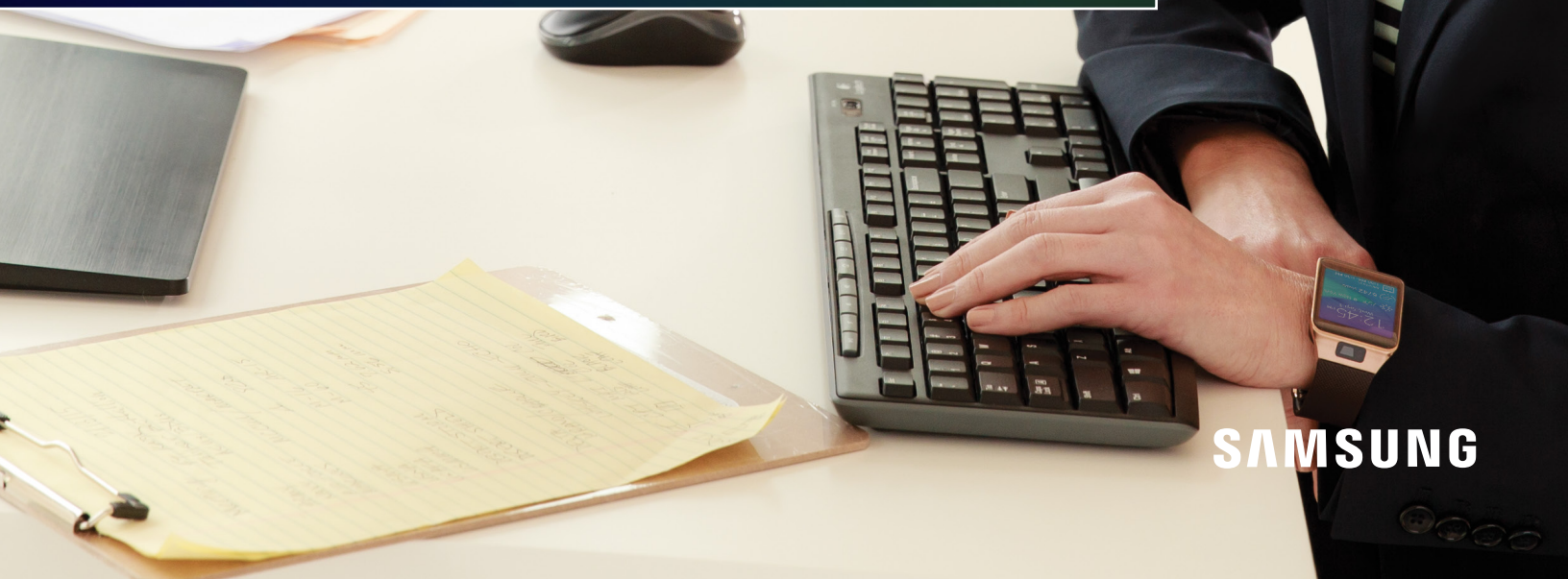




White Paper:

## MULTIPLE MONITORS IN THE MOBILE WORLD

Delivering Productivity and Health Benefits for the Mobile Workforce



**SAMSUNG**

# INTRODUCTION: A PRODUCTIVE ALTERNATIVE

With the technology landscape undergoing rapid transformation, businesses are reconsidering the best strategies for deploying desktop monitors to their employees.

On the face of it the decline of desktop computers and the rise of mobile PCs might seem to spell the demise of the

multiple monitor trend, which saw companies raise employee productivity by connecting two or more monitors to their PCs.

However, experts believe the need for multiple monitors to improve employee productivity and comfort will rise as the screens on mobile PCs become smaller and as new technology

developments — such as enhancements to Windows — make multiple monitors even easier to use. This white paper takes a fresh look at how businesses and organizations of all kinds can benefit from doubling down on desktop displays in an increasingly mobile world.

## MOBILE PCS ARE ESSENTIAL FOR BUSINESS

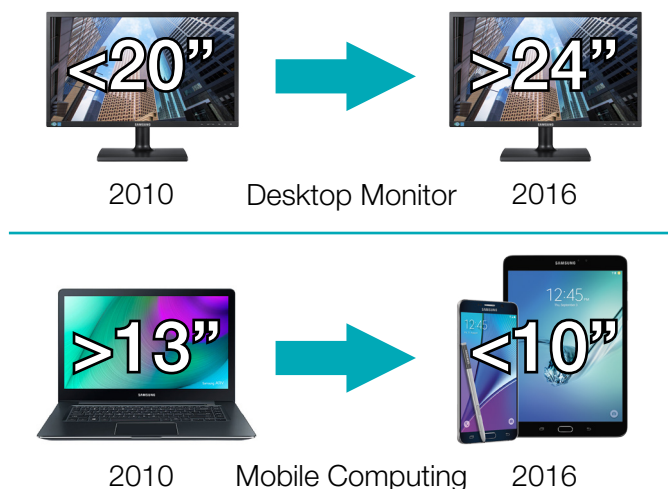
There's little question that mobile devices have become critical to how businesses operate. A report by Spiceworks, "The Rise of the Mobile Empire," found that while desktops still remain the primary computing device for most business users, mobile form-factors including laptops, tablets and even smartphones are rapidly replacing desktops in the workplace. The survey of 300 IT decision-makers found that more than 50 percent believed it was at least "somewhat likely" that mobile devices would entirely replace desktop computers, with a majority predicting that change would happen within the next 10 years.<sup>1</sup>

In the consumer world, Internet usage on smartphone and tablets exceeded PC-based browsing back in early 2014, according to data from comScore. Gartner predicts that, by 2018, more than 50 percent of users will go to a tablet or smartphone first for all online activities.<sup>2</sup>

The size of mobile computing devices continues to decrease, as does the size of the screens on those devices. A study from the research firm NPD DisplaySearch found that from 2010 to 2013 the average screen size on mobile PCs dropped from 13.6 inches to 12.2 inches.<sup>3</sup> Tablets typically sport screens of 10 inches or less, while even large-format smartphones have displays in the 5-6-inch range. While great for staying connected and effective on the go, these smaller screens have the potential to lead to productivity losses and health issues if used for extended periods of time.

A recent study in Britain found that adults on average spend nearly nine hours each day looking at a screen.<sup>4</sup> Many knowledge workers use mobile devices and desktop displays as part of their jobs and suffer no ill effects. However, overuse of small mobile screens or inefficient configuration of a workstation can result in eye strain, backache, or in some cases, repetitive strain injury. This whitepaper looks at the issues surrounding deploying monitors to your workforce and how multiple monitors continue to offer significant benefits in today's mobile world.

### Trends in Screen Size





# MULTIPLE DISPLAYS MULTIPLY

There are signs that many businesses are already taking steps to help employees have a larger viewing area on their work computers. Rhoda Alexander, senior monitor and tablet analyst for IHS iSuppli, noted that monitor sales of 179 million in 2011 far outpaced PC sales of about 130 million.<sup>5</sup> While several factors could underpin this data, it suggests that many people were buying more than one display for their new PCs.

Multiple monitors, which can also be used for mobile PCs, can make many common computing tasks easier:

- You can read the email related to a document while working on the document itself on the second screen

- You can have your CRM system open while you attend to other tasks that support sales
- A web designer can create a web page on one screen and view it on another
- The larger screens can be mounted, swiveled and rotated to share information with colleagues or customers
- A spreadsheet program can be spread across two screens, so you don't have to scroll back and forth to see all the rows and columns

"When you use dual monitors, you're not simply stretching the same content across the screen," explains Ramseen Evazians, product manager for commercial

displays at Samsung Business. "You are seeing more columns on a spreadsheet. You are seeing more content on maps. You are accessing more buttons and tools."

Because multiple monitors can eliminate the need to maximize and minimize windows, and toggle back and forth between different applications, you can work much more quickly and efficiently.

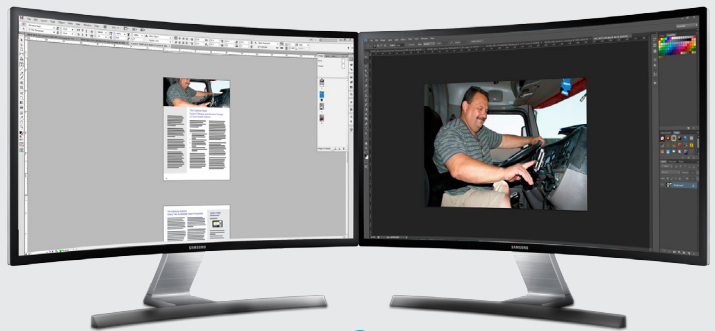
You don't constantly lose focus from switching between different windows. With the introduction of ultra widescreen monitors in an aspect ratio of 21:9, users can now replicate the multiple monitor experience on a single curved screen.

## Three Ways to See More



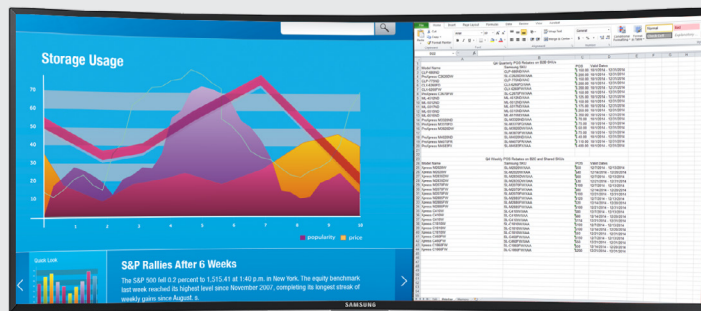
1

View a single image over two monitors



2

View an application on each monitor



3

Use an ultra-wide screen monitor with split screen

# PROVEN PRODUCTIVITY GAINS

A growing mass of research attests to the benefits of multiple displays in improving employee productivity. The 2003 landmark study in this area, Productivity and Multi-Screen Displays, conducted by the University of Utah, found multi-screen desktop configurations “significantly more useful” and “preferred on every measure of usability” when compared to standard single-screen setups.<sup>6</sup>

The study determined that using dual-screen monitors resulted in 33 percent fewer errors, 16 percent faster edits and six percent quicker access to tasks. The people who used

the multiple monitors also reported 45 percent easier task tracking, 32 percent faster performance and 24 percent more comfortable use than single monitor setups. “Respondents got on task quicker, did the work faster and got more of the work done with fewer errors in multi-screen configurations than with a single screen,” the study concluded.<sup>7</sup>

As such benefits become clear, Dr. Phyllis King, associate director of the Center for Ergonomics at the University of Wisconsin-Milwaukee College of Health Sciences, has seen “a lot more acceptance for multiple

monitors.” She says, “The studies have shown increased productivity from using dual monitors. A byproduct of that is more comfort, a better workload and a higher level of satisfaction and feeling of support in the workplace.”

How does this translate to the bottom line? Consider a Canadian hospital that found the 20 clinical coders in its Archiving Records Department entered records between 1.5 to 3 minutes faster with dual monitors. This saved the hospital almost \$6,000 per year in payroll, overtime, and other labor related costs.<sup>8</sup>







## TECH ADVANCES ENHANCE DUAL CONFIGURATIONS

The declining price of monitors makes the ROI of multiple monitors even more compelling. “Five years ago, a 22-inch monitor cost almost twice as much as it does today,” Evazians says. “The productivity savings an organization can achieve in deploying multiple displays can now pay for that upfront hardware investment much quicker. For a business, it just makes sense as an IT investment that can immediately benefit employees.”

Improvements such as energy-efficient LED backlit technology further enhance the quality and total cost of ownership equation for the new class of monitors. Importantly, the Windows

operating system has also continued to enhance and add features that support multiple monitor productivity with each new edition. From Windows XP forward, there has been support for up to 10 monitors from a single video card. Productivity tools in the Microsoft Office suite enable effective dual-screen workflows. For example, in PowerPoint users can edit slides on one screen and preview a slideshow on the other. In Excel a spreadsheet can be spread across two screens or two sheets can be compared side by side.

Windows 8 took this a step further, providing enhancements to simplify managing and using

multiple-monitor setups. For example, in Windows 8 the corners and edges of all screens are active, which means you can reach the start screen, app switcher and charms from any screen and don't have to drag the mouse across multiple displays.

You can also configure taskbar buttons where you want them, so you have fewer mouse movements between the different screens. There are also aesthetic improvements: Windows 8 allows you to assign different backgrounds for your multiple monitors without needing third-party tools.

## REDUCING HEALTHCARE COSTS

In addition to the productivity improvements, multiple monitors can play a key role in reducing employee healthcare costs. The ways in which people now use their work computers, and the types of computers they use, can contribute to a host of health woes. The smaller screens can lead to eye strain, and constantly clicking a mouse to toggle back and forth between programs can contribute to repetitive stress and carpal tunnel syndrome.

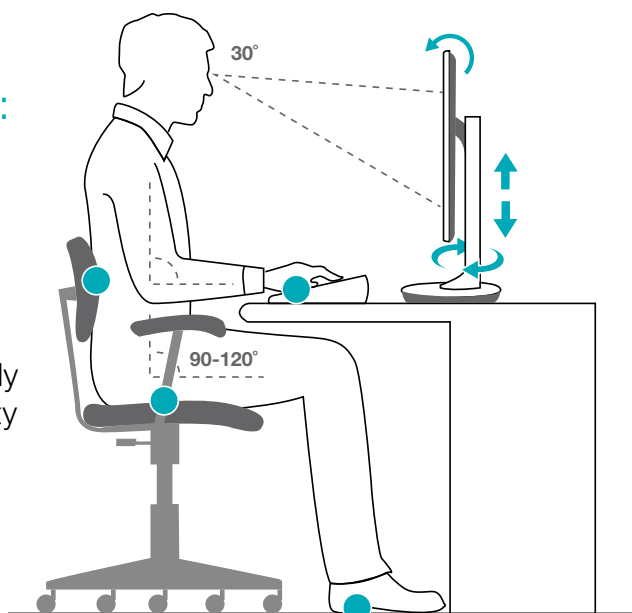
“People perceive a high level of mental stress with working on a single monitor,” says King from the University of Wisconsin-Milwaukee’s Center for Ergonomics. “They have more window switching, closing and opening of files, and resizing of graphics and documents on the screen. There just seems to be a

lot more multi-tasking when you use a single screen compared to using dual monitors.”

The cost to companies for the mental and physical strains exacerbated by small laptop screens is significant. Repetitive stress injuries cost American employers up to \$20 billion annually in workers’ compensation claims and more than \$100 billion in lost work, reduced productivity and rehabilitation time, according to the U.S. Department of Labor.<sup>9</sup> Some 20 to 30 percent of new workers compensation claims are related to repetitive stress, mostly in the form of carpal tunnel syndrome.<sup>10</sup> Employers suffer 20 days of lost work per claim, as well as the cost of hiring replacement workers and shifting work duties.<sup>11</sup>

## ERGONOMICS FUNDAMENTALS:

There is no universally-accepted “ideal” workstation configuration, but monitors mounted on adjustable stands clearly facilitate greater flexibility and comfort than working from a laptop.



## THE COST OF REPETITIVE STRESS INJURIES

**\$20 billion**

in worker compensation claims annually

**\$100 billion**

in lost work and reduced productivity

- Source: U.S. Department of Labor

“People perceive a high level of mental stress with working on a single monitor.”

– Dr. Phyllis King,  
University of Wisconsin-  
Milwaukee’s  
Center for Ergonomics

## GO CURVED:

Curved monitors, used in a dual configuration, create an immersive user experience. The curved screens also provide increased comfort, by equalizing the focal distance from the eye to the screen across the full expanse of the two monitors.



## A SOUND ERGONOMIC OFFICE

Multiple displays are an important part of an overall approach to creating sound, ergonomic office environments, says King. While mobile PCs are typically considered devices that are used “on the go,” many workers use them as replacements for desktops. A salesperson might be in the field most of the time, but an IT technician might well be using a laptop while sitting at a desk in the office five days a week.

For these reasons it’s important to take into consideration the type of work someone does on a mobile PC. “If you are working on a laptop for any length of time, I highly suggest a more dedicated workstation,” she says. “You should get an external keyboard, an external mouse and put the laptop on a stand so it raises the monitor to eye level. If you are hunched and looking down for a

long period of time, it can cause upper back strain.”

There is no universal, ideal position for the best monitor workstation configuration. Experts say the best position is dependent on the person’s size and the state of their eyesight. For these reasons monitors can come in several configurations that make it easier to place them for more comfortable viewing. For example, monitors can be mounted on brackets and rotated so you can view material in either portrait or landscape mode. With stands that are height adjustable and can pivot, users can quickly position them for optimal comfort.

This can also help maximize the use of desk real estate. The swivel stand lets users move the monitor easily and “the floating arms can be a great space saver. You can

show someone the information, turn the screen over and push it out of the way,” adds King.

The “mobile workforce” and mobile computing tools will increasingly dominate the small business technology landscape. It’s important to realize that the growth of notebooks, tablets and smart phones doesn’t mean that people need only one monitor at most workstations. Rather the ever-decreasing size of screens on mobile PCs can create inefficiencies, raise healthcare costs and drain productivity.

Multiple monitors — as part of a comprehensive office ergonomic strategy — can provide a significant ROI, and businesses should carefully evaluate this when making IT decisions.



# MULTIPLE MONITORS FOR MULTIPLE NEEDS

Samsung provides a wide selection of desktop monitors to meet varied needs for businesses of all types.

The stylish designs can be configured for the highest level of productivity while providing a high level of comfort. The key is to match the display to your employees' specific needs.

**High quality, lower cost.** Our SE450 Series provides an environmentally friendly, user friendly and budget friendly yet high quality desktop monitor solution for your business. The features include a simple and easy to use design, fully adjustable stand, matte black

bezel with clearly labeled buttons, versatile connectivity and a low-glare commercial-grade TN panel.

**Ahead of the Curve.** Our SE650C Series features Samsung's curved panel technology to provide a more comfortable viewing experience and less eye fatigue for your employees. It is also perfect for dual or multi-monitor setups, with the combined curvature amplifying the improved user experience. It is also environmentally friendly and offers a smooth, fully adjustable stand and versatile connectivity.

**Single display, multiple windows.** Our 34" Curved SE790 monitor creates a multitasking experience on a single wide display. The broad curvature, ultra-wide aspect ratio and high image quality of the 34" screen empowers employee productivity. See more columns of a spreadsheet with less scrolling, or open more applications at the same time—with equidistant viewing across your screen. Whether for basic office use, extensive analysis of data or editing codes, you'll be able to get the job done like never before.



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