

## Poor Forecasts Aside, Printed Electronics Holds Promise

Written by Randall Sherman  
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**NEVADA CITY, CA** – The worldwide printed electronics market has been overhyped and inaccurately forecast for over a decade, and frequently confused with conventional semiconductor electronics manufacturing. Yet PE holds significant potential and is now starting to show real commercial promise, an industry research group says.

In a new report analyzing 40 unique PE end-user applications within 10 vertical industry segments, **New Venture Research** found that, in some cases, PE is creating a standalone market of its own, while in others it is displacing conventional semiconductor electronics.

### Worldwide Printed Electronics Industry by Market, 2012

#### PE Market Segments

Rev. (\$M)

PE Equipment

2,617

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PE Materials

3,278

PE Applications

3,840

**Total**

**9,735**

The goal of printed electronics has been to utilize common printing equipment found in the graphic arts industry, such as screen and inkjet printers, as the means of creating low-cost electronic devices. Because of the inherent efficiency of layering printed thin films, it is believed that large scale and continuous printed devices can be made quicker and less costly than with conventional photo-lithography and etching semiconductor electronics. Unfortunately, not everyone adheres to the same definition of PE as opposed to semiconductor electronics, hence the confusion. This report examines only those technologies that can be truly characterized as

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PE.

The conclusion of this research is that the PE market is not as large or as fast-growing as has been frequently touted. Yet many exciting applications are emerging, with growth rates from 2012-2017 projected to be as high as 125% CAGR in some cases or as low as 5% CAGR in others. NVR limits its forecasts to five-year windows because it is the only realistic growth-rate period over which technological change can be estimated with confidence. (Bottom line: the numbers should not overstate the opportunity.) Product applications are analyzed for both traditional contract electronics assembly and advanced PE manufacturing production.

Over 185 companies are profiled by PE market (equipment, materials, applications). In addition, there is a technology discussion of leading organic and inorganic thin films and other forms of printable circuits. For example, it is determined that OLEDs by PE are almost nonexistent, while photovoltaics by PE, with the exception of emerging thin film opportunities such as CIGS and CdTe, is limited to the unglamorous application of printing bus bar circuit paths. The transportation industry emerges as the most solid positive growth sector, being exploited by companies like **T-Ink**, while latent applications in packaging, medical and general PE (involving memory/logic/sensor/battery applications) are being developed by **Thin Film Electronics** and contract manufacturers like **GSI Technology**.

The market for PE is erupting on many fronts, as identified by our analysis of 40 market applications in descending order of growth rate over the next five years. This unique report takes a critical and realistic look at PE from a manufacturing and customer point of view, and gives the most honest and thorough picture of emerging PE opportunities to date.

For more information, see [newventureresearch.com/wp-content/uploads/2013/01/PE13bro-RS.pdf](http://newventureresearch.com/wp-content/uploads/2013/01/PE13bro-RS.pdf).