

The background features a dark blue gradient with glowing binary code (0s and 1s) and a complex network of white and light blue lines that resemble a circuit board or data flow paths. The lines are interconnected and create a sense of depth and connectivity.

**PDF/SOLUTIONS™**

**Investor Presentation**

**May 2022**

**John Kibarian, President & CEO, Co-Founder**  
**Kimon Michaels, Executive VP, Products and Solutions, Co-Founder**  
**Adnan Raza, Executive VP, Finance & CFO**



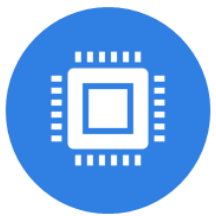
***Certain statements in this presentation, and statements that may be made when discussing it, regarding the Company's future expected business performance and financial results are forward looking and are subject to future events and circumstances. Actual results could differ materially from those 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, 2021, 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.***

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# PDF Solutions Overview

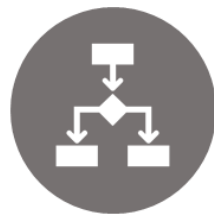
- PDF provides advanced data analytics, machine learning, and equipment connectivity products, services, and systems for the semiconductor supply chain
- PDF products improve process efficiency and product reliability:
  - Analytics software and services for the end-to-end needs of the semiconductor 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**

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# Building a Platform for Success

## GROWTH

- 62% CAGR of analytics revenue from CY 2020 to TTM Q1'22
- Analytics at 87% of total revenue in TTM Q1'22 vs. 65% in CY 2020

## PROFITABILITY

- GAAP gross margin of 66% for Q1'22
- Non-GAAP gross margin of 69% for Q1'22
- 70%+ non-GAAP gross margins target model

## VISIBILITY

- Greater than 100% Exensio® customers dollar-retention rate\*
- Strong ending backlog of \$196.8M, a 72% increase from a year ago

## DIVERSIFICATION

- No country outside the United States accounts for more than 14% of revenue in TTM Q1'22
- All three regions of North America, APAC and EMEA grew by double-digit percentage on a Q/Q basis

## STRENGTH

- \$134M in cash and short term investment as of Q1'22, with no debt
- Opportunistic share buybacks; \$22.5 million in 2022YTD

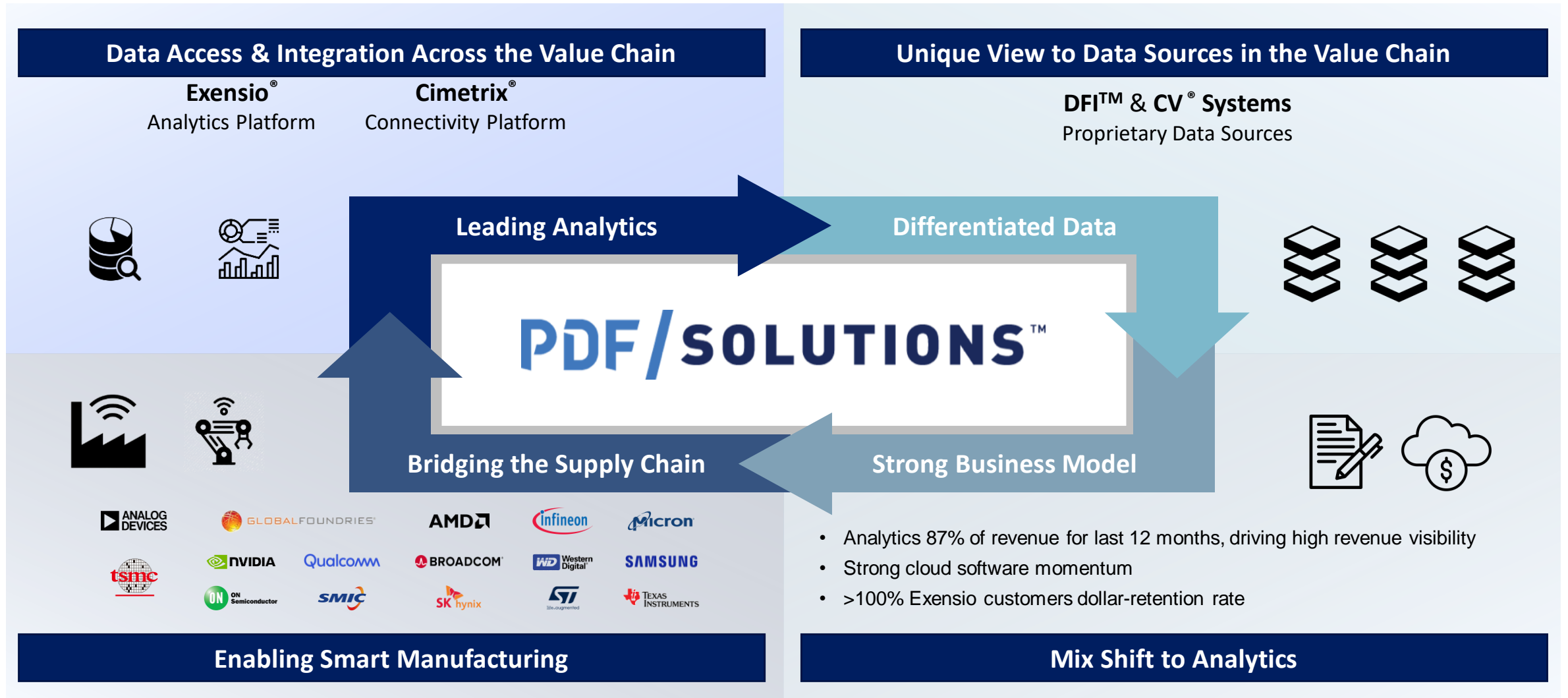
## PARTNERSHIPS

- Established deep relationship and collaboration with Advantest
- Growing collaborations with other industry-leaders, including IBM, Siemens, and Kulicke & Soffa

\*TTM Q1 2022 vs CY 2020



# 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

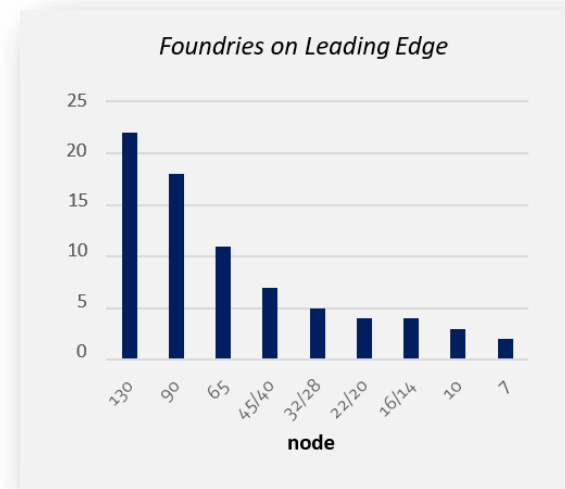
## Value in Semiconductor Supply Chain Shifting to Mass Production:

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

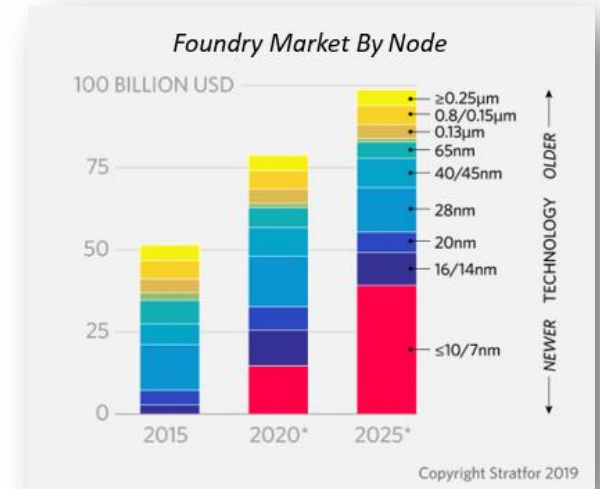
### Moore's Law is Slowing Down



### Foundries consolidating due to process complexity



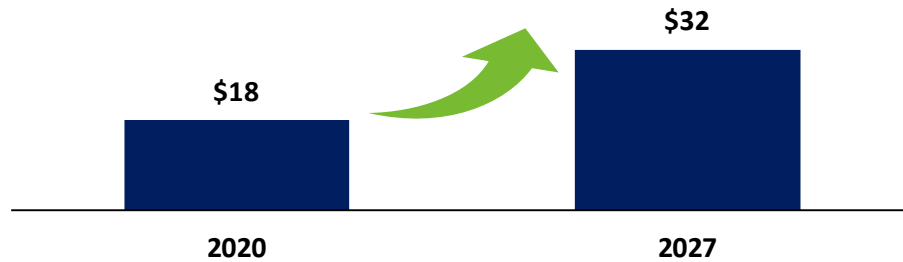
### % of foundry market in finFET nodes expected to grow



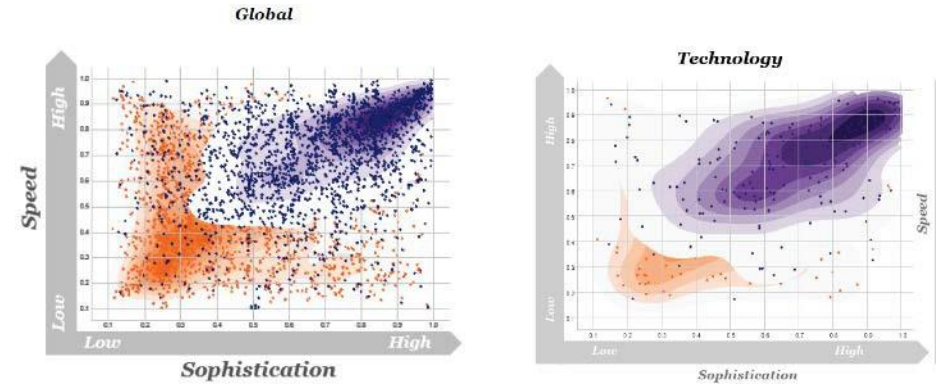
An increasing number of stakeholders, Hyperscalers, OEMs, Governments, are all realizing the importance of the semiconductors supply chain

# Data and Analytics Growing in Importance

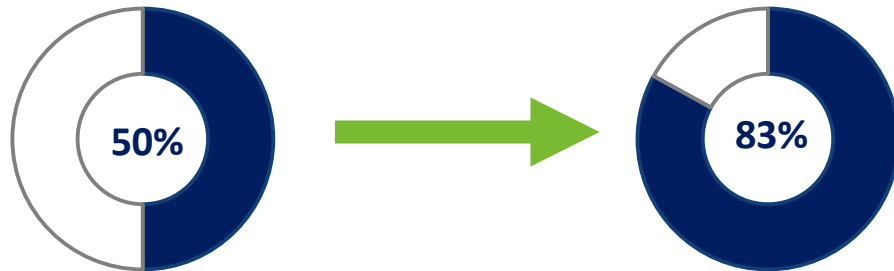
Data & Analytics in Semis & Electronics (\$B)



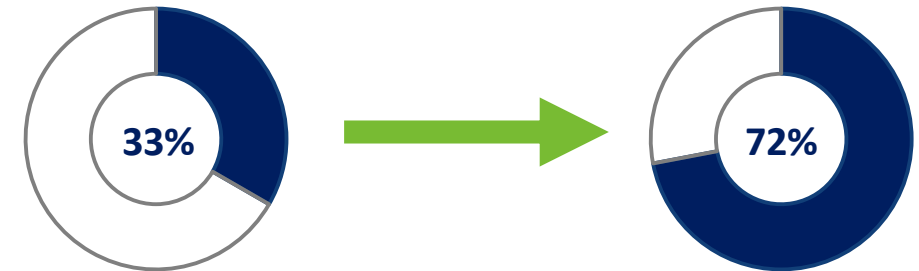
Data & Analytics in Semiconductor & Electronics manufacturing is expected to **grow significantly**



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**

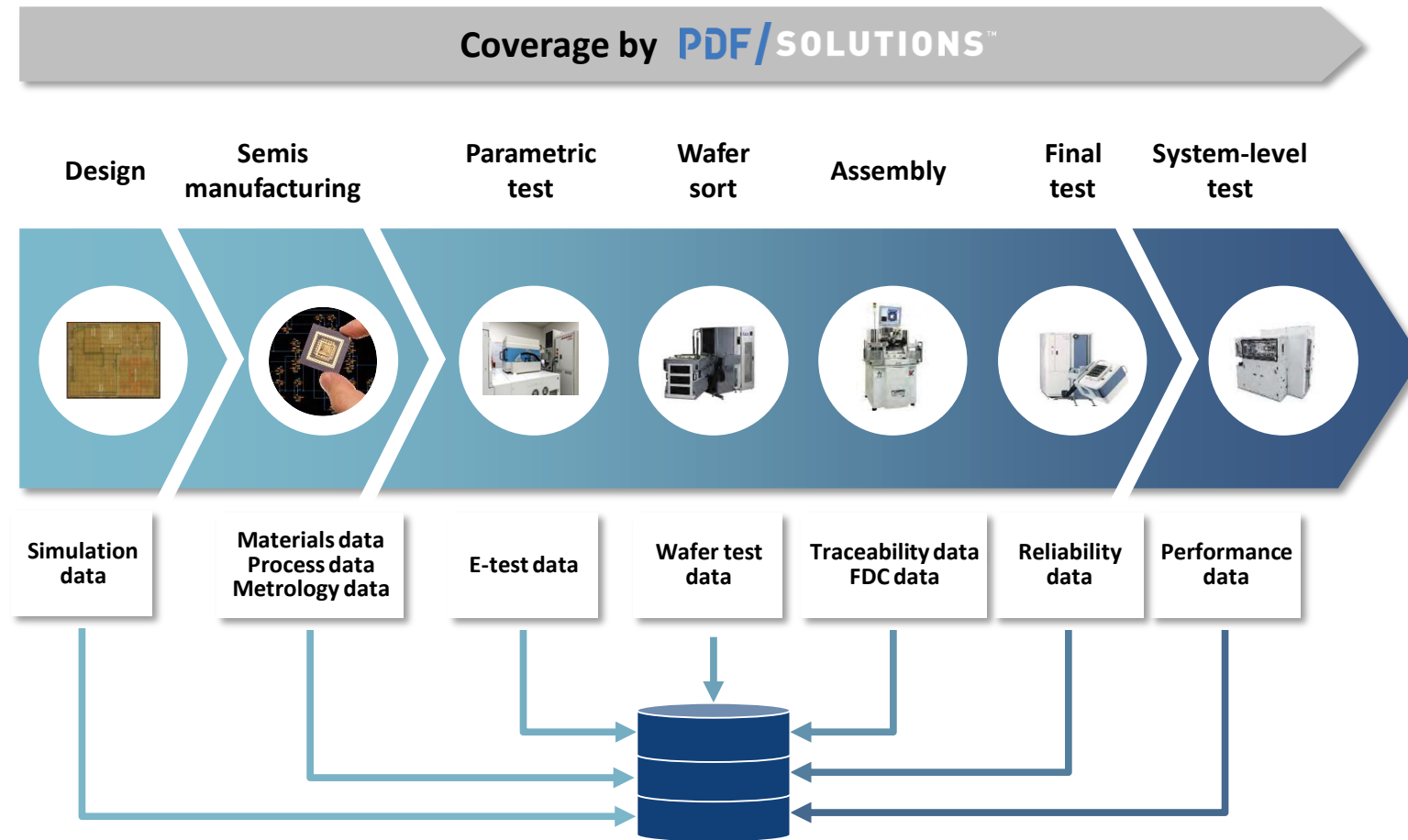


% of companies with **“highly digitized functional groups”** expected to **double over next 5 years**

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



# PDF has a Unique View & Comprehensive Access to Data Across the Supply 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



**cimetrix**  
by PDF/SOLUTIONS™

Cimetrix platform provides high-performance data pipelines between equipment, factories and application environments (AI/ML/Analytics)

**exensio**

Exensio platform provides the data collection, connections and analytics for feedback and insight down the stack

## 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 comprehensive access to data sources in the manufacturing and testing supply 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

>325 revenue generating customers in 37 countries through TTM Q1'22

#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

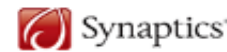


TEXAS INSTRUMENTS



FUJITSU

TOSHIBA



UMC

SONY



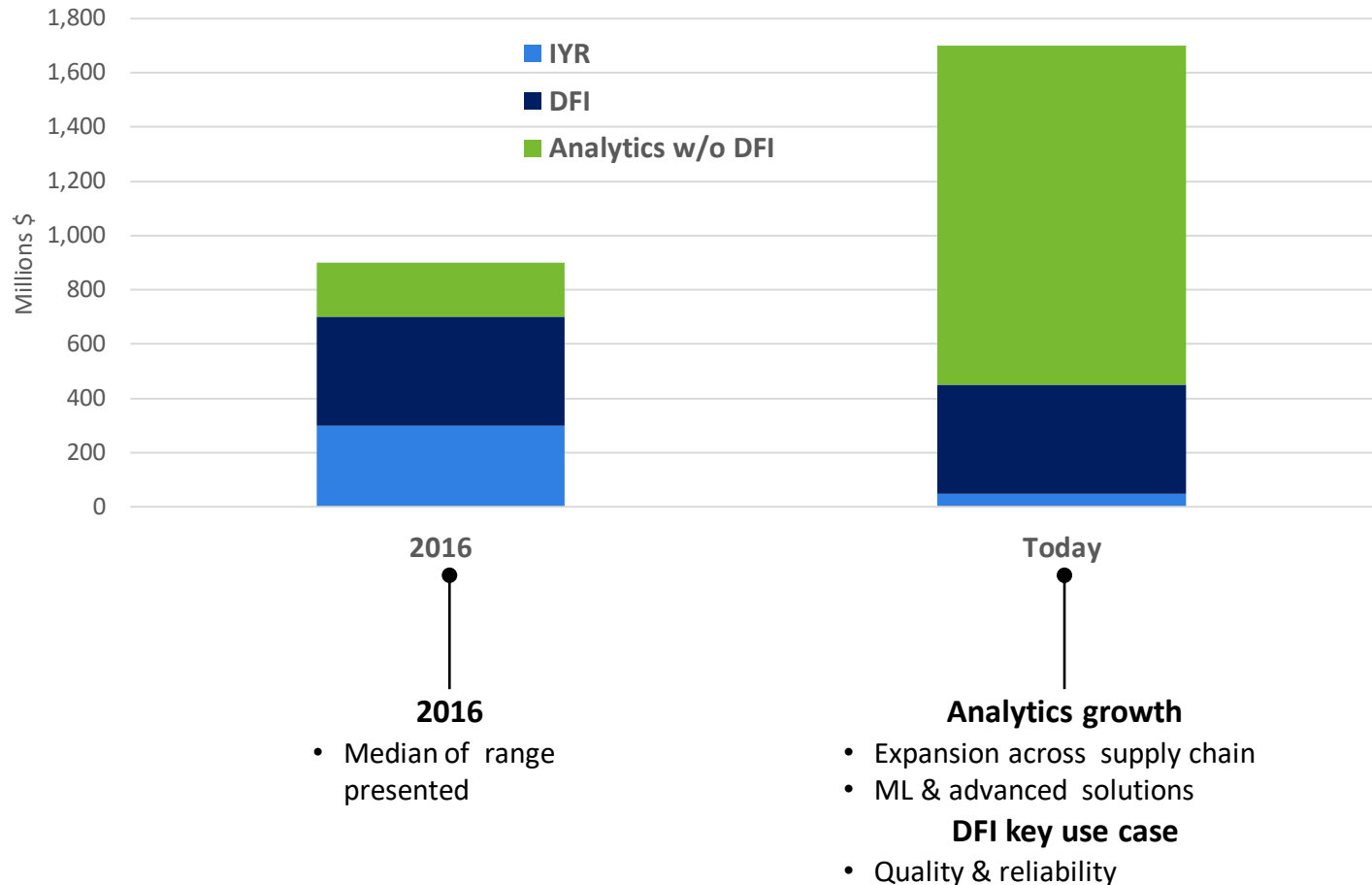
Dongbu HiTek



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



# Available Market Size

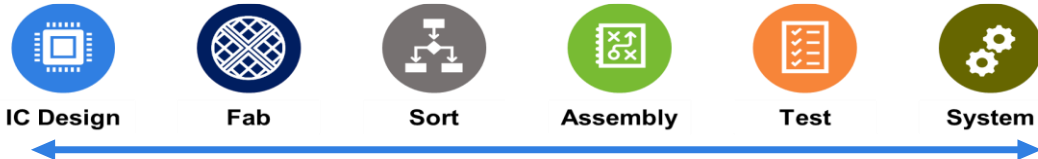


Source: PDF Solutions estimates

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

# PDF Solutions and Advantest Partnership – 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
- Best-in-Class Big Data Analytics Platform supporting over 50 data formats
- PDF Solutions products and solutions help break down data silos, unleashing innovation and solving big data challenges.

## 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, expected to result in >\$50 million revenue
- Aligned long-term interests through 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

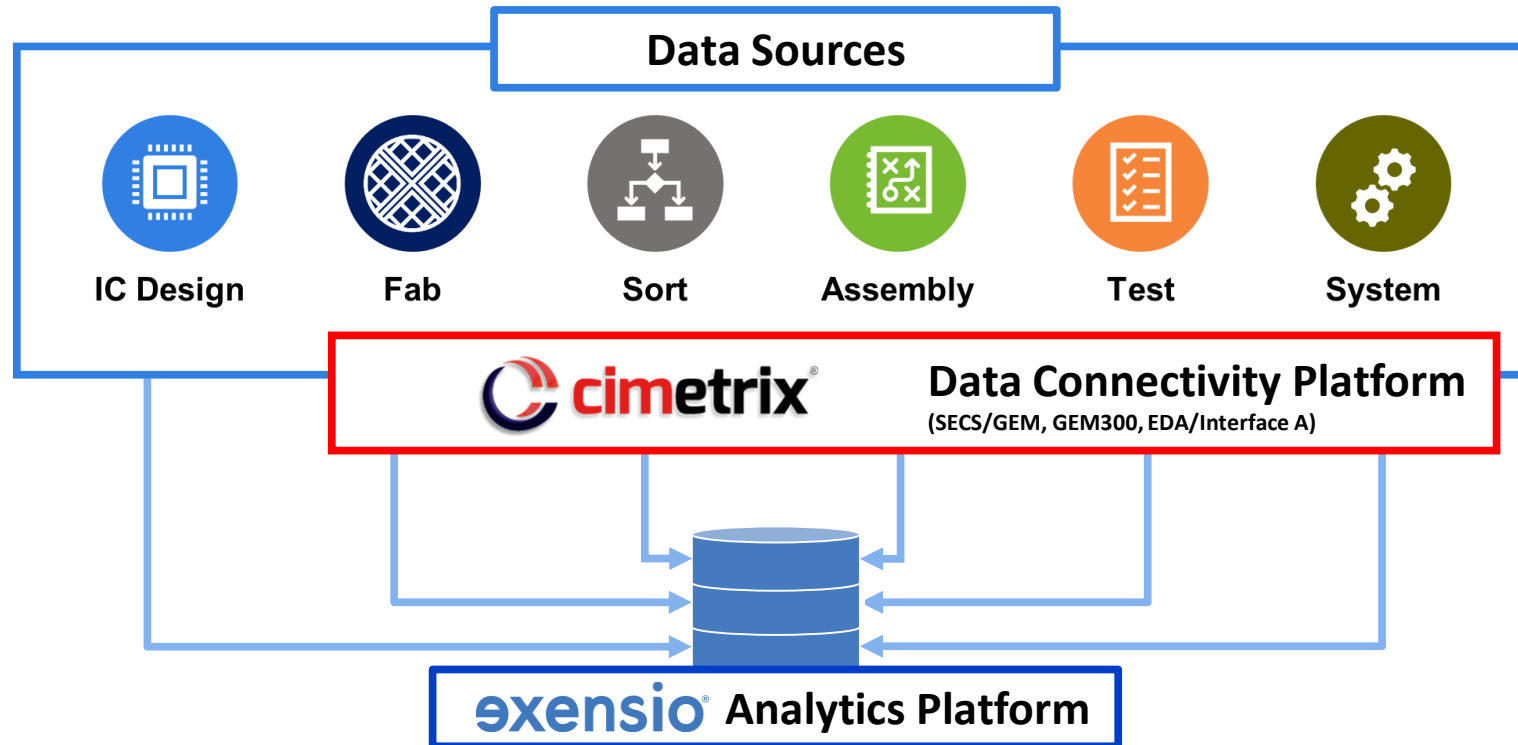


- Expands and deepens tools supported by Exensio, already at >300 tool types from >125 equipment companies and >40k connected tools worldwide
- Increases number of fabs/OSATs using PDF to communicate product data
- Advantest is the established leader in test systems global ecosystem, with greater than 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 Offers Connectivity and Control for Manufacturing Equipment Since Dec 2020



- PDF is the only provider of analytics, differentiated data and connectivity
- PDF’s mission is 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



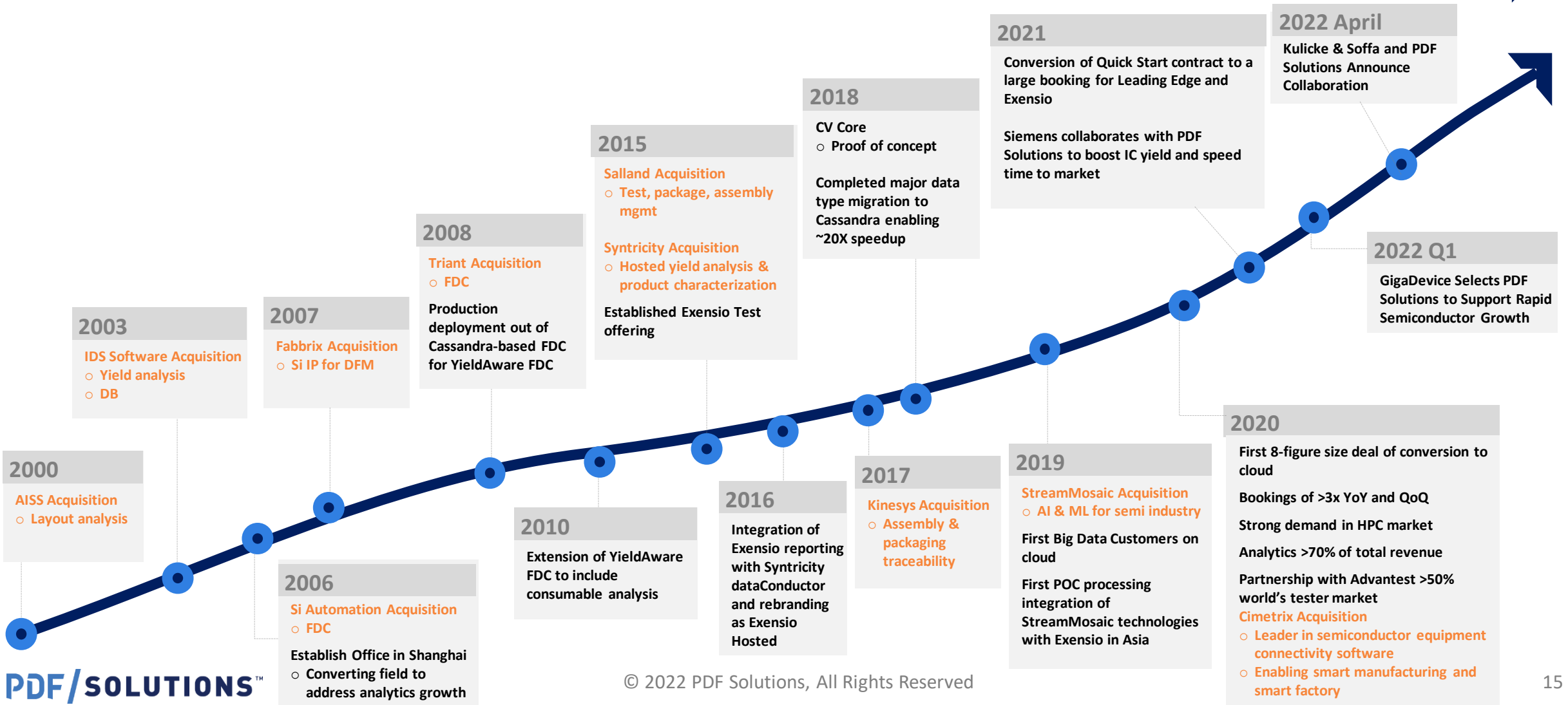
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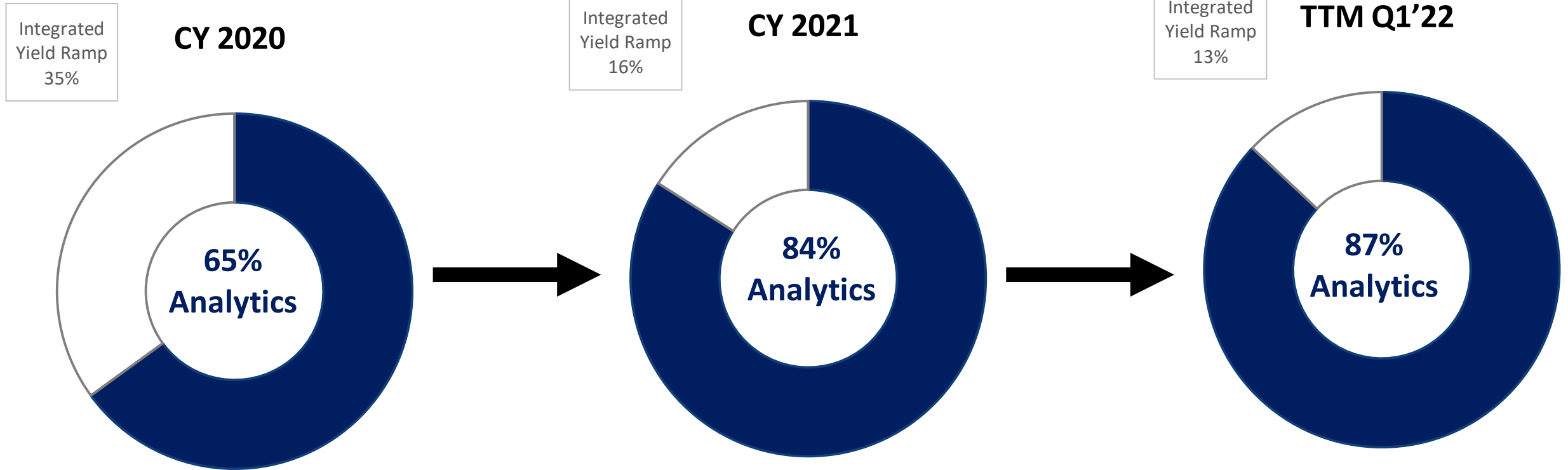
# Acquisitions and Product Releases Expanded Scope

Gainshare Model "Selling Time to Volume"

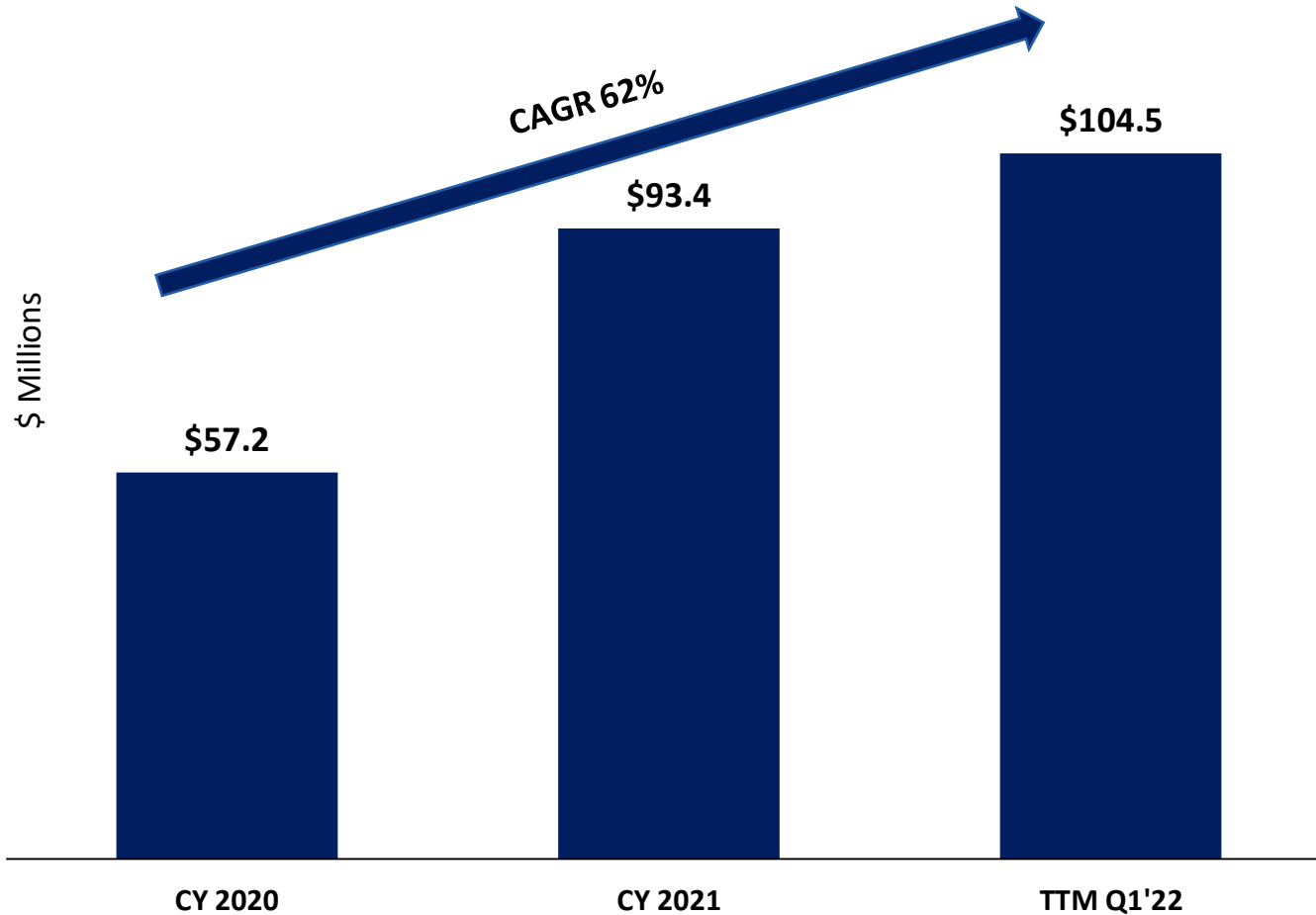
Subscription Model "Selling Actionable Data"



# Revenue Transition to Analytics



# Analytics Revenue

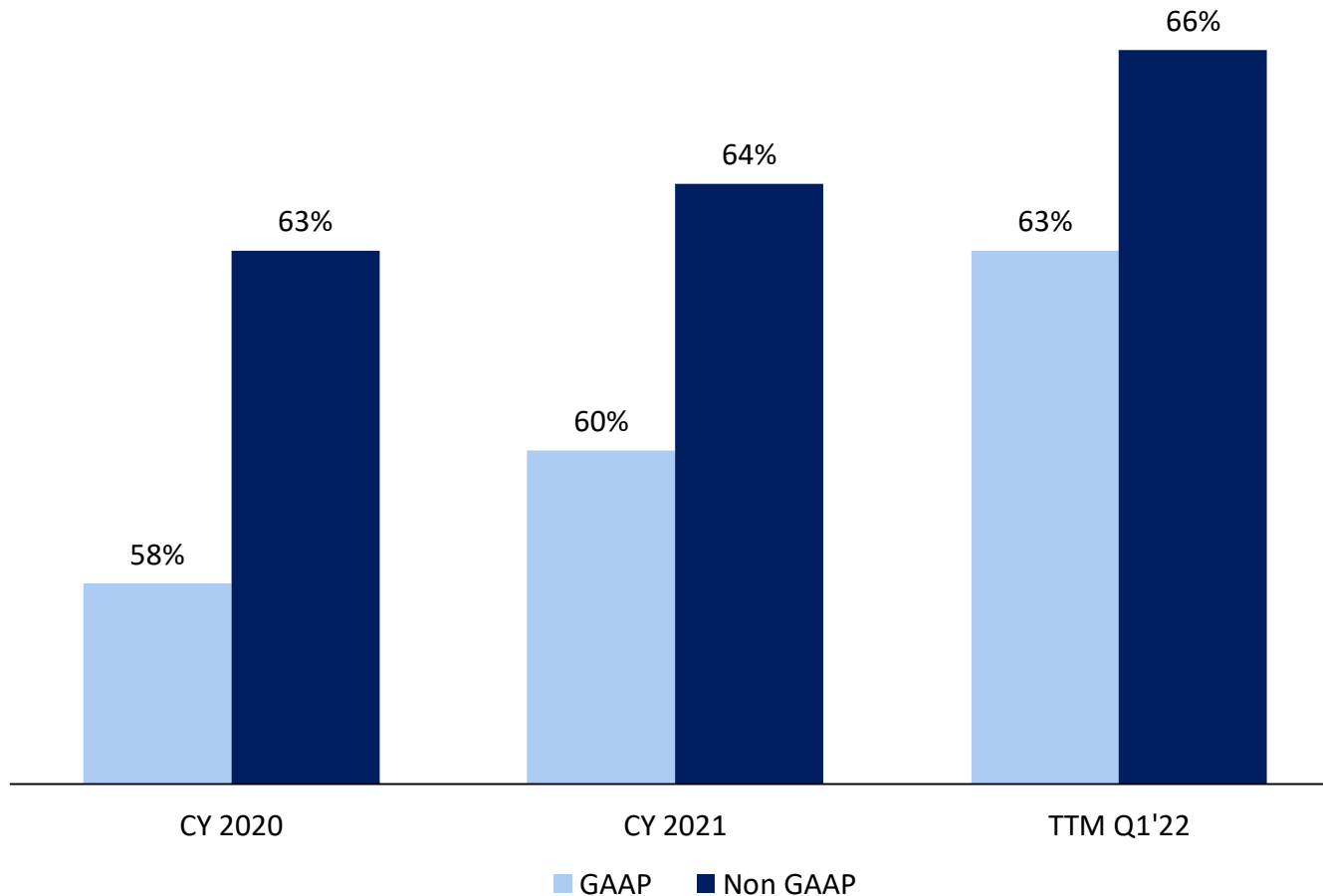


GROWTH

- CAGR of 62% from 2020 to TTM Q1'22
- Average Analytics revenue per customer, excluding Cimetricx, \$697K in TTM Q1'22, a 54% increase from \$454K in 2020



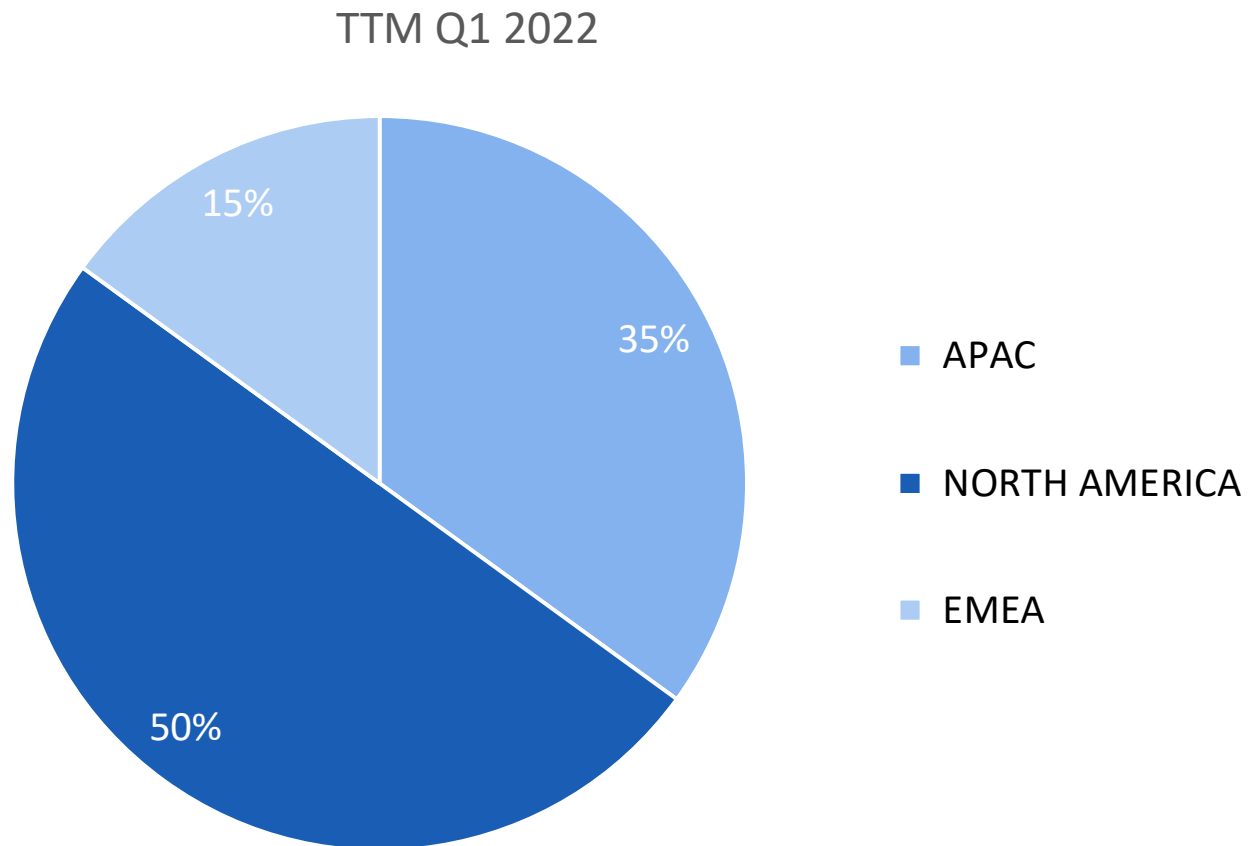
# Gross Margins



## 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

# Global Geographic Revenue Distribution



- Globally diverse geographic distribution
- No country outside the United States accounts for more than 14%
- North America largest market at 50% of revenues

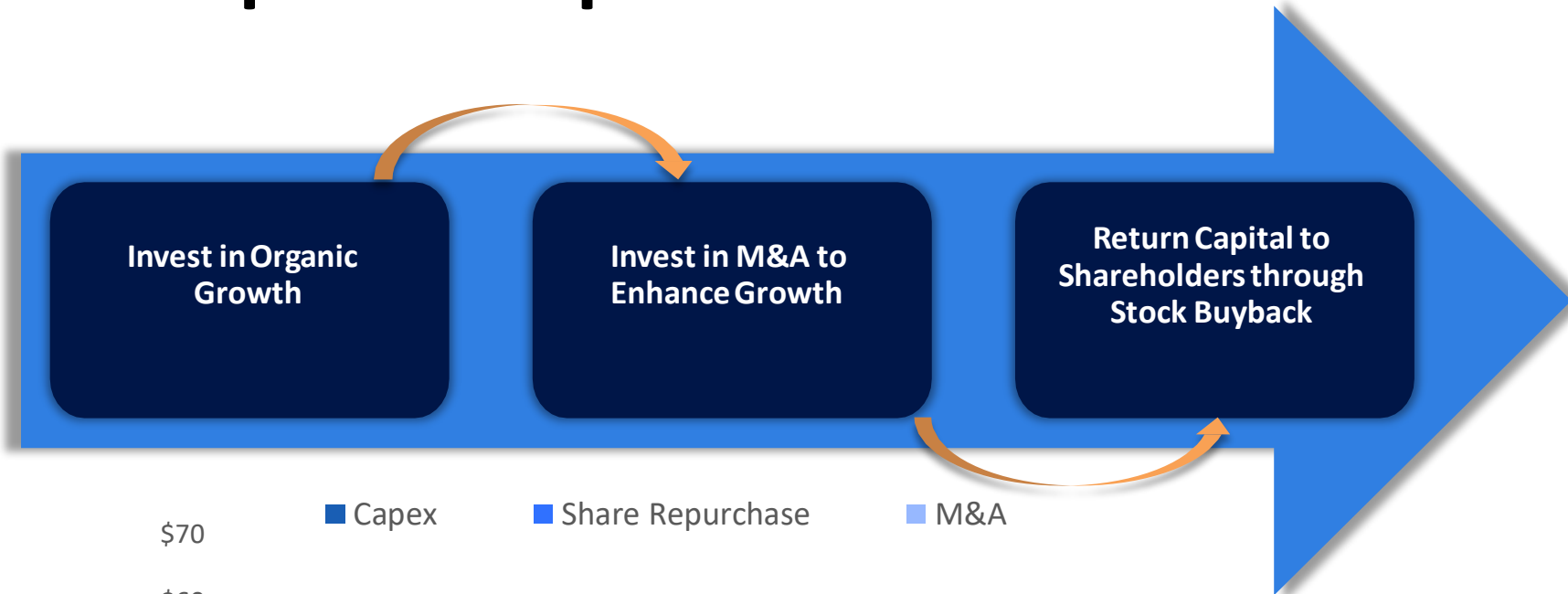
# Balance Sheet Strength

<i>(\$ Millions)</i>	End of 2020	End of 2021	Q1 2022
Cash and ST invt	\$145.3	\$140.2	\$134.2
Debt	\$0	\$0	\$0

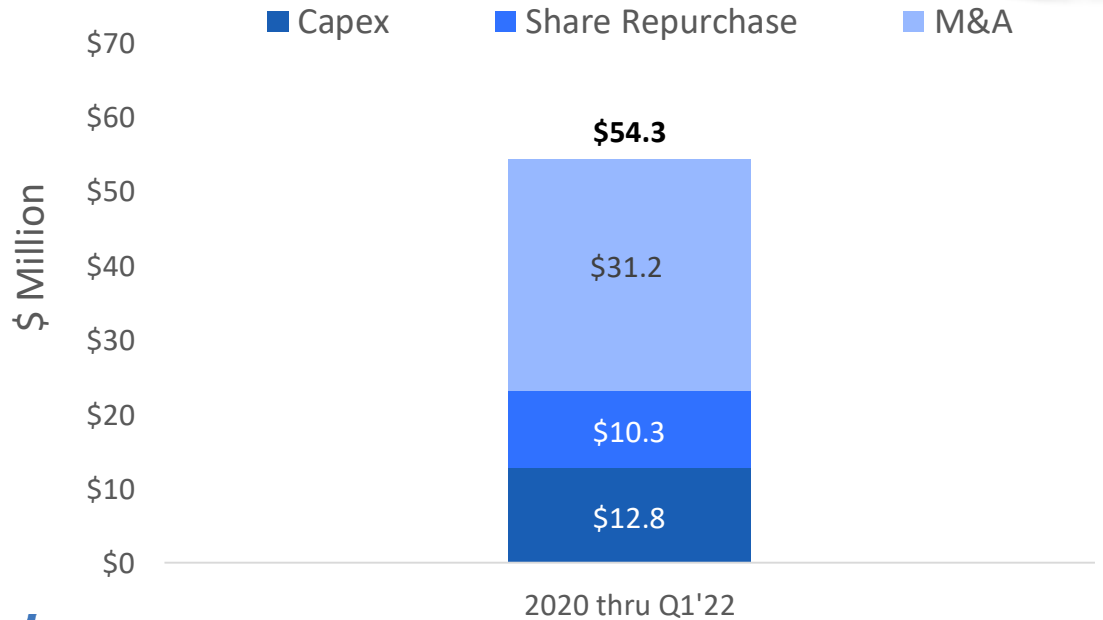
- Existing balance sheet strength provides foundation for investment in growth of analytics business both organically and inorganically
- Shares buyback \$5.8M in Q1'22
- Shares buyback \$16.7M subsequent to quarter end, for a total of \$22.5M YTD
- Investments made in R&D, PP&E, M&A, S&M and share buyback

# 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 stockholders through stock buyback



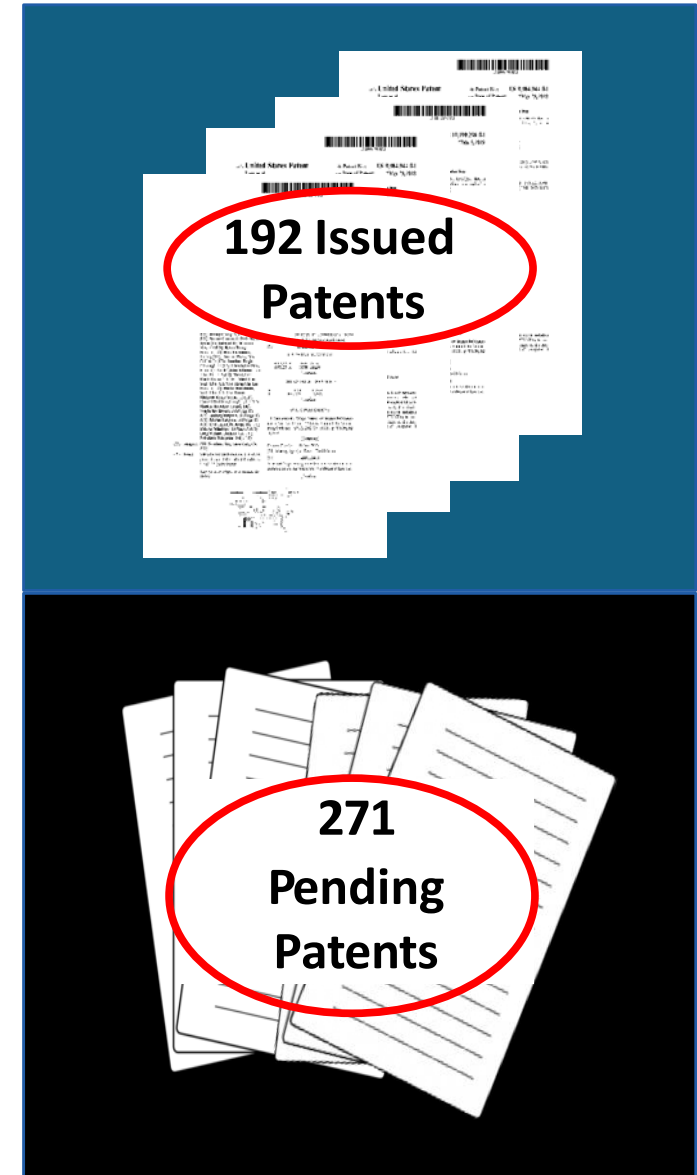
# Target Financial Model

	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 30 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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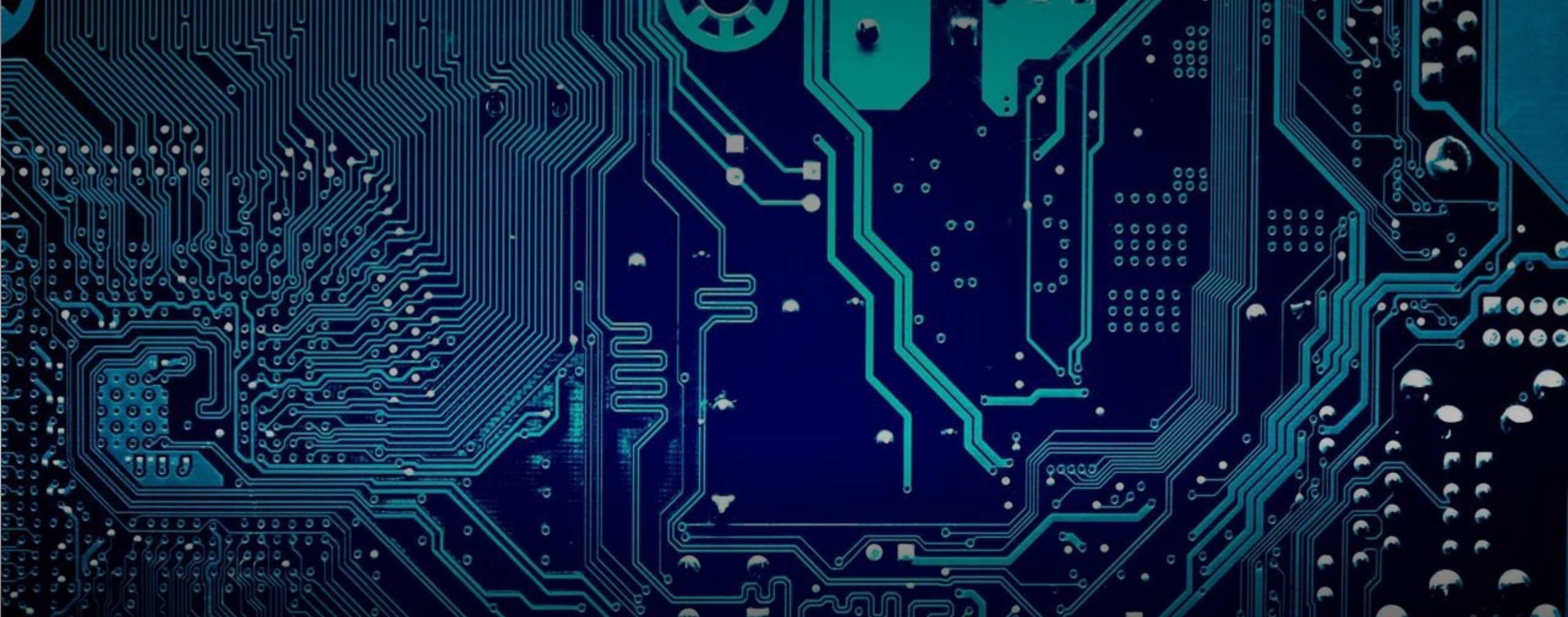


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# Financials - Appendix

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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)

	2020	2021	Q1'22
<b>GAAP net income (loss)</b>	<b>\$ (40,363)</b>	<b>\$ (21,488)</b>	<b>\$ (4,150)</b>
Adjustments to reconcile GAAP net income (loss) to non-GAAP net income (loss):			
Stock-based compensation expense	12,463	12,931	5,553
Amortization of acquired technology	705	2,079	553
Amortization of other acquired intangible assets	741	1,255	314
Restructuring charges and severance payments	-	-	-
Write-down in value of property and equipment	490	3,183	-
Acquisition costs & adjustment to contingent consideration related to acquisition	752	-	-
Legal arbitration/litigation *	1,098	1,951	451
Tax Impact of Adjustments	23,309	3,091	937
<b>Non-GAAP net income (loss)</b>	<b>\$ (805)</b>	<b>\$ 3,002</b>	<b>\$ 3,658</b>
<b>GAAP net income (loss) per diluted share</b>	<b>(1.17)</b>	<b>(0.58)</b>	<b>(0.11)</b>
<b>Non-GAAP net income (loss) per diluted share</b>	<b>(0.02)</b>	<b>0.08</b>	<b>0.09</b>
<b>Shares used in diluted shares calculation (in millions)</b>	<b>34.4</b>	<b>37.9</b>	<b>38.6</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

	2020	2021	Q1'22
<b>GAAP Gross Margin</b>	<b>\$ 51,281</b>	<b>\$ 66,867</b>	<b>\$ 21,968</b>
<i>GAAP Gross Margin %</i>	<i>58%</i>	<i>60%</i>	<i>66%</i>
Adjustments to reconcile GAAP gross margin (loss) to non-GAAP gross margin:			
Stock-based compensation expense	3,454	2,563	728
Amortization of acquired technology	705	2,079	553
<b>Non-GAAP gross margin</b>	<b>\$ 55,440</b>	<b>\$ 71,509</b>	<b>\$ 23,250</b>
<i>Non-GAAP gross margin %</i>	<i>63%</i>	<i>64%</i>	<i>69%</i>

# Balance Sheet

	Actual	Actual	Actual
(\$ '000)	2020	2021	Q1'22
<b>ASSETS</b>			
Current assets:			
Cash and short-term investments	145,296	140,226	134,242
Accounts receivable, net	34,140	40,087	37,753
Accounts receivable, net	26,964		
Unbilled accounts receivable	7,176		
Prepays and other current assets	13,944	8,194	8,857
Total current assets	193,380	188,507	180,852
Property, plant and equipment, net	39,242	35,295	36,844
Operating lease right-of-use assets	6,672	5,408	4,479
Other assets	48,286	44,558	43,402
<b>TOTAL ASSETS</b>	<b>287,580</b>	<b>273,768</b>	<b>265,577</b>
<b>LIABILITIES AND STOCKHOLDERS' EQUITY</b>			
Current liabilities:			
Accounts payable	4,399	5,554	4,053
Accrued liabilities	14,648	12,823	13,178
Operating lease liabilities - current portion	1,926	1,758	1,225
Deferred revenue and billing in excess of revenue	21,232	23,691	24,113
Total current liabilities	42,205	43,826	42,569
Non-current operating lease liabilities	6,516	5,258	4,741
Tax and other long-term liabilities	4,353	5,099	4,700
Total liabilities	53,074	54,183	52,010
Total stockholders' equity	234,506	219,585	213,567
<b>TOTAL LIABILITIES &amp; EQUITY</b>	<b>287,580</b>	<b>273,768</b>	<b>265,577</b>



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