

## Working from Home versus Working on Site

Timothy J Harrington, Navitas, Inc.

### ABSTRACT

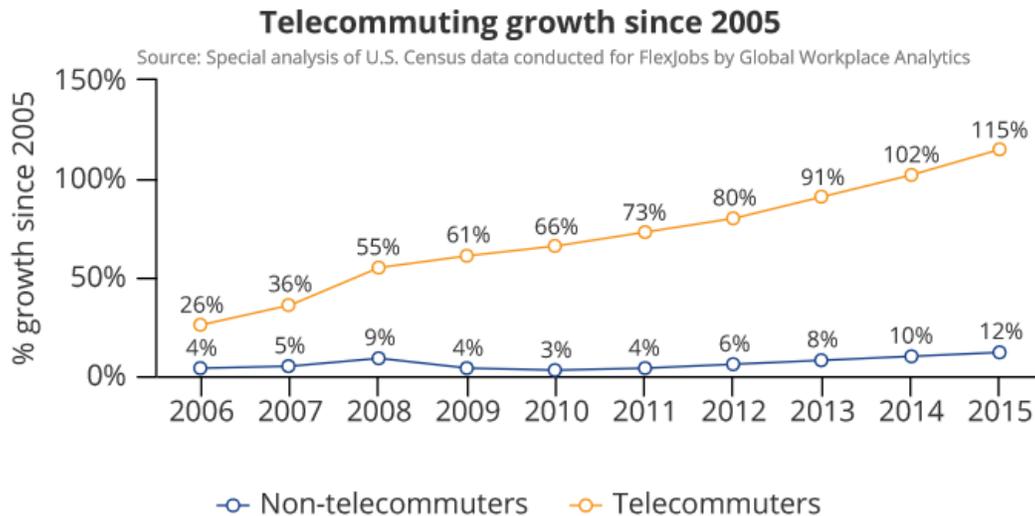
This paper is a discussion of the benefits and challenges of working remotely as opposed to working on site for an employer or a client. The primary issues addressed include communication, productivity, knowledge and skill sharing, financial considerations, health and well-being, and social and economic factors. The impacts of telecommuting are considered from the standpoint of each of the remote worker, their employer, and the environment and society as a whole.

### INTRODUCTION

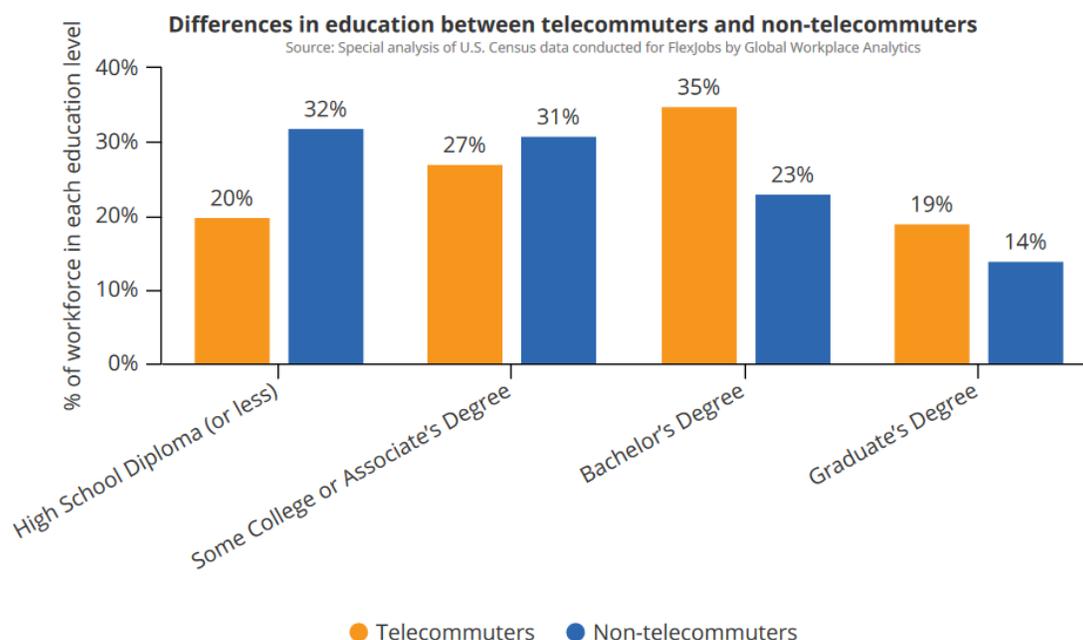
Telecommuting, or working out of a home office is now more popular than ever in the United States and elsewhere in the world. The growth of the internet and recent advances in technology have greatly increased the global bandwidth, data transfer speed, quality, security, and reliability, and have greatly reduced the cost of being remotely connected. Nowadays the term 'home office' is widely understood and builders are increasingly incorporating home office space with the needed wiring into new and renovated homes. Working from home is also receiving growing public support because of the environmental benefits of fewer people traveling. Whilst there are many benefits, for employees and consultants in particular, working remotely also presents its own set of challenges.

### FACTS AND FIGURES ON TELCOMMUTING

US Government and independent regional and national surveys during recent years all reveal the same conclusion: telecommuters are becoming an increasing proportion of all employees in both full time and part time employment. This recent analysis by Global Workplace Analytics shows the growth of telecommuting in percentage terms over a recent ten-year period.



Telecommuting has also experienced the most growth by employees with higher levels of education



## SUMMARY OF TELECOMMUTING TRENDS

Global Workplace Analytics published the following findings in 2017:

- Regular work-at-home, *among the non-self-employed population*, has grown by 140% since 2005, nearly ten times faster than the rest of the workforce or the self-employed.
- 4.3 million employees (3.2% of the workforce) now work from home at least half the time.
- Almost all of the growth in self-employment since 2005 is among the home-based incorporated businesses (up 43% for the past decade from 2005 to 2016)
- From 2015 to 2016:
  - The employee population as a whole (not including work-at-home) grew by 0.9%
  - The self-employed population grew by 2.4% (not including home-based) and the home-based self-employed population grew by 7.3%.
  - The telecommuter population grew by 11.7%, the **largest year over year growth** since 2008.
- Forty percent more U.S. employers offered flexible workplace options than they did in 2012. Still, only 7% make it available to most of their employees.
- Larger companies are most likely to offer telecommuting options to most of their employees.
- New England and Mid-Atlantic region employers are the most likely to offer telecommuting options.
- Full-time employees are four times more likely to have work-at-home options than part-time workers.

## **PREFORMING A JOB REMOTELY IS GETTING EASIER**

### **TECHNICAL ISSUES**

Since the dawn of the internet, mounting advances in technology have made telecommuting cheaper and easier. Faster line speeds and advances in security software such as the Virtual Private Network (VPN) have made on-line transaction processing fast enough and reliable enough for performing tasks such as editing and running code remotely at distances of hundreds or thousands of miles not just possible but convenient. Laptops and home office equipment are becoming progressively more portable, requiring less space, and can be purchased at an increasingly affordable price. The main cable service providers in the U.S. such as AT&T, Charter Spectrum®, Comcast, and Xfinity, all provide secure digital modem high speed internet access and email accounts.

## **THE EMPLOYEE WORKING FROM THE HOME BASED OFFICE**

### **TRANSPORTATION**

Undoubtedly, one of the greatest conveniences of working out of a home based office is the absence of a daily commute. Findings by the US Census Bureau revealed the average American worker has a one-way commute time of 26 minutes. A recent survey by ABC News found the average commute distance by private motorized transport or public transport is 16 miles. When working from home workday mornings are less hurried and the evenings have more free time for family and personal activities. During the winter months especially, not having to walk, ride a bus or train, or drive alone in the dark, cold, and wet or icy weather is a big benefit. Roads are most likely to be icy at the time of the morning commute. Travelling in extreme weather such as flooding, blizzards, or dangerous cold or heat, is avoided. There is avoidance of traffic congestion, road construction, railroad crossings, and the hassle of finding a parking space. Neither is there the opportunity to forget to bring something important to or from the workplace or lose such an item in transit. Personal safety is greatly improved, statistics show that the highest risk time for a vehicle breakdown or involvement in a road traffic accident is greatest between 8am and 9am, and again between 5pm and 6pm on weekdays. Having to travel at specific times means the weather cannot be allowed for. There are also significant financial savings – lowering the cost of working, for most people commuting is the single largest expense of having a job after payroll taxes.

Although the absence of a commute is liked by the vast majority of telecommuters most of the time, there are a few who miss the bike ride or jog on sunny mornings or the chance to share the morning ride with co-workers or friends.

### **FINANCIAL**

Virtually all telecommuters would agree that biggest boon is the savings on transportation costs. For those who use their own motorized transport there are the savings in fuel. Non-electric and non-hybrid cars are particularly inefficient in fuel use because of starting a cold engine, driving at low speeds, and stop-go traffic. Commuting is also hard on batteries, tires, wiper blades, brake pads and rotors, exhaust systems, belts and hoses, and a whole host of other vehicle components. There are more frequent oil changes and other scheduled and non-scheduled maintenance requirements. An unseen, yet very significant cost, is increased mileage and depreciation, for example a ten-mile commute adds 100 miles per week, allowing for holidays, vacation, and sickness, that equates to about 4,500 miles each year, taking the current IRS mileage reimbursement rate of 54c per mile, the extra cost amounts to around \$2,430 annually. For some there are also road, bridge, and tunnel tolls, and perhaps parking fees. Then there is the increased cost of insurance, especially for younger drivers, since a higher accident risk or a history of an accident whilst commuting translates to higher premiums.

For those who use public transportation there is the bus or train fare, daily, weekly, or monthly, or that annual season ticket. The initial purchase of the first season ticket when starting a new job is a major financial issue, particularly after graduating college or after a period of unemployment.

The full time telecommuter is also able to choose where they can be resident without being tied to their employer's location, they can move to or stay in an area where taxes and living costs are lower. In many

large cities home prices and rents are higher based on proximity to a subway station and the city business district.

Transportation is not the only area of financial savings. For women, in particular, not having to buy as many clothes or suits is an ongoing saving, as is less money spent on shoes, hair styling, makeup, and jewelry. Fewer changes of clothes also reduce laundry costs.

Although not having a commute is a huge saving, some costs of working at home are increased. Examples are having to subscribe to a higher speed internet service, home utilities such as heat and a/c, power for the home office (including 'standby power' when equipment is turned off), and water (and water heater, water softener, and dishwasher use). The telecommuter must provide their own cups of coffee and use their own sundry items such as toilet paper. Eating lunch at a nearby restaurant is almost always more expensive than eating at a staff cafeteria. Homeowners insurance premiums may be higher to include protection against loss of the use of the home office. Then there is wear on personal equipment and furniture and the need to upgrade equipment, such as using a higher speed router, to keep pace with the technology. However, quite often, the employer will provide at-home office hardware such as a lap top, and periodically replace it, with a more up to date versions of Windows and other software.

There may be initial one-time home office set up costs too. These include purchasing needed furniture and purchasing or upgrading equipment not supplied by the employer. There may be a need for an electrician to install extra outlets and lighting, in older homes old two pin sockets need to be replaced with three pin grounded outlets. A surge suppressor is needed to protect electronic equipment. If there is no existing air-conditioning it will be need to be installed for working on hot summer days.

## **CLOTHING AND ATTIRE**

Personal appearance is less important when the interactions with others are not visible, except through the PC camera when interfacing with applications such as Skype® or Google Hangouts®. For this reason, good personal presentation is still important, and putting casual business attire on instead of continuing to wear pajamas on the morning login is a good motivator for starting a productive work day. Hair, makeup, and facial presentation, including healthy white teeth, is especially important, as is posture and attitude. Sitting up straight and looking bright and alert in front of the PC or cellphone camera is always a winner. The décor and tidiness of the home office matter too, including what is pinned up on the walls and the neatness of the desk and absence of background noise.

Generally, working at home means buying fewer clothes, and less expensive clothes, and not having to wear heavy winter clothing or to bring clothes to change into after biking to work. Less clothing also means less laundry and dry-cleaning.

## **HEALTH**

The common cold, influenza, and minor gastrointestinal diseases spread where crowds of people live or work together. Most of us have been infected with a bug (or a biological virus) from our co-workers or a family member's co-workers. Figures published by the Bureau of Labor and Statistics show the average employee takes five unplanned sick days every year at a cost to the U.S. economy of around \$250 billion annually. Working at home reduces the opportunity for illness to spread from person to person, so the employee working alone in a home office is less likely to catch such an infection, and hence avoids the misery of being unwell and is able to remain productive. Even if a telecommuter feels somewhat unwell they may still be able to work if symptoms are mild because of not having to leave the comfort of their own home and knowing they cannot infect their peers. However, working at home is not a reason for not maintaining good personal hygiene or not having an annual flu shot.

Aside from infectious diseases there are other health issues such as sitting at the same desk in the same chair for several hours each day, sitting with good posture, and taking breaks. The telecommuter has a greater responsibility for managing their workday physical and mental health than an office worker who has to leave their desk to attend meetings and chat with co-workers and can eat lunch with others in a cafeteria.

## **CONNECTION RELIABILITY**

On-line service today is very reliable but it is not without its occasional problems. Extreme weather events such as severe thunderstorms, high winds, heavy snow, and ice storms can, and sometimes do, result in power outages or internet service outages, which can last for several hours or even days. Power supply disruptions and voltage spikes (so called 'dirty power') can, over months and years, cause cumulative microscopic damage to integrated electronic circuits and semi-conductors, ultimately causing equipment failure. To reduce this likelihood, the use of a local surge suppressor is strongly recommended. Some homes nowadays have whole house surge protection built into the electrical service panel (breaker box). In older homes with non-grounded outlets (two pin) a grounded three pin outlet must be installed for a surge suppressor to work.

There are also public Wi-Fi hotspots in places such as hotel lobbies, cafes, libraries, restaurants, and airport lounges. The problem with such public systems they may be unsecured and easy targets for hackers, keeping information private is much more difficult, hence working using a public network, or other unknown network is not recommended.

## **COMMUNICATION**

Physical isolation and geographical separation are both good and bad. There is separation from office politics, gossip, and background chatter, but the lack of face to face interaction is a challenge. There is no opportunity to walk a few yards to a co-worker's cube or office to ask for advice or clarification. Body language and non-verbal communication are lost, or even when video interaction is used, it is much less discernable than being in the same room as the other person, or group of people. However, on-line tools, such as Skype, Google Hangouts, and Microsoft Meeting®, even with their limitations, are a vital link.

When email is used there is a permanent written record and attachments and photographs may be sent to seek response or explain a point. Care should be taken to ensure emails are sent to the right recipients and an appropriate subject line text is used. When receiving an email, attachments and links must not be clicked on unless the person receiving them is expecting them. (See the 'On Line Hazards' section below).

The telephone, whether a land line or cellphone, is of course always available. Long distance calls are now inexpensive or free, even international calls are very much cheaper than several years ago. The quality of phone lines has also improved with less background noise and fewer dropped calls. The advantage of voice calls is they are live and direct, and if the person being called is not available, their voicemail usually is. Unless a call is being recorded there is no permanent record of the conversation, but a professional sounding telephone manner is just as important as when interacting face to face. Having a phone available in a home office is not just convenient, but an essential part of telecommuting, in fact many telecommuters have separate lines for work related and for personal calls. Receiving unwanted phone calls, such as calls from telemarketers and robo-calls is an annoyance, whilst such calls can never be stopped, registering with the national 'Do Not Call' registry and black listing or blocking unwanted numbers does help.

A particularly useful on-line tool is a meetings application such as Microsoft Meeting, or a 'chat group' application such as Skype or Google Hangouts. These applications allow a participant's screen to be shared and permit open conversation, however, slow line speeds and background noise including echoing can be a distraction, though the quality of such services is continuing to improve. Muting a phone line when listening reduces echoing and background noise and can be used to hide noises such as coughing and sneezing.

When team members are spread out over large geographical distances, time zones, differing work schedules, spoken languages and accents, and differing cultural norms are an important factor to consider. When workers are distributed internationally a project can be worked on for 24 hours each day when there are always some team members on duty, who can smoothly transition the work on to others logging in as they log off.

## ON-LINE HAZARDS

The internet for all its convenience and many benefits does unfortunately harbor many hazards including:

*Malware.* Malicious software installed from a bad source such as a link in an email or a website with a slightly different spelling from the one intended to be accessed. Such software can steal personal information and passwords.

*Spyware.* This gets onto a user's computer or cellphone in a similar manner to malware, except it is more of an annoyance than a danger, it often causes SPAM emails, annoying pop-up advertisements, and slowed down performance.

*Ransomware.* This is also similar to malware except it locks the user's computer, or blocks access to certain files. Access is only restored (so the perpetrators say) if a financial payment (e.g. a sum of bitcoins) is made.

*Phishing:* This is emails sent to extract information from the user. Such emails look like they were sent by a legitimate organization (or even the user's employer or client) or from a friend or family member but they contain malicious links or attachments. Such fake emails may appear as friend or connection requests supposedly from Facebook, Twitter, Linked-in, or be requests to 'update your account'. The rule is to never click on anything in such an email but, instead go directly to the website concerned or contact the purported sender to see if the email is legitimate.

*Invasion of Privacy.* Even when the PC or phone camera and microphone are turned off hackers can still gain access. At best they may simply eavesdrop, at worst they could see a password being typed or hear it being mentioned. Worse still, there are horror stories such as revenge pornography. The best solution is cover the camera or close the laptop when not being used and to leave the PC in the home office, and behind a closed door, and to always be aware of such dangers.

There are also *phone hazards*, such as calls claiming a user's computer has a problem and the caller needs access, or 'medical records need updating'. Such scammers, or 'social engineers' are, unfortunately becoming ever more skilled and deceptive. Caller ID cannot be relied on because scammers can fake it so it looks like a call from a legitimate organization or a friend or family member. Many phone scammers cause much annoyance by using robo-calls to call large numbers of people repeatedly. There is also a risk of a legitimate call being lost if that caller attempts to call at the same time a telemarketing or robo-call is being attempted.

The best rules for not becoming a victim is make sure the employer's virtual private network (VPN) is running and their anti-virus software is installed and up to date, and to always be on guard. Two stage authentication using a user-id and password and then a code sent to a separate phone app should be the norm for connecting with a VPN. Hackers will often search social media for information about a potential victim, so keeping a low profile on social media is strongly advised. Suspicious emails should be deleted (and reported to the IT department) and links should never be clicked unless the recipient knows exactly what they are and who the sender is. Unwanted calls will be decreased by not entering sweepstakes and public prize drawings, using only a few reputable commercial websites, adding the phone number to the National Do Not Call Registry, and not answering unexpected and unfamiliar callers.

## LEARNING AND TEACHING

Formal training can be performed well on line, courses can be studied and replayed, screen prints and pages can be saved or printed. On-line meetings present opportunities to ask and answer questions and share ideas, this is never as good as face to face interaction, but good enough so travelling on site and all the associated expenses are avoided.

Learning does not only consist of formal training but of being observant. In a traditional 'open plan' office much can be learned by seeing and listening to what others use, do, and say (without eavesdropping), and there are plenty of different people with differing knowledge sets to whom questions can be addressed. Anyone with a new idea is able to easily share it. For the home office worker, physical and geographical isolation make such interactions much more difficult, though email and instant messaging do help, as does having an on-line data base accessible to all team members for sharing and saving ideas and samples of SAS code.

## **ON-SITE VISITING**

To minimize travelling expenses, on site visits should be kept to a minimum, but on occasions face to face interactions on site are beneficial or necessary. Sometimes there is a regular, or an ad-hoc on-site meeting or training course. A few days spent on site often result in much learning and familiarization with people and procedures. Improved communication aids productivity. However, when co-workers from many different geographical locations travel to an on-site gathering, varying travel times and the limited number of available lower priced flights from local airports make logistics more difficult and increase the likelihood of one or more team members being delayed (e.g. severe weather in that person's home town) or unable attend.

## **JOB PERFORMANCE**

When working alone from home self-discipline and motivation are all the more important. When there is no drive or train to catch there is the temptation to 'lie in' longer. There is still very much the need to be proactive and accountable by responding promptly to emails and phone calls, joining conversations, asking questions, making suggestions, providing the client and team members with regular progress reports, and delivering required results on time. The telecommuter, being detached from their team members and team leaders, can easily become a passive bystander rather than an active participant. The use of an employer sponsored blog site is recommended for sharing ideas and suggestions. Attending conferences and industry related events and presenting papers and new ideas is an escape from the confines of the home office and an excellent way to be seen as an active participant. Many organizations help this by sponsoring employees to present papers and appear at regional and national events. Another way to be proactive and add variety and interest as a telecommuter is to join a SAS Users' group, such organizations are excellent for comradeship and for learning and teaching new ideas and techniques.

However, there is one major advantage to working in isolation, and that is keeping concentration on the task in hand. There is no casual chatter about non-work related issues, or interruptions from co-workers.

A second advantage is the natural partitioning of parallel streams of work which should not interact with each other. An example is QC programming where a SPA and QC programmer each produce a program from copies of the same specifications using the same input data and then compare the output results. When this 'independent programming' methodology is employed the SPA and QC programmer must not see each other's code.

The telecommuter can also get away with more non-work related web surfing, but this is not all bad because useful job-relevant information, such as news about the latest pharmaceutical merger, can be learned. Most telecommuters know their employers may be monitoring their web surfing activity – at least while they are connected to the VPN.

## **CONFIDENTIALITY OF INFORMATION**

The telecommuter must also be trusted with corporate and client information, including keeping such information confidential, not using it for personal gain or malicious purposes, and keeping information safe on the laptop, cellphone, the Cloud, or other storage. Even when a file is deleted the data is still present on the storage media until it is overwritten, deleting only removes a file from a directory and marks its storage space as available for other use. Any printed material should be shredded or burned when it is no longer needed.

Information should only be shared with anyone on a 'need to know' basis in order to perform their duties. This happens more naturally when workers are geographically separated.

## **BLENDED PERSONAL AND COMPANY TIME**

A home office is certainly a convenience, but by the same token, it also means being on call 24 hours a day and at weekends and even holidays. This is good for planned overtime, but even when not officially on call emails can appear in the inbox, which need attention. However, having the convenience of an on-line home office means an urgent request can be immediately taken care of, or a sudden good idea be suggested while still fresh in the mind at any time.

## **DISTRACTIONS AND INTERRUPTIONS**

Distractions are always a problem. Robo-calls, the dog barking, having to take a package at the front door for someone, then there is seemingly always a noisy machine hammering, scraping, and bleeping a block or two down the street. A separate office away from these distractions is highly recommended. A pair of noise cancelling headphones will reduce background noise.

## **CO-WORKER INTERACTION AND OFFICE EVENTS**

One of the disadvantages of working remotely is the inability, due to travel time and cost, to attend corporate events such as an annual Christmas party, and the telecommuter misses out on any in-office perks such as free massages. Neither is there the opportunity for after work socializing with co-workers. One of the complaints about telecommuting is it increases the facelessness of people and organizations and contributes to the 'cocooned society'.

## **TAXES**

There is a home office tax deduction, in order to claim it there must be a written document from the employer stating the employee is required to work from their home. The 'home office' must be just that, a room or part of the home used exclusively for working for the employer. The basic home office deduction is currently a flat rate of \$5 per square foot up to a maximum of 300 square feet (\$1500), but this is only available when claiming itemized deductions, as opposed to the standard deduction. A larger home office tax deduction may be claimable, but the process is somewhat complex, involving depreciation of assets employed, rent or mortgage payments, property taxes, and utilities. Many of these items have to be pro-rated based on the proportion of the livable floor area occupied by the home office and the percentage of time the home office is used exclusively for work purposes. Equipment and stationery are tax deductible, but again, only if they are used exclusively for work purposes, unreimbursed travel expenses for attending work related activities such as conferences are deductible as well, but only the portion of all of these combined deductions that exceeds 2% of total adjusted gross income is deductible as home office expenses. Due to the increased complexity the cost of tax filing is likely to be higher for both Federal and State (and where applicable local or city) taxes so a professional tax preparation service (CPA) is highly recommended. Taking more and larger deductions also increases the likelihood of an audit. Another tax complexity arises when relocating in another state, a tax return must be filed for all states involved and relocation costs are only deductible if the move is deemed as new employment after a period of involuntary unemployment, or a job requirement, for example being within easy travelling distance of a client site.

## **REMOTE WORKER WITH A DISABILITY**

For workers with physical or well controlled mental disabilities, or who are visually impaired, or hard of hearing, not having to leave the comfort, safety, and support of home is a very major benefit, not only for the disabled person but their caregiver(s) too. In-home facilities, assistance, and medication are always close by. When filing taxes, any items which the person needs, because of their disability, in order to work, are not subject to the 2% minimum when claiming the home office deduction. However, a recipient of Social Security disability payments is limited as to how much they can earn without losing their benefits.

## **TRAVELING**

During recent years, home office equipment has become ever more portable. A lap top computer is easily stored on the back seat of a car or in the overhead bin on an aircraft. Telecommuting may be performed 'on the road' in locations such as a hotel room, hotel foyer, restaurant, airport lounge, or from an aircraft seat. When travelling by car texts and phone calls should only be made, looked at, or answered when not actually driving – according to the National Highway Traffic Safety Administration (NHTSA) distracted driving caused over 3000 fatal accidents and over 400,000 accidents causing injuries in 2017.

When using public Wi-Fi a very important point to remember is such networks may be unsecured and are an easy target for hackers, for this reason a VPN must be used and working in open public spaces is generally not recommended. When traveling, care should be taken not to leave equipment exposed to

weather or strong sunlight or inside a vehicle without air conditioning in hot weather. Heat can melt and deform materials such as plastic and can damage sensitive electronic circuits. Cold can freeze printer ink and cause condensation on items when brought indoors (some electronic items have a dew point indicator light)

## **RELOCATION**

Working from home allows movement from one home to another, to a preferred neighborhood, county, or state without the worry of how the move affects a commute. Hence a telecommuter can easily relocate to an area with lower property taxes and improved schooling for their children.

One of the greatest benefits of working from home is when the telecommuter moves into a new house or apartment the office moves too and there is no longer a need to set up new phone numbers or email addresses. Only the postal address changes. As far as co-workers and clients are concerned the telecommuter's geographical location is unimportant. However, the office equipment must also be transported, though this is not usually a significant problem. Factors to consider when moving between states are time-zones and local tax laws.

## **TRANSITIONING INTO RETIREMENT**

For older employees, working from home is a good way to make the transition from a life centered around work to a life centered around leisure. The telecommuter is able to slowly adapt to being based at their home and being responsible for their own time management instead of going through such a life change all at once. In many cases the number of working hours may be slowly reduced over many months from full time, to part time, to as needed, to full retirement. Having an existing home office and a network of former colleagues is a good starting point for beginning a second career or starting one's own business based from home.

## **THE EMPLOYER OF THE REMOTE EMPLOYEE**

An employee working at home has several advantages for their employer, including:

### **FINANCIAL**

*Office Space:* Savings in office floor space, and hence savings in rent, utilities such as heating and cooling, and property taxes. In recent years long distance and international phone calls have become very much cheaper, so higher phone charges are no longer an issue.

*Relocation of Office:* The employer can move locations and open and close new offices without affecting remote workers. The only issue over longer distances is time zones.

*Relocation of Staff:* For new-hires and employees who work with different clients in different geographical areas the huge inconvenience and expense of travel due to relocation is avoided.

*Fewer Services:* A smaller in-office head count means less spending on side perks like coffee and snacks. A staff cafeteria may not be needed.

### **PROTECTION AND SECURITY**

*Less vulnerability to common point failure:* The geographical decentralization of workers means there is less of a single point of failure due to an extreme event such as fire, earthquake, flood, or tornado. If one remote employee suffers such a destructive event the rest of the organization can still function, but if everyone is at that same location there is a total loss.

*Reduced incident risks:* There is also a lower risk of accidents, allegations of harassment and sexual discrimination, and accidental or malicious damage. Less risk means lower insurance costs and a reduced likelihood of law suits.

*Confidentiality:* Information is naturally partitioned by employee based on the 'need to know' principle

## ATTENDANCE AND PRODUCTIVITY

*Less tardiness and attendance issues:* Productivity is not lost because of traffic delays and inclement weather, though internet connections and power outages do occasionally cause problems for remote workers.

*Less sick time:* Not having crowds of people together in an office (or commuting together on a bus or train) means less illness is transmitted and there is less likelihood having several employees being off work sick at the same time.

## STAFFING AND PERSONNEL ISSUES

*Lower Staff Turnover:* When employees are not tied to a specific job location they do not have to leave their job to move to a less expensive area to live in or a location with a preferable climate, or because their spouse lands a job in another area. Employees who feel comfortable working from home are more likely to want to stay in that situation, whereas office environments and co-worker interactions periodically undergo changes – perhaps not to the employees' liking. Replacing skilled and knowledgeable staff members who leave is very expensive because of recruitment agency fees, training, possible loss to competition (even when there are non-compete agreements), and the always present a risk of a new hire not turning out to be as expected.

*Less office politics:* Reduced gossip, rumors, non-work related interaction, personal conflicts, and clique formation.

*Cleanliness:* An uncrowded, neat and tidy work space is also a safe workspace and sets a good first impression to prospective clients and prospective new-hires. Such people can be given more individual attention, without distractions and background noise.

## SOCIETY AND THE ENVIRONMENT

Telecommuting has, perhaps, not been encouraged by governments because of the potential loss of revenues from fuel taxes, tolls, and public transport fares. There is also much politics regarding the justification for new roads and other transport infrastructures.

Fewer people driving to and from their workplace means less traffic on the roads. This in turn results in fewer traffic hold-ups, less congestion, and less polluting and climate changing vehicle emissions (e.g. unburned hydrocarbons, carbon dioxide). Start-stop slow moving traffic is very fuel inefficient. Smog dirties vehicle air filters making engines even more polluting. Studies have shown slow moving congested traffic is the biggest cause of poor air quality, hence a small reduction in traffic congestion results in a large improvement in air quality. Less traffic is likely to result in fewer road accidents and cause less road rage. Reduced wear on roads and road surface damage (e.g. potholes), and on bridges and structures saves money for local tax payers. Bridge and tunnel reconstruction is particularly expensive. However, most road surface wear and damage has, over many years, been shown to have been caused by large and heavy vehicles rather than by smaller privately owned vehicles.

## CONCLUSION

Continuing advances in technology, decentralization, and globalization are likely to result in an even higher percentage of workers working remotely for an increasing diversity of industries and professions.

For the individual worker, the convenience and personalization of their own workspace and being required to perform duties for differing clients in different geographical locations, working at home, at least part time makes good sense.

In the longer term advances in robotics will more likely than not allow many new hands-on tasks besides typing, using a telephone, and using a computer mouse to be performed remotely.

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## ACKNOWLEDGMENTS

The author would like to express gratitude to the following for their assistance in reviewing this paper: Jeffrey Dickinson, Sharon Hall, and Kathy Greer at Navitas, Inc. 215 West Philadelphia Avenue, Boyertown, PA, 19512 | 610.970.2333 | info@dataceutics.com. Richann Watson and Josh Horstman, PharmaSUG 2019 Academic Chair, at [AcademicChair@PharmaSUG.org](mailto:AcademicChair@PharmaSUG.org)

## CONTACT INFORMATION

Your comments and questions are valued and encouraged. You may contact the author at:

Timothy J. Harrington  
Navitas, Inc.  
1610 Medical Dr, Suite 300  
Pottstown, PA 19464  
Office: 610 970 2333  
harringt@dataceutics.com  
[www.dataceutics.com](http://www.dataceutics.com)

DataCeutics was acquired by Navitas Life Sciences in March of 2019

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