

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**

**August 2020**

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

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

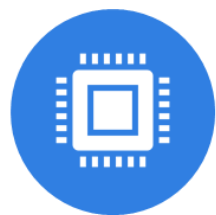
**Adnan Raza, Executive VP, Finance & CFO**



*This presentation may contain forward looking statements regarding projected business performance, operating results, financial condition and other aspects of the Company, expressed by such language as “ expected,”“ anticipated,”“ and “forecasted Please be advised that such statements are estimates only and there is no assurance that the results stated or implied by forward looking statements will actually be realized by the Company Forward looking statements may be based on management assumptions that prove to be wrong The Company and its business are subject to substantial risks and potential events beyond its control that could cause material differences between predicted results and actual results, including the Company incurring operating losses and experiencing unexpected material adverse events Forward looking statements are based on current expectations and assumptions, which are subject to risks and uncertainties that may cause results to differ materially from those expressed or implied in the forward looking statements We undertake no obligation to update or revise publicly any forward looking statements, whether because of new information, future events or otherwise For additional information concerning factors that could cause actual results and events to differ materially from those projected herein, please refer to our most recent 10-K, 10-Q and 8-K reports*

# PDF Solutions Overview

- PDF is an analytics company that provides products, services, and systems designed to improve process efficiency and product reliability for the semiconductor supply chain
- PDF uniquely provides:
  - Products and services for the end-to-end data analytics needs of the semiconductor value chain
  - Differentiated data obtained during manufacturing, test, and in-field use from IP integrated into semiconductor devices



**IC Design**



**Fab**



**Sort**



**Assembly**



**Test**



**System**

# Building a Platform for Success

## GROWTH

- Analytics are 63% of total revenues in TTM Q2 2020 vs 45% in CY 2018
- Analytics revenue CAGR of 26% from 2018 through TTM Q2 2020

## PROFITABILITY

- 58% GAAP and 63% non-GAAP gross margins for Q2 2020
- Total company gross margins continue to move towards 70%+ target model

## VISIBILITY

- 91% analytics customer retention rate during TTM Q2 2020 vs CY 2018, based on number of customers
- Average Analytics revenue per customer has grown 28% from \$353K in CY 2018 to \$452K in TTM Q2 2020

## DIVERSIFICATION

- Reduced customer concentration; largest customer 27% of revenue in TTM Q2 2020 vs 37% in CY 2018
- No foreign country accounts for more than 20% of revenue in TTM Q2 2020

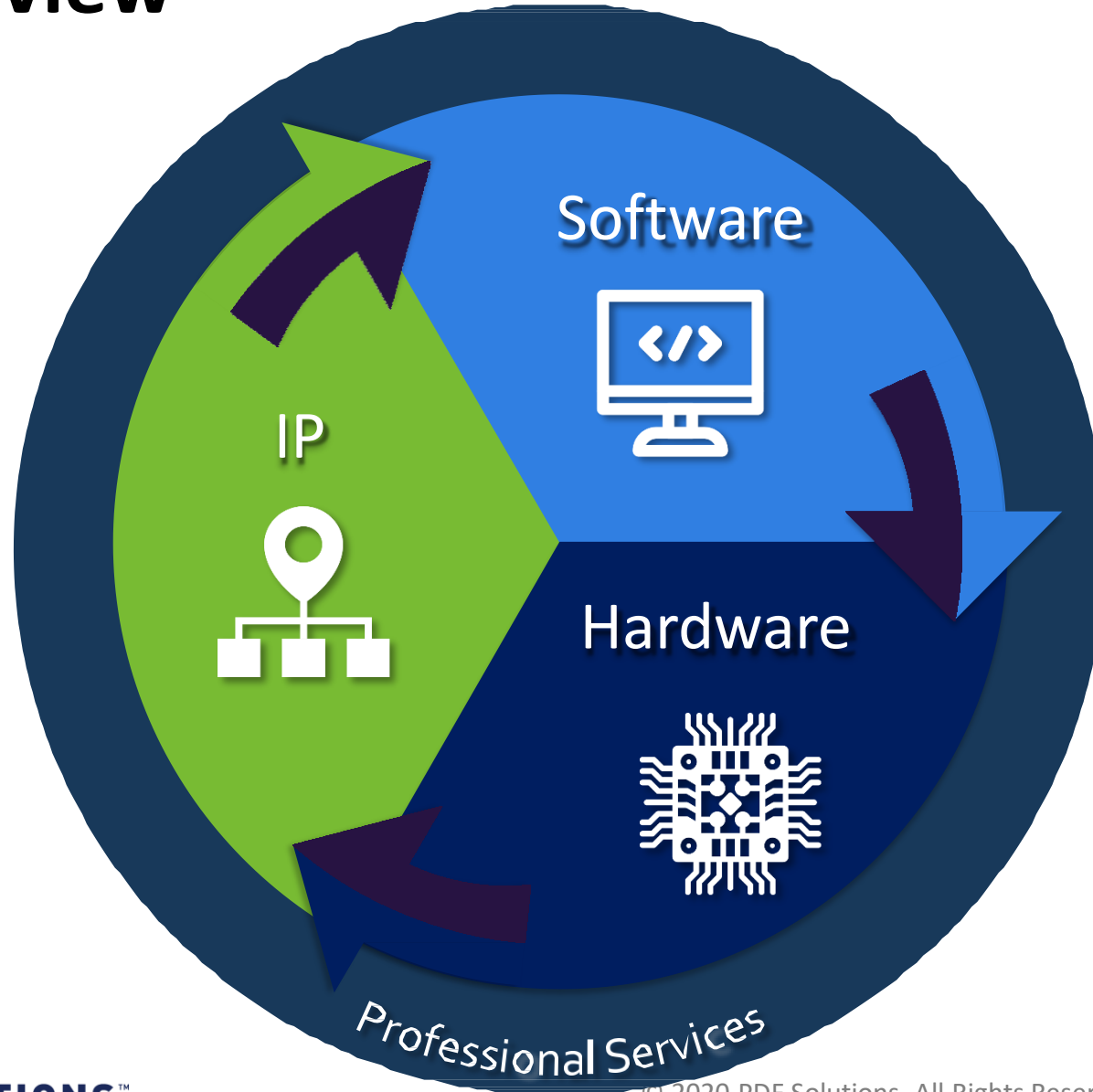
## STRENGTH

- \$103.4 million cash balance at end of Q2 2020 (plus \$65.2 million from Advantest in July); No debt
- Non-GAAP gross margin improvement by ~9% since 2018

## INVESTMENT

- Ongoing commitment to invest in Engineering Technology and Sales & Marketing
- Strategic acquisitions to expand products and market portfolio
- Opportunistic share buybacks; \$14.9 million since 2018

# Overview



## ■ Exensio® Software

- End to End Analytics platform for electronics supply chain

## ■ Differentiated Data

- **DFI™ system** (including eProbe® hardware)
- **CV® infrastructure** (including pdFasTest®)
- **Intellectual Property** (proprietary test structure)

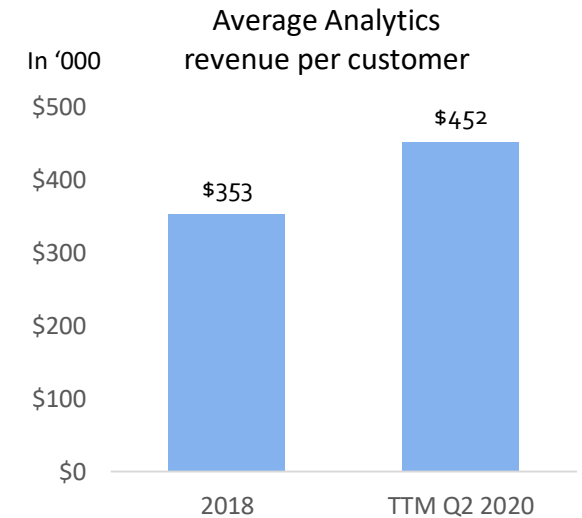
## ■ Professional Services

- Engineering, consulting, and hosted data management

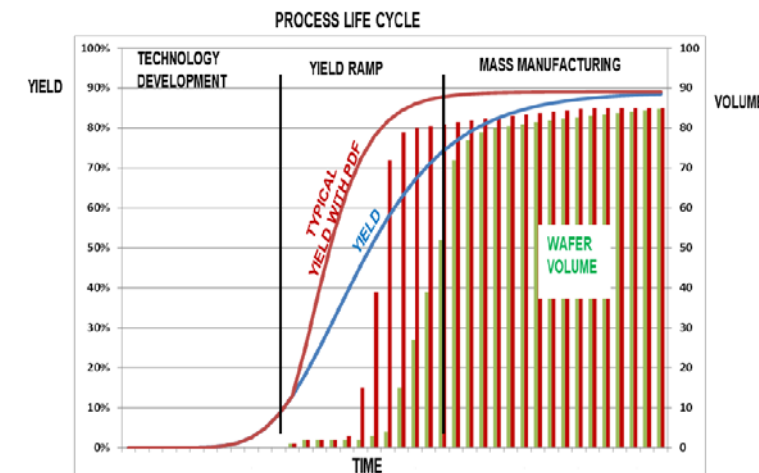


# PDF Business Models

- PDF has a long history of providing solutions combining advanced analytics and differentiated data
- PDF has two business models to capture the value of our products, services, and systems
- 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 based on continuous usage
- Gainshare model: when value is time to volume
  - In competitive foundry market, time to mass production is critical
  - The variable fee royalty model enables PDF to be compensated based on measurable value delivered



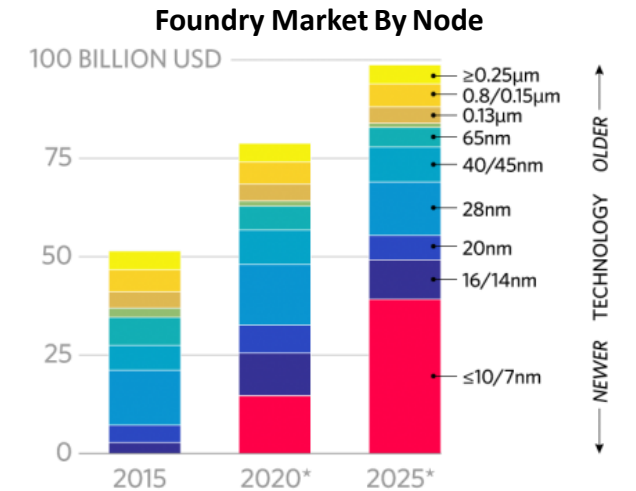
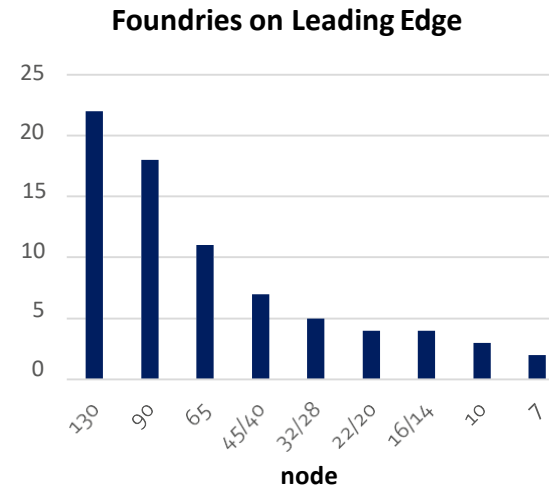
Gainshare model value



# Value Shifting to Mass Production



[www.techrepublic.com/article/moores-law-is-dead-three-predictions-about-the-computers-of-tomorrow](http://www.techrepublic.com/article/moores-law-is-dead-three-predictions-about-the-computers-of-tomorrow)



Copyright Stratfor 2019

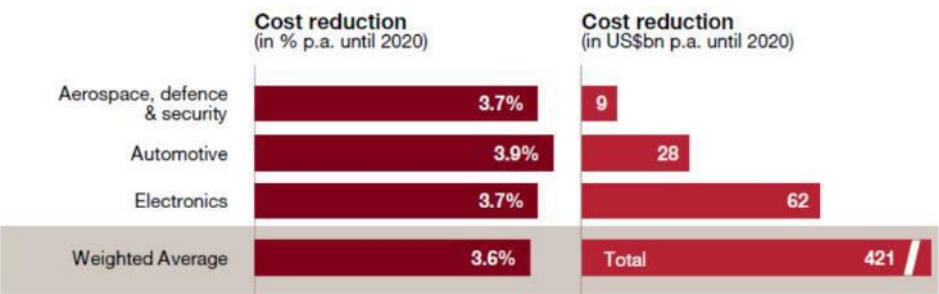
## ■ Trends:

- Moore's Law is slowing down, and foundry business is consolidating due to process complexity
- Percentage of foundry market in finFET nodes expected to continue to grow

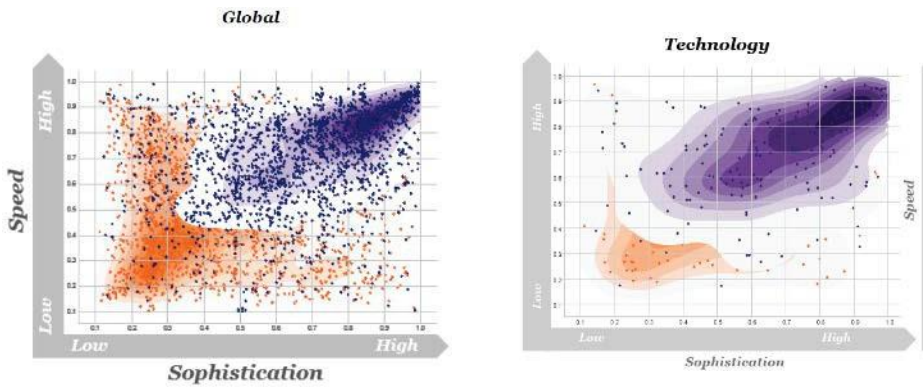
## ■ Implications:

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

# Data and Analytics Growing in Importance



High-tech sectors will see a greater percentage of cost reductions than average and represent nearly a fourth of the total revenue reductions tracked



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

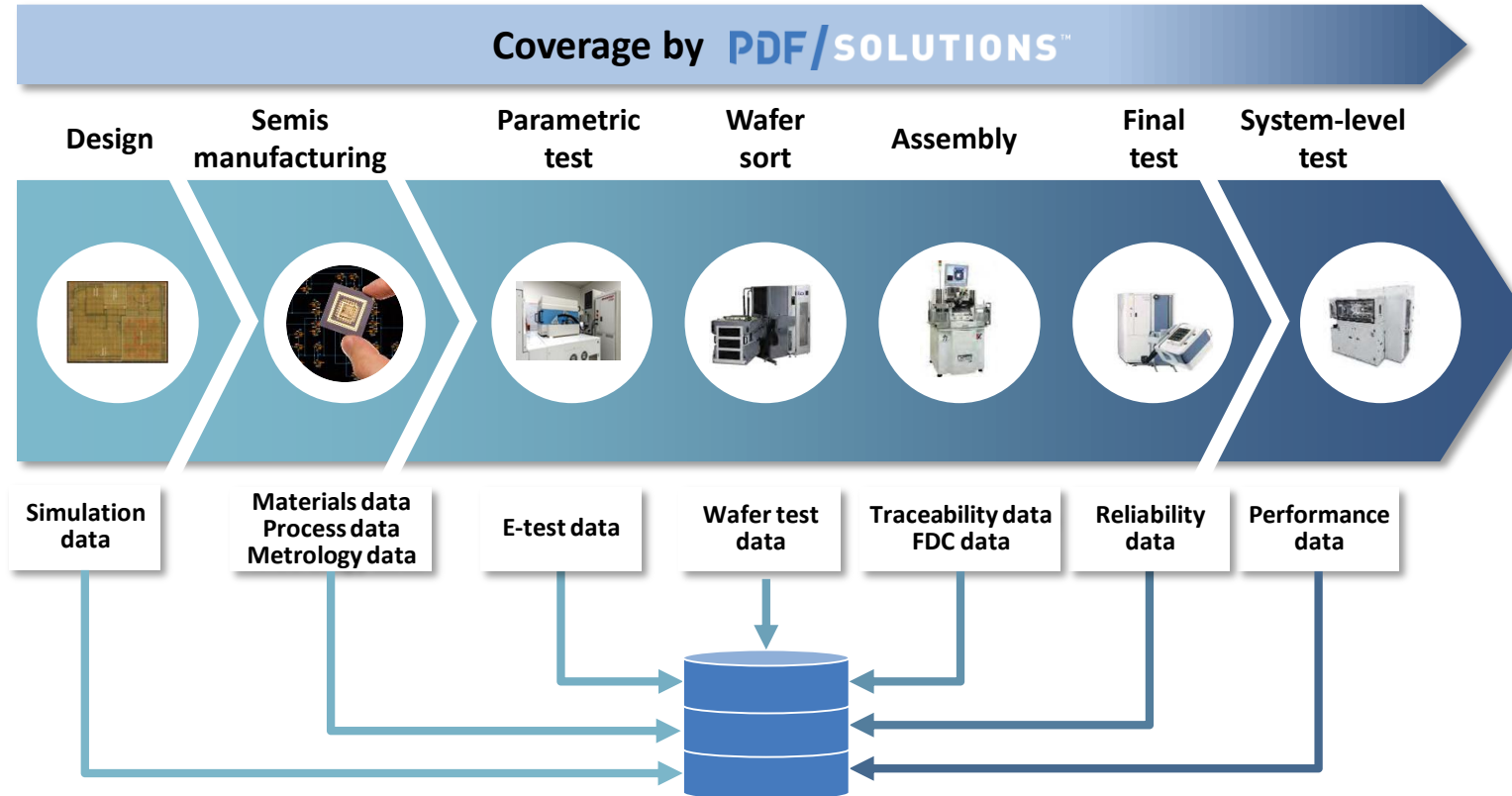


Number of companies with “highly digitized” functional groups expected to double over next 5 years

Source: PwC – Industry 4.0 Building your digital enterprise



# PDF Has A Unique View And Access To Data Sources In The Manufacturing And Testing 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

# Today PDF Bridges the Supply Chain Stack



PDF vehicles, systems and infrastructure are used to transfer these innovations across the stack

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

- PDF analytics and data implemented broadly across the supply chain
- PDF continues to increase our established relationships with critical industry members
- PDF is the only commercial analytics-focused provider with breadth and scale required by our customers

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

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



**123** revenue generating customers in **29** countries through TTM Q2 2020



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



**#2** and **fastest growing** commercial provider in mfg test operations leveraging DEX network



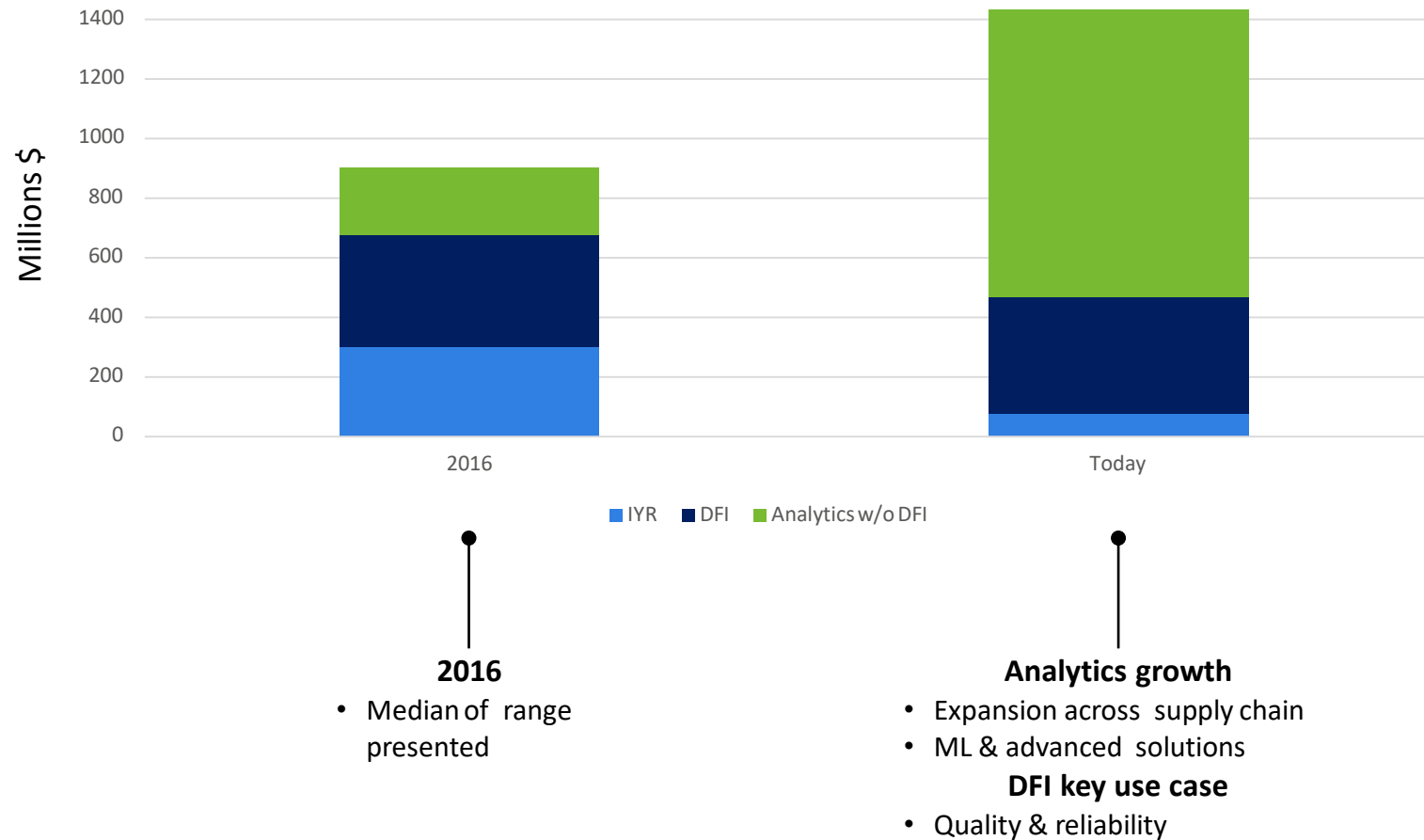
**Leading commercial provider** of die traceability through the supply chain



Representative industry participants; not indicative of actual customers.  
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# PDF Solutions – 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 fables, 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

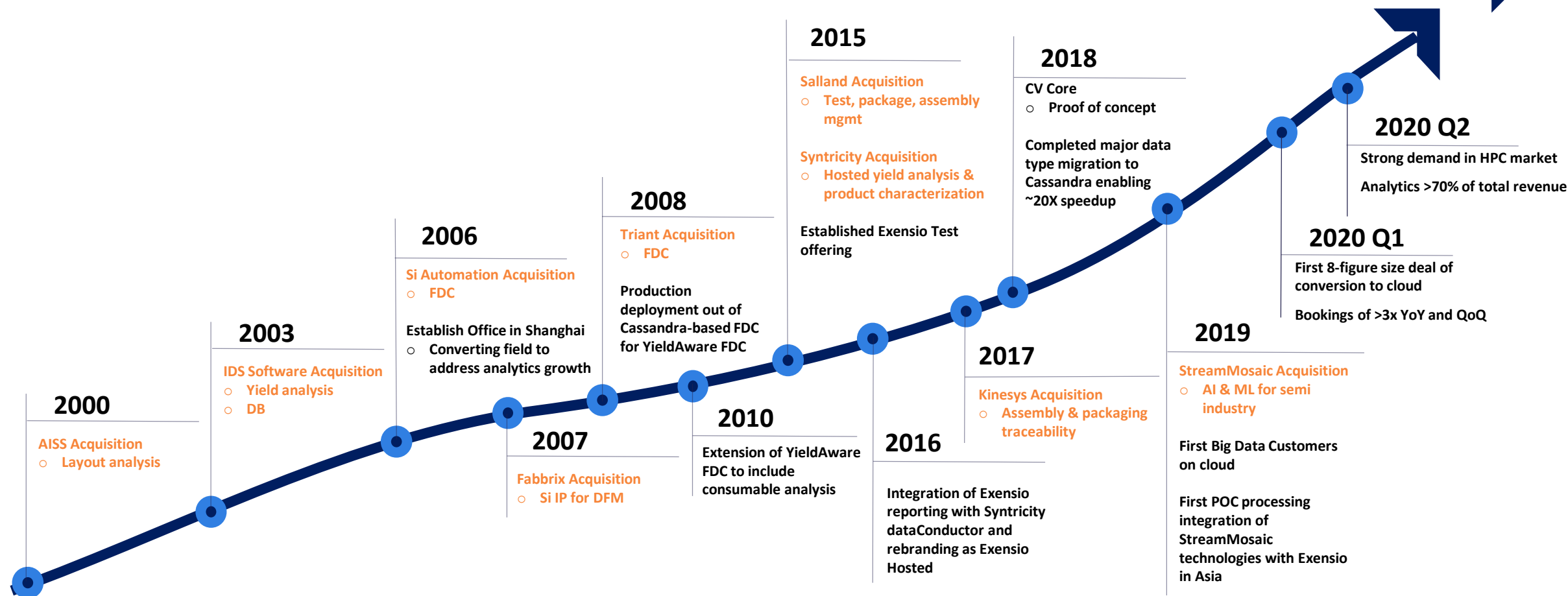
## Benefits for PDF Solutions

- 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 Acquisitions and Product Releases Expanded Our Scope and TAM

Gainshare Model “Selling Time to Volume”

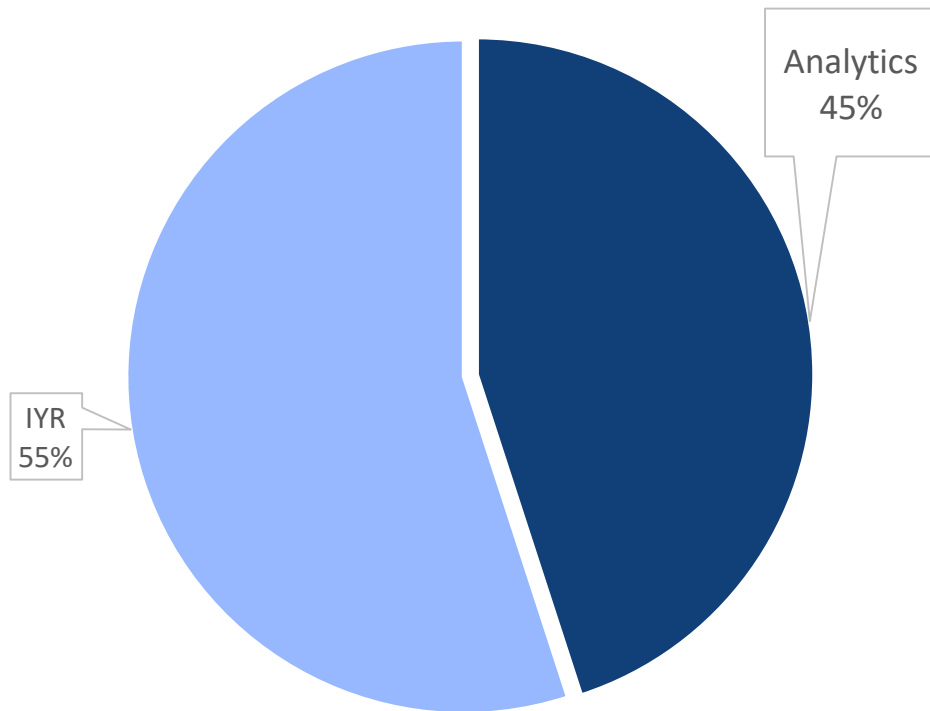
Subscription Model “Selling Actionable Data”



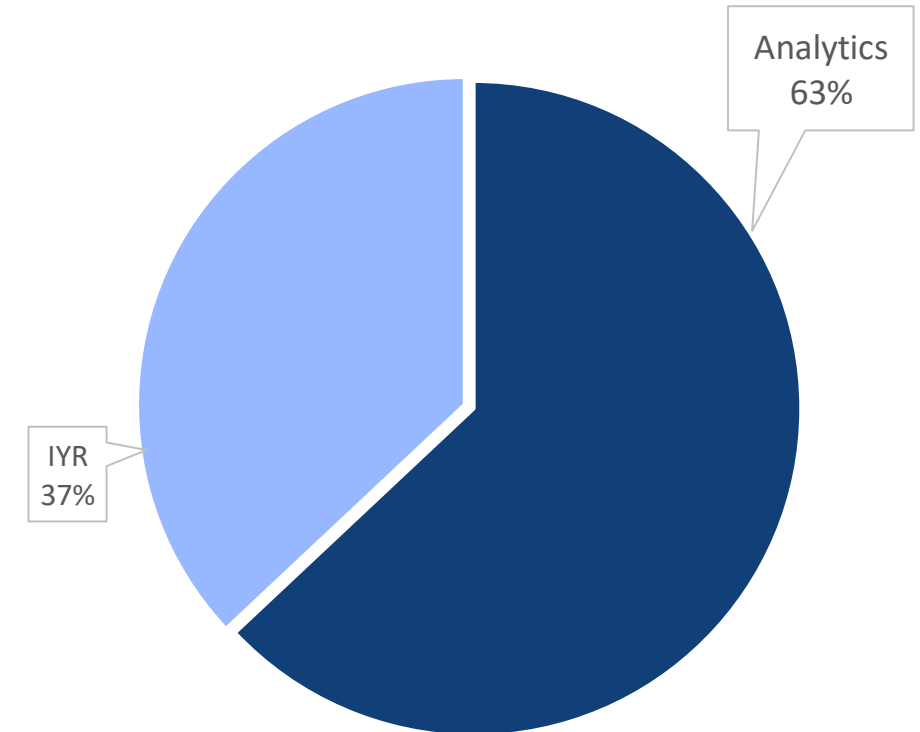


# Revenue Transition to Analytics

CY 2018

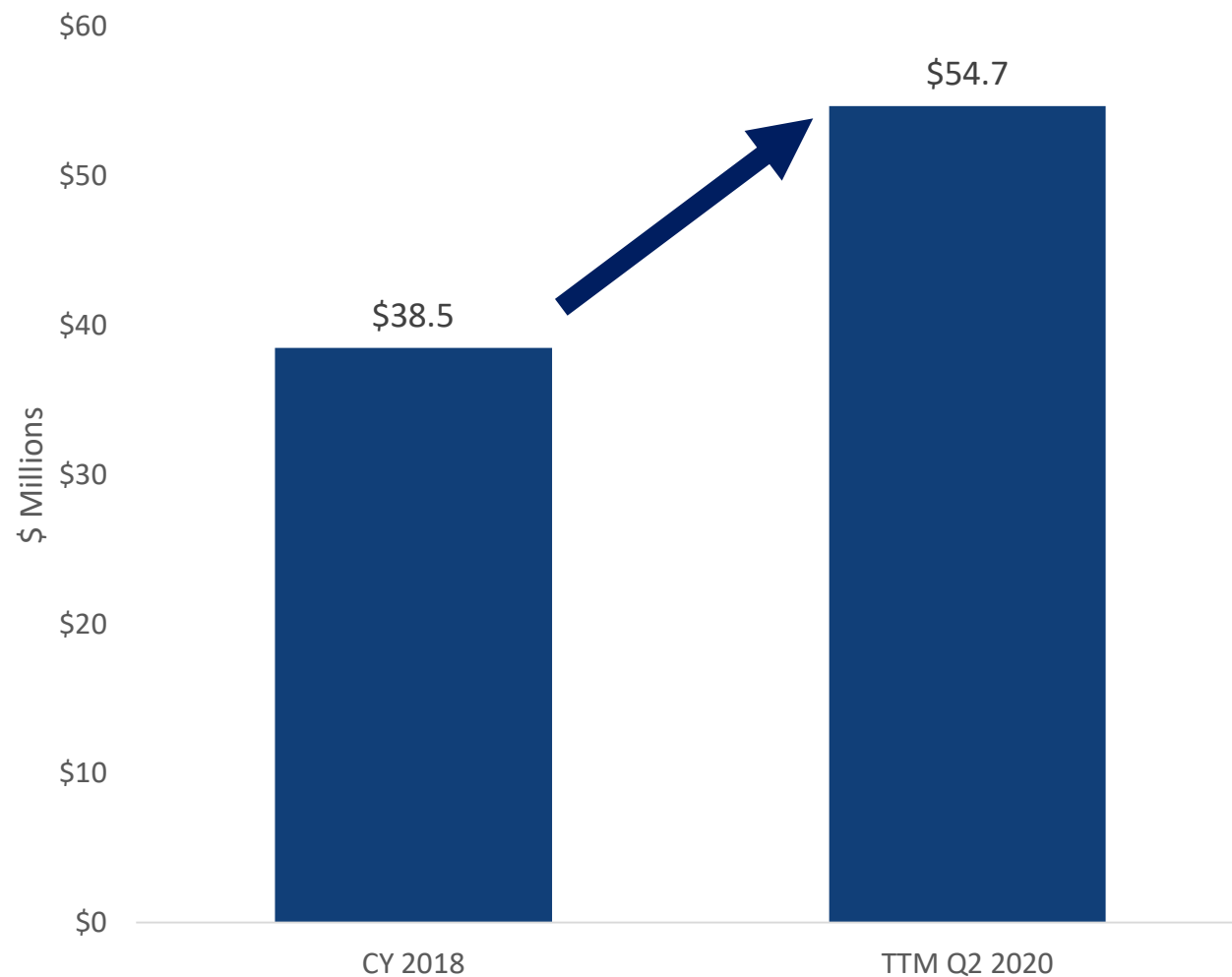


TTM Q2 2020



***Analytics accounted for 71% of revenues in Q2 2020***

# Analytics Revenue

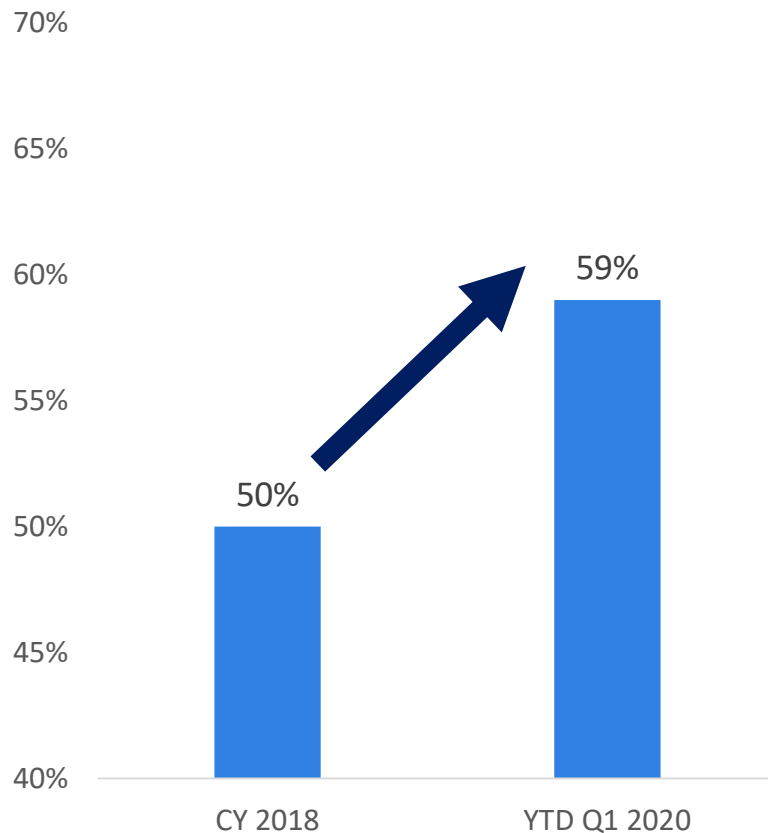


GROWTH

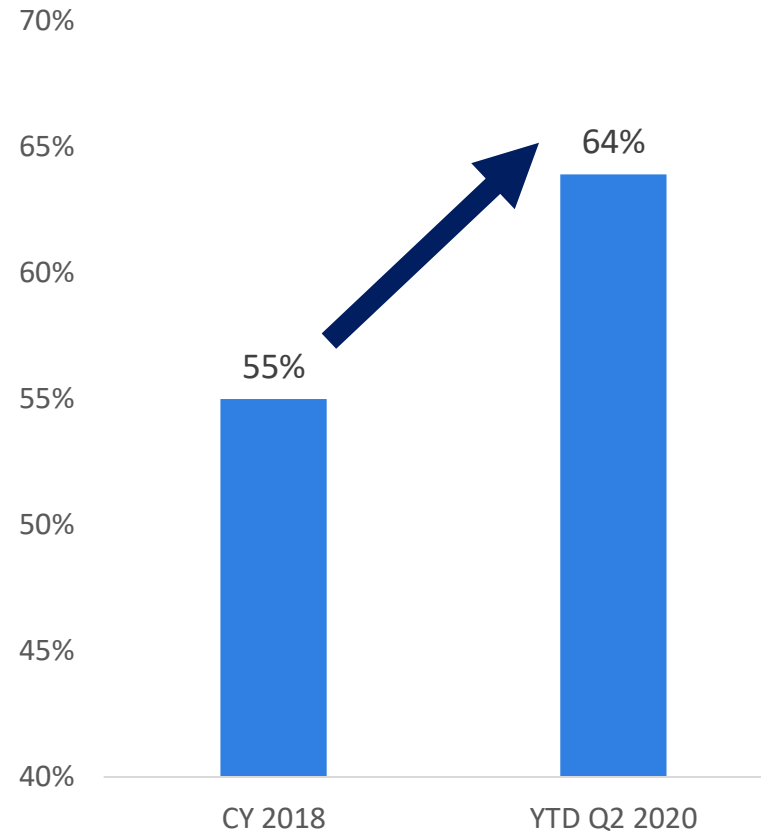
- Q2 2020 bookings just under 2x of Q2 2019 bookings
- CAGR of 26% from 2018 to TTM Q2 2020
- Average Analytics revenue per customer has increased 28% from \$353K in 2018 to \$452K in TTM Q2 2020

# Gross Margins - Improved by 9%

## GAAP



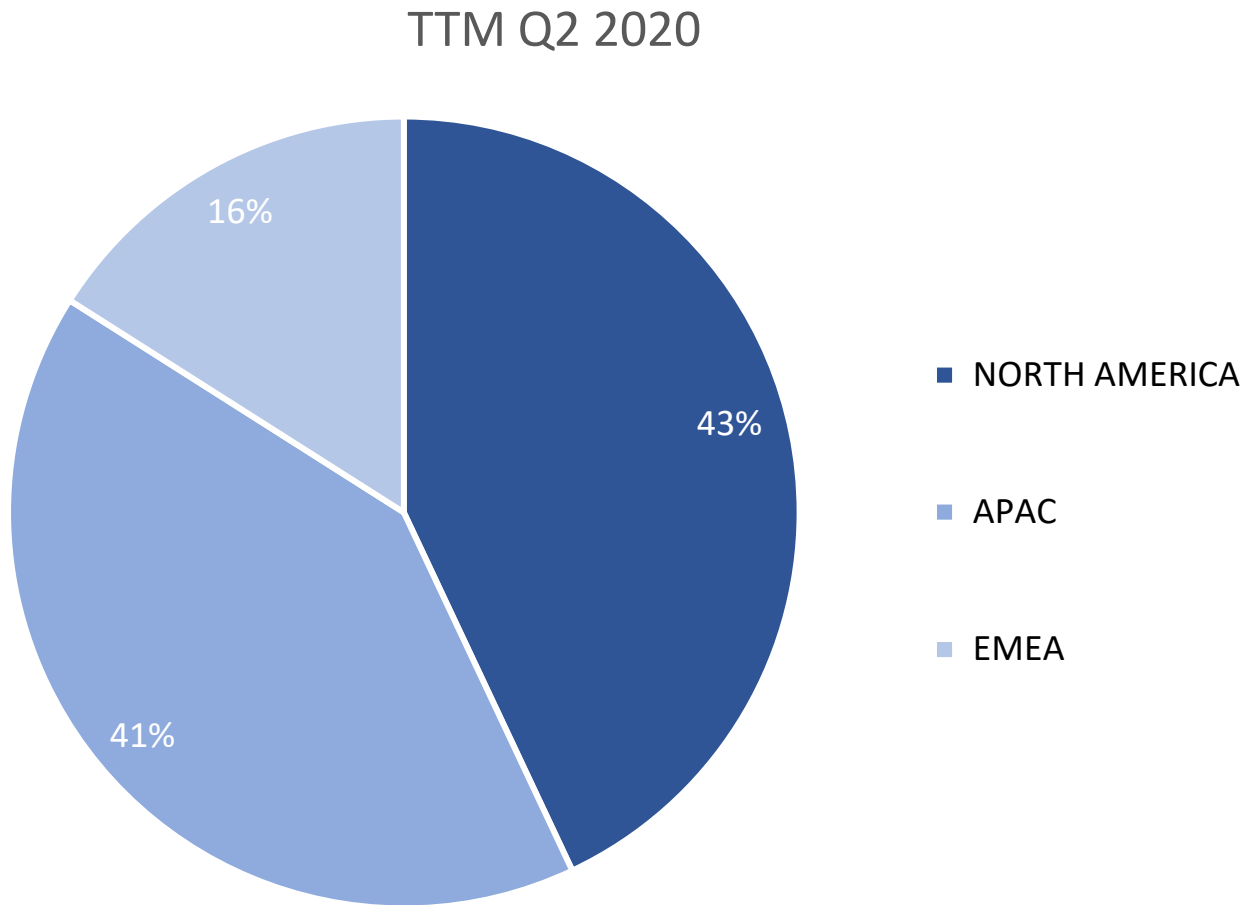
## Non-GAAP



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



# Global Geographic Revenue Distribution



- Globally diverse geographic distribution
- No foreign country accounts for more than 20%
- US largest market at 43% of revenues

# Balance Sheet Strength

(\$ Millions)

End of Q2 2020

Cash and cash equivalents \$103.4

Debt \$0

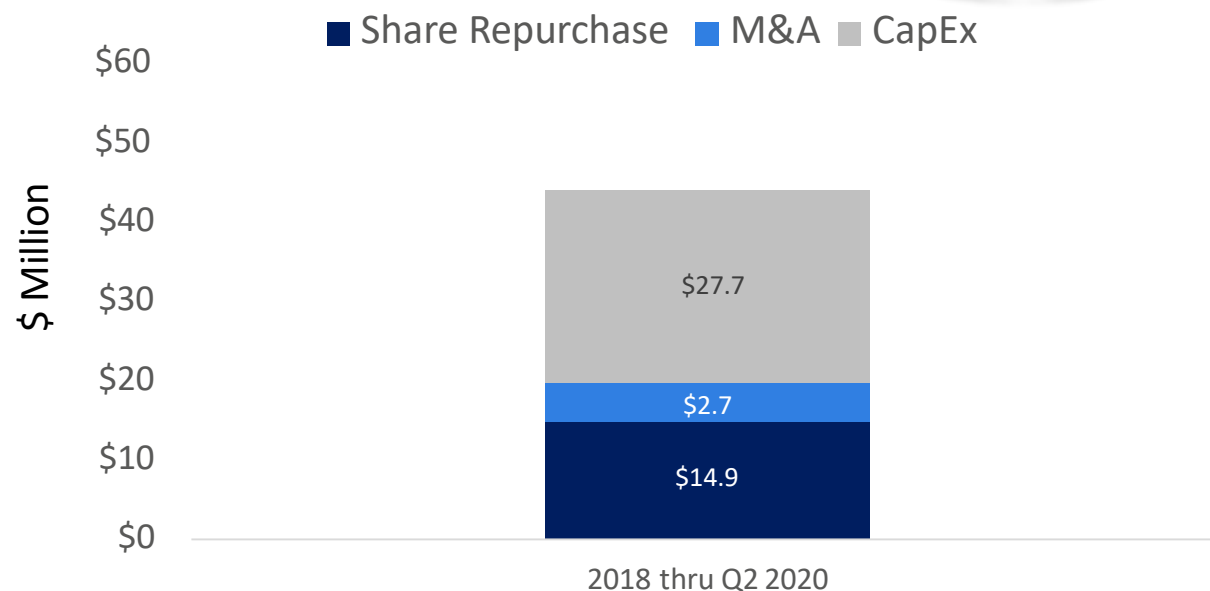
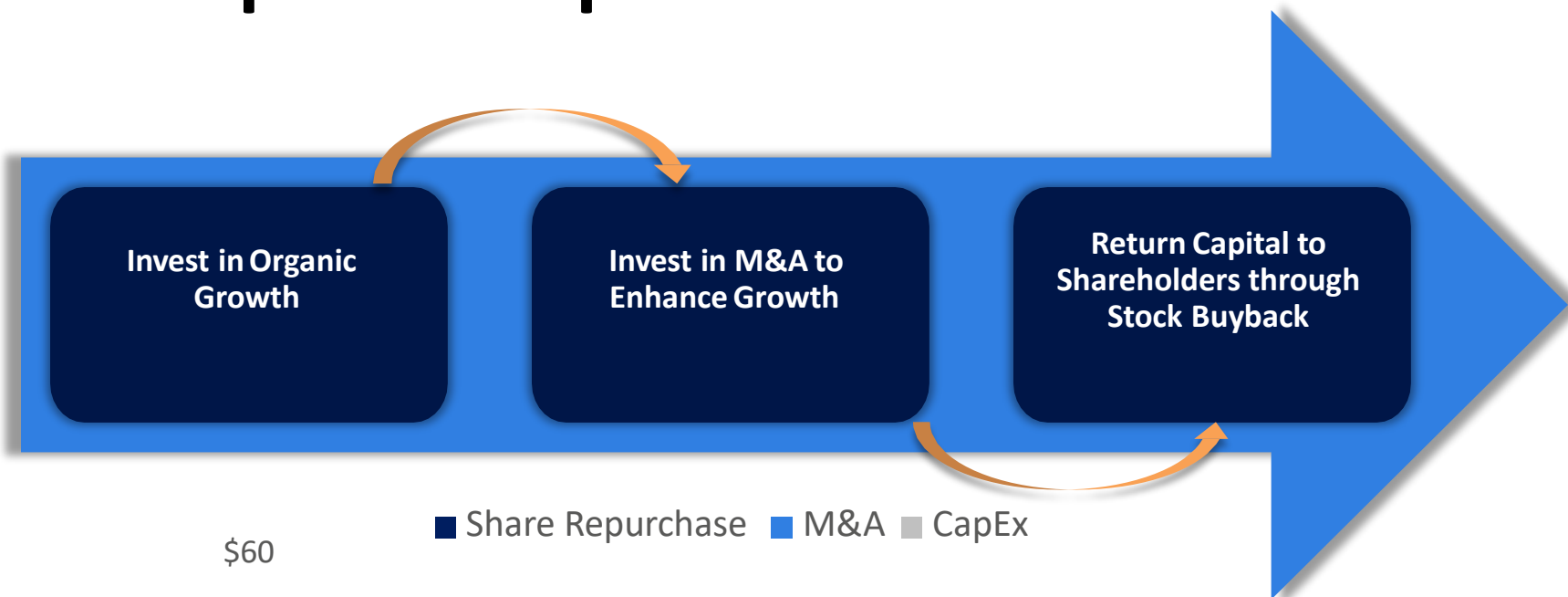


+ \$65.2 million from  
Advantest in July

## STRENGTH

- Existing balance sheet strength provides foundation for investment in growth of analytics business both organically and inorganically
- Cash increased by \$17 million on a year over year basis
- Investments made in R&D, PP&E, M&A, S&M, and share buyback

# Disciplined Capital Allocation



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

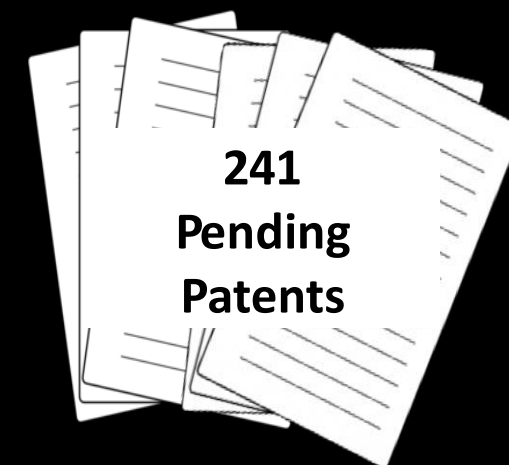
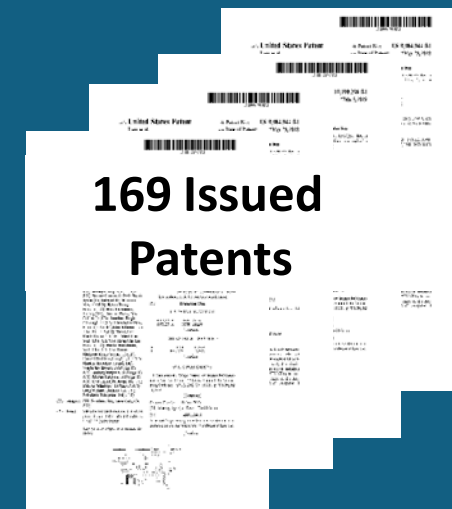
# Long-Term Targets

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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pdf-solutions



pdfsolutionsinc



pdfs.inc



pdf\_solutions



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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)

	2018	2019	2020 YTD thru Q2
<b>GAAP net income (loss)</b>	<b>\$ (7,716)</b>	<b>\$ (5,418)</b>	<b>\$ (4,180)</b>
Adjustments to reconcile GAAP net income (loss) to non-GAAP net income (loss):			
Stock-based compensation expense	10,295	11,423	6,345
Impaired deferred costs	-	-	-
Previously impaired deferred costs	-	-	-
Amortization of acquired technology	574	574	287
Amortization of other acquired intangible assets	435	609	347
Restructuring charges and severance payments	907	92	4
Write-down in value of property and equipment	227	-	311
Acquisition costs & adjustment to contingent consideration related to acquisition	90	30	-
Legal arbitration/litigation *	-	-	464
Tax Impact of Adjustments	(1,992)	(2,785)	(3,237)
<b>Non-GAAP net income (loss)</b>	<b>\$ 2,820</b>	<b>\$ 4,525</b>	<b>\$ 342</b>
<b>GAAP net income (loss) per diluted share</b>	<b>(0.24)</b>	<b>(0.17)</b>	<b>(0.13)</b>
<b>Non-GAAP net income (loss) per diluted share</b>	<b>0.09</b>	<b>0.14</b>	<b>0.01</b>
<b>Shares used in diluted shares calculation (in millions)</b>	<b>32.5</b>	<b>33.1</b>	<b>33.6</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

	2018	2019	2020 YTD thru Q2
<b>GAAP Gross Margin</b>	<b>\$ 42,992</b>	<b>\$ 52,112</b>	<b>\$ 25,134</b>
Adjustments to reconcile GAAP gross margin (loss) to non-GAAP gross margin:			
Stock-based compensation expense	3,554	3,186	1,792
Impaired deferred costs	-	-	-
Previously impaired deferred costs	-	-	-
Amortization of acquired technology	574	574	287
Restructuring charges and severance payments	258	-	-
<b>Non-GAAP gross margin</b>	<b>\$ 47,378</b>	<b>\$ 55,872</b>	<b>\$ 27,213</b>

# Balance Sheet

(\$ '000)	Actual 2018	Actual 2019	Actual Q1 '20	Actual Q2 '20
Cash and short-term investments	\$96,089	\$97,605	\$100,385	\$103,441
Accounts receivable, net	29,332	33,208	28,002	19,903
Unbilled accounts receivable	22,238	7,332	9,362	9,057
Prepays and other current assets	9,562	9,320	11,628	8,665
Property, plant and equipment, net	35,681	40,798	41,009	40,412
Operating lease right-of-use assets	-	7,609	7,368	7,056
Other assets	33,003	43,561	41,604	45,494
<b>TOTAL ASSETS</b>	<b>\$225,905</b>	<b>\$239,433</b>	<b>\$239,358</b>	<b>\$234,028</b>
Accounts payable	\$2,454	\$7,636	\$4,828	\$2,763
Accrued liabilities	7,962	6,737	6,161	6,653
Operating lease liabilities - current portion	-	1,867	1,954	1,880
Deferred revenue and billing in excess of revenue	9,112	11,644	14,122	10,866
Non-current operating lease liabilities	-	7,677	7,310	7,032
Tax and other long-term liabilities	6,582	7,713	6,514	7,128
Total stockholders' equity	199,795	196,158	198,469	197,706
<b>TOTAL LIABILITIES &amp; EQUITY</b>	<b>\$225,905</b>	<b>\$239,433</b>	<b>\$239,358</b>	<b>\$234,028</b>



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