



OLED Investor Presentation

3Q 2021

(updated: August 2021)

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UNIVERSAL DISPLAY CORPORATION

COLOR IS
UNIVERSAL



Forward- Looking Statements

All statements in this document that are not historical, such as those relating to the Company's technologies and potential applications of those technologies, the Company's expected results and future declaration of dividends, as well as the growth of the OLED market and the Company's opportunities in that market, are forward-looking financial statements within the meaning of the Private Securities Litigation Reform Act of 1995. You are cautioned not to place undue reliance on any forward-looking statements in this document, as they reflect Universal Display Corporation's current views with respect to future events and are subject to risks and uncertainties that could cause actual results to differ materially from those contemplated. These risks and uncertainties are discussed in greater detail in Universal Display Corporation's periodic reports on Form 10-K and Form 10-Q filed with the Securities and Exchange Commission, including, in particular, the section entitled "Risk Factors" in Universal Display Corporation's Annual Report on Form 10-K for the year ended December 31, 2020. Universal Display Corporation disclaims any obligation to update any forward-looking statement contained in this document.

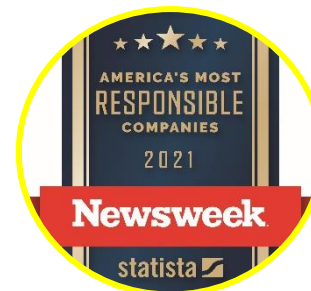


Universal Display Corporation

**Critical OLED
Innovator &
Enabler**



**Highly
Energy-
Efficient
PHOLED**



Fabless



**OLED
Materials
Supplier & IP
Licensor**



**5,000+
Global
Patents***





UDC's Energy-Efficient Phosphorescent Materials: 100% UniversalPHOLED® emitters save energy and do not use conflict minerals



Diverse & Inclusive Workplace: Geographically (from over 25 countries), culturally and gender-wise (22% female and 78% male*) diverse



Board of Directors: 1/3 Female, 2/3 Male
Named a *2020 Champion of Board Diversity* by The Forum of Executive Women



Community Outreach: UDC supports a range of global educational initiatives, community service organizations and an employee charity matching program



Strong Balance Sheet: \$733M in cash**, no debt



Fortune's 100 Fastest-Growing Companies 2020
Newsweek's America's Most Responsible Companies 2021
Financial Times' America's Fastest-Growing Companies 2021

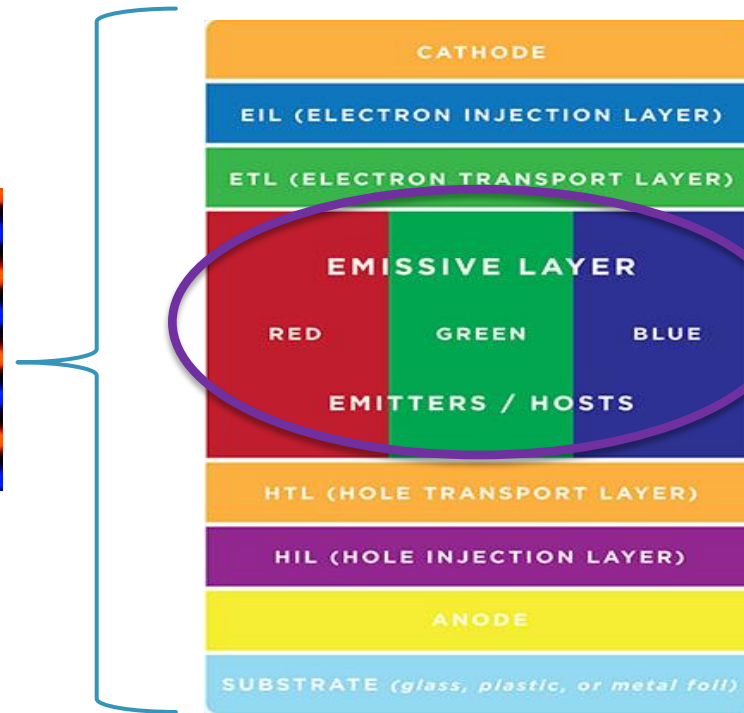
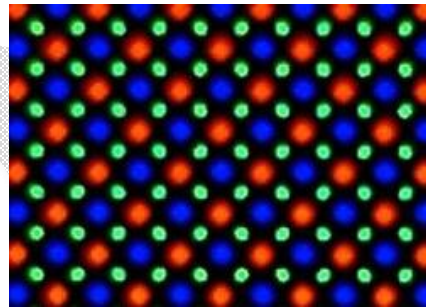
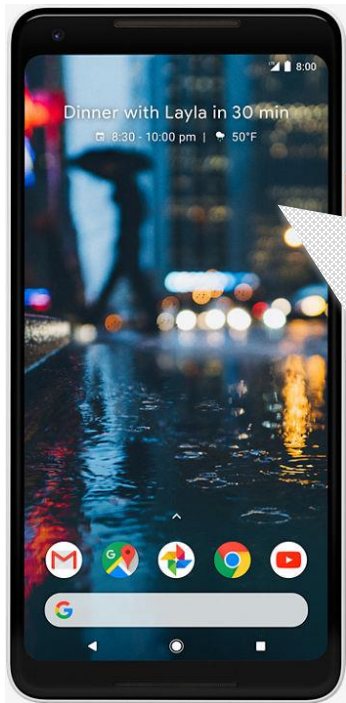
UDC Highlights





What is an OLED?

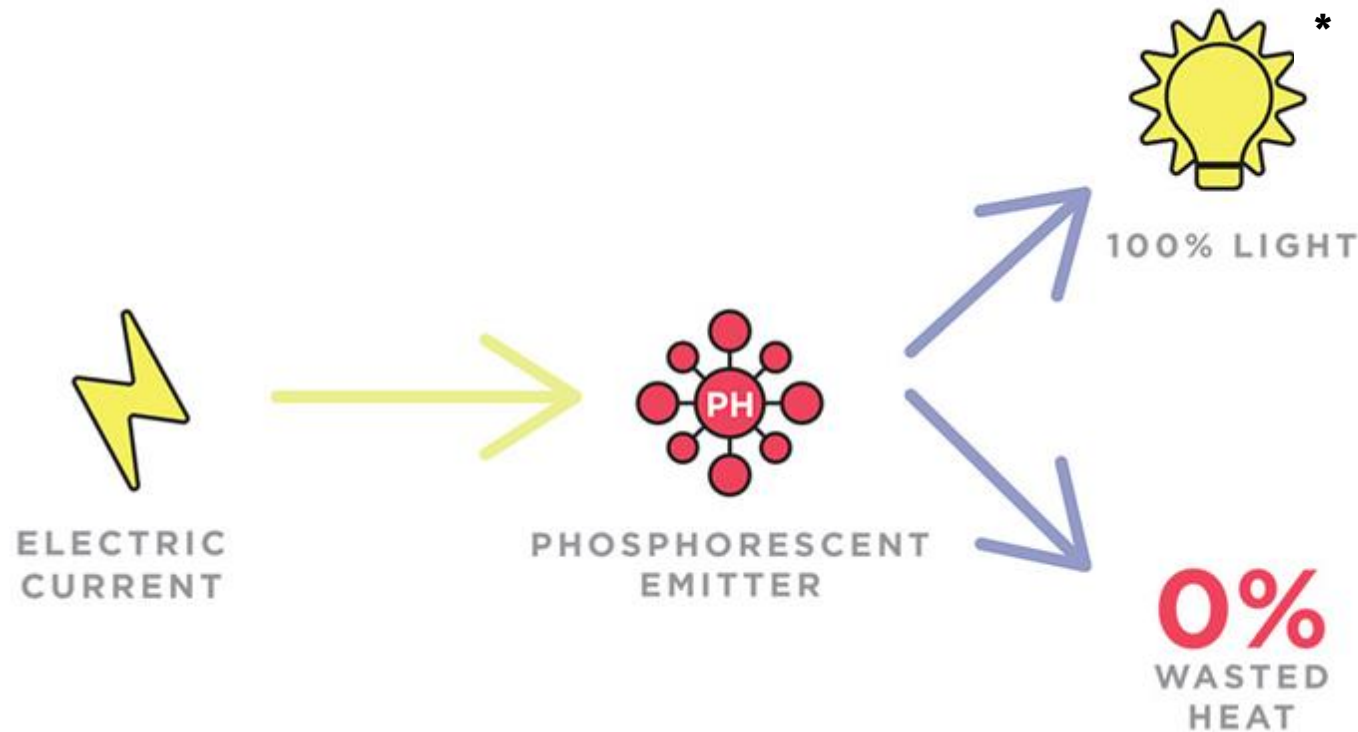
- An Organic Light Emitting Diode is a series of organic thin films between two conductors
- When electrical current is applied, bright light is emitted
- OLEDs can be used for displays and lighting
- OLEDs are not just thin and efficient - they can also be made *flexible* and *transparent*





UniversalPHOLED = Energy Efficiency

With energy efficiencies that are up to four times higher than with conventional fluorescent OLED materials, UDC's patented and award-winning phosphorescent OLED technology and materials are integral to enabling low power consumption in OLED displays and lighting.



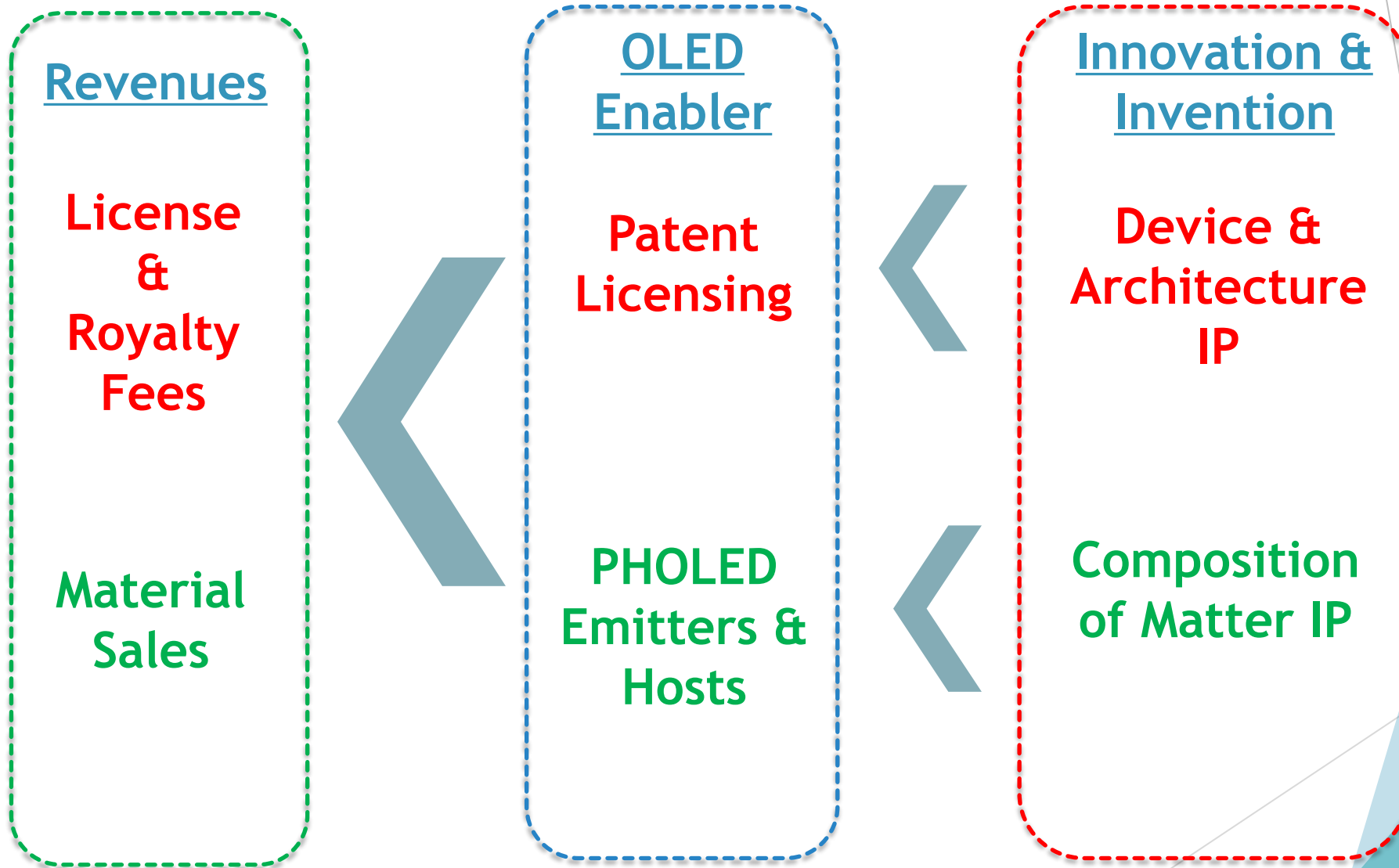
Phosphorescent Emitters

- ✓ Enables energy efficiency
- ✓ Reduces requirements for heat dissipation components
- ✓ Increases lifetime
- ✓ Lowers product cost

*100% Internal Quantum Efficiency
[M. A. Baldo et. al., Nature, 395, 151 \(1998\)](#)

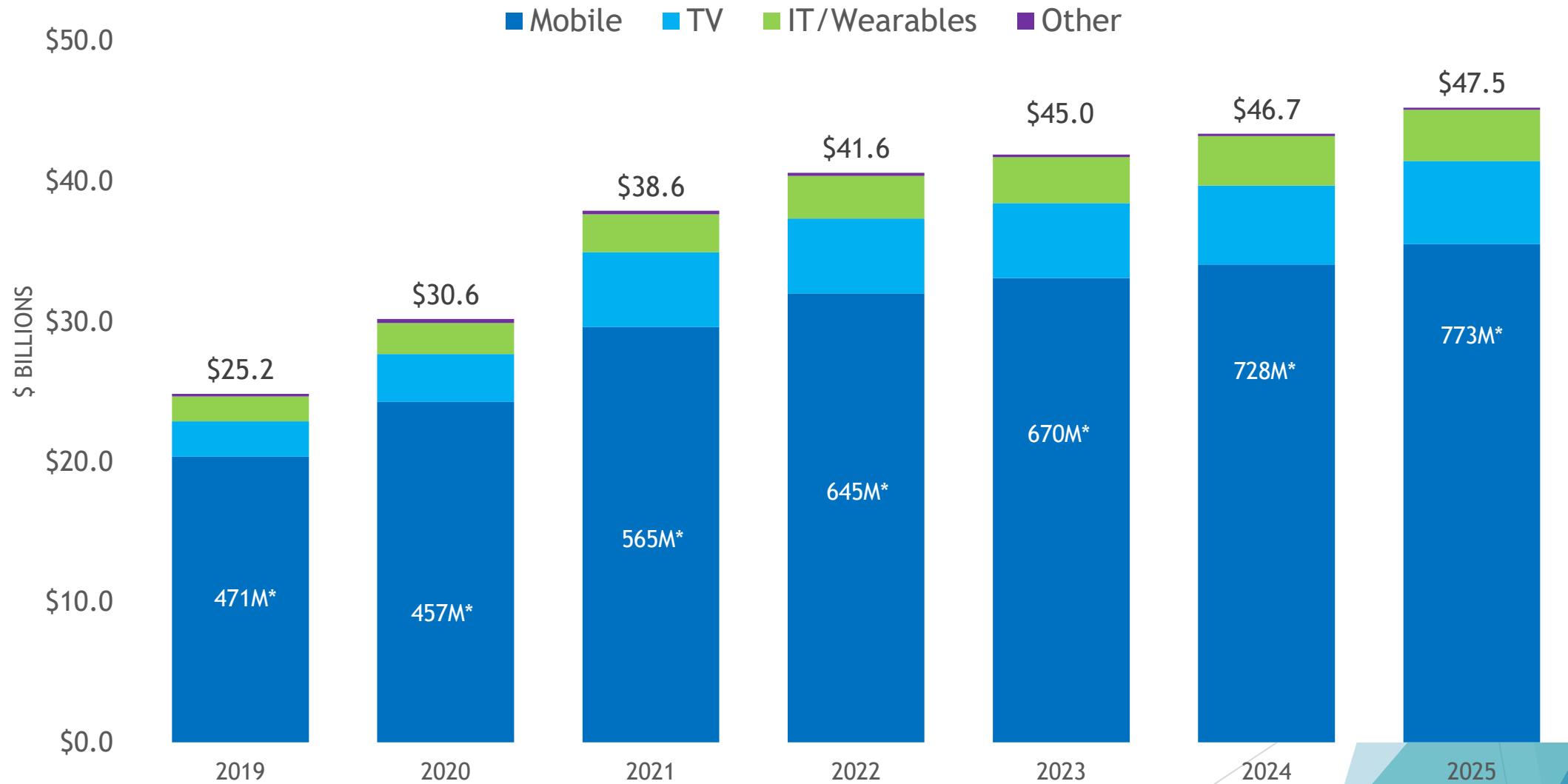


Business Model





OLED Display Market Potential

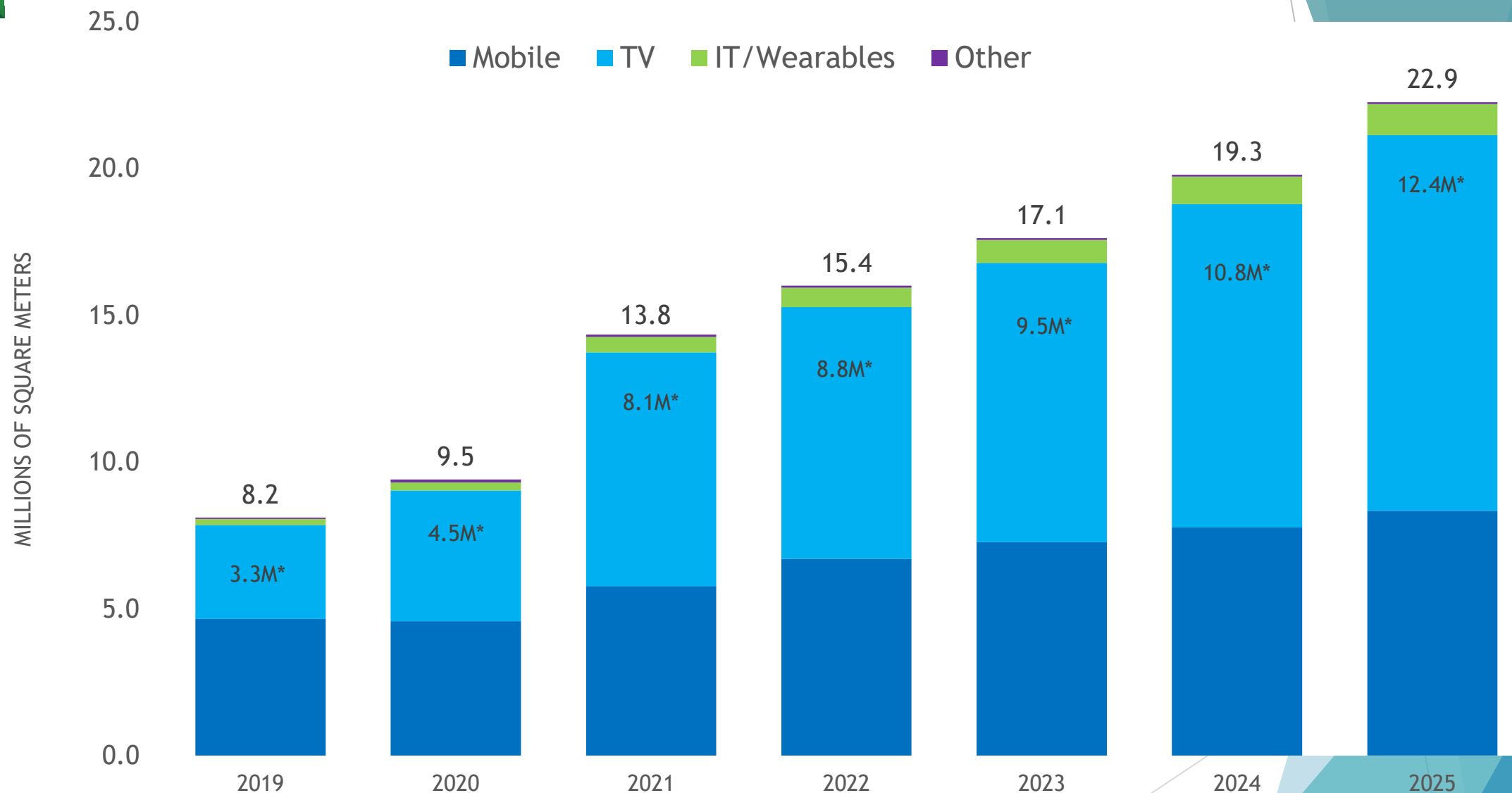


*Unit Numbers are for mobile phones only

Source: Omdia OLED Display Market Tracker - Q1 2021 (July 2021)



OLED Panel Area Demand



*Unit Numbers are for OLED TVs only

Source: Omdia OLED Display Market Tracker - Q1 2021 (July 2021)



UNIVERSAL DISPLAY CORPORATION



Strong OLED Display Market Drivers



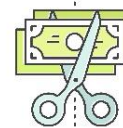
Lower Power Usage

- **RED** Phosphorescence reduces power consumption by 25%
- **Add GREEN**: 45% cumulative reduction
- **Add BLUE**: 75% cumulative reduction
- Enabled by PHOLEDs



Superior Aesthetics

- Improved image quality
- Thin and Light
- 180 degree viewing angle
- 2,000,000+: 1 contrast ratio - TRUE BLACK
- Real-time video speeds - excellent for 3D
- Self-emissive display
- Low UV output
- Minimal Bezel
- *Flexible*



More Cost Effective

- Fewer manufacturing process steps
- Lower bill-of-materials
 - No backlight required
 - No color filter required
 - No liquid crystal required
- Reduced driver IC costs
- Enables non-glass substrates



OLED Smartwatches & Smartphones

Samsung Galaxy Watch4



Oppo Watch 2



Apple Watch Series 6



OnePlus Watch



ZTE Watch GT



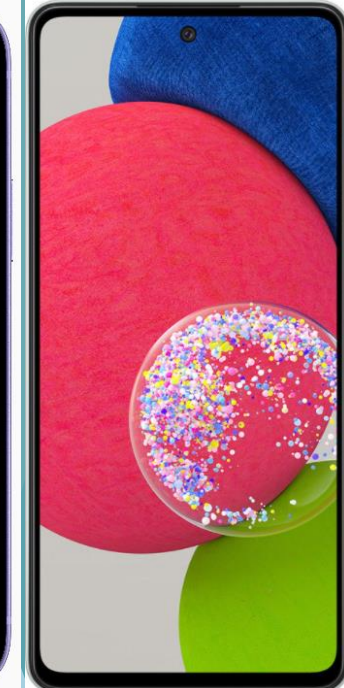
Oppo Reno6 5G



vivo iQOO 8 Pro



iPhone 12



Galaxy A52s 5G



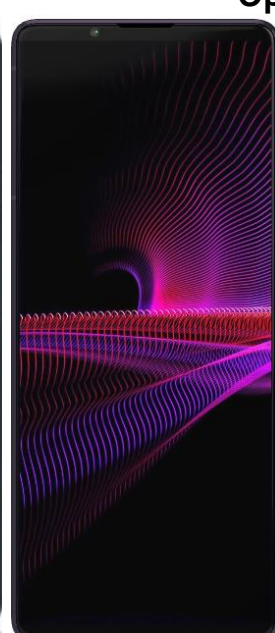
Honor Magic3



motorola edge 20



Google Pixel 5a



Sony Xperia 1 III



TE Axon 30 5G



Huawei P50 Pro



OnePlus Nord 2 5G



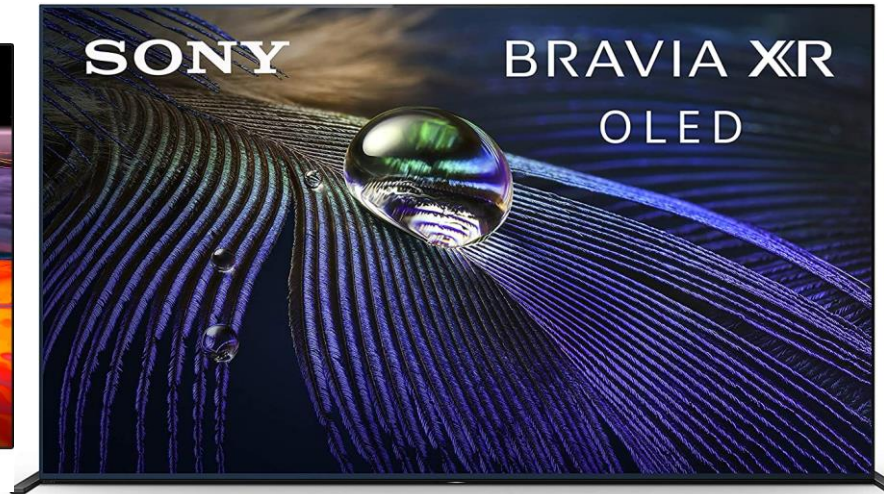
Xiaomi Mix 4



More OLED Products



VIZIO 55" Class 4K UHD SmartCast OLED TV



Sony BRAVIA XR A90J 65" 4K HDR OLED TV



LG C1 65" Class 4K Smart OLED TV



2022 Mercedes EQS: 56" OLED Hyperscreen - 12.3" gauge cluster, 17.7" central touchscreen, and 12.3" passenger touchscreen

Nintendo Switch (OLED model)



Samsung Galaxy Book Pro



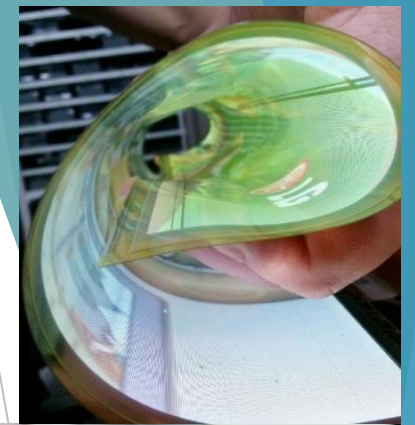
Gigabyte Aero 15 OLED



Xiaomi Mi Notebook Pro X 15



Form Factor: Flexible, Foldable, Rollable



Xiaomi Mi Mix Fold



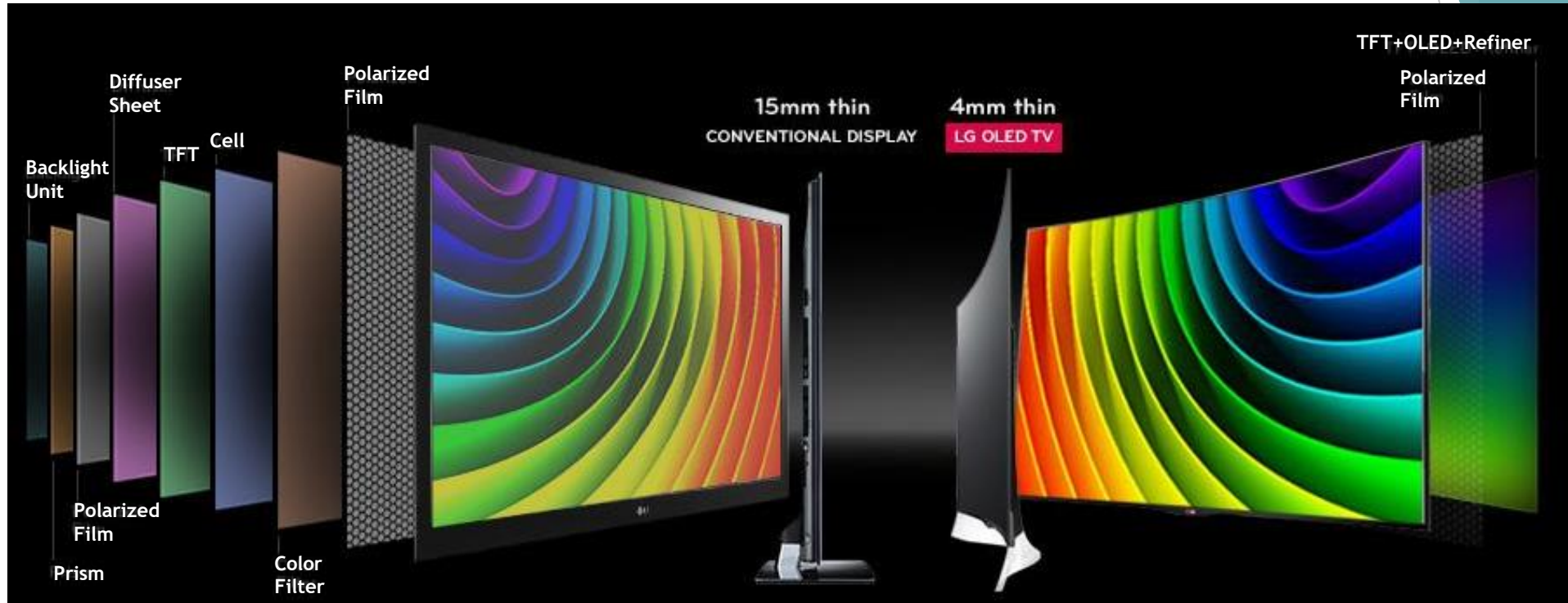
Samsung Galaxy Z Fold3 and Flip 3 5G



Lenovo ThinkPad X1 Fold



LCD vs. OLED



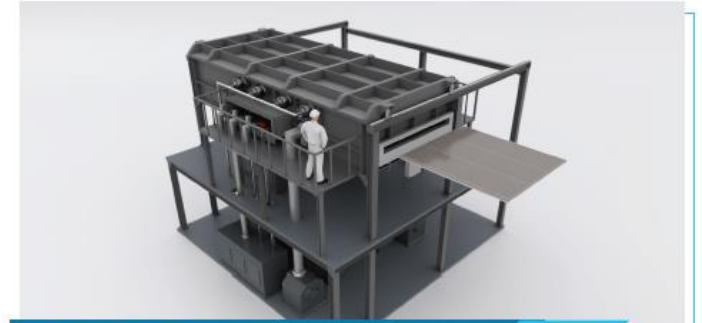
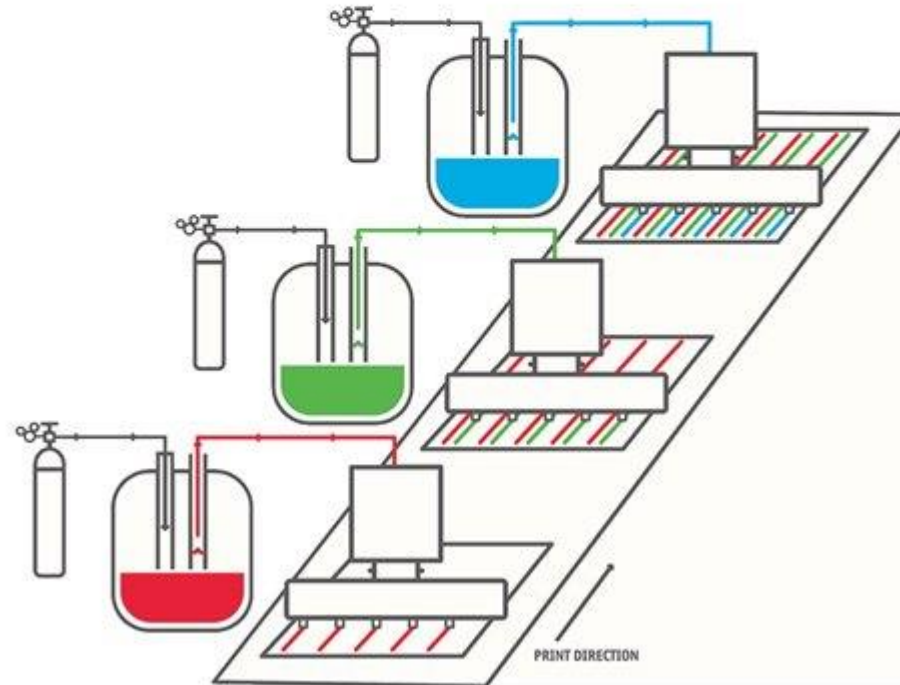
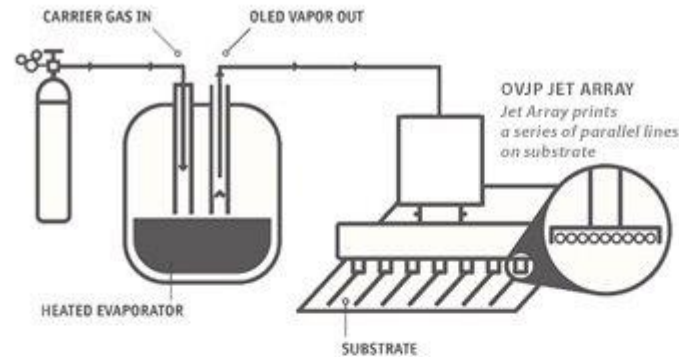
- ✓ Lower BOM (bill of materials)
- ✓ Better Performance, More Efficient
- ✓ Thinner and Flexible Form Factor
- ✓ Vivid Colors and Superior Contrast Ratio

Image source: LG

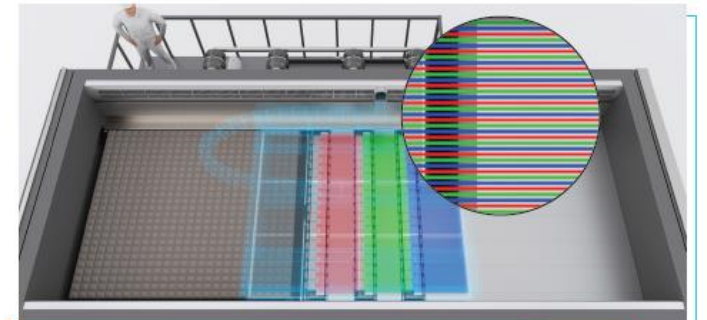


Groundbreaking Organic Vapor Jet Printing (OVJP)

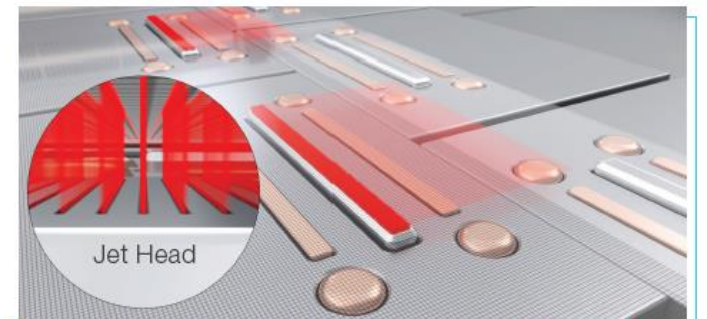
- Mask-less, Solvent-less (dry) Printing OLED technology
- High material utilization and fast TAKT time
- Scalable to Gen 10.5+
- Enables advanced OLED performance with process control
- Multi-color deposition in one chamber
- Small molecule OLED materials
- Supports 4K and 8K resolution
- OVJP Alpha System expected during 2022



Small Footprint
Scalable to Gen 10.5+



One Chamber – Multiple Layers
Three colors printed in a single pass



Vapor Jets Print High Resolution Lines
Without masks, without solvents



Strong OLED Lighting Market Drivers



Energy-efficient & environmentally friendly

- Low drive voltage
- Low operating temperatures, cool to touch
- Long lifetime
- Easy to control



Highly desirable color quality

- Wide range of CCT, high CRI possible
- Color tunable
- Instant “ON” , Dimmable without flicker
- No glare, no noise
- Low UV content



Image source: LG Display

Novel form factor & Low-Cost Potential

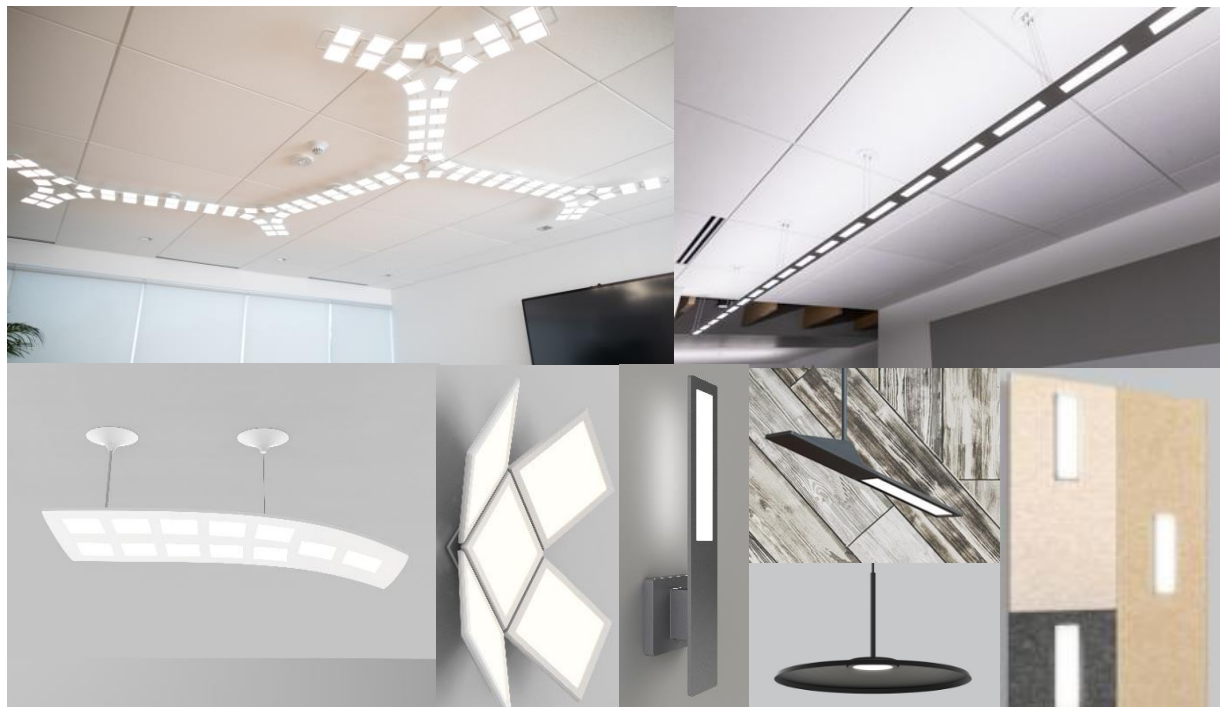
- Thin and lightweight
- Transparent
- Non-breakable, Conformable, Flexible, Foldable, Rollable
- Scaling advantage
- Roll to roll process





OLED Lighting Around the World Today

AcuityBrands



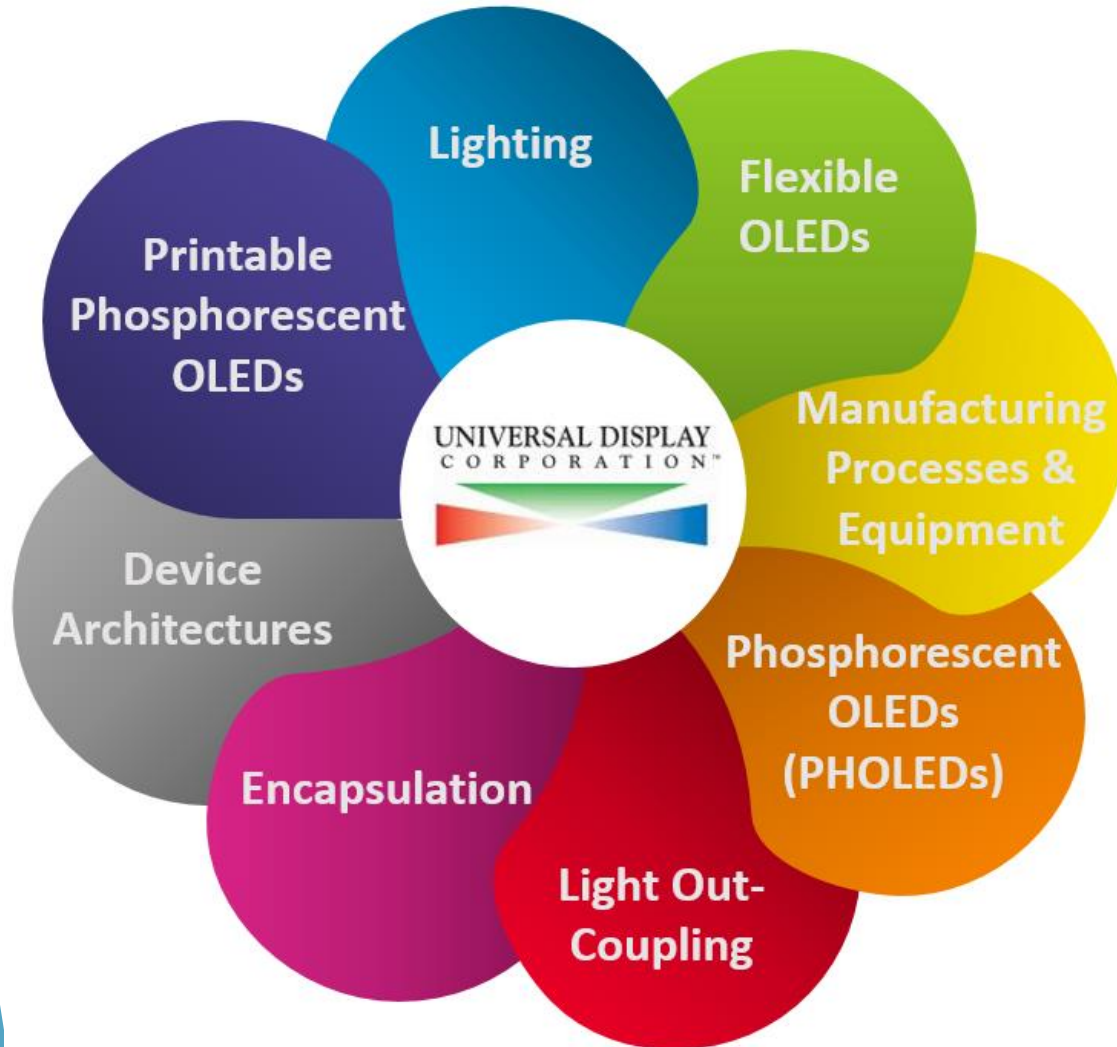
OLEDWorks
CERTIFIED CHANNEL PARTNER



Mercedes-Benz



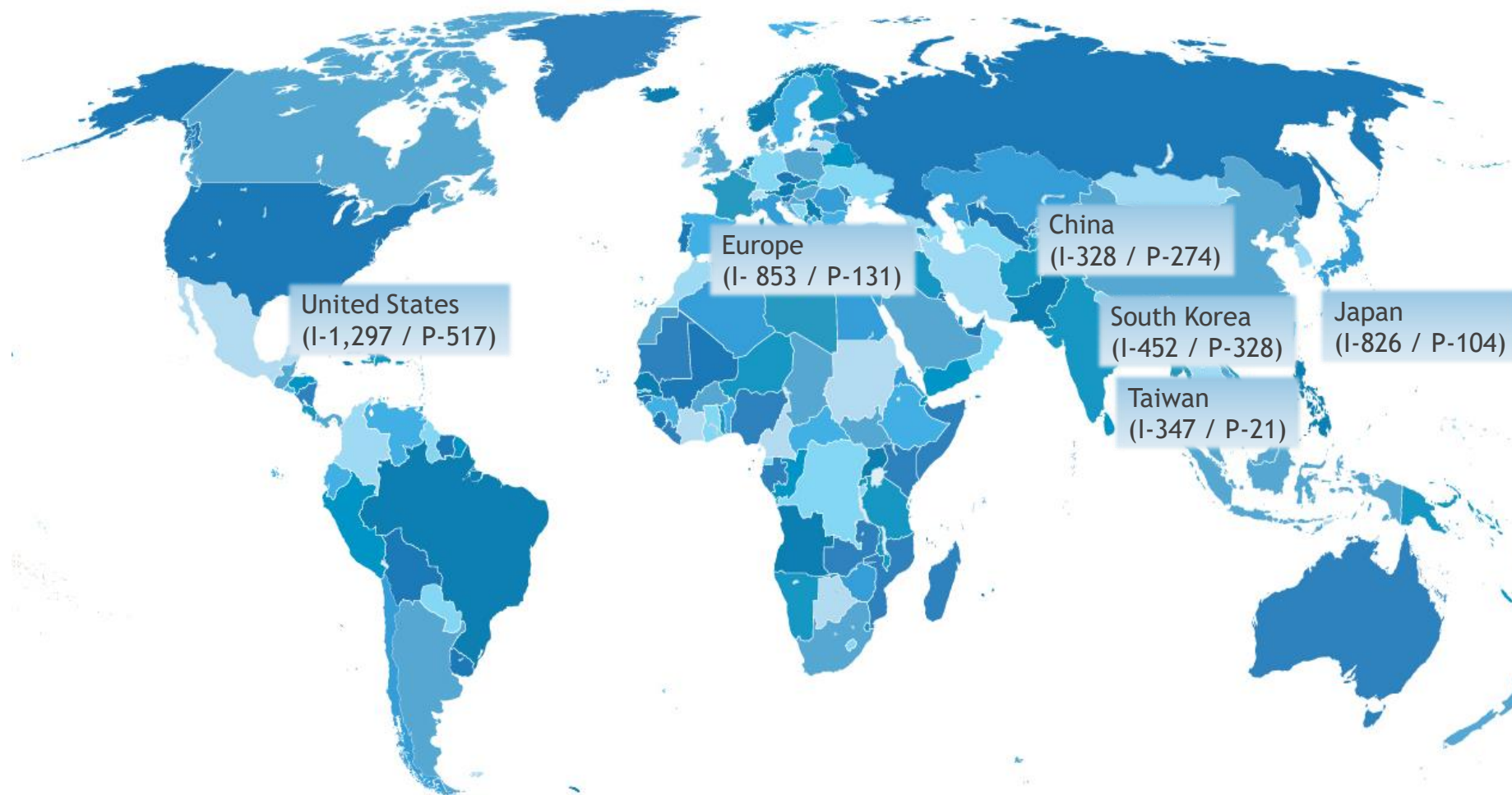
Strong, Broad and Deep Patent Portfolio



- ▶ We develop and license enabling technologies that are at the heart of consumer OLED products worldwide, from AR/VR, smartwatches, smartphones, IT, automotive and TVs to lighting products.
- ▶ We believe that our extensive portfolio of patents, trade secrets and non-patented know-how enable our leadership position in the OLED ecosystem.
- ▶ Our R&D innovations allow us to continuously bolster the depth and breadth of our global OLED intellectual property framework, which currently stands at over 5,000 issued and pending patents worldwide (as of February 10, 2021).



Patents are Universal



Over 5,000 patents and pending applications*

*as of February 10, 2021





Strategic Display & Lighting Partnerships

AUO

KANAKA

SAMSUNG
SAMSUNG DISPLAY

BOE



KONICA MINOLTA



SEeya
TECHNOLOGY



LG Display

SHARP

Fraunhofer

Lumiotec

SUMITOMO CHEMICAL

INNOLUX

OLEDWorks

TIANMA

JDI
Japan Display Inc.

ROYOLE

Visionox

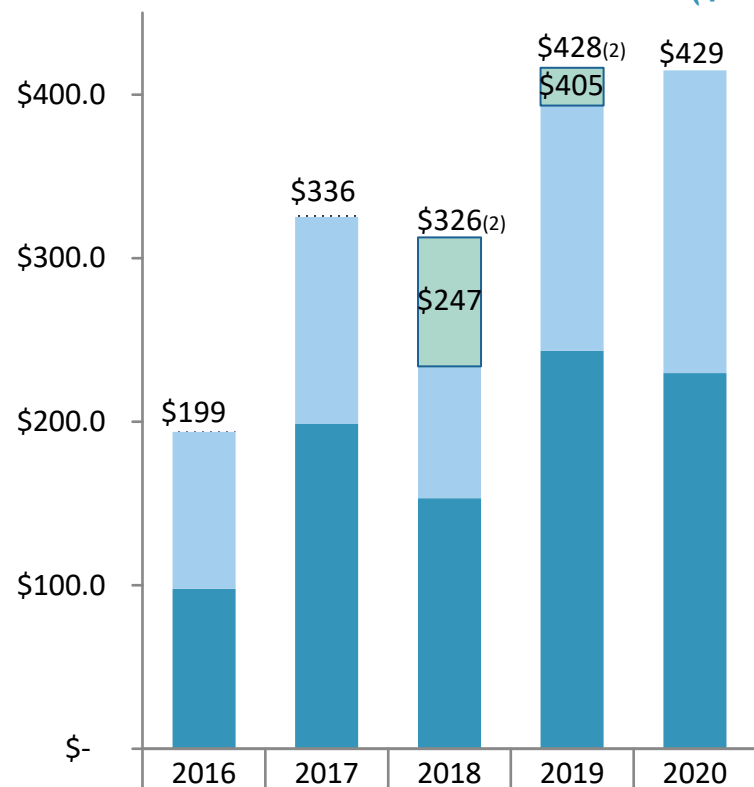


Historical Financial Performance

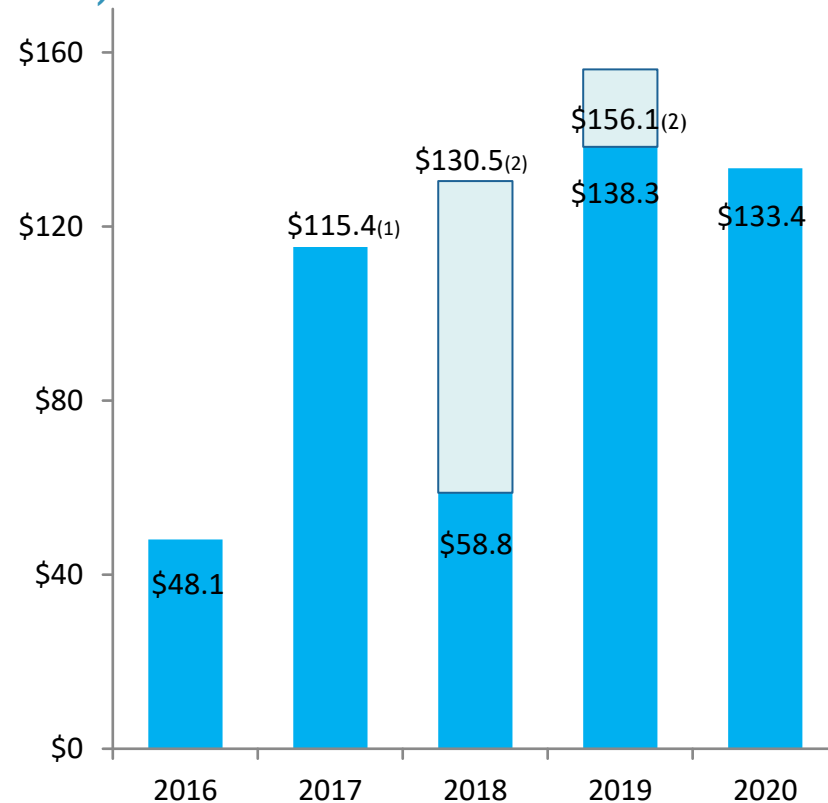
Revenue

Income

(\$ in millions)



ASC 605 Adjustment	\$-	\$-	\$78.9	\$22.9	\$-
Hosts	\$1.4	\$1.6	\$-	\$-	\$-
Royalty & License	\$96.1	\$126.5	\$80.6	\$150.0	\$185.1
Emitters	\$97.9	\$198.7	\$153.2	\$243.4	\$229.7



(1) Adjusted net income excludes the one-time charge due to the enactment of the Tax Cuts and Jobs Act.
See "Reconciliation of Non-GAAP Measures" for further discussion of these non-GAAP measures on slide 20.

(2) Reflecting ASC 605 Adjustments.

As discussed in the [2020 10-K](#), the Company changed its method for accounting for revenue from contracts with customers due to the adoption of ASC Topic 606 (adopted January 1, 2018).



Reconciliation of non-GAAP measures

The following table details our reconciliation of non-GAAP measures to the most directly comparable GAAP measures:

	Year Ended December 31,
	2017
<i>(in thousands, except per share data)</i>	
<i>(Unaudited)</i>	
Net income reconciliation	
Net income	\$103,885.00
Net income per share:	
Basic	\$2.19
Diluted	\$2.18
Net income adjustments:	
Tax Cuts and Jobs Act	\$11,514.00
Adjusted net income	<u>\$115,399.00⁽²⁾</u>
Adjusted net income per share:	
Basic ⁽¹⁾	\$2.43
Diluted ⁽¹⁾	\$2.43

(1) The adjusted net income per common share, basic and diluted is derived from dividing adjusted net income by the number of weighted average shares used in computing basic and diluted net income per common share.

(2) Adjusted net income is based on excluding the impact of the one-time charge due to the enactment of the Tax Cuts and Jobs Act for the year ended December 31, 2017.

Non-GAAP Measures - To supplement our selected financial data presented in accordance with U.S. generally accepted accounting principles (GAAP), we use certain non-GAAP measures. These non-GAAP measures include adjusted net income (loss), adjusted net income (loss) per common share, basic and adjusted income (loss) per common share, diluted. Reconciliation to the nearest GAAP measures of all non-GAAP measures included in the presentation can be found within the tables detailing the reconciliation of non-GAAP measures to GAAP measures above. We have provided these non-GAAP measures to enhance investors' overall understanding of our current financial performance, and as a means to evaluate period-to-period comparisons. We believe that these non-GAAP measures provide meaningful supplemental information regarding our financial performance by excluding the effect of the release of income tax valuation allowances that may not be indicative of recurring core business operating results. We believe that the non-GAAP measures that exclude the impact of the release of income tax valuation allowances and deferred income tax expense recognized after the release of the allowances, when viewed with GAAP results, enhance the comparability or results against prior periods and allow for greater transparency of financial results. The presentation of non-GAAP measures is not intended to be considered in isolation or as a substitute for, or superior to, the financial information prepared and presented in accordance with GAAP.



Robust Capital Structure

(\$ in thousands, except share data)

June 30, 2021

Cash, Cash Equivalents and Short-Term Investments	\$733,454
Total Assets	\$1,350,715
Long-term Debt	-----
A/P and Accrued Liab.	\$37,581
Deferred Revenue	\$169,152
Shareholders' Equity	\$991,616
Total Shares Outstanding*	47,356,864

*Weighted average diluted shares used in computing net income per common share



Company Summary

Global OLED Materials & Technology Leader

- Lighting up the OLED Revolution
- License & Sell Proprietary Phosphorescent OLED Technology and Materials to Display & Solid-State Lighting Manufacturers
- Fabless Model; Partnering w/ PPG
- ~392 Employees (285 R&D, 119 PhDs); Largest Global PHOLED Team

Blue-Chip Customer Base

- Displays: Samsung, LG Display, BOE, Tianma, CSOT, Visionox, Sharp
- Lighting: Kaneka, Konica Minolta, Lumiotec, OLEDWorks, Sumitomo Chemical
- Working with over 25 Companies



Strong Financial Performance

- \$733M Cash, no debt*
- \$15.49 in cash/share*
- High Margin Business
- Lean Operating Model

**as of June 30, 2021*

Comprehensive & Robust IP

- Largest Phosphorescent OLED (PHOLED) Technology & Materials Portfolio
- Over 5,000** Issued & Pending Patents Worldwide and Growing

***as of Feb 10, 2021*