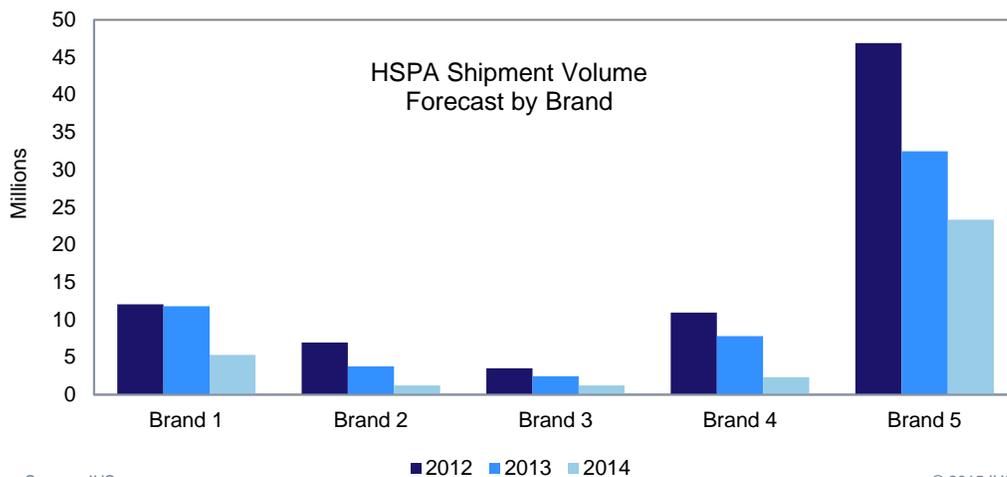




The IHS Design Forecast Tool (DFT) is an Excel-based program that enables operators, handset brands, technology suppliers, content providers, and investors to intelligently plot opportunities and accurately assess the challenging competitive landscape of the mobile handset market. The dataset includes forecasts of shipment volumes by feature for the Top 25 brands that collectively account for nearly 90% of the global market. Actual market data is used, and the forecast horizon extends to 2018.

Unique Forecast by Brand



Source: IHS

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Design start forecasts, model introduction forecasts, and feature volume forecasts are provided with the service. In the first, design starts for handset models are estimated in a forecast, based upon a handset model's introduction plus a lead-time factor. In the second, a variety of inputs are considered in order to determine the number of models to be introduced per company, feature penetration, and timing. In the third, primary research is employed to gather historical volume data, with information on feature sets employed to shape the forecast as well.

Key Issues Addressed

- For suppliers of products and services to handset brands
  - How many design windows are there for my product/service? How big is each one in volume? What is the timing involved?
  - Which brands will adopt first, and which ones will be ready for redesign?
- For handset manufacturers
  - What are my competitors' roadmaps?
  - What processes and relationships are they following to acquire design capabilities?
- For service providers
  - What are the roadmaps (from a third-party view) of current and potential handset partners?

Applicable To

- Service Providers
- Semiconductor Suppliers
- Handset Manufacturers
- Handset Display Panel Makers and Module Integrators
- Camera Sensor and Module Companies
- Passive/EM Component Suppliers
- Design/IP/ODM Companies
- Software Licensees

Measures & Update Frequency

- Shipment volumes for 25 brands; 2013–2018 forecast
- Forecast of handset market by brand and feature
- Updated in Q2 and Q4 each year

Feature by Brand

- Air Interface (including: GSM, GPRS, EDGE, CDMA 1x RTT, EVDO, WCDMA, HSPA, HSPA+, TD-SCDMA, Mixed 3G, 4G LTE)
- Display (primary, secondary, by technology, by resolution – example TFT/16M color/720p, OLED, etc.)
- Camera (primary, secondary, by resolution, by sensor type, zoom, autofocus, flash bulb)
- Advanced Camera Features including OIS, Flash and 4K video capabilities.
- Smartphone OS (Android, iOS, Windows Phone, Linux, BB, others)
- Connectivity (Wi-Fi, GPS, Bluetooth, contactless communications)
- Smart Features (input method, touch screen, motion sensor, fingerprint sensor)
- Storage (NAND memory density)
- Segments (smartphones in high, mid, low segments, feature phone and ULCH)

Other Global Feature Forecast

- Sensors and Biometrics
- Multimedia capabilities
- Multi-SIM
- Wireless Charging
- Water Resistance
- ASP (from below \$30 to above \$400)

## Lead Analyst

### Wayne Lam, Senior Analyst

Wayne is a senior analyst with the wireless communications team and is responsible for research related to the market tracking, forecast and supply chain analysis of mobilized devices. Prior to joining the wireless group, Wayne served as a hardware analyst within the renowned IHS Teardown Services team, focusing on mobile handset designs.

Wayne began his career as a process engineer at Intel Corp., starting with the 0.25um process technology through to the 300mm wafer manufacturing transition. He later took on the role of technical consultant at Symbian Inc., pioneering there in the smartphone operating systems space with leading handset OEMs. More recently, Wayne has worked with firms like Qualcomm and Aerovironment in developing new business models and opportunities after graduating through business school. His research has been featured in various articles in major newspapers and magazines, such as The Wall Street Journal, Bloomberg/BusinessWeek, and The Economist.

Wayne graduated with an MBA from the Marshall School of Business at the University of Southern California (USC). He also earned two engineering degrees from Cornell University and the Massachusetts Institute of Technology (MIT).

## About IHS

IHS (NYSE: IHS) is the leading source of information, insight and analytics in critical areas that shape today's business landscape. Businesses and governments in more than 165 countries around the globe rely on the comprehensive content, expert independent analysis and flexible delivery methods of IHS to make high-impact decisions and develop strategies with speed and confidence. IHS has been in business since 1959 and became a publicly traded company on the New York Stock Exchange in 2005. Headquartered in Englewood, Colorado, USA, IHS is committed to sustainable, profitable growth and employs 8,000 people in 31 countries around the world.

## Mobile Handset Brands

- Apple
- BBK
- BlackBerry
- Coolpad
- HTC
- Fujitsu
- Gionee
- Huawei
- Kyocera
- Lenovo
- LG
- Micromax
- Microsoft (Nokia)
- Motorola
- NEC
- OPPO
- Panasonic
- Pantech
- Samsung
- Sharp
- Sony
- TCL-Alcatel
- TianYu
- Xiaomi
- ZTE
- Others

## Forecast Methodology

The following factors were used to create the forecasts by brand:

- Global Market Factors
  - Operator technology choices, service plans, ROI
  - Roadmaps of major building block/ design suppliers
  - Looking for crossover points – the “no-cost” feature
  - Time-to-market trends
- Target Market Factors
  - Demographic preferences
  - Regional variations
  - Design vs. electronics-intensive features

### Company Portfolio Strategy

- Past tendencies in portfolio migration and product introduction
- Brand strength
- Future roadmap indicators
- Financial strength and R&D investment plans

### Research Methodology

- Primary and secondary Research
- Design IP houses and ODM relationships
- Brand design chain relationships
  - Teardown analysis
  - Design wins