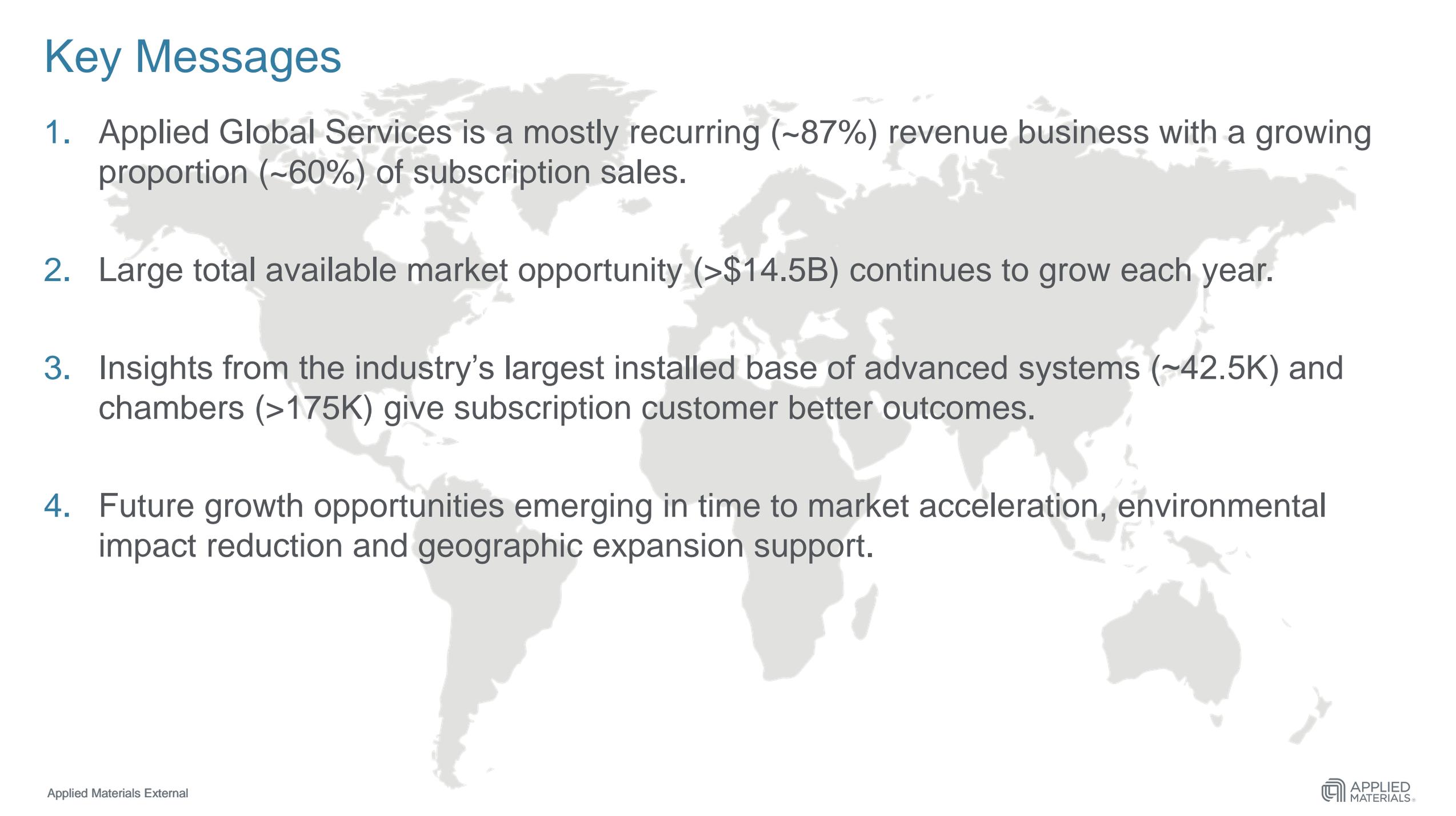
* Service = Service, Support, Software

Source: TechInsights, Factset, company data

All data shown on a calendar year basis.

Applied calendar year revenue equals reported quarterly revenue for the April, July, October and January quarters.

Key Messages



1. Applied Global Services is a mostly recurring (~87%) revenue business with a growing proportion (~60%) of subscription sales.
2. Large total available market opportunity (>\$14.5B) continues to grow each year.
3. Insights from the industry's largest installed base of advanced systems (~42.5K) and chambers (>175K) give subscription customer better outcomes.
4. Future growth opportunities emerging in time to market acceleration, environmental impact reduction and geographic expansion support.



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