Community Commerce Centers:
The 21st Century Workplace

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Today, there is one epoch-making idea that is transforming how we conduct business. It will change business irrevocably, yet most businesses have yet to perceive it, let alone understand it or adopt it. The idea is electronic business, often known as e-business. The 'e' will soon be dropped and e-business will be business as it comes to be generally understood. (Patrick King and Joe Clift - Financial Times, 1999)

Management Overview

Community Commerce Centers provide a systemic solution for the problem of reducing the energy cost of getting workers to their workplace, which reduces greenhouse emissions while also reducing taxes that would otherwise be used for infrastructure construction and the cost of reducing roadway congestion. In addition, Community Commerce Centers provide the opportunity for increased growth in commercial and residential construction not only in larger metropolitan population areas but also smaller population areas. Employers using Community Commerce Centers can reduce their cost of providing a workplace for employees and reduce recruitment and relocation expenses while increasing employee productivity, morale and retention. In addition, employers create carbon credits through their participation with Community Commerce Centers because the Community Commerce Center system would qualify as a carbon project. The environment further benefits from the use of green building standards specified in the construction of new Community Commerce Centers and the conversion of properties for use as Community Commerce Centers. Individuals working within a Community Commerce Center environment reduce their daily commute, which provides savings in fuel costs, reduce the stress associated with longer commutes, increase productivity on the job, and increase time with family. In addition, Community Commerce Centers provide additional resources for workers such as on-premises food service, daycare, exercise facility, walk-in clinic, and learning center. Community Commerce Center implementation creates an opportunity to not only significantly improve the workplace environment for workers while affording them with a much shorter commute, which produces a significant fuel savings that contributes to a reduction in greenhouse gases but also in opening Community Commerce Centers thousands of new jobs are created, which could very well recession-proof the world economy for at least the next two to three decades.

Background

Throughout history the introduction of new technology has played an important part in the transformation of social institutions. Technology and economic development in the twenty-first century makes it increasingly important to recognize and appreciate the fact that mankind and its social institutions must keep pace with the ever increasing rate of change. The impact of technology as a social change factor increases at a rate very similar to what happens when a bellows is pressed together. If the number of folds per unit distance is compared to the relative impact of increasing technology and the rate at which the bellows is compressed is compared to the rate of increasing technology, then it is easy to visualize that the impact of technology increases at a rate that gives a society an ever decreasing time interval to respond to the change. Since the early 1980s with the launch of personal computers the rate of change has increased significantly, and society has had an increasing difficulty in keeping pace with the changes. The number of new devices made available to society over the last two decades of the twentieth century and the beginning years of the twenty first century is incredible. Each newly introduced device has had an impact on society and given rise to new technology linkages between the growing number of devices and device types. Beyond the physical impact each newly introduced technology has on society there is a linked complex social impact generated. The linked social impact produces what may be fundamental and far reaching social changes in the society as the new technology is integrated into the culture. Each of these new technology linkages further complicates society's ability to adequately respond to the changes.

The traditional response to the introduction of new technology has virtually always been to make an attempt to integrate the new technology in a way that treats the new technology simply as a replacement for an existing technology. One fairly recent example is the introduction of the personal computer in the business office. The personal computer became a replacement for the typewriter, and was used only by personnel that would have a typewriter on their desk. In other words, individuals that would not want to be seen using a typewriter would not want a personal computer on their desk. In a matter of a few years the culture of the workplace changed to enable placement of a personal computer on virtually every desk, but in terms of the magnitude of the numerous other changes introduced over the same period of time the relative length of the transition period was overly long. The point is that it takes a period of time for society to recognize "non-traditional" uses for the newly introduced devices and technology. The closest analog to this phenomenon is in the field of marketing where the term "perceived buying procedure" originates.

Briefly defined, every buying decision is based on a perceived buying procedure that is applied without thinking. There are different perceived buying procedures for different products and services. For example, the perceived buying procedure for the purchase of an automobile is much different than the perceived buying procedure for the purchase of a suit or shoes. Where the perceived buying procedure concept provides an analog for what happens with the introduction of new technology is that when a new product or service comes to market there is no established perceived buying procedure for buyer and seller to use. In such cases both buyer and seller must rely on a perceived buying procedure they have previously used for the purchase of another product or service. Confusion develops when buyer and seller apply different perceived buying procedures, which can create problems for both buyer and seller. In such cases, the absence of good communication causes both frustration and potential for loss by both buyer and seller. Over time buyers and sellers collectively establish a new perceived buying procedure for the new product or service, and this new perceived buying procedure may be entirely different than any of the many perceived buying procedures attempted at the initial arrival of the new product or service. With new technology the easiest thing to do for all when contacting new technology is to fit the new technology into a category most resembling something like the new technology. Sometimes the initial choice may be quite accurate, but in virtually all cases application of any new technology is expanded beyond its initial use. Thus, that personal computer on the secretary's desk has come to be used for much more than a typewriter.

The Internet, which began to reach utilization beyond the academic and defense communities in the mid to late nineties of the twentieth century and more general utilization as a medium for information exchange and selling soon after the beginning of the twenty-first century, is a new technology yet to establish its full use and potential. Like other new technologies that have come to market the Internet found early use in a form that relied on earlier perceived uses for such technology without fully realizing untapped ways to use the new technology. In its present form the Internet still operates in the realm of a child's "show and tell" exercise when it could be operating in the grownup realm of active and integral part of the business

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workplace. Moving to full implementation of the Community Commerce Center utilization puts the Internet into the grownup realm of being an active and integral part of the workplace.

Introduction

Attention to climate change (global warming) grows each day. At or near the top of any listing for ways to remedy the impact of climate change is a group of ways to make the commute to the workplace more energy efficient. Any discussion of increasing the energy efficiency of the workplace commute always includes items such as better fuel economy for existing gasoline powered vehicles, expanding use of hybrid vehicles, increasing use of ethanol fuel additives, advancing development for hydrogen powered vehicles, and extended use of mass transit services that may use of what amounts to nineteenth century technology in the form light rail mass transit service.

The main roadblock facing proponents of alternative fuels for vehicles is that the technologies and infrastructure required for widespread implementation of the alternative fuels is either not fully developed or simply not available as a technology at the present time. In the case of ethanol, which would be used as an additive for gasoline or diesel fuel, the cost of expanding manufacture of the additive must be weighed against the cost of expanding production for the raw material required for the production of the fuel. Production of ethanol provides two additional problems involving its distribution and use. First, the properties of ethanol make it impossible to transport in a pipeline, which means ethanol can be transported only by truck, train or barge. To reduce distribution costs due to the transport limitations it is important that ethanol production be relatively close to the final distribution point. Second, use of ethanol as a fuel produces less energy than gasoline, which means drivers must make more frequent trips to the pump. In the case of alternative fuels such as hydrogen the technology required for a production system is barely beyond the basic laboratory experimentation phase. With all alternative fuels the infrastructure for both delivery and distribution is either not currently available in any form or available in very limited areas throughout the world. In addition, wide acceptance of alternative fuels would require that drivers either replace or modify their existing vehicles.

The main roadblock facing proponents of the expansion of mass transit schemes, including use of light rail, is that use of the automobile, including the SUV and light trucks, is deeply entrenched in the collective consciousness for most cultures in the developed world. Drivers have made a substantial financial and psychological investment in their vehicles. Thus, not only do local governments face an uphill struggle in getting reluctant voters to approve even the exploration of any project to develop expanded bus or light rail systems, and these same reluctant voters must be approached not only to approve funding for the implementation of such systems but also again in any effort to build a rider base to support such systems at a level that would have any significant impact on reducing energy demand. Without the support of the target audience there can be no future for any mass transit system designed to improve energy efficiency and reduce the demand for fossil fuels.

More rarely discussed as alternatives for reducing the energy demand in getting to the workplace are such things as telecommuting and proximity commuting. Telecommuting has been available for an extremely limited number of workers for decades. The largest group of telecommuters work as outside sales representatives where going into an office might be required only for periodic training and meetings. In fact, this group of outside sales workers may be on the road most of the day and use a home office to do some of the paperwork required for their employment. Another smaller group of telecommuters work as customer service or technical support representatives with organizations that can make such opportunities for experienced workers. Finally, any home worker may also consider themselves as being a telecommuter. Working in the home environment, as a telecommuter, can be difficult because most workers are more productive when in proximity of other workers. Proximity commuting simply means that a worker is fortunate enough to find employment that is close to their residence or in some cases is able to commute in the opposite direction of a larger number of commuters.

The concept of moving the workplace closer for large numbers of workers provides a much more efficient way to reduce the energy cost of getting workers to their workplace. The reason such a concept has not been seriously considered previously is that decision-makers at all levels in both the public and private sectors have been looking at the prospect without fully evaluating the existing problem and how technology could be used to present a solution. The good news is that it is possible to move the workplace to less than 3-5 miles of large numbers of workers using existing technology. The process of moving the workplace closer to the worker involves a fundamental change in the way worker and employer view the work environment, but the result provides a solution beneficial to worker, employer, governments, and the environment. This new way of defining the workplace environment is presented as the Community Commerce Center. Creation of Community Commerce Centers can be done using only existing technology, which means there are no technology barriers preventing immediate implementation.

Community Commerce Center Defined

A Community Commerce Center provides a common workplace environment for office workers from multiple employers on a seat by seat basis. In the workspace environment each of the office workers receives a workspace that would be equivalent to workspace the worker would find in most major corporate work environments. In addition, most Community Commerce Centers would provide on-premises amenities such as parking, food service, daycare, exercise facility, walk-in clinic, and learning center. The Community Commerce Center provides computer, telephone and Internet access services for each worker station located within the facility. Computer services would include dynamic system backup, basic office software, including operating system, and Internet service. Private individual telephone service is provided at the desk of each office worker. Internet service provides secured individual IP (Internet Protocol) for each office worker. Individual office workers cannot occupy a seat at a Community Commerce Center unless their home residence is less than 3-5 mile radius of the center depending on the local density of centers. Workers living beyond the center service area would not be eligible for a seat at the facility.

There are two defining features for each Community Commerce Center. First, each office worker occupying a seat at the center workspace must live within a maximum of a 3-5 mile radius from the center. Community Commerce Center planning is focused on the goal of cutting a worker's daily one way commute at least in half leaving the worker with a maximum commute of 3-5 miles. Second, multiple employers each have employees using Community Commerce Center workspace based on the proximity of each worker's residence to the Community Commerce Center. Employers utilize the services available at multiple Community Commerce Centers to accommodate the workspace needs for the maximum number of its employees working within 3-5 miles of other Community Commerce Centers. The net effect is that an employer may require the services of multiple Community Commerce Centers at various locations to accommodate the workspace for all of its employees seeking to work from a Community Commerce Center rather than from a single central corporate location in a community where the distance traveled by each worker is greater than 3-5 miles.

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One other aspect of the Community Commerce Centers workplace is that their implementation also creates a carbon project that generate carbon credits under the concept of additionality not only because the implementation of the Community Commerce Centers use green building standards in the construction of Community Commerce Centers but also because the creation of Community Commerce Centers is considered a non-traditional business solution. Of course, the direct fuel savings generated by the fact that employees are much closer to their workplace is an added bonus.

Location

A Community Commerce Center can be established for virtually any number of workers, but the true economy of scale can be reached when fifty (50) or more workers operate from the same location. Throughout the United States and in virtually every other urban or suburban local throughout the world there exist vacant and in some cases abandoned shopping plazas, malls (deadmalls.com), standalone retail spaces, and office buildings that could easily be converted for use as a Community Commerce Center. Use of such existing facilities in most cases would be more than welcomed by local government because such usage would add new tax dollars to government treasuries. Of course, existing office complexes located both in central business districts and elsewhere can also be converted for usage as Community Commerce Centers, and such conversion of existing office complexes would be expected as an increasing number of workers move out of the central business district and other office park workspace and into a Community Commerce Center located closer to their residence. Workers that may never have had an opportunity to have their workplace located within the central business district or other office park because the closest Community Commerce Center is located in just such a space. An excess of space available in existing central business district and office park locations creates an opportunity to convert some of the existing space to urban residential and commercial usage, which would in virtually every case bring new life to such locations.

Similar facilities exist in virtually every urban, suburban, or small town throughout the world. In virtually every case creation of a Community Commerce Center using abandoned, underutilized or new facilities would be welcomed by not only those involved in local government where the facility would be created but also residents living in the surrounding neighborhood whether or not they would be using the new Community Commerce Center as their new workplace.

Mall Implementation

There are many abandoned or underutilized malls located throughout the United States and the rest of the world. These mall locations make good opportunities for conversion to a Community Commerce Center because they not only have ample space for workers but also ample parking and in most cases a built-in food court. In addition, the original objective in creating the mall was to provide an enclosed shopping venue located near a suburban population center. The key architectural features of most mall locations include space for what would have been up to four or five two-level department stores, up to one and sometimes two hundred additional smaller spaces for smaller national, regional, and local retail stores, a central food court, and a central support services area. Many malls may also include a theater multiplex. All of the stores, food court area, theater area, and support service area are connected wide enclosed walkways featuring information booths, small recreation areas for children, some small seating areas, and in many cases small specialty kiosk shops. In converting a mall location to a Community Commerce Center workplace areas would be created from areas set aside for department stores, which would usually be located at the ends of mall walkways, and the larger of other areas set aside for retail stores. Smaller spaces originally set aside for retail stores would be utilized either as locations for spaces for ancillary services such as daycare, health club, and walk-in clinic. The food court might have to be converted from what was originally small and individual speciality food venues to a more traditional food service cafeteria setup found in many large corporate office settings, but in some cases the original layout might work well providing it is feasible to sustain a wide variety of individual speciality food venues. It is unlikely that all of the screens from a theater multiplex would be of use for large meetings or other community events, but the excess space could be either converted to use for service and support activities or potentially left untouched to serve as a theater multiplex for the neighborhood. The interior walkways could remain virtually without modification, except that these walkways might also be utilized as an indoor running and walking track. The original service and support areas for the mall location could be used without the need for much conversion, but some or many of the original non-department store designated stores would need to be converted to house communication and data support equipment for the Community Commerce Center. The conversion would also need to allow for the addition of equipment to provide security for the complex.

Shopping Plaza Implementation

The conversion for a shopping plaza for use as Community Commerce Center might follow the pattern of the mall conversion, especially for larger shopping plazas that may have had areas set aside for either a big box retailer, drug store, or supermarket. With a shopping plaza it would generally be required to provide points inside all of what had been the original retail spaces to enable easy access throughout the complex. In addition, it might be necessary to close off some of the exterior access points to ensure adequate security. The services provided in such shopping plaza conversions would be the same as with any other Community Commerce Center.

Big Box Implementation

The big box conversion for a Community Commerce Center has the advantage of being a large fairly open main space coupled with, in most cases, a rear service space. Most big box store are in standalone locations providing ample parking. Conversion of a big box store for use as a Community Commerce Center requires allocation of space for separate work, service, support, security, and food service areas. While usually much smaller than either a mall or shopping plaza the big box location can work well as a Community Commerce Center, especially in less populated areas or where there may be no other suitable conversion candidates.

Central Business District Office Building Implementation

The first observation many critics of the Community Commerce Center system note is that in creating Community Commerce Centers in suburban and other outlying areas the existing central business districts in cities will be totally obsoleted. While it is true that many of the workers moving to a Community Commerce Center location will be relocating their workplace from a central business district location it is incorrect to assume that the central business district is going to fall into a state of decay. Actually the conversion of existing single-use buildings in the central business district to use as Community Commerce Centers will add life to the central business district as a place to both live and work. In many large cities the central business district is a ghost town after normal business hours. In converting single-use buildings located in the central business district to use as a Community Commerce Center as part of a multi-use building the conversion takes on the form of what might be called a pre-arcology, which means that the building serves as a self-contained living community. The actual conversion from a single-use building to a multi-use building containing a Community Commerce Center would be much like that of a mall conversion with the addition of residential units. Considering that many of the world's largest cities already have a large population living in either multi-use buildings or

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single-use residential buildings in a purely urban environment it is quite appropriate that other smaller cities make the leap to such usage for their central business district.

Small Town Business District Implementation

Throughout the world there are literally hundreds of thousands of small villages, hamlets, and small towns facing an ever diminishing population. Virtually all of these smaller communities see their young people go off to college and never return simply because there is no opportunity for work within the community. This is a real shame because there are millions of people around the world that would rather live in small peaceful communities rather than deal with the problems brought on by living in the current urban or suburban environment. When a small community is able to create a Community Commerce Center either through conversion of a shopping plaza, a big box store, or a small central business district in need of renovation they create a reason for people to return to a place like their old hometown. An added benefit in such implementations is that there is little or no need to build expanded infrastructure in the community for of roads and bridges to accommodate the Community Commerce Center along with the workers brought into the community.

Inner City Or Redevelopment Implementation

One of the disadvantages of living in the inner city or an area of a city that needs redevelopment is that there may be a shortage of workers living in the area that could take advantage of having their work relocated to a Community Commerce Center. In such situations it would be in the best interest of local government to seed the funds for creation of one or more Community Commerce Centers in such areas to act as a catalyst for redevelopment. It might be necessary to treat the Community Commerce Center as an educational training center until there are enough workers in the immediate area to qualify for employment at an organization that would normally place workers in a Community Commerce Center. Training and education at such Community Commerce Centers would include not only traditional business skills needed by major employers but also skills that would be required to provide support services at the Community Commerce Center. Over time the Community Commerce Centers created through this form of redevelopment would provide the same form of opportunities as might be found in existing suburban neighborhoods with a concomitant redevelopment for the entire area that would include not only improved residential units but also ancillary service units in the form of commercial businesses normally found in neighborhoods.

Connectivity

To ensure success the creation of Community Commerce Centers needs to be done at a rate the provides ample opportunities for worker placement at a local Community Commerce Center throughout a wide geographic range. The connectivity of created Community Commerce Centers must be achieved not only at the level of providing communications integrity but also in being able to provide space for a worker at a Community Commerce Center regardless of their current workplace and employer location. To move even 5-10% of the eligible workforce on a national scale from the traditional workplace requiring a commute in excess of 5 miles to a workplace located at a Community Commerce Center would require a huge amount of resources in terms of equipment and construction. Beyond the task of creating the Community Commerce Centers is the task of providing the connectivity between the various Community Commerce Centers not only for communication but also in coordinating the placement of workers at the Community Commerce Center nearest their residence. Both employers and employees are going to want what amounts to a one-stop clearing house for handling placement. The ideal situation would be for a single entity that would manage all Community Commerce Centers within a region through either a central network of placements, a cooperative of linked Community Commerce Centers sharing a common rate structure adjusted only for local variances, a franchise system that provides a central placement service, or a single state controlled system providing system wide organization. Any of these organization models would work, and different organization models might be employed from country to country, but to be most effective there would have to be some means of maximizing the benefit for all potential employers and employees.

Scalability

Existing technology for communications and computer service ensures scalability for the Community Commerce Center regardless of whether the facility provides workspace for a small group (50-100) of workers, a medium range group (100-500) of workers, or a large group (1,000+) group of workers. Provision for ancillary services such as food service, security, daycare, exercise facility and walk-in clinic are also fully scalable across the entire range of what might be created as a Community Commerce Center. Thus, the workplace experience for each individual worker going to a Community Commerce Center instead of their traditional workplace would be essentially the same regardless of the physical size of the facility. The ideal situation would be for Community Commerce Center planners to implement a facility able to support the existing potential workforce able to utilize the facility while making allowance for foreseeable growth within the service area for the Community Commerce Center. When working with a property being converted from some other commercial usage to that as a Community Commerce Center it would be necessary to plan for both existing and future needs for the property. In virtually all situations the construction of additional space to accommodate unforeseen growth would not create a problem for either the technological requirements or other physical requirements necessary to ensure that the facility provided a fully adequate and compatible workplace for all workers.

Portability

The Community Commerce Center system is fully portable to virtually any environment or cultural setting without loss of functionality or value. This portability is transparent regardless of whether the portability is viewed from the worker or employer perspective. The original physical construction for a Community Commerce Center whether it be from a mall, shopping plaza, big box store, large urban skyscraper, a small town business district, or fully new construction bears virtually no weight on what is available and delivered within the walls of each individual Community Commerce Center. In addition, the value of providing Community Commerce Centers for a population are totally undiminished based on the cultural setting for the facility, which means that the Community Commerce Center system works equally well in virtually any country or setting.

Core Service

The core service provided at each Community Commerce Center is a workplace for each individual assigned to the facility. The components of the workplace provided for each individual served by a Community Commerce Center includes not only the actual open plan workspace, including computer and telephone, but also the back office network equipment and service required to provide the worker with a connection outside the Community Commerce Center for communication with computer and telephone. The back office operation also provides application software for each worker along with backup and archival storage. In fact, each Community Commerce Center becomes a major communications hub providing Internet and telephone bandwidth to support all operations. Given the methods such communication service is provided to individual locations it is quite possible that each Community Commerce Center could also act as a communications hub providing Internet and telephone service to the general population within the operating service zone for the Community Commerce Center. It may even be possible for a Community Commerce Center to deliver Internet

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and telephone service using a wireless connection. As the number of Community Commerce Centers expands, there may be a time when there would be a real advantage in connecting all Community Commerce Centers through a proprietary global communication satellite network. The cost of staffing core services positions is the responsibility of Community Commerce Center management.

Ancillary Services

Beyond the essential core services provided at each Community Commerce Center there is an additional set of ancillary services provided. These ancillary services are designed to create a work environment affording virtually all of the amenities normally found only in large corporate work settings. The ancillary services include food service, walk-in clinic, daycare, exercise, and continuing education facilities. With the exception of food service and continuing education facilities the cost of the ancillary services would be bundled with the per individual cost paid by an employer, which means that the walk-in clinic, daycare, exercise facility services would be available at no additional charge to each employee using the Community Commerce Center as their workplace. Food service facilities at each Community Commerce Center are operated on a cost only basis, which means that each Community Commerce Center food service facility is run simply to breakeven rather than create a profit for the Community Commerce Center. Continuing education service is provided at each Community Commerce Center not only to provide a means for each worker to advance their skills but also for the purpose of training workers to take the numerous support and services positions required at each Community Commerce Center. The continuing education role for a Community Commerce Center is amplified when the Community Commerce Center is located in what might otherwise be defined as a developmental zone where one of the key purposes of the Community Center is to create a supply of new workers that might otherwise never have the training to be qualified for a position for which the Community Commerce Center was created.

Service Support Jobs

Within the service area for each Community Commerce Center there would be scores of commercial enterprises providing services and goods for the population living within the service zone. These commercial enterprises would consist of the typical retail and service businesses found in and surrounding any neighborhood. Each of these surrounding businesses would employ workers just as would be the case without the presence of a Community Commerce Center in the area. However, implementation of the Community Commerce Center system would act to promote the employment of local workers in each of the businesses within a Community Commerce Center service area rather than the more traditional practice of creating additional commuting through the employment of workers that would need to travel more than 3 to 5 miles to reach their job. As the number of Community Commerce Centers expands, there would be an increasing number of such commercial positions available for workers within 3 to 5 miles of their residence. Also, the number of available local workers would expand because an increasing number of local residents would consider employment that would be closer to their residence. Thus, there would be an additional fuel savings generated as the number of workers in neighborhood commercial businesses come from the local Community Commerce Center service area.

Social And Economic Topology

In mathematics topology is the branch of geometry that explores and defines the relationship between various points on and the surrounding boundaries of a shape. Topology study has expanded to include the investigation of relationships between virtually any collection of points that can be viewed as being connected. The broader study of these topology relationships can be explained using terms that may be more familiar as a part of mathematical set theory. It is common to describe computer and communication networks in terms of their topology. The relationship, connectivity, and boundary concepts from the more traditional study of topology also find usage in the social sciences where the fields of social and economic topology focus heavily on role of individual mobility within a network or set of relationships in the case of social topology and the communication of knowledge, especially technological knowledge, within a network or set of relationships in the case of economic topology. Those working in the fields of social and economic topology, which report on the impact of technology on our culture, feel the lag between the output of new technological innovations and the full awareness of the best usage for any new technological innovation. Thus, even today the topic of mobility in social topology refers to the worker alone without considering that the workplace has equal mobility to the that of the worker. In economic topology the study of communication of information appears to be more about simply how the information in the form of technological innovation moves throughout a network rather than taking more specific note of how the network collectively or on a node by node basis works to optimize the usage of any new technological innovation. In short, lateral thinking is not a part of how researchers normally study new technological innovations.

Unfortunately, current social and economic topology study has exceptionally little to offer when looking at the boundaries of social and economic networks and much less on the types of relationships or communication that might either exist or potentially exist beyond the boundaries of a given social and economic network. The concept of a Möbius Strip, which is central to most discussions related to the traditional study of topology, has no real analog or meaning within the existing field of social and economic topology because from their two-dimensional perspective within the boundary of the networks they study there is no readily apparent analog for the Möbius Strip found in traditional topology. In traditional topology the Möbius Strip provides a visible representation of a surface with only one side and a single boundary. At one time or another everyone has either seen or constructed a simple Möbius Strip and visually verified that the construction has only one side because the view is outside the surface and boundary of the Möbius Strip. If the view was from the surface of the Möbius Strip, the experience of walking along the surface would leave no clue that the surface was twisted.

In the fields of social and economic topology it would be possible to view the analog of a Möbius Strip only by stepping beyond the boundary of the networks being studied. Being dynamic systems the networks and space researchers in the fields of social and economic topology view changes over time, and to fully understand how an analog of the Möbius Strip might exist in the realm of social and economic topology systems must define elements in the fields that would represent and analog of either a standard loop or a Möbius Strip. In viewing social and economic topology systems over a long period of time it would be clear that over time the nature of the social and economic systems have shown examples of both a standard loop and a Möbius Strip along with an analog for the boundary found in the paper versions of both the standard loop and the Möbius Strip. From the dawn of time effort within any social or economic group has been divided between family or community and work or production of the things necessary to sustain the family or community. The community role can be shown as the inside track of the standard loop, and the work role can be shown as the outside track of the standard loop. The boundary between the community track and the work track may be shown as the energy or effort required to move from activity in one track to the other track. Technology, mobility and communication are important factors not only in determining the nature of activity on one track or the other but also in the nature of what is required to move across the boundary from one track to the other track. Obviously, the system becomes more efficient when the energy required to move across the boundary is either reduced or completely

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removed. Where the boundary between the community track and the work track is absent or virtually transparent the result would be the social and economic topology analog for the Möbius Strip. Where there is a clear and perhaps insurmountable boundary between the community track and the work track the result would be the social and economic topology analog for the standard loop. A social and economic topology system where the community track and work track are well integrated and more seamless is more efficient, and such a system could be viewed as more closely resembling the analog of the Möbius Strip. A social and economic topology system where the community track and work track are more clearly divided and a boundary exists between the community track and work track is less efficient, and such a system could be viewed as more closely resembling the analog of a standard loop.

In both the standard loop and Möbius Strip environment technology, mobility, and communication must flow not only along both the work track and the community track but also across any boundary between the work track and the community track. So, the complete social and economic topology system consists of actors, technology, mobility, and communication all flowing along not only both the work track and the community track but also across any boundary between the work track and the community track. Complications arise within the system because innovation is more likely to come from the work track than from the community track. Over time the introduction of innovation will produce expansion for the system, but it is more likely that the work track within the system will expand at a more rapid rate than community track. If the social and economic topology for the system more closely resembles the Möbius Strip environment, the flow of innovation along the community track will more rapidly match the flow along the work track even though there may be intervals where an eddy, which would reflect a lag in flow rate, creates a flow differential impacting the rate of system expansion. If, on the other hand, the social and economic topology for the system more closely resembles the standard loop environment, the flow of innovation along the community track (inside track) will diminish, which will slow the expansion of the community track, while the flow of innovation along the work track (outside track) will increase and generate an expansion differential that would be visible in the form of an expanding boundary between the community track and work track of the system. As the boundary between the community track and the work track increases, there is a proportional increase in the amount of energy required to traverse the boundary, which must come from either the community track or the work track. If the extra energy required to traverse an expanding boundary between the community track and the work track is siphoned from the community track, the expansion of the community track will slow because the extra energy expenditure will show as an increased lag in the ability of the community track expansion to keep up with the expansion of the work track. If the extra energy required to traverse an expanding boundary between the community track and the work track is siphoned from the work track, the expansion of the work track will slow because the extra energy might otherwise be applied to further expansion of the work track. Further expansion of the boundary between the community track and work track not only diminishes the efficiency of the social and economic topology system but also generates what might be irreparable damage to other elements necessary to ensure continued stability for the social and economic topology system environment as a whole within the bounds of its physical environment.

Through most of recorded human history the social and economic topology system could be viewed as following the Möbius Strip model more closely than the standard loop model because the proximity between the community track and work track was virtually zero. The level of technology, mobility, and communication was very low and remained so for extensive lengths of time. Of course throughout recorded human history civilizations were highly structured along class lines, which not only further limited mobility but also communication between classes, but even within the limits of the class structure established by each civilization throughout history there existed a virtually indistinguishable difference between community and work. At the outset of the industrial revolution the transparency between the community track and the work track began to vanish. Through the intervening years and with the introduction of each new piece of technology or innovation the mobility and communication capabilities of the population may have improved, which did contribute to the growth of a middle class, but the cost burden for such progress has been a migration from the standard loop model for the social and economic topology system. With each technological innovation introduced in the work track there has been a transfer of that technological innovation from the work track to the community track, but only at a flow rate that can be fully assimilated at the community track level. As the rate of technological innovation has accelerated over the past fifty years, the boundary between the community track and work track of the social and economic topology system has expanded because the community track has increasing difficulty in matching the expansion of the work track. The resulting increase in the expenditure of energy required to move across the boundary between the community track and work track has created an increasingly unstable environment, which is visible in the form of climate change. An additional cost associated with the expenditure of increased energy to move across the boundary between work track and community track has diminished the flow and expansion rates for both the community track and work track even at a time when the rate of technological innovation introductions has increased. This reduction in expansion is visible in the form of a slowdown in the economies of the world relative to what might otherwise be expected given the potential for productivity boosts that such innovations may have brought to the society.

The move to full implementation of the Community Commerce Center system will produce a change in the structure of the relationship between the community track and the work track that will create once again a social and economic topology system more like the Möbius Strip model. With the Community Commerce Center system the boundary between the community track and the work track is reduced to the point that it is virtually transparent because the community track and work track join to form a single surface with no boundary. The introduction of new technological innovation to the system must still be assimilated within the flow along both the community track and work track, but such assimilation occurs at a flow rate that does not seriously hamper the rate at which the system is able to accept additional innovations. With the boundary between the community track and the work track virtually eliminated there is a tremendous savings in energy beyond what is required to maintain the system. The result is not only a better running system that is more efficient and able to progress without undue lag but also a system that can actually provide the mechanism for repair to the surrounding environment while significantly reducing the demand for energy. In addition, the increased efficiency within the social and economic topology system produces the mechanism to speed the flow of information to segments of society that may have been lagging further behind prior to the implementation of the Community Commerce Center system.

Benefits

The benefits in creating Community Commerce Centers extend not only to employers and employees but also to governments at every level and ultimately to the planet as a whole through the reduction in demand for non-renewable resources such as oil and coal along with the concomitant reduction in greenhouse gases. In fact, governments may want to provide incentives for the creation of Community Commerce

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Centers by using community development taxes to bring more workers into new or existing Community Commerce Centers. This would be especially true in areas where either a population is declining due to the lack of available employment for local residents or there is a desire on the part of planners to draw more population and workers to the area. In addition, local, State, and National governments would surely want to allow the distribution of "carbon credits" to employers moving qualified workers to a Community Commerce Center in their immediate neighborhood. Active and continued implementation of Community Commerce Centers could basically recession-proof the world economy for as much as two to three decades with the ultimate result being that the world economy becomes not only more stable economically but also a much cleaner place to live. As economic stability expands through the creation of Community Commerce Centers, it is entirely possible that there would be a concomitant spread of political stability throughout the world. A more detailed listing of benefits for each group follows:

Employees -
Less Expense In Getting To Workplace - In cutting the commute in half or more workers realize not only a significant fuel savings but also the savings in general upkeep and maintenance for the vehicle used to drive from home to the workplace.

Less Stress In Getting To Workplace - In cutting the commute in half or more workers will arrive at their workplace less stressed and more relaxed. In areas where road conditions are hazardous due to poor weather the stress reduction would be more significant. The major side benefit of the reduced stress in getting to the workplace is that workers become more productive on the job.

Closer To Home - In being closer to home it becomes easier to get back home in the event of a home emergency. This would be especially beneficial for working parents. With available daycare at each Community Commerce Center it also becomes much easier for working mothers to stay in the workforce during early child rearing years.

Ability To Relocate Residence - Employees working at a Community Commerce Center would realize that they can relocate their residence based on lifestyle factors without fear of losing employment. This benefit would be especially interesting for workers that were born and raised outside the traditional commute range of a larger city. In addition, the benefit of being able to work in a hometown enables workers to remain close to family.

Ability To Have Two Income Household - Employees working at a Community Commerce Center would be able to enjoy the benefits of a two income household without fear that one income might be lost when other income source is changed due to advancement.

Opportunity For Expanded Benefits - Employees working at a Community Commerce Center would have access to facilities and benefits that might otherwise be available only to workers employed by large corporations. These facilities would include such things as on-premise cafeteria, daycare, exercise facility, and walk-in medical clinic. In addition, employees will have access to continuing education opportunities.

Employers -
Employee Productivity - Employers placing their employees at Community Commerce Centers would realize a significant boost in employee productivity if for no other reason than the employee would arrive each day without having been through a stressful commute. Employee productivity would also be realized as employees utilize facility amenities that might not have been available at the original workplace.

Cost Of Providing Workspace - Employers placing their employees at Community Commerce Centers would realize a significant savings in the true cost of providing employee workspace. Employers would be able to focus completely on their core business without being required to also provide such things as computer support and all other facility related infrastructure. The cost of providing all facility support infrastructure would be combined in the per employee expense for occupying a spot at a Community Commerce Center. While the cost per employee might vary slightly based on the exact location and size of a Community Commerce Center the employer would be obligated to pay individual employee placement costs for a Community Commerce Center only as long as each individual employee utilized the Community Commerce Center facilities. Employees currently employed in support infrastructure positions at a workplace requiring a commute would have the opportunity to take similar positions at Community Commerce Center near their residence without loss of any work time. The savings generated by such employee transfers would be significant for employers without producing any hardships for support infrastructure staff.

Recruitment Costs - Employer recruitment costs would drop significantly because employers would not need to worry about the costs related to long distance interviewing and creating incentives that would lure an employee to move from one location to another. In addition, employee objections associated with the impact on employee family members would be virtually eliminated because moving from one employer to another would not require a relocation. Interviewing for new hires could take place at any Community Commerce Center through use of on-premise video conferencing equipment.

Relocation Costs - Employer relocation costs would be virtually eliminated for any employee that could take a position working from a Community Commerce Center. The net effect would be that a significant or total elimination in total relocation costs associated with expanding or replacing a workforce would transfer either to the realization that each employee could be afforded an increased income or the employer could realize increased profitability. As a growing number of employee positions move from the traditional workplace environment to a Community Commerce Center, even the costs of relocating an employee based on an internal promotion would be reduced because in virtually all cases employee job descriptions would be increasingly based on what an employee does within the organization rather than where they perform their work within the organization. The topology for each employee's work remains unchanged regardless of the employee's physical location and residence because the underlying infrastructure related to the work remains unchanged. The benefit of a nearby Community Commerce Center is also important when an employer is engaged in the process of recruiting new employees because prospective employees can be interviewed using the video conferencing facilities at any Community Commerce Center regardless of whether or not the individual employer has an employee working a the interview location.

Employee Retention - Employers with employees working in Community Commerce Centers would realize improved employee retention because each benefit realized by employees increases their overall satisfaction with their employment.

Local Government

In all local governments there would be less demand for new roads. Existing roads would last longer because there would be less traffic. Implementation of Community Commerce Centers provides the ability to build communities where access to employment is not a factor. Small communities would have as much opportunity to provide workspace for workers as would larger communities. The growth supported by full utilization of existing and new facilities and residential housing, which enables

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the creation of new jobs in every community. The implementation of Community Commerce Centers would create new sources of property tax revenue regardless of whether the Community Commerce Center is created from existing construction that may be on the property tax rolls at an undervalued rate or for new construction. These new revenues from both the actual implementation of the Community Commerce Center, the new jobs created to support the Community Commerce Center, and the workers attracted to the Community Commerce Center can be utilized to provide a better quality of life for all residents of the communities served. The major long term benefit for local governments is that their local economy will no longer be handicapped simply because an industry moves away from the community, which enables local government to establish planning for a much longer period of time.

State/National Government

State and National governments receive benefit in many ways, but one of the major benefits would be that there would be less demand for new roads and related infrastructure. In addition, the creation of Community Commerce Centers would produce less unemployment because each new Community Commerce Center creates additional jobs not only to support Community Commerce Centers but also to support the expansion of commercial businesses surrounding each Community Commerce Center. Also, the implementation of each new Community Commerce Center produces increased opportunities to provide workplace training. All new revenues and activity within the communities serviced by new Community Commerce Centers can be put to use in providing a better quality of life for all residents. The combined impact of Community Commerce Center implementations is that the local economy becomes essentially recession-proof.

At all levels utilization of Community Commerce Centers increases the effective fuel efficiency for motor vehicles by a factor equal to the mileage savings for each worker going to a Community Commerce Center close to their residence rather than to workplace that is beyond the 3-5 mile range they would be traveling to Community Commerce Center. If the worker's commute is cut in half and they are able to reach their workplace based on the highway estimate for fuel efficiency rather than city or combined estimate for fuel efficiency, the effective fuel economy is doubled, which means that the effective fleet fuel economy would also be effectively doubled. Thus, workers would be able to continue using existing vehicles until such time as newer technologies using renewable fuel sources can be fully developed and available for mass distribution.

Summary

The Community Commerce Center system provides a completely new way of looking at how to provide a workplace for employees while creating a mechanism providing the means to not only enable workers to enjoy a better quality of life but also reduce the demand for fossil fuels and generation of greenhouses. The Community Commerce Center system can be implemented on a worldwide scale providing all countries to participate not only in saving the environment while providing a better solution for bringing worker and job together in a way that enhances the quality of life for all workers but also in generating a work solution that virtually ensures that the world economy remains recession-proof over a period of at least two to three decades. The fact that there can be full implementation of Community Commerce Centers on a worldwide scale using existing technologies means that there are no barriers to launching the implementation due to the lack of technology to make the system work successfully. The implementation of Community Commerce Centers produces jobs immediately at each implementation location. The spread of Community Commerce Center locations provides an opportunity for communities to realize expansion of their economy without bearing the burden building infrastructure that would serve only to create an increased demand for fossil fuels along with the concomitant increase in greenhouse gases. The savings in resources coupled with the increased worker productivity brought about through Community Commerce Center implementation provides the potential that additional resources can be applied to the development of new technologies that will further serve to diminish the damage done to the environment on a global basis. Beyond the climate change and economic benefits provided by implementation of the Community Commerce Center system is the additional significant benefit of establishing a clear and close connection between the community environment and work environment, which not only improves and enhances the role of family life but also improves and enhances the overall satisfaction all workers have with their work situation. Over time there will be an increasing number of work positions that would be appropriate for placement at a Community Commerce Center, and the manufacturing sector of world economies will find an increasing number of opportunities to implement analogs of the Community Commerce Center within a manufacturing environment.

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