



Technology Currents...

September 15, 2020

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You Gotta Know When to Fold 'Em...

A PUBLICATION OF
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"...I expect that the foldables market will capture 10%-20% of the premium product space within the next 2-3 years, influenced heavily by business buyers who are much less put off by the \$2K price tag and more focused on tools that increase their productivity... I expect this form factor will emerge as an important sub-category for virtually all the phone vendors to compete in....."

There have been multiple announcements of foldable smartphones of late that has initiated a debate about whether foldables is a real market or just an experiment. I expect that foldables will continue to progress and while not necessarily a form factor that will appeal to everyone, it is a solid and important form factor in high end smartphones today that will waterfall down to mid tier devices over time.

Recently we've seen some announcements of foldable devices that include multiple screens that increase the overall viewing area, but also keep the device slim when folded. Samsung announced its second generation Galaxy Z Fold 2 5G, with an ability to seamlessly move viewing from a smaller front screen when closed to a large double sized screen when open. And Microsoft announced its Surface Duo that features two side by side screens when opened that allow drag and drop between them. Both Android powered devices feature the ability to produce a large display area when open (7.6 Inches for the Galaxy Z Fold 2, 8 inch for the Duo). What's especially appealing to many is the ability to segment the display area to encompass more than one "app window" for multitasking. At \$1400 for the Surface Duo (4G only - no 5G, likely due to trying to keep the cost down, but this is a mistake in my opinion) and \$2,000 for the Galaxy Z Fold 2 (with future-proof 5G even if 5G is not currently available in all areas), these are not inexpensive devices. Others have tried foldables in the past with limited success (e.g., Huawei, Motorola), so will these become mainstream devices accepted by users?

With more complex apps being deployed on smartphones as they increase their computing capability and screen resolutions, users keep demanding bigger displays to interact with. Yet they also say they don't want massive Smartphones to carry around. So the only way to create a device for both requests is to go foldable. It may not be right for everyone, but it is a very real market need. Having a PC in your pocket should not require a pocket the size of a PC. And that's exactly the market these devices are addressing.

As our smartphones have become more PC-like, we expect more PC-like performance. These devices have high power processors, (Qualcomm Snapdragon 855 for the Duo, and 865 for the Fold) that can provide lots of app horsepower. These devices are capable of having side by side windows open with different apps running simultaneously, with an ability to drag and drop or

cut and paste between them. This is a normal situation when running apps on a PC, but has not been so with smartphones.

Multi-screen apps are still a work in progress for Google with Android, but they are critical to many productivity focused users. And the ability to have these devices connect directly to a Windows PC via Link to Windows and share apps and data is another key feature highly valued by this class of user. Despite years of predictions that the PC is dead, I don't see any indication that it is going away anytime soon.

"...if productivity is the driving force in making a purchase decision, I expect users to not be put off by high prices that might represent a barrier for a typical consumer. I ultimately expect foldables to be an important form factor going forward..."

Based on the somewhat different design targets, Microsoft Duo will probably appeal more to business users who are focused on Microsoft productivity apps, while Samsung Galaxy Z Fold 2 will also appeal to business users but have broader appeal and include high end consumers with social media and/or creator aspirations.

But is the high price acceptable to users for this class of device? Some are questioning if a \$2K phone will sell? We had this same conversation when the smartphones hit \$1K a few years ago and people thought they would be priced out of the market, but they sold very well. Buyers will spend if they perceive enough value (look at the success in the market for high priced laptops). So I don't expect the price to be a big barrier to adoption, especially since the price will drop over time.

I expect that the foldables market will capture 10%-20% of the premium product space within the next 2-3 years, influenced heavily by business buyers who are much less put off by the \$2K price tag and more focused on acquiring tools that increase their productivity. Indeed, while we are still fairly early in this form factor development, I expect this form factor will emerge as an important sub-category for virtually all the phone vendors to compete in, and I expect to see manufacturers continuing to innovate in this space, both at the high end, and at the mid tier as well. I expect that over several years, foldable designs, albeit much more basic than these initial offerings, will even make their way down into the lower end of the marketplace.



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Bottom Line: I expect the foldables market for smartphones to be an increasingly important and competitive market as users who value the increased screen real estate but don't want a super-sized device acquire them. While currently at the high end of the price range, over time, this form factor will become more affordable and the market will expand. Finally, if productivity is the driving force in making a purchase decision, I expect those users to not be put off by high prices that might represent a barrier for a typical consumer. I ultimately expect foldables to be an important form factor going forward, and one that will have derivative technology dispersed into other innovative form factors as well.