

The background of the slide features a dark blue field filled with glowing green and white binary code (0s and 1s) arranged in horizontal streams. Overlaid on this are intricate, glowing white and light blue geometric patterns resembling circuit traces or a complex network diagram, with lines intersecting and forming various shapes.

**PDF/SOLUTIONS™**

## **Investor Presentation**

**May 2021**

**John Kibarian, President & CEO, Co-Founder**

**Kimon Michaels, Executive VP, Products and Solutions, Co-Founder**

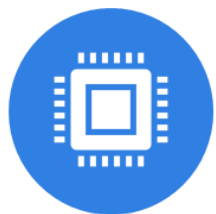
**Adnan Raza, Executive VP, Finance & CFO**



*Certain statements in this presentation, and statements that may be made when discussing it, regarding the Company's future expected business performance and financial results are forward looking and are subject to future events and circumstances. Actual results could differ materially from those expressed in these forward-looking statements. Risks and uncertainties that could cause results to differ materially include risks associated with: customers' production volumes under contracts that provide Gainshare royalties, cost and schedule of new product development; continued adoption of the Company's solutions by new and existing customers; project milestones or delays and performance criteria achieved; the provision of technology and services prior to the execution of a final contract; the continuing impact of the coronavirus (COVID-19) on the semiconductor industry and on the Company's operations or demand for the Company's products; the time required of the Company's executive management for, and the expenses related to, as well as the success of the Company's strategic growth opportunities and partnerships, including its partnership with Advantest Corporation; our ability to successfully integrate the acquired businesses and technologies; and other risks set forth in PDF Solutions' periodic public filings with the Securities and Exchange Commission, including, without limitation, its Annual Reports on Form 10-K, most recently filed for the year ended December 31, 2020, Quarterly Reports on Form 10-Q, and Current Reports on Form 8-K and amendments to such reports. The forward-looking statements made herein or about this presentation are made as of the date hereof, and PDF Solutions does not assume any obligation to update such statements nor the reasons why actual results could differ materially from those projected in such statements.*

# PDF Solutions Overview

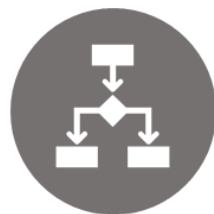
- PDF provides advanced data analytics, machine learning, and equipment connectivity products, services, and systems for the semiconductor supply chain
- PDF products improve process efficiency and product reliability:
  - Analytics software and services for the end-to-end needs of the semiconductor value chain
  - Connectivity and control software and services for factory equipment
  - Differentiated data from manufacturing, test, and in-field use based on IP integrated into semiconductor devices



**IC Design**



**Fab**



**Sort**



**Assembly**



**Test**



**System**

# Building a Platform for Success

## GROWTH

- 22% CAGR of analytics revenue from CY 2019 to TTM Q1'21
- Analytics are 70% of total revenues in TTM Q1'21 vs. 58% in CY 2019, and 45% in CY 2018

## PROFITABILITY

- 70%+ non-GAAP gross margins target model
- GAAP gross margin 57% and non-GAAP gross margin 62% for TTM Q1'21

## VISIBILITY

- \$465K average analytics revenue per customer in TTM Q1'21, +5% increase vs. CY 2019\*
- Strong cloud momentum and >100% Exensio customers dollar-retention rate\*\*

## DIVERSIFICATION

- Largest customer declined to 16% of revenue in TTM Q1'21 vs. 31% in CY 2019
- No foreign country accounts for more than 20% of revenue in TTM Q1'21

## STRENGTH

- \$132M in cash and short term investment as of Q1'21, with no debt
- Opportunistic share buybacks; \$19.4 million since 2018 including \$4.5M in Q1'21

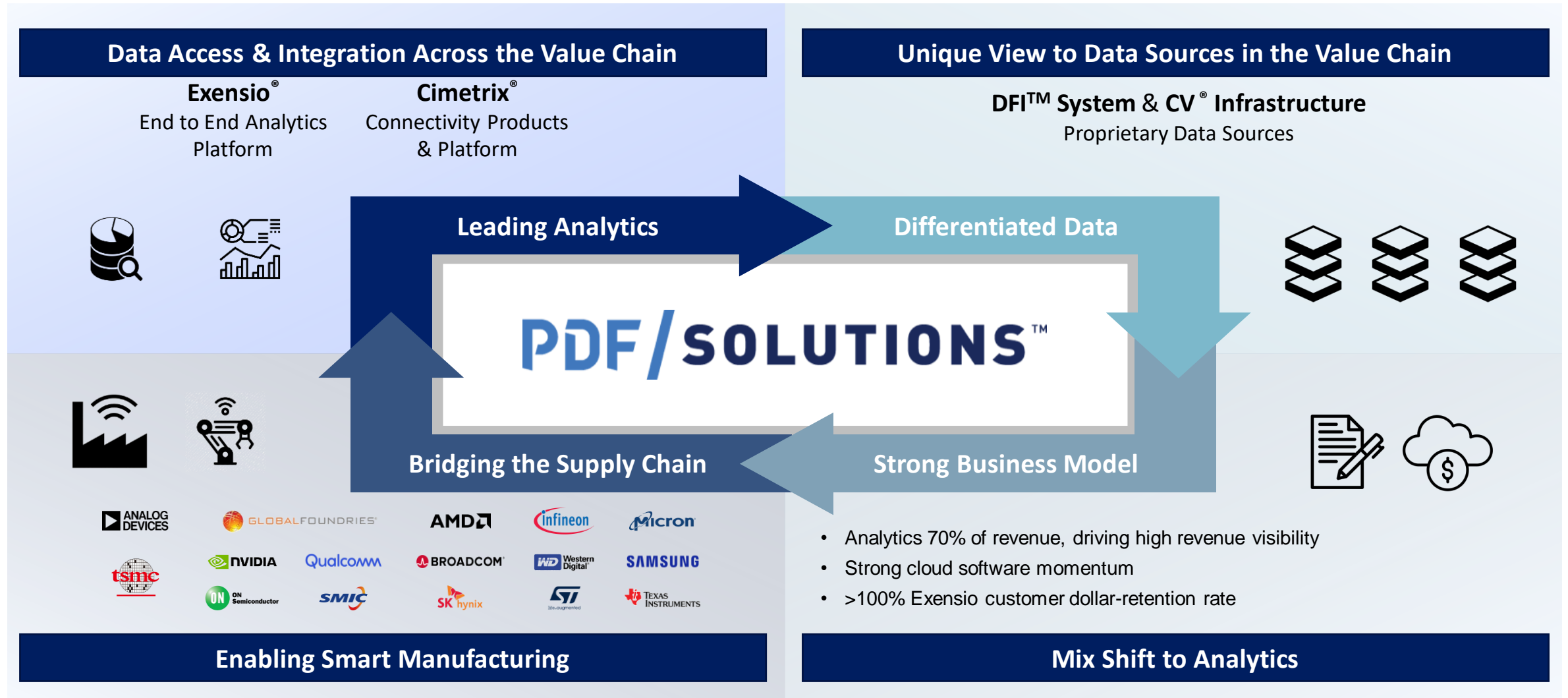
## INVESTMENT

- Strategic investment and partnership with Advantest
- Cimatrix acquisition to expand products and market portfolio

\* excluding Cimatrix transaction which closed on Dec 1 2020; \*\*TTM Q1'21 vs CY 2019



# The Leading Data Analytics Platform



Representative industry participants; not indicative of actual customers. Logos are the property of the respective trademark owners.

# PDF Business Models

**PDF has two business models to capture the value of our solutions,  
which combines advanced analytics and differentiated data**

## **Subscription Model:**

when value is data and analytics

- Analytics is primarily subscription-based and is the growth driver for PDF
- Subscription model enables PDF to be compensated on continuous usage

## **Gainshare Model:**

when value is time to volume

- Integrated Yield Ramp revenue is the variable-fee royalty model that enables PDF to be compensated based on measurable value delivered
- In competitive foundry market, time to mass production is critical

# Benefiting From Strong Market Tailwinds

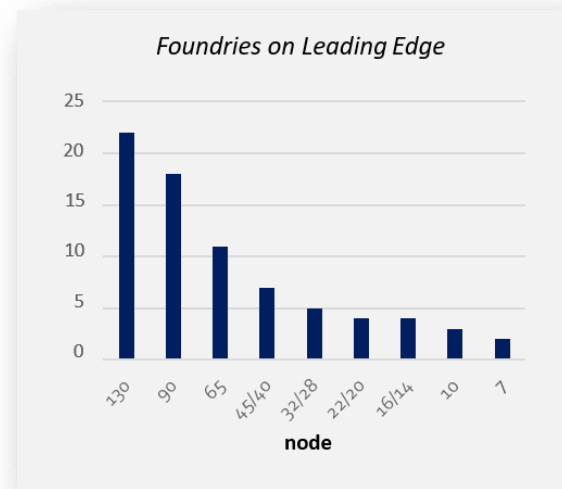
## Value in Semiconductor Supply Chain Shifting to Mass Production:

- Increased value in mass production continuous improvement vs. simply time to market
- Financial risk shifting away from foundry to fabless & system companies

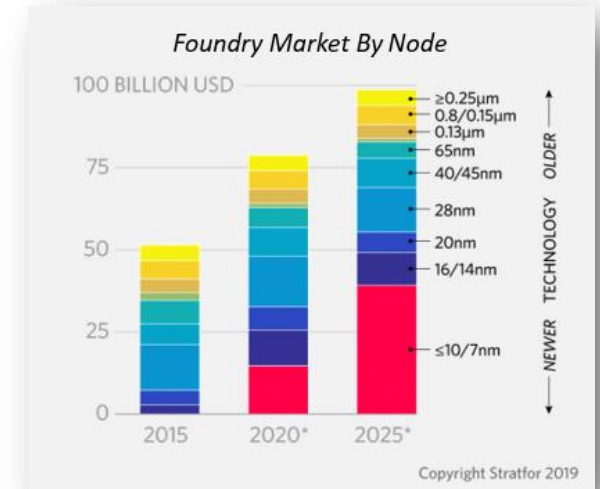
### Moore's Law is Slowing Down



### Foundries consolidating due to process complexity



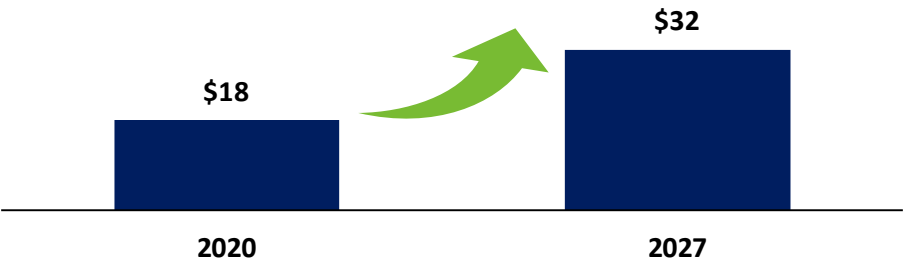
### % of foundry market in finFET nodes expected to grow



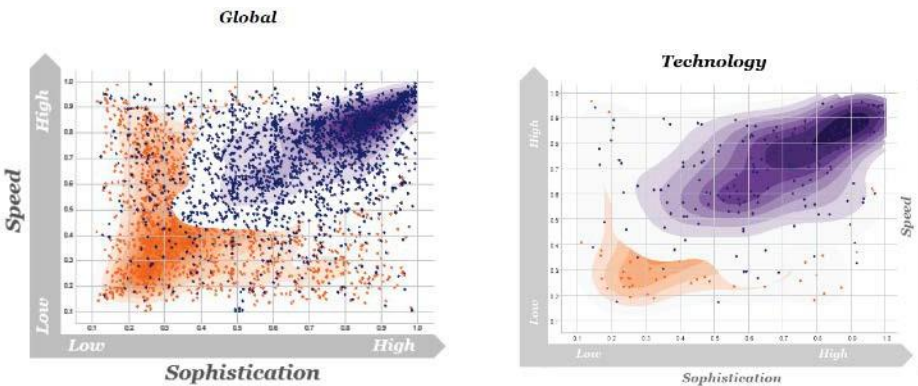
An increasing number of stakeholders, Hyperscalers, OEMs, Governments, are all realizing the importance of the semiconductors supply chain

# Data and Analytics Growing in Importance

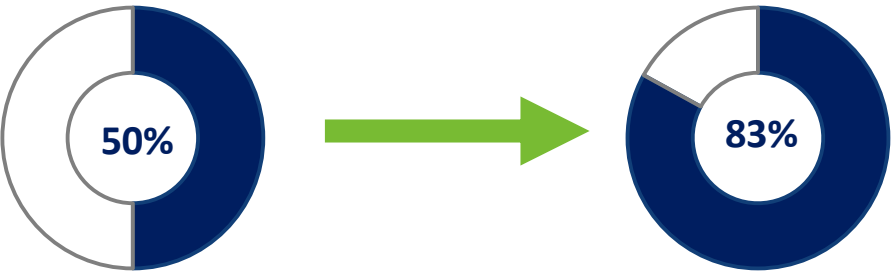
Data & Analytics in Semis & Electronics (\$B)



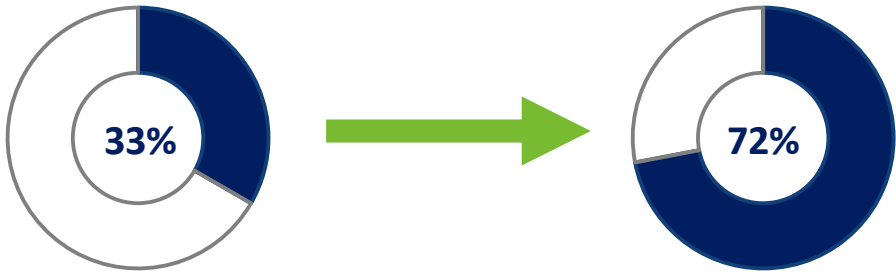
Data & Analytics in Semiconductor & Electronics manufacturing is expected to **grow significantly**



Companies moving to **faster decision speed** with **greater sophistication**, especially in tech. sector



Only half of companies today place a high importance on data analytics, but **83% expect that it will be a core competence in five years**

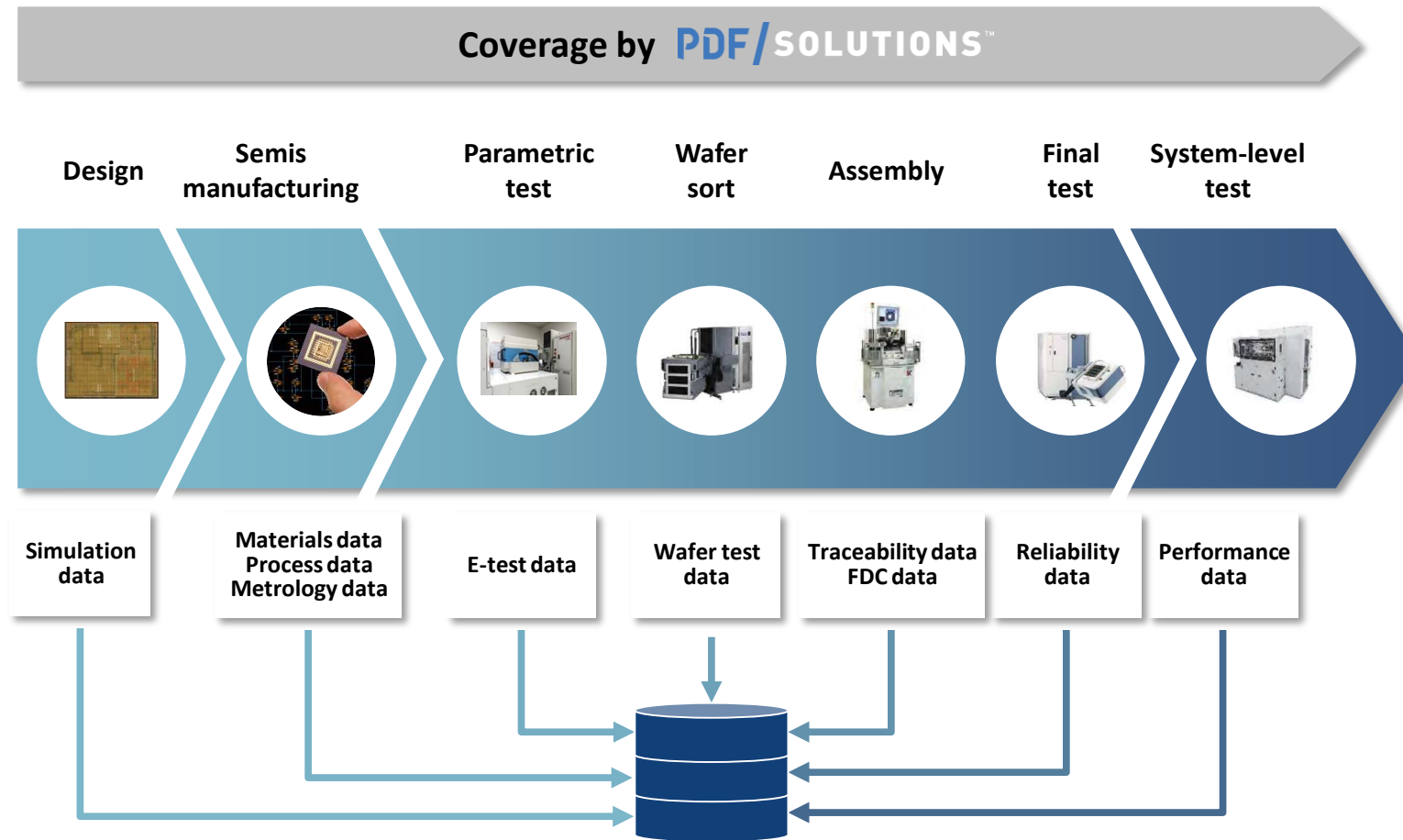


% of companies with “**highly digitized functional groups**” expected to **double over next 5 years**

Source: PwC – Industry 4.0 Building your digital enterprise, Allied Market Research.

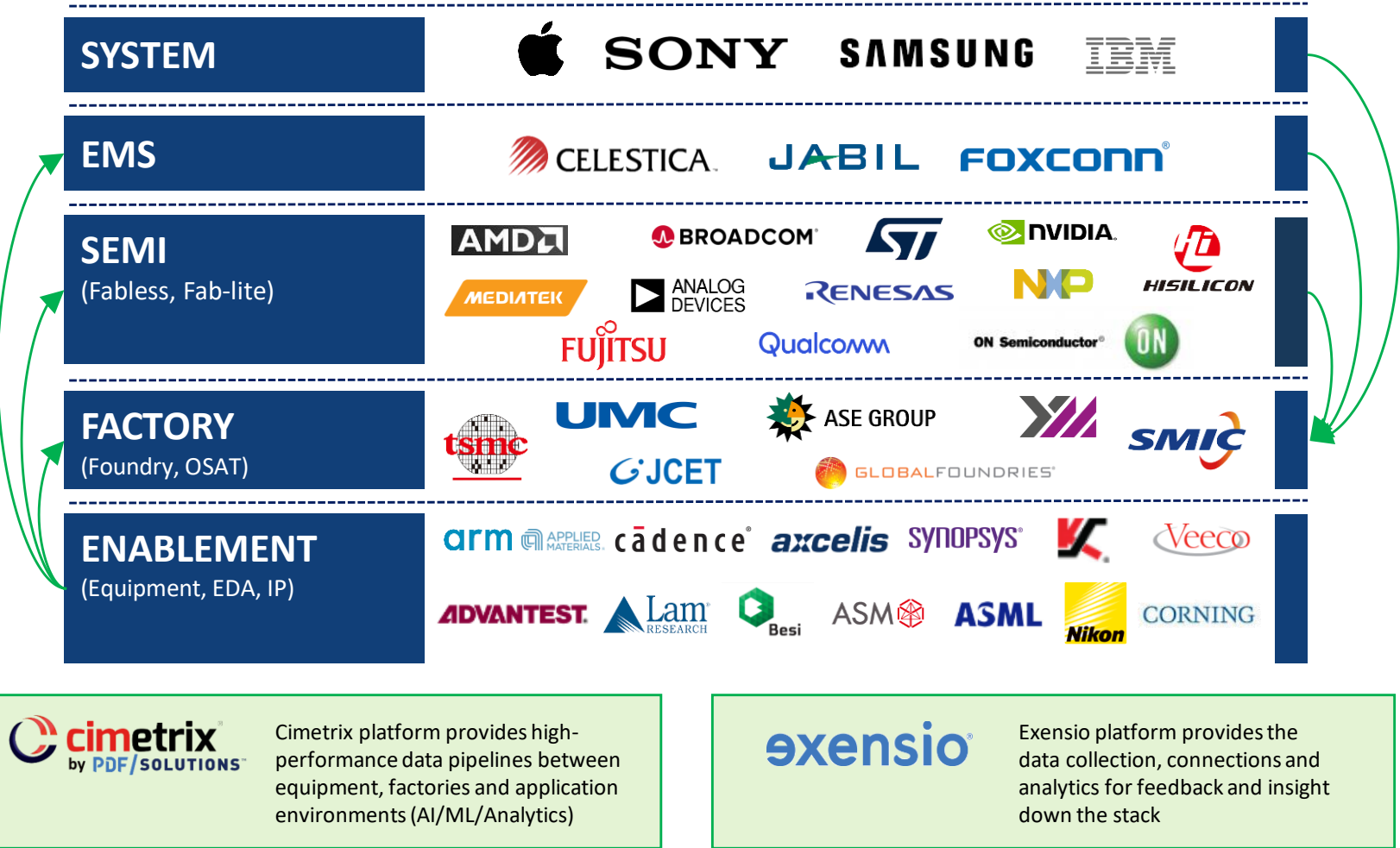


# PDF has a Unique View & Access to Data Sources in the Value Chain



- ✓ Wafer-level grading and disposition
- ✓ Test reduction and adaptation
- ✓ Die quality and RMA prediction
- ✓ Virtual metrology
- ✓ Yield prediction
- ✓ Predictive maintenance
- ✓ Fault detection and classification
- ✓ Capacity and efficiency improvement
- ✓ Connectivity to equipment for control and data exchange

# PDF Spans and Bridges the Supply Chain Stack to Enable Smart Manufacturing



## PDF/SOLUTIONS™

- ✓ The only commercial data and analytics-focused provider with breadth and scale required by our customers
- ✓ Analytics and data implemented broadly across the supply chain
- ✓ Most of the top 50 equipment suppliers in the world use Cimetrix software
- ✓ Unique view and access to data sources in the manufacturing and testing value chain
- ✓ Continue to increase our established relationships with critical industry members

Representative industry participants; not indicative of actual customers. Logos are the property of the respective trademark owners.

# Customer Base Spans Equipment, Fabless, Fab, OSAT and System



>125K equipment  
to factory  
connections



>40K process tools  
under PDF process  
control across the  
ecosystem



300 revenue  
generating customers  
in 33 countries  
through TTM Q1'21



#1 commercial  
solution for mfg yield  
and control with large  
cloud customer base



Fastest growing  
commercial provider  
in manufacturing test  
operations leveraging  
DEX network



Leading solution for  
die traceability  
through the supply  
chain

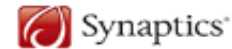


TEXAS INSTRUMENTS



FUJITSU

TOSHIBA



UMC

SONY



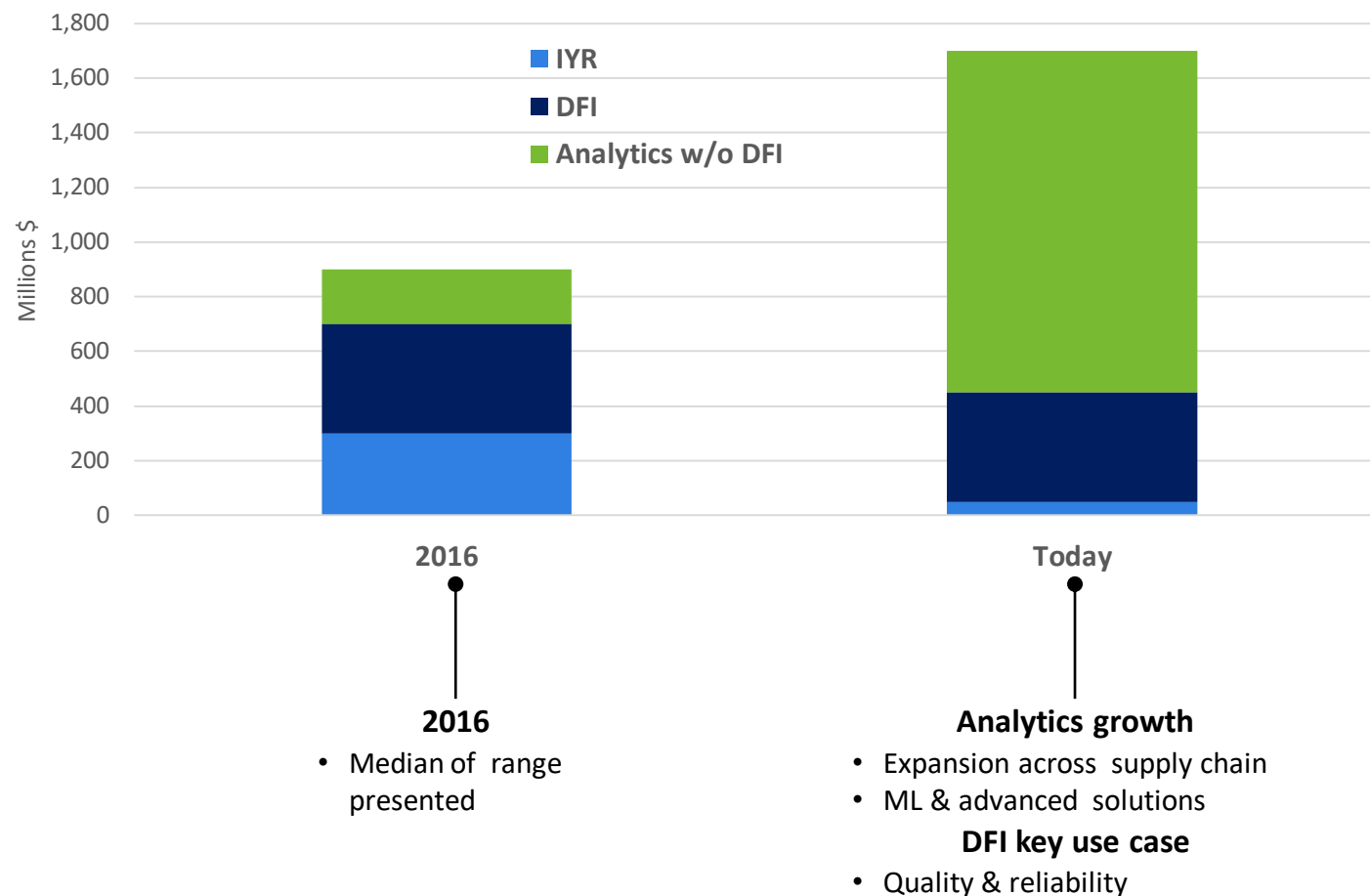
Dongbu HiTek



Companies who attended the 2019 PDF Solutions Users Conference; Logos are the property of the respective trademark owners.



# Total Available Market



Source: PDF Solutions estimates

- Today, PDF provides the only commercial, supply-chain-wide analytics products, services, and systems
- Growth in analytics TAM being driven from
  - Move to cloud and increased data volumes
  - Additional opportunities in fabless, OSAT, system analytics
- DFI™ TAM growth driven by
  - Need for electrical data for quality and reliability
  - Observability limits of conventional inspection

# PDF Solutions and Advantest Partnership – 30 July 2020

## Overview of PDF Solutions



- The only end-to-end data and analytics solutions provider for the semiconductor and electronics manufacturing supply chains
- PDF's Exensio Analytics Platform provides a semantic data model to integrate and align data from across the semiconductor product lifecycle
- CY 2019 revenues of \$86 million with 65% gross margins
- \$100 million cash and no debt, as of Q1 ended March-2020
- Worldwide ~350 employees and presence in 11 countries

## Overview of Partnership

- Development of a software platform based on Exensio ("Advantest Cloud powered by PDF Exensio") for Advantest's internal & customers use
- Joint development and sale of technology solutions based on Advantest testing platforms and PDF's Exensio analytics software
- A 5-year subscription for the PDF Exensio cloud platform and DEX network, which is expected to result in >\$50 million revenue, subject to successful deployment of the Exensio platform (anticipated this year)
- Purchase of 3,306,924 PDF common shares for \$65.2 million
- PDF remains independent and will continue to work with all equipment providers in both the front-end and back-end

## Strategic Rationale of Partnership

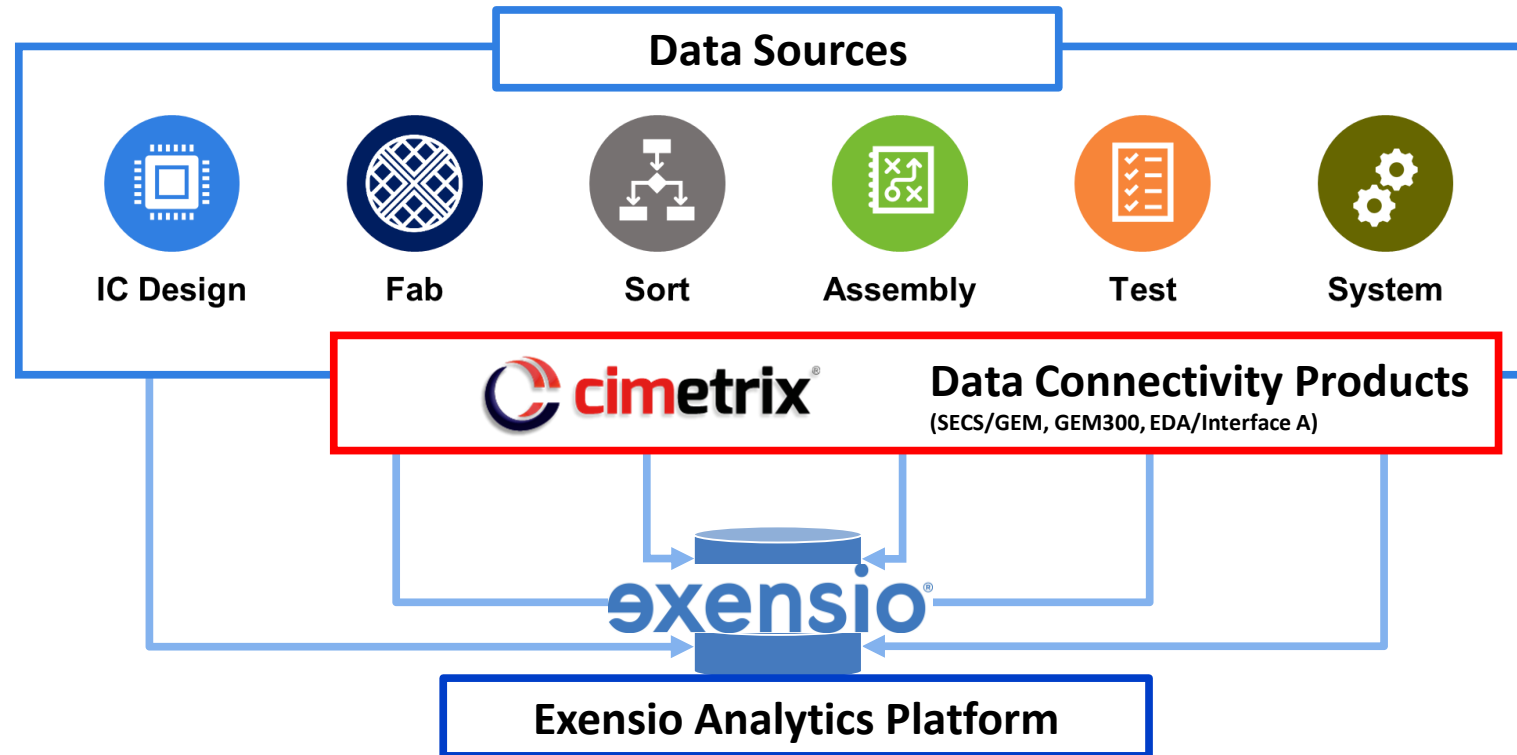


- Expands and deepens tools supported by Exensio, already at >300 tool types from >100 equipment companies and >40k connected tools worldwide
- Increases number of fabs/OSATs using PDF to communicate product data
- Advantest is the established leader in test systems global ecosystem, with greater than 50% market share
- Partnering with Advantest allows PDF to further solidify our industry-leading footprint in the manufacturing & test equipment data collection ecosystem

## Benefits for PDF Solutions

- Validates PDF strategy of making Exensio an open and independent analytics platform for partners to use as a base for their own solutions
- Creates additional opportunities for PDF at fabless and system companies from accelerated adoption of Exensio solution for test, as well as revenue from the Advantest solutions that leverage Exensio
- Accelerates adoption of DEX nodes connecting customers, manufacturers and suppliers
- Accretive deal for PDF stockholders, including share issuance
- \$65.2 million of additional cash provides a platform to accelerate PDF's growth and investments going forward

# PDF + Cimetrix Offers Connectivity and Control for Manufacturing Equipment – 01 Dec 2020



- Establishes PDF as the only provider of analytics, differentiated data and connectivity
- Continues PDF mission to lead the trend toward Smart Manufacturing & Industry 4.0
- Enable customers to extract more intelligence – not just data – from their factory floor
- Extends the reach of our “whole supply chain” strategy to include packaging, test and assembly at OSATs and PCBA



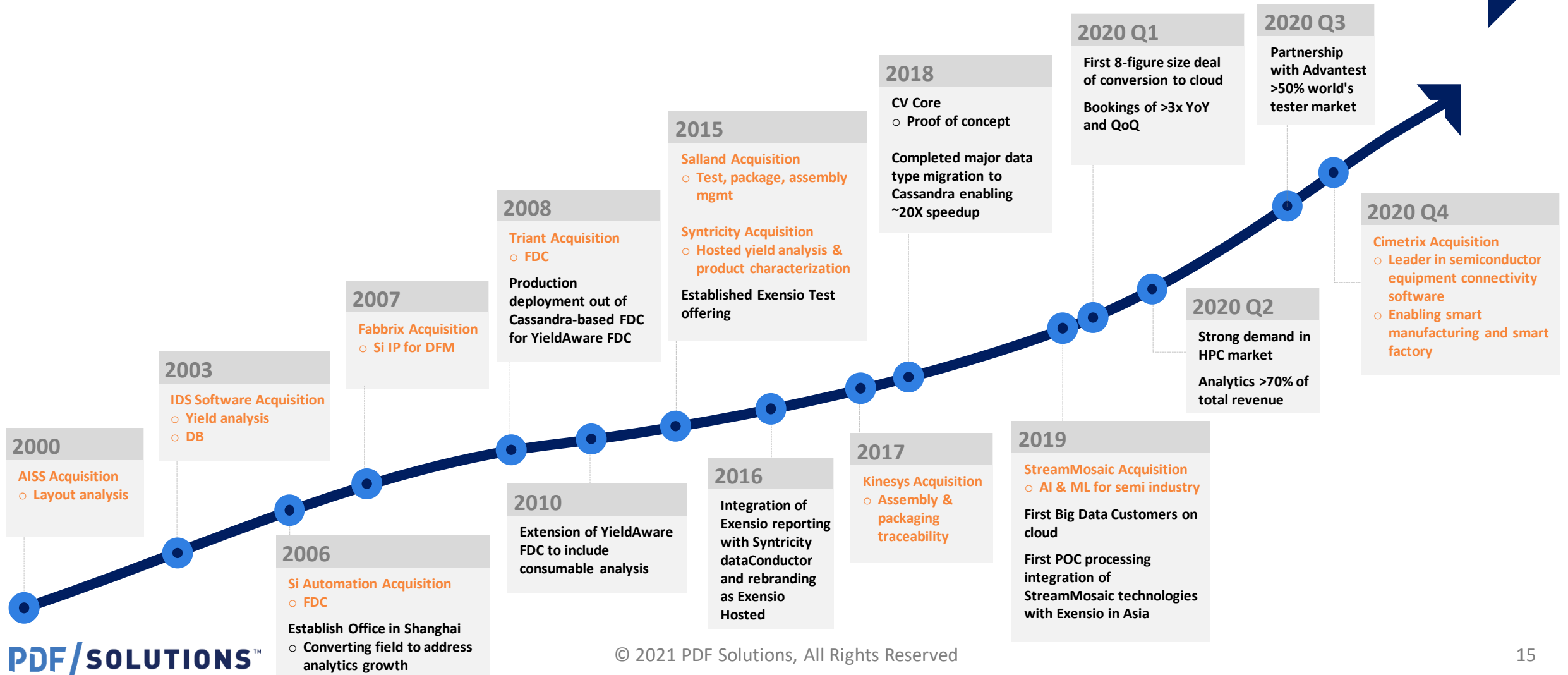
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# Acquisitions and Product Releases Expanded Scope and TAM

Gainshare Model “Selling Time to Volume”

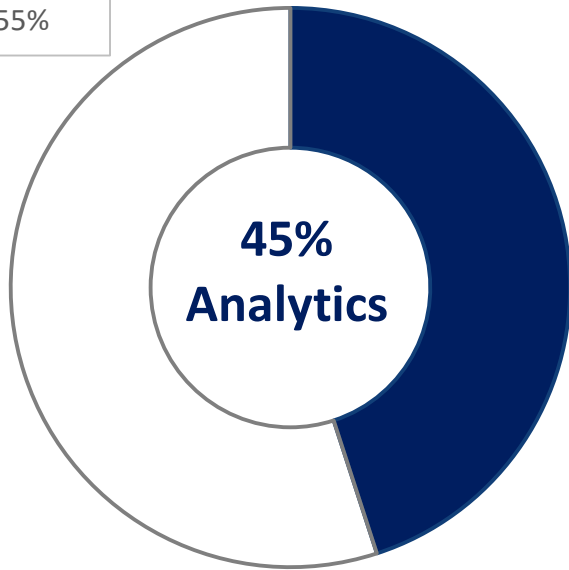
Subscription Model “Selling Actionable Data”



# Revenue Transition to Analytics

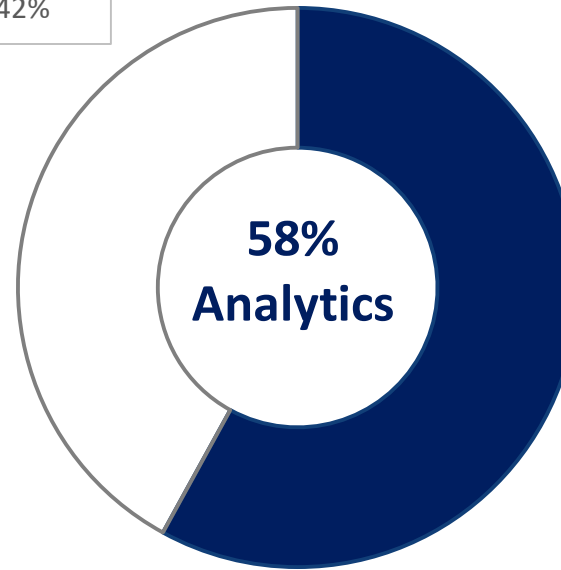
**CY 2018**

Integrated  
Yield Ramp  
55%



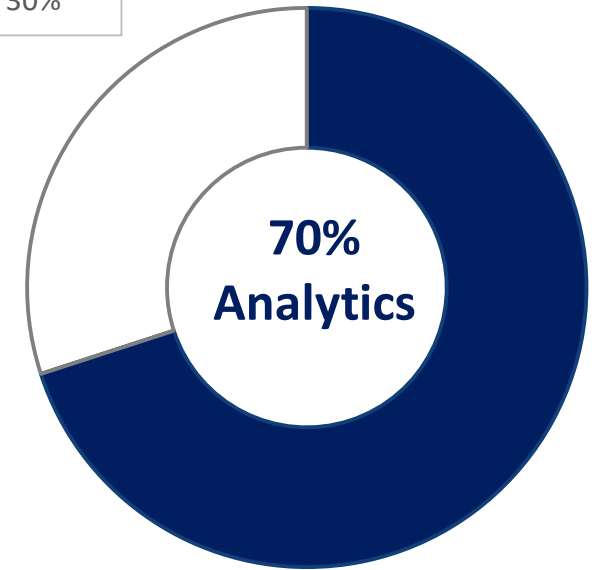
**CY 2019**

Integrated  
Yield Ramp  
42%

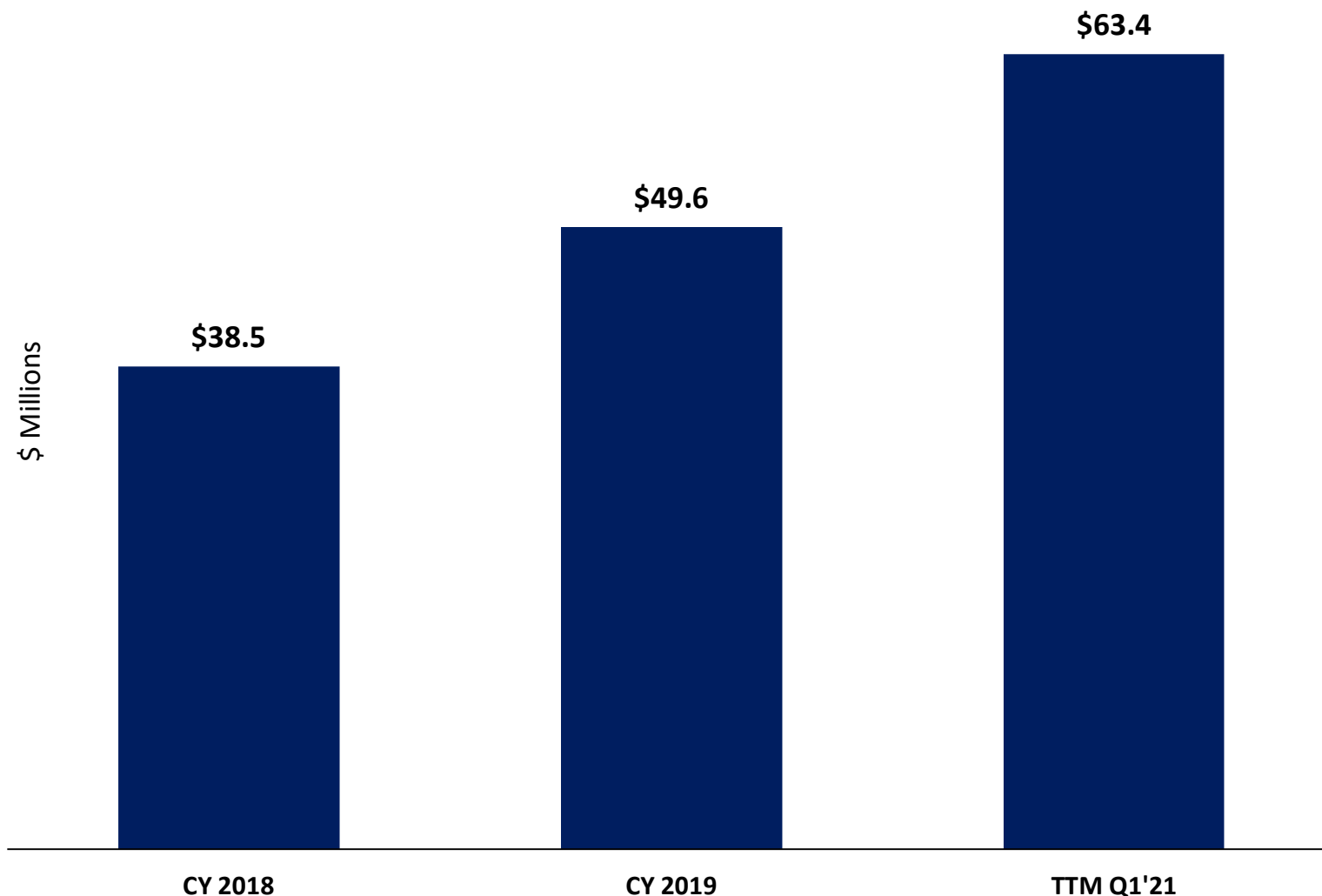


**TTM Q1'21**

Integrated  
Yield Ramp  
30%



# Analytics Revenue

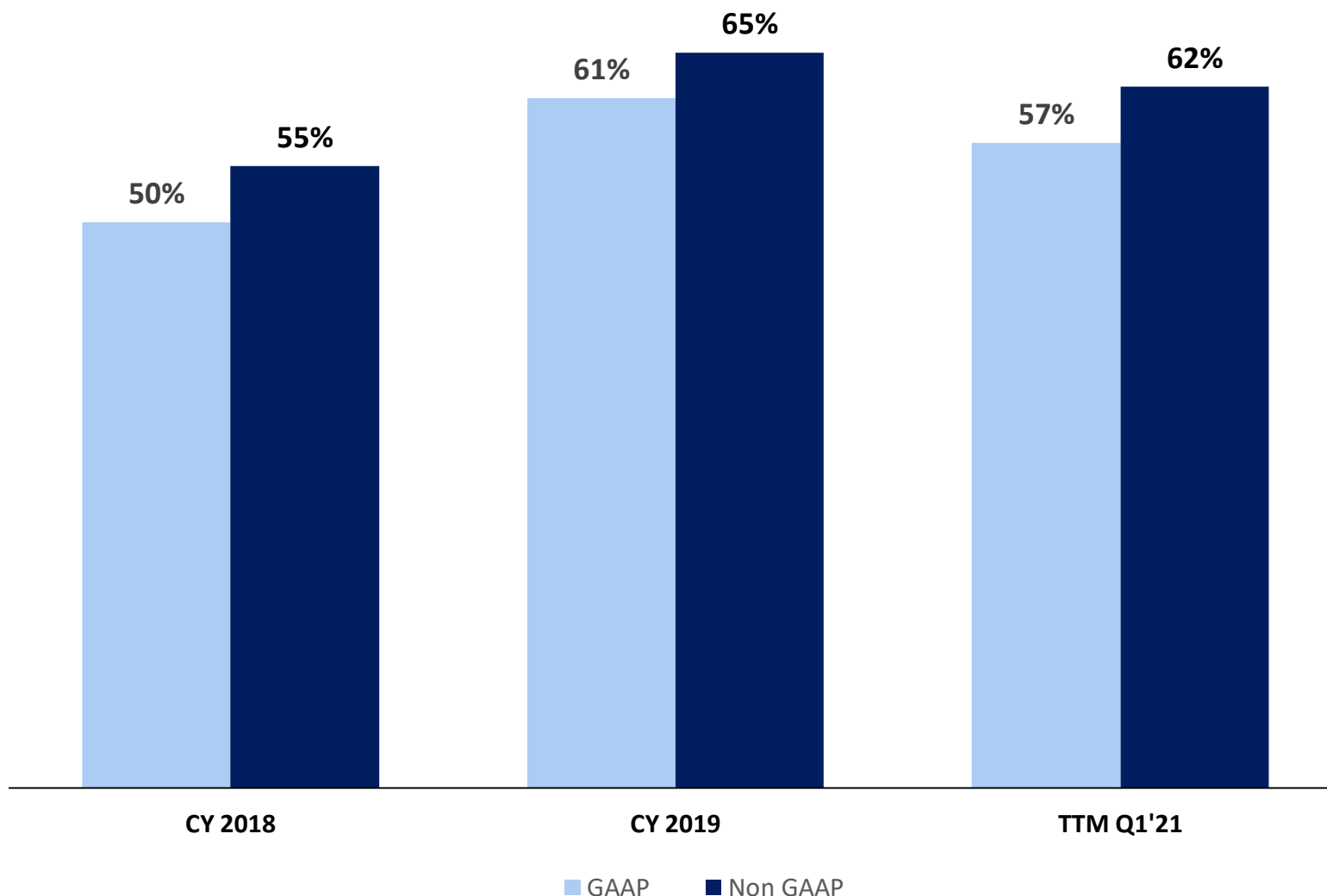


GROWTH

- CAGR of 22% from 2019 to TTM Q1'21
- Average Analytics revenue per customer, excluding Cimetricx, \$465K in TTM Q1'21, a 5% increase from \$443K in 2019



# Gross Margins

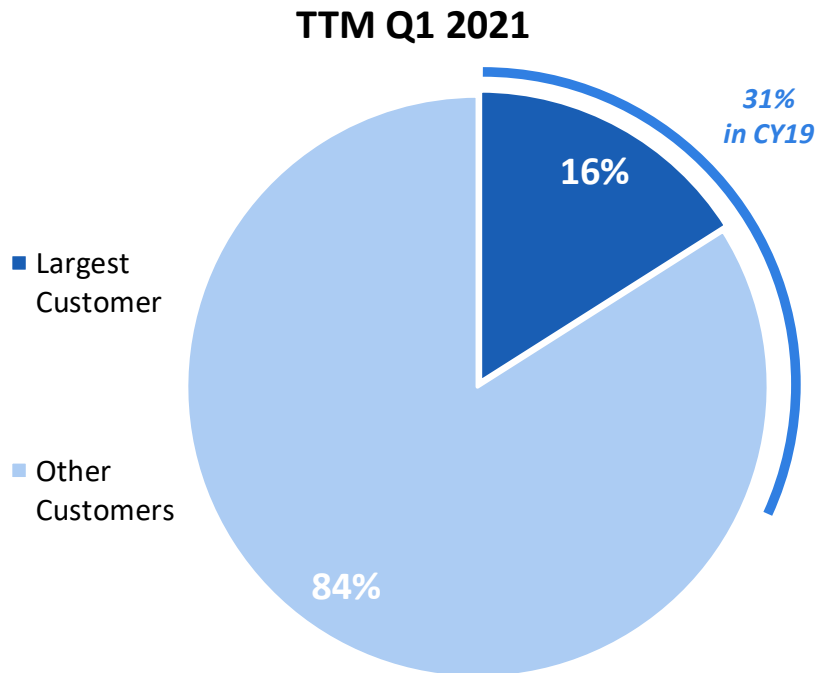


## PROFITABILITY

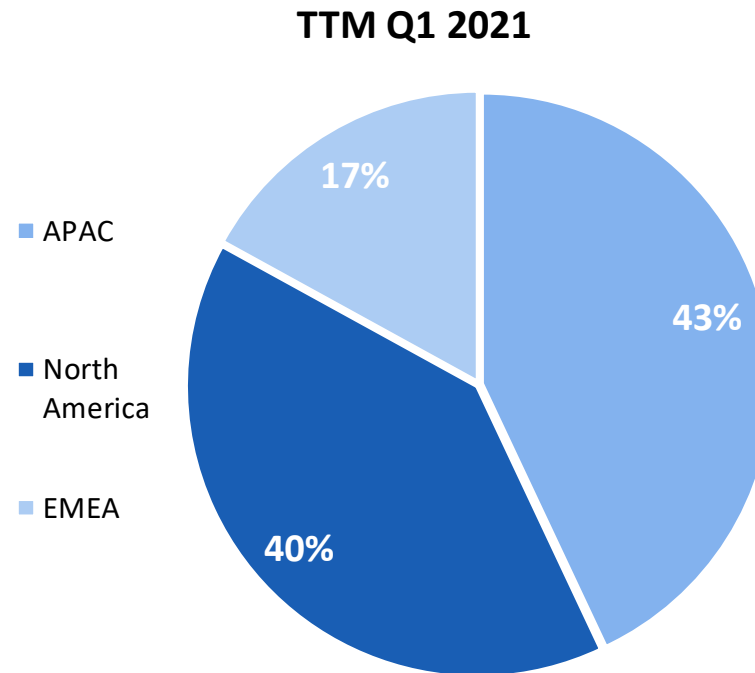
- Progressing towards our long term target Non-GAAP gross margin of 70%+
- Analytics customers transitioning to subscription and cloud over time
- First monetization of technology was IYR engagements with associated royalties
- Second wave of monetization consists of growing the Analytics business

# Diversified Revenue Distribution

## Customer Concentration



## Regional Concentration



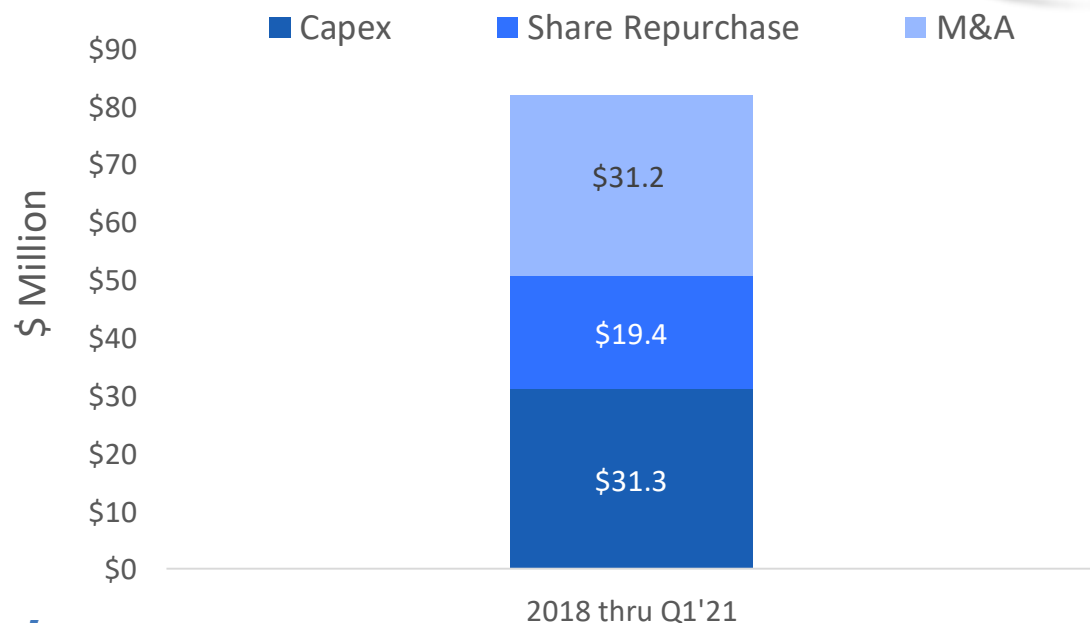
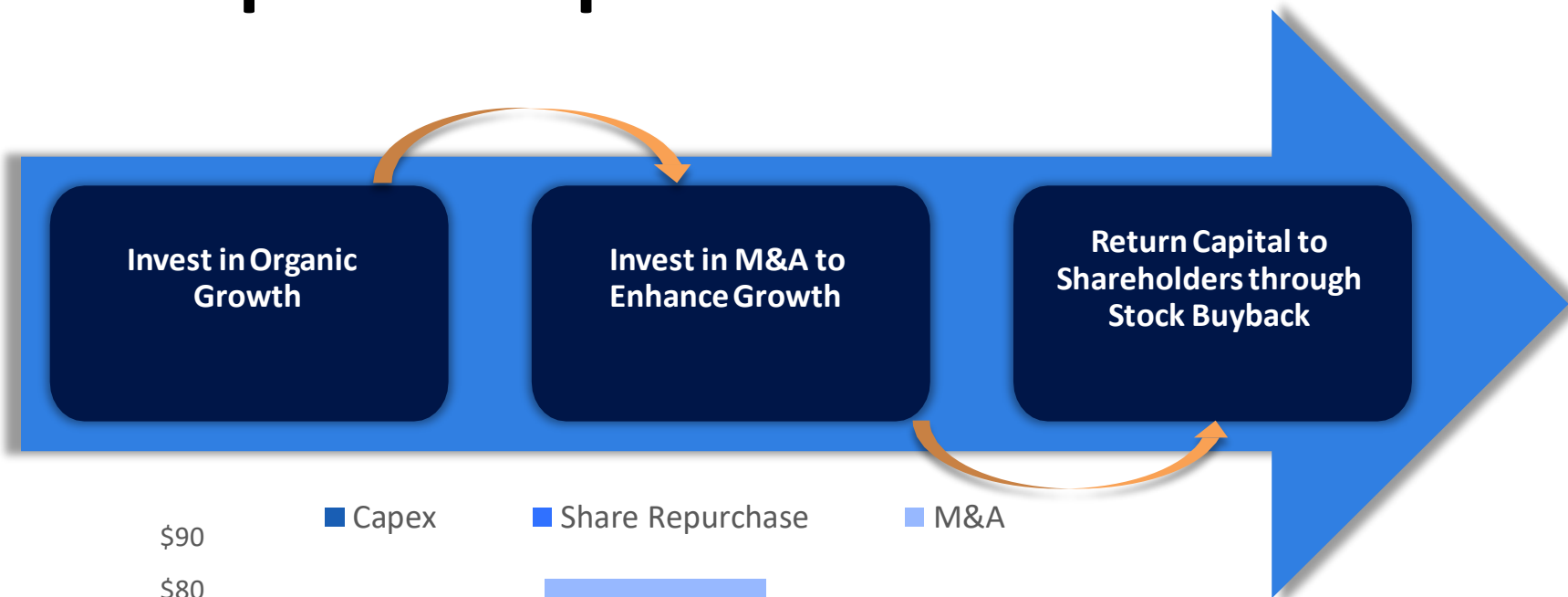
- Largest customer declined to 16% of revenue in TTM Q1'21 vs. 31% in CY 2019
- Globally diverse geographic distribution
- No foreign country accounts for more than 20%
- APAC largest market at 43% of revenues

# Balance Sheet Strength

<i>(\$ Millions)</i>	End of 2018	End of 2019	End of Q1 2021
Cash and ST invt	\$96.1	\$97.6	\$132.3
Debt	\$0	\$0	\$0

- Existing balance sheet strength provides foundation for investment in growth of analytics business both organically and inorganically
- Cash and Short term investment increased by \$32 million on a year over year basis
- Shares buyback \$4.5M in Q1'21
- Investments made in R&D, PP&E, M&A, S&M and share buyback

# Disciplined Capital Allocation



## INVESTMENT

- Capex investments include DFI, CVi, IP, DEX network, and infrastructure
- Cash balance has increased while we:
  - Invest in Capex
  - Received strategic investment
  - Make acquisitions
  - Purchase T-bills
  - Return capital to shareholders through stock buyback

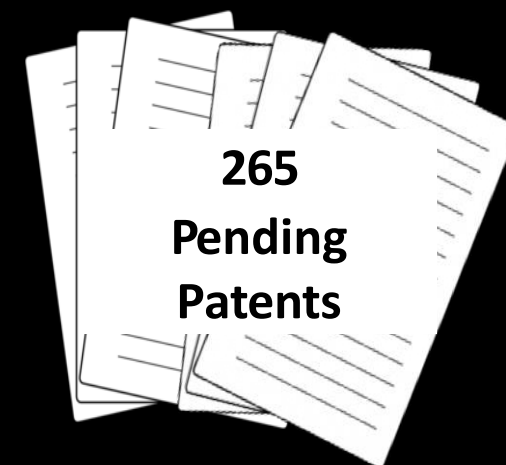
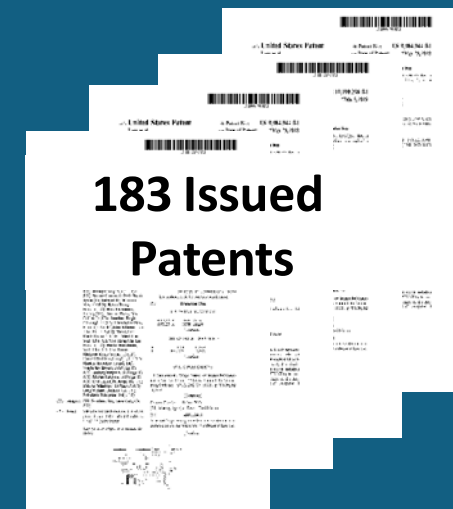


# Long-Term Financial Targets

Target	
Annual Analytics Revenue Growth	20%
Non-GAAP Gross Margins	>70%
Non-GAAP Operating Margin	20%

# Investment Results in Strong Patent Position

- Our investments in analytics & differentiated data result in a strong and growing patent position
- Patents based on 28 years of know-how in semiconductor development and mass production
- Key patents in areas of:
  - Design for inspection and CV structures for advanced nodes
  - Electrical characterization
  - AI/ML technology



# Summary



# Thank You

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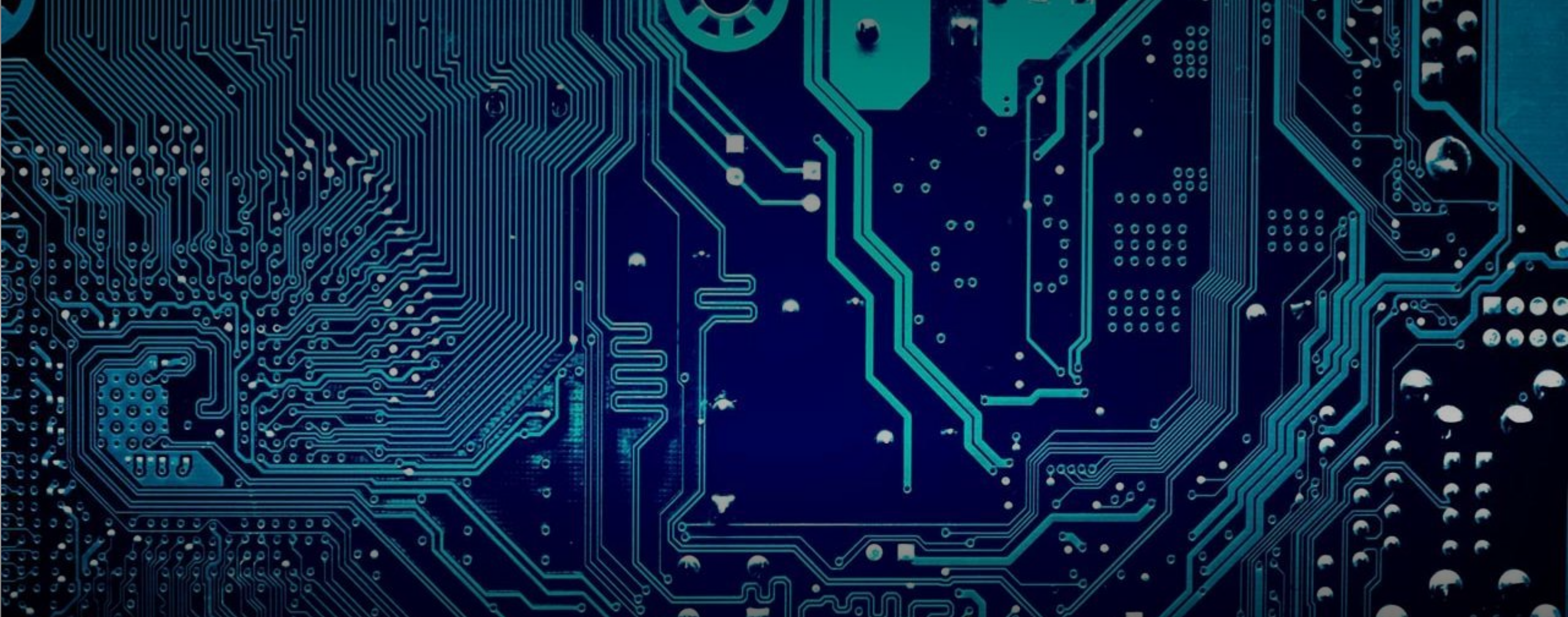


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# Financials - Appendix



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# Non-GAAP Presentation

In addition to providing results that are determined in accordance with Generally Accepted Accounting Principles in the United States of America (GAAP), the Company also provides certain non-GAAP financial measures. Non-GAAP net income (loss) excludes the effects of non-recurring items (including adjustment to contingent consideration related to acquisition, restructuring charges and severance payments, and expenses related to an arbitration proceeding for a disputed contract with a customer), stock-based compensation expense, amortization of acquired technology and other acquired intangible assets, and their related income tax effects, as applicable, as well as adjustments for the non-cash portion of income taxes and tax impact of the CARES Act. These non-GAAP financial measures are used by management internally to measure the Company's profitability and performance. PDF Solutions' management believes that these non-GAAP measures provide useful supplemental measures to investors regarding the Company's ongoing operations in light of the fact that none of these categories of expense has a current effect on the future uses of cash (with the exception of certain non-recurring items) nor do they impact the generation of current or future revenues. These non-GAAP results should not be considered an alternative to, or a substitute for, GAAP financial information, and may be different from similarly titled non-GAAP measures used by other companies. In particular, these non-GAAP financial measures are not a substitute for GAAP measures of income or loss as a measure of performance, or to cash flows from operating, investing and financing activities as a measure of liquidity. Management uses these non-GAAP financial measures internally to measure profitability and performance; these non-GAAP measures are presented here to give investors an opportunity to see the Company's financial results as viewed by management. A detailed reconciliation of the adjustments made to comparable GAAP measures is included herein.

# GAAP to Non-GAAP Income Reconciliation

in thousands (except share amounts, percent of revenue, and EPS)

	2019	2020	Q1'21
<b>GAAP net income (loss)</b>	<b>\$ (5,418)</b>	<b>\$ (40,363)</b>	<b>\$ (7,597)</b>
Adjustments to reconcile GAAP net income (loss) to non-GAAP net income (loss):			
Stock-based compensation expense	11,423	12,463	3,369
Amortization of acquired technology	574	752	676
Amortization of other acquired intangible assets	609	695	174
Restructuring charges and severance payments	92	0	0
Write-down in value of property and equipment	-	490	-
Acquisition costs & adjustment to contingent consideration related to acquisition	30	752	-
Legal arbitration/litigation *	-	1,098	295
Tax Impact of Adjustments	(2,785)	23,309	1,166
<b>Non-GAAP net income (loss)</b>	<b>\$ 4,525</b>	<b>\$ (805)</b>	<b>\$ (1,918)</b>
<b>GAAP net income (loss) per diluted share</b>	<b>(0.17)</b>	<b>(1.17)</b>	<b>(0.21)</b>
<b>Non-GAAP net income (loss) per diluted share</b>	<b>0.14</b>	<b>(0.02)</b>	<b>(0.05)</b>
<b>Shares used in diluted shares calculation (in millions)</b>	<b>33.1</b>	<b>34.4</b>	<b>37.0</b>

\* Represents the expenses related to an arbitration proceeding over a disputed contract with a customer, which expenses are expected to continue until the arbitration is resolved.

# GAAP to Non-GAAP Gross Margin Reconciliation

in thousands

	2019	2020	Q1'21
<b>GAAP Gross Margin</b>	<b>\$ 52,111</b>	<b>\$ 51,281</b>	<b>\$ 13,538</b>
Adjustments to reconcile GAAP gross margin (loss) to non-GAAP gross margin:			
Stock-based compensation expense	3,185	3,454	652
Impaired deferred costs	-	-	-
Previously impaired deferred costs	-	-	-
Amortization of acquired technology	574	705	536
Restructuring charges and severance payments	-	-	-
<b>Non-GAAP gross margin</b>	<b>\$ 55,870</b>	<b>\$ 55,440</b>	<b>\$ 14,725</b>

# Balance Sheet

(\$ '000)	2019	Q1 '20	Q2 '20	Q3 '20	Q4 '20	Q1 '21
<b>ASSETS</b>						
Current assets:						
Cash and short-term investments	97,605	100,385	103,441	168,369	145,296	132,286
Accounts receivable, net	40,651	37,364	28,960	40,388	34,140	34,785
Prepays and other current assets	9,320	11,628	8,665	9,310	13,944	11,375
Total current assets	147,576	149,377	141,066	218,067	193,380	178,446
Property, plant and equipment, net	40,798	41,009	40,412	39,487	39,242	38,147
Operating lease right-of-use assets	7,609	7,368	7,056	6,712	6,672	6,171
Other assets	43,561	41,604	45,494	46,342	48,286	48,367
<b>TOTAL ASSETS</b>	<b>239,544</b>	<b>239,358</b>	<b>234,028</b>	<b>310,608</b>	<b>287,580</b>	<b>271,131</b>
<b>LIABILITIES AND STOCKHOLDERS' EQUITY</b>						
Current liabilities:						
Accounts payable	\$7,636	\$4,828	\$2,763	\$2,212	\$4,399	\$967
Accrued liabilities	6,737	6,161	6,653	8,395	\$14,648	\$14,475
Operating lease liabilities - current portion	1,867	1,954	1,880	1,763	\$1,926	\$1,742
Deferred revenue and billing in excess of revenue	11,756	14,122	10,866	20,504	\$21,232	\$17,917
Total current liabilities	27,997	27,065	22,162	32,874	42,205	35,101
Non-current operating lease liabilities	7,677	7,310	7,032	6,764	\$6,516	\$6,151
Tax and other long-term liabilities	7,713	6,514	7,128	6,192	\$4,353	\$4,626
Total liabilities	43,387	40,889	36,322	45,830	53,074	45,878
Total stockholders' equity	196,157	198,469	197,706	264,778	234,506	225,253
<b>TOTAL LIABILITIES &amp; EQUITY</b>	<b>239,544</b>	<b>239,358</b>	<b>234,028</b>	<b>310,608</b>	<b>287,580</b>	<b>271,131</b>



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