LUUM

Taking On Urban Congestion

Lighthouse Case Study

Urban traffic congestion is a chronic and costly problem for large urban centers. Further, traffic congestion has significant costs for organizations located in those centers. To date, the efforts of organizations to promote transportation alternatives and mitigate the negative consequences of urban congestion have had limited impact.

Luum, an online platform, seeks to scale-up adoption of alternative transportation by providing the tools needed for organizations to incentivize changes in commuter behavior. Luum is playing a vital role in innovative problem-solving, providing the technical and online capability for organizations and individuals to collectively address the issue of urban congestion. Luum's success suggests that digital platforms facilitating change in consumer behavior could be applied to a wide range of global problems.

GLOBAL SOLUTION NETWORKS

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Case in Brief

Urban traffic congestion is a chronic problem for large urban centers. It costs the global economy billions of dollars, wastes countless barrels of oil, damages the environment and degrades quality of life for individuals, families and communities. In the Toronto-Hamilton metropolitan region alone congestion is estimated to cost $6 billion per-year.[1] Governments have tried for decades to reduce traffic congestion by increasing or modifying infrastructure capacity, providing alternative modes of transportation and imposing fees or regulations to deter single-occupancy vehicles (SOVs). However, these solutions often fail to solve the problem, sometimes create new problems and are politically unpalatable in many jurisdictions.

As traffic congestion primarily occurs during the times that the large majority of people are trying to get to and from work, congestion has been shown to have significant costs for organizations in terms of employee recruitment, retention, morale, absenteeism and operating costs. Institutions, non-profits and governments have recognized their role in congestion problems and endeavored to influence commuter choices by offering various incentives to their employees and communities that use smarter transportation alternatives. The impact of these efforts, however, is limited.

Luum, an online platform, seeks to scale-up the impact of these efforts by providing organizations with the tools they need to incentivize team-based and multi-organizational commuter behavior change. The platform adds a missing piece to the congestion puzzle by adding team, competitive and community-oriented elements to participation in alternative transportation systems in order to change broad-based attitudes and behavior.

The Problem of Traffic Congestion

For many people living in cities around the world, getting stuck in traffic is a part of daily life. As the global population is increasingly urbanized, the existing systems of public transit and road infrastructure are exceeding their design capacity and breaking down. Individual commuters find themselves spending hours in traffic jams, crushed into buses or navigating perilous streets on bicycles. As stated by Luum's CEO, Sohier Hall:

> *There are huge societal and economic costs associated with transportation in metropolitan areas, especially commuting. This includes unhealthy stress, CO_2 emissions, lost productivity stuck in traffic and massive capital infrastructure costs borne by companies and cities.*[2]

Cars consume more than just fuel. One primary resource that cars need is land—for roads and for parking. Often, this is land that is very valuable in dense urban centers and could be better used for housing, businesses, etc. Research by Eran Ben-Joseph suggests that there are 8 parking spaces per 1 car in the United States.[3]

Furthermore, as the global recession continues to make itself felt, government and industry are faced with diminishing resources to address the problem. Overall, very little has been done to truly change the transportation system in any fundamental way and, according to Hall, clogged transport networks have become "one of the most complex multi-stakeholder, multi-discipline, systems challenges of our time."[4]

Congestion has been an annoyance facing cities since ancient Rome;[5] however, congestion is now understood to have major negative economic and societal impacts. Congestion occurs when transportation supply (roads, transit, paths) is unable to handle transportation demand (drivers, passengers, freight). Typically, in cities of over 1 million people, recurrent congestion problems begin to occur as many passengers try to move from one destination to another at similar points in time (i.e., before work, after work and around special events).[6] While some say that congestion is unavoidable,[7] others argue that "the time it takes to get around our cities, where most of the wealth and job growth is created, is increasingly unacceptable."[8]

Indeed, estimates of what congestion costs national economies in time and productivity are in the billions of dollars. The productivity of urban centers is "highly dependent" on the efficiency of transportation systems.[9] The European UNITE project calculated that congestion costs the UK 1.5% of its GDP, France 1.3% and Germany 0.9%. In the United States, congestion is estimated to annually cost commuters 4.2 billion hours of travel delay, 2.8

> *In October 2013, the Texas Transportation Institute calculated that congestion currently costs each Texan household $1,500 per year and that this would increase to $5,400 by 2035 if current trends are maintained.*

billion gallons in extra fuel consumption and $87 billion overall.[10] In October 2013, the Texas Transportation Institute calculated that congestion currently costs each Texan household $1,500 per year and that this would increase to $5,400 by 2035 if current trends are maintained.[11]

Furthermore, traffic congestion has profound consequences for individuals, families, communities and the environment. Congestion is correlated with depression, stress, anger and obesity in individuals.[12] These manifestations of frustration have exponentially negative consequences for the families and communities of commuters. Communities also suffer due to increasing traffic and infrastructure, which make the streets unsafe and organizing community events, such as street festivals, impossible.[13] Congestion produces environmental and noise pollution, and the area needed for new roads and parking greatly inflates the cost of real estate—all of which make living in urban centers unappealing.[14] Cities that suffer from congestion and the associated problems, find it difficult to retain the economic and social advantages that attract investment and talent.[15]

Congestion caused by cars creates problems for all commuters.[16]

However, to simply say that congestion can be solved by building new roads or improving transit is to underestimate the complexity of the problem.[17] There are a number of factors that have exacerbated the congestion problem in recent decades. These include: decentralization caused by cheaper home ownership outside of city centers; the prevalence of the automobile as the preferred mode of transportation and its place in society as a status symbol; and the inability of public transit to match the speed and convenience of the automobile for commuters.[18] Additionally, efforts to address congestion often have unintended side effects. In order to properly address traffic congestion, careful urban planning and coordinated efforts are required and these efforts must have political and public backing to succeed.

Traditional Efforts to Address Traffic Congestion

To date, efforts aimed at curbing congestion have fallen into the following three categories: increasing or modifying infrastructure; providing alternative modes of transportation; and deterrence through fees and regulation. However, urban congestion is the definition of a "wicked problem" in that each possible solution seems to create new issues.

Increasing or Modifying Infrastructure

Starting with the obvious problem of limited supply, many jurisdictions have tried to reduce congestion by building new infrastructure or modifying existing infrastructure in order to increase capacity. These endeavors are expensive and often mean temporary disruption to existing infrastructure—exacerbating congestion problems in the immediate term. Needless to say, paying for infrastructure improvements requires politicians to propose raising taxes or introducing commuter fees—which, in today's economic climate, means risking re-election. Furthermore, it has been shown that demand always rises to meet the available supply.[19] In other words, increasing capacity only temporarily improves traffic congestion because it attracts more commuters to the road. Roads and parking lots also take up valuable real estate and provide only static value in return. Lastly, roads and parking are often built at the expense of other modes of transportation, which further entrenches automobile dependence within the city.[20]

Providing Alternative Modes of Transportation

Public transit is another primary target of municipalities when trying to manage congestion. When done properly, public transit can provide commuters with a faster alternative to driving on crowded highways, promote business and community development around transit hubs, and reduce the cost of commuting in terms of parking, gas and insurance.[21] Unfortunately, this ideal exists in very few places. Typically, transit is slower than driving, less comfortable and perceived as more expensive than the advantages are worth. Unless it is given dedicated infrastructure, transit often interferes with road traffic and can contribute to the congestion problem. Allocating the significant financial resources needed to improve transit systems often becomes a sensitive political issue. Moreover, improvements that are made must contend with a dynamic city landscape, increasing decentralization and the limits posed by unionized labor, all of which may diminish the impact of these investments.[22] Ultimately, there is no available example of a public transit system that can generate sufficient income to cover its operating and

capital costs—and government subsidization of public transit is increasingly questionable in the era of austerity.[23]

Walking, biking and carpooling are important alternatives to transit and independent driving; they are environmentally friendly, provide health benefits and build community. However, commuting infrastructure is not often built with these modes of transportation in mind and therefore walking and biking on existing roads can pose significant danger to the walker or rider. Distance, snow, rain and heat also make walking and biking difficult, at times even impossible. Therefore, they cannot be relied upon by municipalities to reduce congestion. Carpooling works well for those who live and work in similar places, but it also reduces flexibility for the individual and imposes a cost on the passengers who must rely on each other to share expenses and manage time.

Toll booths in the UK[24]

Deterrence through Fees and Regulation

Recognizing that increasing capacity and providing alternatives is not enough to reduce congestion, governments have also sought to make driving more difficult or expensive.

On the supply side, municipalities can increase the cost of driving or reduce the availability of parking in order to diminish the convenience. One example of this is the imposition of tolls in certain high-traffic areas. However, this requires a coordinated effort, as placing a toll in just one place only serves to increase congestion in another. Tolls have been experimented with in the cities across the US, in London and in Stockholm and have demonstrated that most commuters are willing to pay in exchange for the convenience or perceived status of driving.[25] The primary benefit of a toll system is that

> *"The automotive industry, construction companies, transit authorities, parking authorities and insurance companies have disparate agendas regarding the improvement of transportation systems and little incentive to think creatively."*

it provides revenue that the municipality can apply to maintaining and improving infrastructure. Some argue that tolls realign the perceived value of infrastructure with the real cost for those that use the roads. However, that perception is elusive and the public primarily sees tolls as a controversial money-grab by the state.[26] Furthermore, increasing the expense of driving enhances the perception of driving a car as a status symbol for those who can afford to maintain their transportation habits in spite of the added costs, while those who cannot are relegated to crumbling public transit.

Municipalities also have it within their power to alter the demand side of the equation by mandating staggered work hours, restricting access to downtown cores or limiting vehicle ownership.[27] However, these options suffer from the same problem as tolls in that they are seen as interference by the government in the personal freedom of individuals and businesses. Restrictions of this kind face significant public resistance and politicians are increasingly reluctant to even propose them.

Ultimately, increasing or modifying infrastructure, providing alternatives and deterring drivers are not enough to combat congestion in major urban centers. Of course, underpinning the current transport regime are multiple stakeholders who's business models are built on the current system and they have a vested interest in maintaining it. The automotive industry, construction companies, transit authorities, parking authorities and insurance companies have disparate agendas regarding the improvement of transportation systems and little incentive to think creatively. This, coupled with a lack of political will, has meant that effective congestion solutions are elusive. As such, municipalities need "innovative solutions that challenge the *status quo*" in order to effectively address urban traffic congestion.[28]

Emerging Ideas: Employers and Incentives

The role of incentives has been explored by governments, employers and innovative solutions providers such as Luum. Traditionally, government incentives have been offered to commuters in the form of a tax break or access to specialized infrastructure. Faster travel times made possible by dedicated carpool and transit lanes are achieved in many jurisdictions. Tax breaks are also typically offered to those who buy monthly transit passes or walk/bike to work. However, as with many of the above methods of addressing the congestion problem, these types of incentives are not usually enough to change the preferences of solo drivers—the convenience, comfort and reliability of their cars is more important. Moreover, traditional use of incentives and disincentives only targets the mode of transportation commuters use. These programs do not consider changing how or when preferred modes of transportation are employed.

While congestion clearly has major negative effects on individuals and communities, deterrence and alternatives do not change the fact that people must get to and from their workplace. However, it has become clear that the negative effects of congestion also create a significant cost for

employers. Recent research has found that transportation issues result in significant demand on employers to provide expensive parking facilities. In addition, transit challenges decrease productivity, increase absenteeism and increase operating costs.[29] The commute is also becoming an issue for employee recruitment and retention, as high-caliber talent is increasingly unwilling to spend valuable time traveling to and from work. Furthermore, there are significant capital and operating costs associated with building and maintaining parking spaces. For this reason, commuting also becomes a high-stakes land-use problem for large and growing institutions. Employers have recognized that they can and should play a role in influencing commuter behavior because the problem has a direct negative impact on operating costs and productivity levels.

Numerous tools are available to employers to incentivize behavior change. Within organizations, employers can coordinate carpooling and offer discounted transit passes. They can also develop programs that reward employees for using alternative modes of transit, or for changing how they use transportation in order to reduce congestion. A 2008 study by Stanford University tested changing the time commuters in Bangalore, India, arrived and departed from work. Prior to the India pilot project, data showed that "commuters who leave for work after 7:30 AM [regardless of transportation mode] suffer commute times that are about 1.5-2 times longer when compared with those who leave before 7:30 AM."[30] In order to decrease the congestion that caused this travel delay, the pilot project offered cash prizes to employees of a tech company to arrive and depart from work at off-peak times. The pilot showed that small cash incentives more than doubled the pre-rush hour arrival of employees and significantly reduced travel times for everyone. With the support of a $3 million grant from the US Department of Transportation, Stanford University initiated a similar incentive program on their campus.[31]

Many of the available incentive tools and software available for facilitating employee commuter incentives are limited to programs that organizations offer to individuals. They do little to change the commute preferences of individuals who were not already using alternative modes of transportation as they still do not outweigh the comfort, convenience and reliability of driving solo. There are many other motivators that can be applied to alter when and how employees get to work: pride, peer pressure, team work, competition and community building are possible incentives for behavior change that have not been adequately measured by social experiments.

The Luum Platform

Luum, a mission-driven for-profit organization, recognizes the challenges and aims to provide the software that organizations (private employers, hospitals, universities, local governments) need to incentivize change in commuter behavior among theirl employees and also foster wider team

and community building in the pursuit of more efficient and sustainable transportation solutions. Platforms, such as Luum, have been identified by the Global Solution Networks project as playing a vital role in innovative problem-solving. Platforms provide the technical and online capability to be collaborative, organize and take action. Luum is just such a platform and provides the space for organizations and individuals to collectively address the issue of urban congestion.

Luum's platform provides a tailored Commute Management Portal to organizations that includes a comprehensive tool box for measuring employee commuting patterns and offering incentives to alter their commuting behavior. Much of the data is fed to the Commute Management Portal automatically through parking lot swipe passes and shuttle bus trackers that are integrated with the Luum platform. This allows system administrators to easily see how and when employees are coming and going from work. The portal also produces comprehensive analytics so that administrators can tell, for example, if the company's incentives for arriving at work earlier are working (or not). Administrators can also see which incentives make the greatest difference and adjust if necessary. The fact that Luum's tools are tied into the organization's payroll system makes it easy to add monetary rewards on to an employee's paycheck.

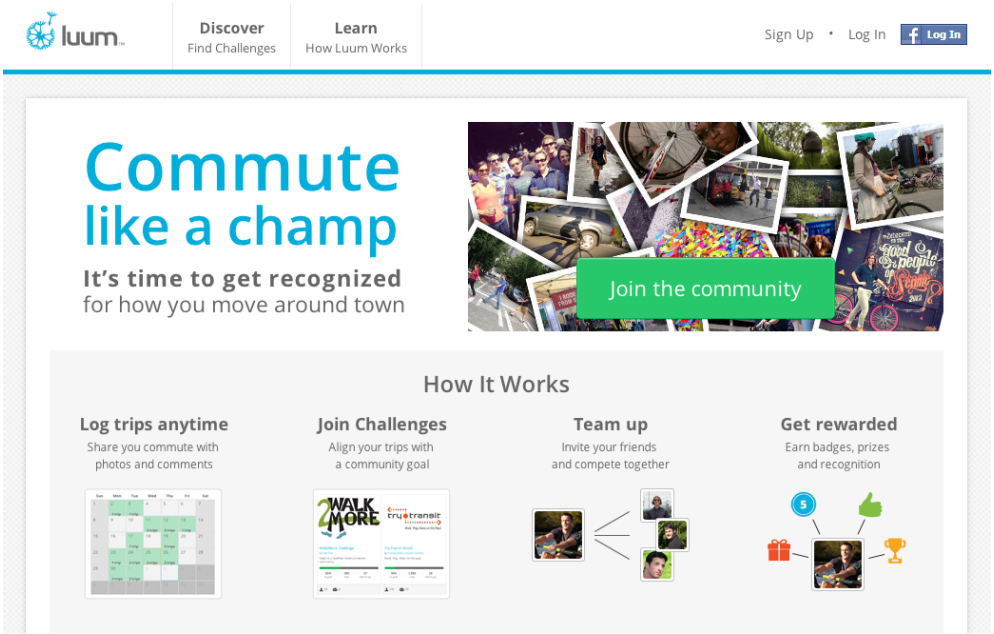
Features of the Luum Platform:

User Friendly	Social Space	Effective Tools	Easy Management
• User oriented design • Easy log-in • Track commute and earn rewards	• Easy social interaction • Encourages competition • Mobilizes participants behind charitable causes	• Tailored incentives • Parking swipe cards • Shuttle trackers • Monitors behavior and incentivizes change	• Cloud based, enterprise-wide software • Detailed analytics • System tailored for greatest impact.

The Luum platform also creates a social space where people can participate in organizational challenges, form teams, engage in friendly competition and be rewarded for their change in commute choices. Specifically, the Luum platform aims to improve the daily grind of commuting for employees by bringing together companies, government and non-profits into a "community

for commuters." Luum pushes the idea of incentives further by creating a competitive game experience that promotes social interaction within and across organizations.[32] Employers use Luum to issue challenges to their employees or other businesses to see who can use alternative transport the most often and for the most distance at the individual, team and organizational level. The users track their modes of transportation, log miles, earn badges and keep track of available prizes. The organization that issues the challenge is able to monitor the compiled efforts of participants, while individuals and teams are publicly ranked on real-time leader boards. Employers are also able to rapidly learn from the data being produced and segment populations within their organization with different incentives.

Traditionally, prize-based incentive structures for commuter behavior give commuters a chance to win prizes by changing their transportation preferences. Luum enhances this dynamic by introducing individual, team and organizational "game mechanics" that give commuters the ability to earn rewards. Users can earn additional rewards by encouraging greater participation and referring a friend to the platform to participate in a challenge. The user interface is designed to be "frictionless" for participants: simple, easy to navigate and makes registration effortless with the ability to login and link to the site via Facebook.



The Luum.com home page[33]

The Seattle Department of Transportation recently used Luum to conduct their annual "Walk, Bike, Ride" challenge for local commuters. Over 2,500 Seattle residents signed up in teams to walk, bike, carpool and use public transport to get around the city. The initial goal of this challenge was for participants to log 30,000 trips using alternatives to driving by themselves, which was far exceeded by the final tally of 66,770 alternative trips logged. Luum encourages participants to share photos of their commute and

their teams—fostering a sense of community, purpose and achievement.[34] Participating commuters earned weekly prizes from related businesses such as transit passes and gift certificates, and the grand-prize winner at the end of the challenge was awarded an elite bicycle.[35] The resulting community of commuters is aware and engaged on the issue of transportation—increasing dialogue and transparency on important public/private decisions involving billions of dollars and untold hours of people's time. In turn, this empowers citizens to be part of and accountable for congestion solutions, rather than simply waiting for governments to take action.

At the macro level, the platform and participants are producing data that is valuable to businesses and public sector agencies in making decisions about transportation systems, urban planning and economic pricing. In the absence of up-to-date and high-quality information about commuter choices, it is difficult for city planners and employers to offer the correct congestion solutions. Conducting the necessary research is difficult and expensive, and by the time it is complete, it is already old. By providing a platform where numerous individuals track what type of transportation they use, when they use it and where they go, Luum is host to a significant amount of fresh and self-generated data on commuter choices. Access to this information would allow governments, transportation agencies and employers to make better decisions on which tools to apply, and how and when to address congestion problems.

Designing a Solution for Urban Congestion

The Luum team comes from a variety of functional areas, most team members having worked as engineers and business experts for Microsoft. In these positions, the founders of Luum witnessed the explosion of personal data that was produced by new information and communication technologies, and the subsequent exploitation of that data by government, the private sector and industry. The founders of Luum wanted to harness this value-exchange for the betterment of communities and society.

Initially, the platform was to be used by anyone for any social cause—education, hunger, water, sanitation, community renewal, etc. However, it quickly became apparent that in order to gain the necessary financial and social momentum behind the project, a specific focus issue was needed. At the same time, a "perfect storm" had occurred around the issue of transportation and congestion that made it clear to the Luum team that this topic could gain the buy-in that would ensure the project's viability. The decision to narrow the focus of Luum to transportation is described by Luum's Sohier Hall as, on one hand "the best decision we ever made," and on the other hand, "the hardest thing to do."[36] While in some sense this decision felt like a letting go of the "big ambitions," it allowed the organization to tap into the political, social and financial support that was building in recognition of the commuter problem. Put simply, Hall says that without having made this decision, "we probably wouldn't be here."[37]

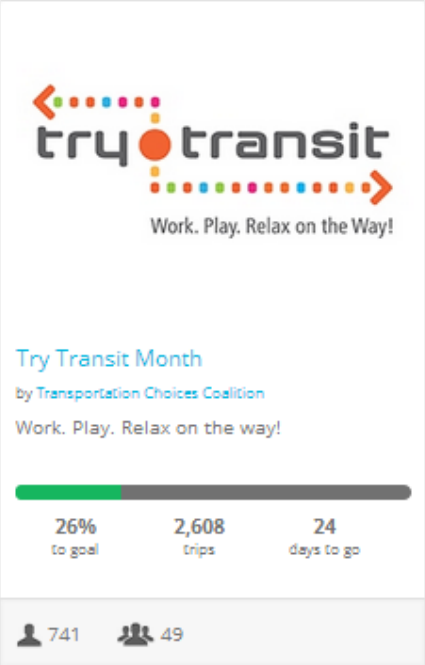
Once the issue of transportation had been decided on as the initial target issue for Luum, the team set out to create an online platform that would introduce something new and impactful to the existing tools tackling the problems of congestion. They targeted the gap in the available software for organizations that wanted to facilitate commuter behavior change outside of the enterprise setting and beyond individuals. Essentially, there was no easy, ready to use software available that would allow a company to issue a challenge that was open to a wide variety of self-organizing participants or between organizations. Therefore, Luum was designed to meet three objectives:[38]

1. Allow any organization to run private or open challenges without having to build and maintain the software.
2. Help organizations introduce a social and game experience into what can become an isolated daily grind of commuting.
3. Offer a "universal" platform, through which any organization can challenge its employees or other organizations, engage its sponsors and set up comparisons.

To date, Luum has been used to initiate seven challenges, the largest of which was the "Walk, Bike, Ride" challenge referenced above, but also including:

- A "Walking School Bus" challenge for children and their parents to walk safely to school in groups instead of using the traditional yellow bus.
- A "Try Transit" challenge by the Transportation Choices Coalition aimed at encouraging resistant commuters to give transit a try.
- A "Ride in the Rain" challenge in which the University of Washington went up against the Seattle Children's Hospital to see which institution's employees could log the most bike miles during the rainy month of November.

All of these challenges involved large groups of people and multiple teams, and far exceeded the target goals. Participants used their Luum profiles to communicate with each other, track their project and keep an eye on which teams were on the Leaderboard. The high levels of engagement in Luum challenges are credited to the social and collaborative nature of the platform. While cash incentives have been shown to have a strong effect on changing the commuter choices of single drivers, the chance to win prizes does not necessarily outweigh the convenience of driving. Sohier Hall believes that Luum will soon outstrip existing commute incentive programs in organizations due to a "massive differentiator" in that their platform is far more social and collaborative than any other.[39] This component adds a level of peer motivation and increases expectations for collective participation—both of which may induce otherwise reluctant drivers to join in. Furthermore, the platform integrates the various components of transportation systems including commuters, vehicles and parking into a simple, yet holistic solution.



In order to convince the decision makers, it will be necessary that Luum maintain a highly engaging and effective platform.

In order to get started with creating a challenge, companies, government agencies and non-profits are encouraged to contact Luum directly and work out the details. While the portal is designed to encourage and support perpetual year-round activity and behavior change, challenges are "bursts of focused encouragement" around a specific theme and typically last one to three months. Once the prospective organization is in touch with Luum, a unique challenge website is created and shared with potential participants. Eventually the Luum team plans to free this process from direct contact with them and allow users to create their own challenges independently.

Role of Partnerships

In order to get started and remain sustainable, Luum has also endeavored to find alternative financial and programmatic partnerships. It is difficult to acquire funding from philanthropic, public or private sector sources without also incurring pressure for instant success, profit and public acknowledgement. The founders wanted to avoid these traps and sought a partner who believed in their mission of addressing urban congestion and who was willing to work with them over the long-term to achieve success. Fortunately, Luum is privately funded by the individual who provided the first inspiration for the platform. This relationship has given the Luum team the flexibility to experiment and adjust. Moving forward, it is vital to Luum's success as a solution that it also become a viable business. However, Luum's governance has been tasked with preserving the citizen-advocate mission in all decision-making.[40]

To date, many of Luum's thematic partnerships with government, non-profits and businesses have been in the context of creating and enabling challenges in Luum's home city of Seattle. Luum has utilized these partnerships with organizations from the private, non-profit and government sectors to continuously improve and evolve the platform over time. Luum's customers and challenge participants have benefited from these partnerships through using the Luum platform to open up conversations and critical thinking on the urban congestion issue. The dynamic of Luum partnerships provides the platform with an iterative process of development and gives customers the opportunity to think creatively about how to meet their anti-congestion goals. Josh Kavanaugh, Director of Transportation Services at the University of Washington, says that:

> *...the Luum platform provides the timely commuter feedback and reinforcement that is essential to successful TDM programs. At the UW we've received great feedback from our commuters during promotions that used the Luum platform. Luum provides our TDM program staff with daily indicators of commuter behavior, allowing staff*

to make better decisions and improve program efficiency and effectiveness.

The success that Luum has achieved in Seattle is facilitating conversations that should lead to additional implementations by governments, the private sector and other non-profits. One area for further exploration is the connection between the data that Luum is generating and the public sector actors who could use this information to improve transportation systems. Additionally, many businesses are unable to implement commuter incentive programs due to the upfront costs of providing those incentives. These problems could be mitigated through multi-stakeholder partnerships where governments financially support Luum and businesses as they work to change commuter habits in exchange for insights into commuter behavior.

Measuring Impact

The Luum team recognizes that in order for the project to be successful, it must continue to learn from commuter and enterprise use, identify the greatest needs and rapidly innovate. Earning the recognition of relevant stakeholders as a congestion solution requires Luum to quantify the impact their platform makes and provide insight into exactly what incentivizes commuter change. Therefore, the team conducts significant analytics on the way the platform is used.

Challenges set specific goals for number of alternative trips and user engagement, which, as previously mentioned, have been consistently exceeded from day one. Additionally, the platform tracks the way users network and identifies the influencers within challenges who encourage others to participate. These individuals are important for determining how the message is spread and amplifying their efforts. Luum provides organizations with a dashboard of statistics that compares the current behavior of commuters to the organization's goals and previous achievements. An area for further development is the use of pre- and post-challenge surveys that could generate qualitative data on what worked to change behavior, what didn't work and why.

The Luum project articulates the dollar value impact that challenges have on the organizations and communities that host the project. For example, hospitals are typically bound geographically by their communities and financially by their revenue sources. However, they also seek growth—new ways to serve their communities better and more efficiently. Luum measures the value that it brings to these organizations by determining the cost and space reductions that changing commuter habits create. In the end, impact will be measured by the lasting change made in the commuter problem and in the changed way people think about solving community problems.

Implications for Network Leaders

Collaborative platforms provide a valuable addition to the arsenal against urban traffic congestion. Throughout the literature on urban congestion, the need for synergy between available solutions appears repeatedly. The most effective ways of combating urban traffic congestion in a specific location has been shown to include a combination of well-informed and targeted improvements to public transportation systems, along with a package of incentives and also disincentives aimed at behavior change. With its focus on providing positive incentives for behavior change, Luum is a valuable addition to a holistic approach to urban congestion.

One of the primary reasons congestion remains a complex problem is a lack of collaboration between relevant stakeholders. Establishing a more transparent value exchange that benefits all parties could mitigate this lack of collaboration and Luum is well positioned to provide the missing variable in this equation. Governments, for example, need better data in order to make informed decisions about how to change commuter preferences. Employers recognize their role in congestion, but often lack the ability to the cover real costs of providing alternative transportation incentives in order to attain tangible benefits. For example, hospitals and universities have thousands of employees, but little in the way of extra budget to fund an incentive program, despite a willingness to take action. Commuters, meanwhile, have little incentive to switch from solo driving to taking transit or riding a bike—both of which can be inconvenient.

Luum provides the digital infrastructure to connect these stakeholder groups and enables the value exchanges required to drive changes in commuter behavior. Governments need information, employers need financial assistance, and commuters need incentives and positive experiences. Luum provides commuters with a sense of teamwork and community, and generates the data that governments need to understand transportation problems. Mutually reinforcing multi-stakeholder partnerships could make a tremendous impact on the congestion problem.

Digital platforms provide powerful vehicles for encouraging behavior change through highly targeted reward systems. Luum provides the tools needed to track and reward individuals that use alternative modes of transit. However, as with any incentive program, there is the risk of only rewarding those who already participate in alternative modes of transportation because of financial constraints or personal commitments to health and the environment. Reducing congestion requires convincing solo drivers to use alternative modes of transportation. It also requires convincing all commuters to use alternative routes or timing to move around town. Luum has the ability to target these problems and could do so by expanding the possible ways to earn rewards during challenges. The Luum platform could incentivize commuters to not just change their mode of transportation, but also what routes they take, and when they do so. This way, the platform can

reward both incremental changes and significant shifts in commuter choices. CEO Sohier Hall has indicated that Luum is already thinking this way by, for example, considering working with partners to incentivize employees living closer to their place of work.[41]

Digital platforms that facilitate changes in consumer behavior could be applied to a wide range of global problems. While Luum shows the value of using a digital platform to drive changes in commuter behavior, similar digital, community-based reward systems are being used to encourage commuters to adopt a wide range of socially and environmentally beneficial lifestyle changes. For example, online health tracking platforms that encourage and motivate healthier eating and exercise habits are increasingly popular, especially among the already health-conscious. If governments and employers were in step with incentives to drive widespread adoption of online health tracking, such systems could lead to lower rates of obesity and chronic disease and thus help reduce healthcare costs. Likewise, the latest generation of "smart home" dashboards enable users to pull up a web-based interface to analyze the sources of their emissions, compare their home with the neighborhood, forecast household savings and control their energy use remotely from a PC or a mobile phone.

Design platforms for scale. One of the great advantages of a digital platform like Luum is that it has the potential to scale globally and be used as a vehicle for solving congestion problems in localities around the world. Indeed, the Luum team envisions that its platform will be used simultaneously by many institutions and municipalities. Designing a platform for this kind of scale, however, entails some significant challenges. It was vital, for example, to build capacity in terms of data management and server capabilities in order to ensure that data points from tens of thousands of people can be acquired, calculated and visualized on the platform in real time. One potential obstacle identified by the Luum team is the eventual need for the platform to be available in multiple languages and achieve localization for contexts outside of the United States. The Luum team also envisions the need to make the process of establishing a transit challenge on its platform more of a self-serve experience. As it stands, companies, government agencies and non-profits must work with Luum directly to work out the details, including the challenge themes, duration and rewards.[43] As the platform grows, the Luum team plans to free this process from direct connection with them and allow users to create their own challenges independently.

luum.com

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Endnotes

Illustrations were provided courtesy of Sohier Hall, CEO of Luum.

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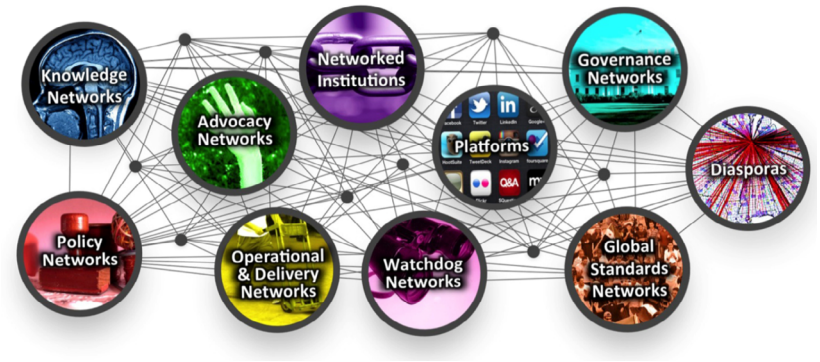

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