

Introduction to the New Sustainability & Multimodal Operations Planning Workshop

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Introduction to the New Sustainability & Multimodal Operations Planning Workshop

Text for Cover / intro slide

Good morning. My name is Paul Bignardi and I am the Chair of the APTA Multimodal Operations Planning Subcommittee, and a Principal Planner at the San Francisco Municipal Transportation Agency, which is still known by many as “Muni” in San Francisco.

Welcome to Minneapolis. We hope this will be an exciting and successful workshop in its new format and value your feedback at its conclusion.

I want to thank APTA for sponsoring the workshop, and the host agency Metro Transit, along with Minneapolis for hosting the group this year. A special thanks to Metro who has registered more attendees than any host agency I can recall. I also want to thank the Hyatt Regency Hotel and their staff who are hosting us in their facility for the next few days.

We have many great sessions planned during the next three days, and we have technical tours scheduled for Wednesday afternoon. Perhaps some of you went on the technical tours that were offered yesterday. I urge you to attend the reception this evening, match your wits with others at the Sustainability and Transit Jeopardy breakfast tomorrow morning, and urge everyone to attend the Transit Ridership Challenges forum on Wednesday morning. Lastly, please review the transit maps on display and vote for the best designed transit map. The winning agency map will be announced on Wednesday.

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What do you think about bringing the Sustainability and Multimodal Operations Planning Workshops together?



DIFFERENT

CHALLENGING

CRAZY

WHY ?

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Text for Slide 1

What do you think about bringing the Sustainability and Multimodal Operations Planning workshops together? Yes it will be different. It certainly has been challenging. Crazy? Well maybe that is a bit too strong? Why? This presentation should help explain why.

The more I looked at it - the more the image came to mind of a Reese's Peanut Butter Cup: we hope is this workshop will mimic the Peanut Butter cup – and be two great tastes that taste great together.

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Text for Slide 2

There are serious issues facing the earth and all of humanity. Our day to day lives in transportation may be somewhat removed from these issues, but our work in transportation is front and center in the middle of it all.

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<https://thumbs.dreamstime.com>

**Success will require a sustainable transportation
VISION of the future**

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Text for Slide 3

**Our challenge is to create a sustainable vision for transportation in the future.
The Sustainability side supplies the vision of the future**

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<http://www.atulthakur.com/category/charlie-chaplin>

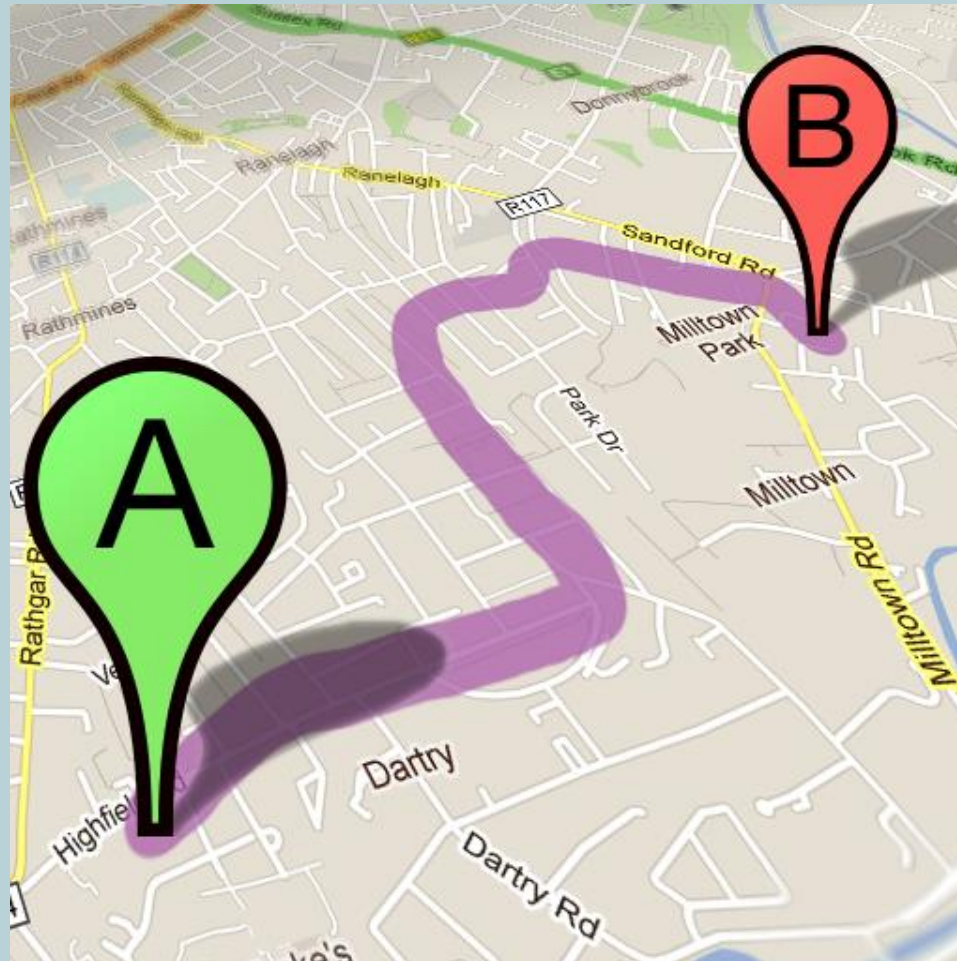
And a workforce with the skills to make it happen

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Text for Slide 4

**and the Multimodal Operations Planning side has the skills to implement that vision
– to make it happen.**

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Wait – I'm just trying to plan better bus routes . . .

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Text for Slide 5

**Some of you are thinking; wait, I'm just trying to plan better bus routes.
Well unfortunately your job is no longer that easy.**

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Think Global,
Act Local

**It's OK to think bigger --
Because we all have to start thinking bigger**

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Text for Slide 6

**Remember the line – “Think globally, act locally” that was popular a few years ago?
The fact is we all need to think bigger as we go about our work.**

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<http://economics.utah.edu/>

**Sustainability ultimately is not an environmental issue -
it is an economic issue and a social issue**

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Text for Slide 7

In the bigger picture, sustainability ultimately is not a green issue, it is an economic issue and a social issue.

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“Classic” Economics Measurements

- **GDP – Gross Domestic Product**

Continuous growth is the goal - - - and the goal is good. . . .



<https://economix.blogs.nytimes.com/2012/11/09>



<http://www.switchconsulting.co.nz>

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Text for Slide 8

Our basic economic courses taught us that macroeconomics is most often measured on the gross domestic product (GDP) of a nation – and the measurement should always be going up.

**The goal of continuous growth is good – right? We all want to be like this guy!
Who can be against continuous growth?**

We can.

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**We know the earth cannot support continuous growth
Balance and sustainability is what is needed**

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Text for Slide 9

We know the earth doesn't have unlimited resources – so the basic economics concepts we were taught are incorrect.

**Instead we know that living in a balance that is sustainable is the vision that is needed.
So if we want to seek balance where do we look?**

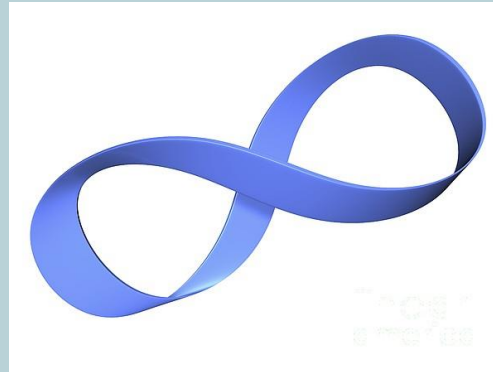
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Examples of Balance or Infinity Symbolism



<https://writing.wikinut.com>

**“Yin–Yang” (Dark –Bright)
Chinese Tao**



<https://fineartamerica.com>

Mobius Strip



<https://en.wikipedia.org/wiki/Triquetra>
Celtic Knot “Trefoil”



<https://www.google.com/search?q=portland+trimet+logo&source>

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Text for Slide 10

Examples of balance are all around us. Some that we are familiar with are the Yin and Yang of the Chinese Tao, the Mobius Strip and the Celtic Knot.

Even Tri-Met in Portland, Oregon has a balance symbol within their logo.

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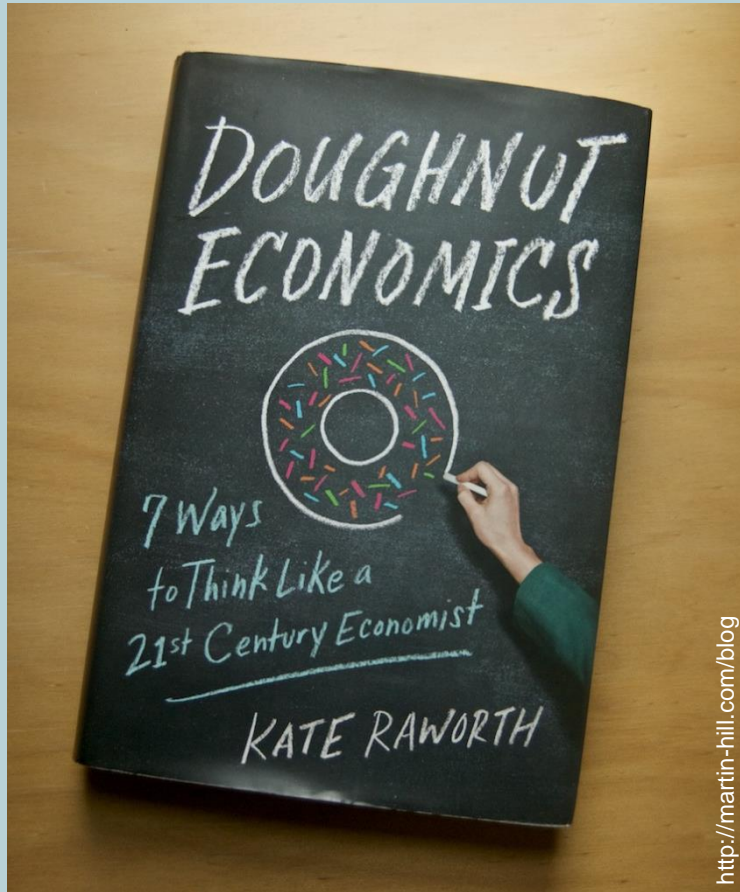
A New Graphic for a Sustainable Economy ?

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Text for Slide 11

**Then there is this concept of sustainable economics that is based on a circle
- or more precisely, the doughnut.**

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**Published - April 2017
Chelsea Green Publishing**



**Author: Kate Raworth
Economics Professor
Oxford University – Oxford, UK**

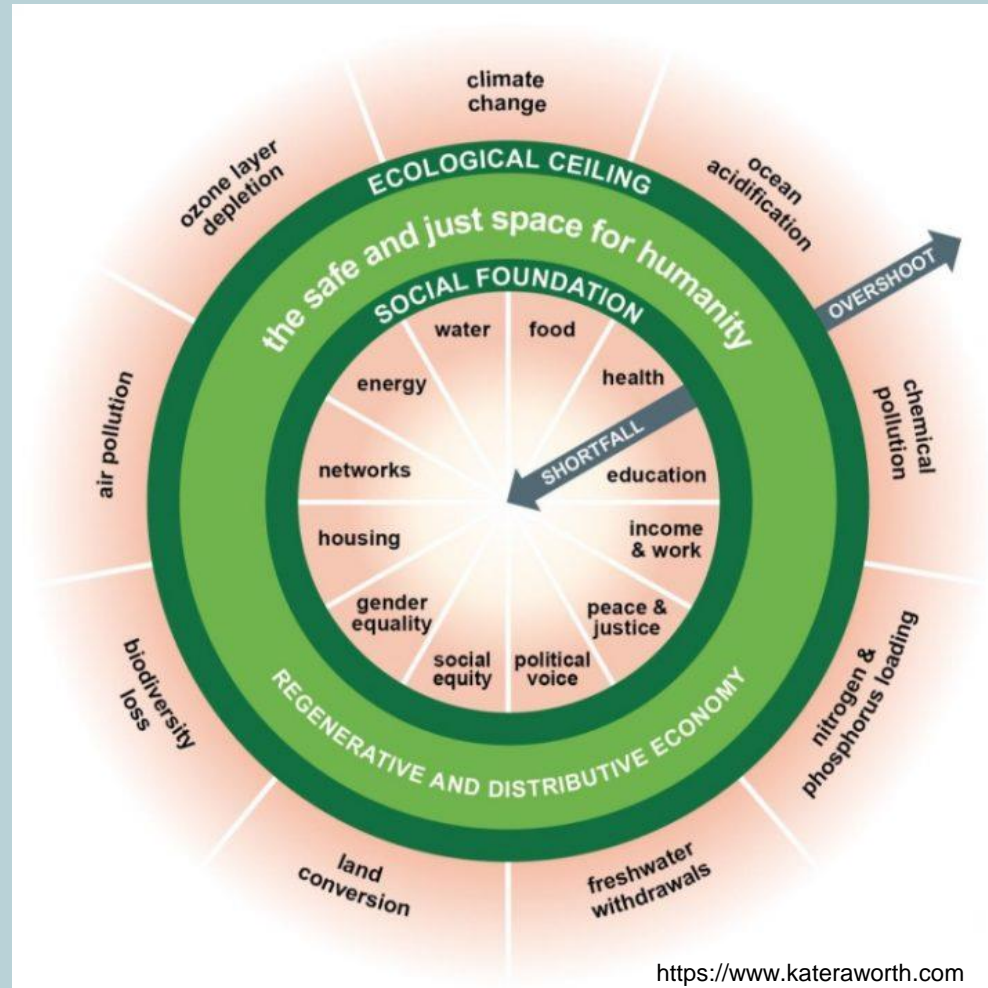
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Text for Slide 12

The concept comes from an Oxford Economics professor named Kate Raworth in the book “Doughnut Economics”, which was published earlier this year.

**I have a copy here with me – complete with post-it tagged pages to mark the good stuff.
There is a lot of good stuff.**

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A New Graphic for a Sustainable Economy !!

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Text for Slide 13

This diagram actually shows the doughnut concept more fully explained.

The inside space is based on measures of twelve social foundation concepts, and the outside is based on measures of nine ecological issues.

There is a safe space for humanity in the confines of the doughnut, but not inside of it or outside of it. If as a society we are in the donut hole, or outside of the doughnut edge – we have a problem.

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**Replace “Endless Growth”
With . . .**

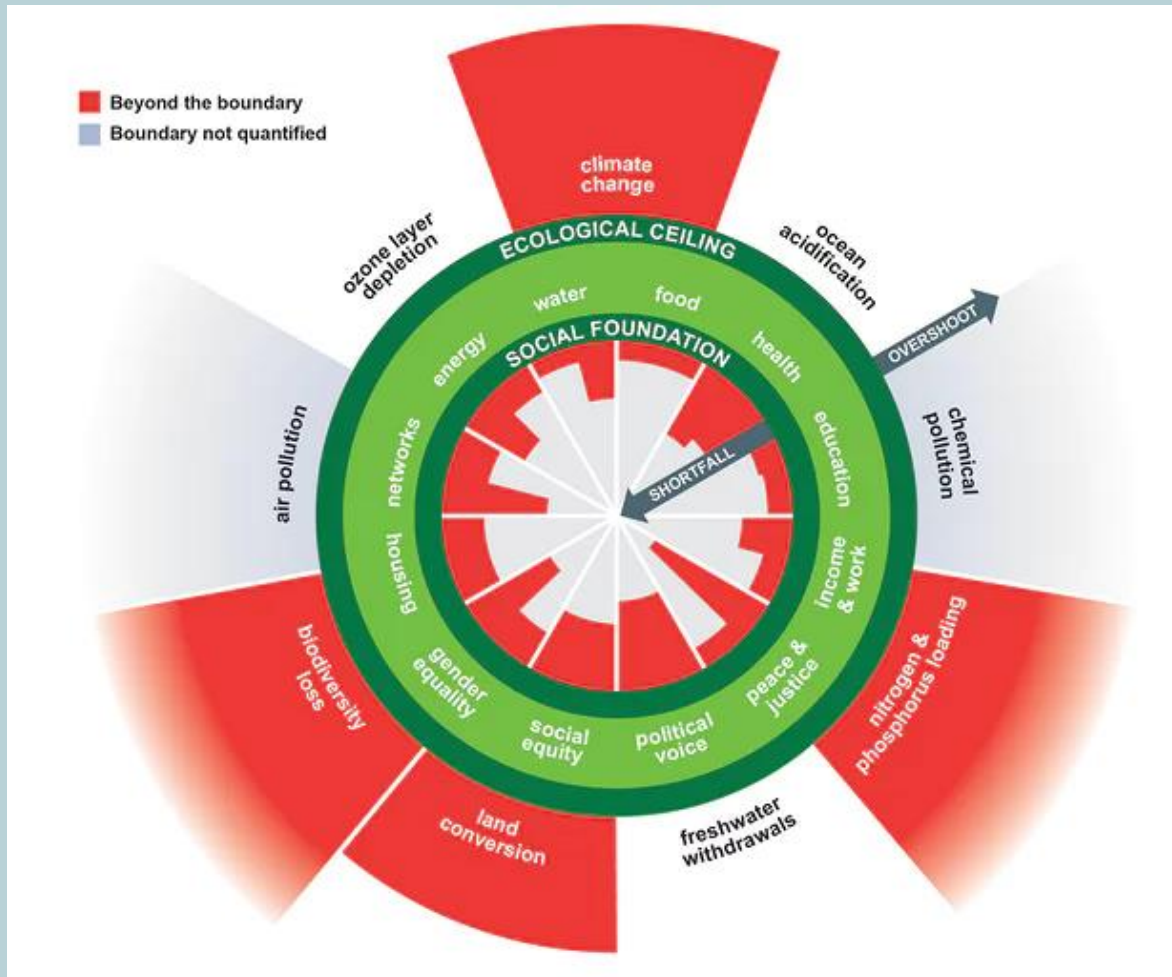
“Meet the Needs of All -- Within the Means of The Planet”

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Text for Slide 14

**The basic concept of the doughnut economic measurement is stated as,
“Replace the goal of endless growth with the goal of meet the needs of all
– within the means of the planet”.**

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<https://www.theguardian.com/commentisfree/2017/apr/12doughnut-growth-book-economic-model>

The Doughnut Applied to the “Real World” in 2017

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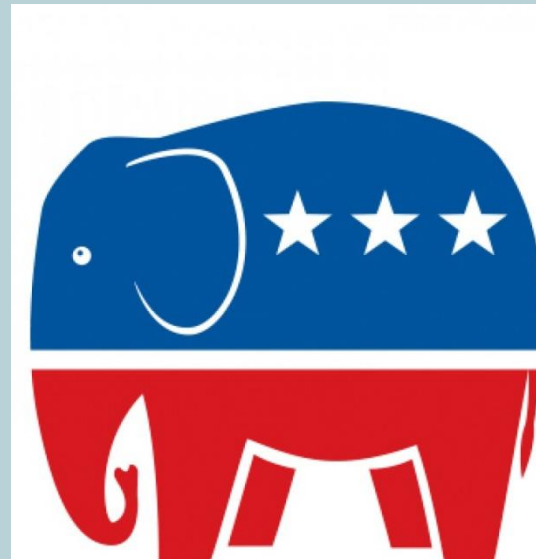
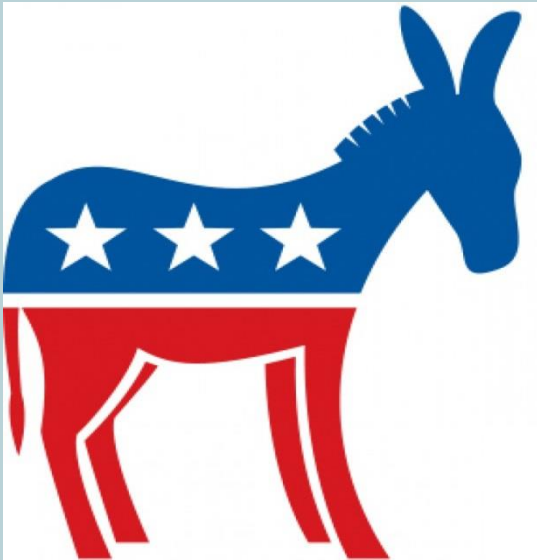
Text for Slide 15

Here is an application of the theory to our world in 2017.

We are failing on all twelve social goals – and are in the doughnut hole. We are also failing on multiple ecological ceilings – and are outside of the doughnut in space.

This concept reaffirms all of us – from the entry level transit worker to our CEOs - are facing big challenges that go far beyond the transportation sector, but we have to be aware of them, and we have to do our part to enact change in the work we do every day.

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**The Political Party of the Future
Is the Party that Addresses this issue**

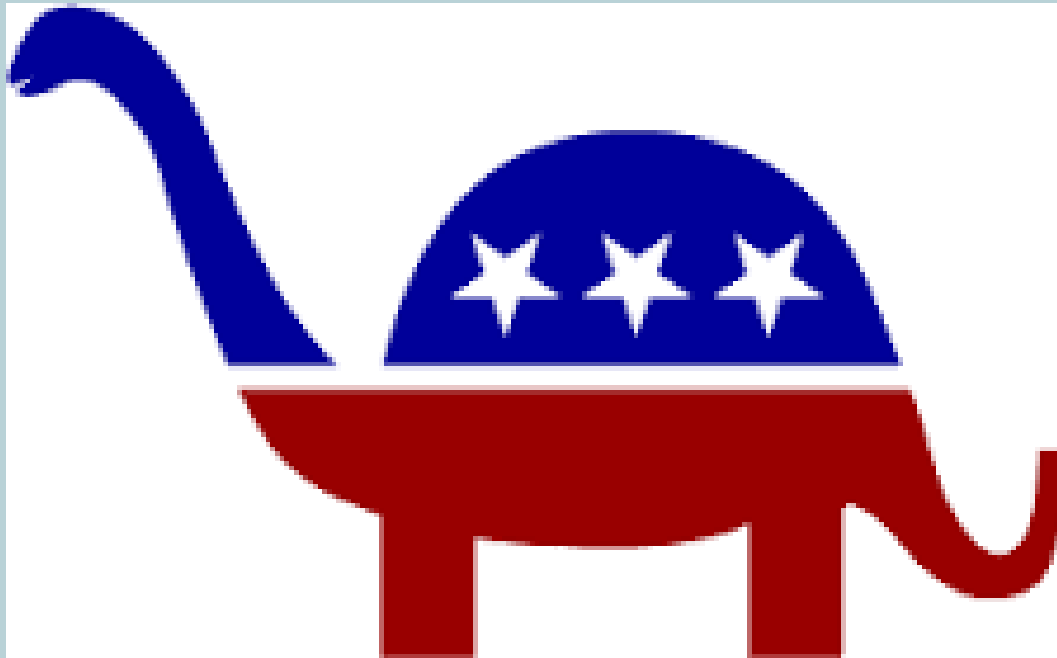
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Text for Slide 16

The political parties of the future that address this issue are the ones we want to support, and more importantly, are the ones that are needed to move us forward.

**In the U.S. it may one of the existing political parties,
or it may be a new party that doesn't yet exist**

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The Brontocratublican

It will not be these guys

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Text for Slide 17

The parties that don't understand this challenge will be left behind.

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But wait . . . I'm still just trying to plan a better schedule . . .

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Text for Slide 18

But you're still thinking, I'm just trying to draft better schedules and make better transit maps – where do I fit in with all of this? I'm about to show you.

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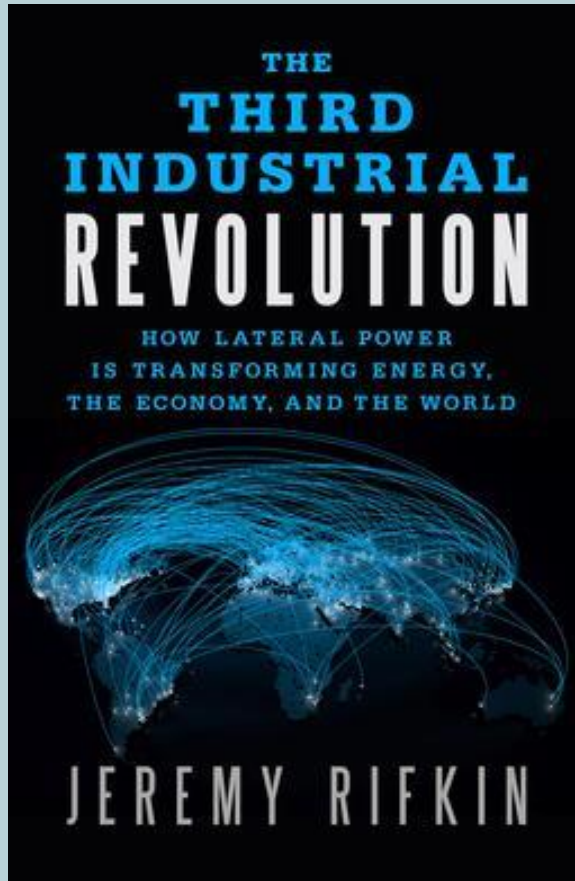
Transportation is rapidly changing

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Text for Slide 19

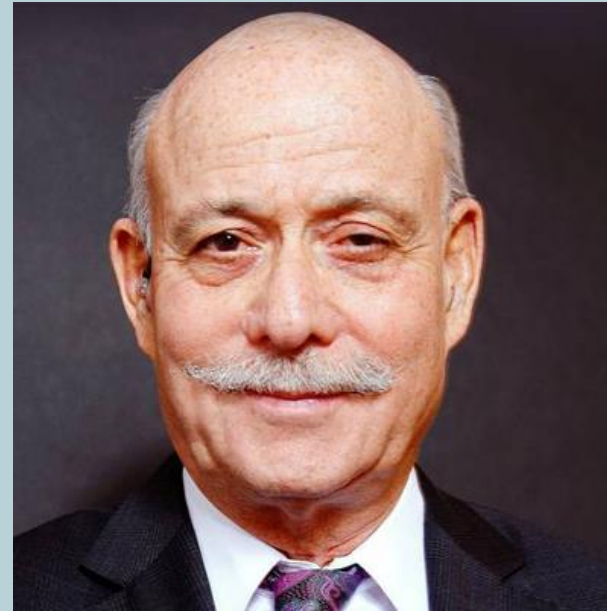
We all know transportation is rapidly changing – whether it is public transportation, private transportation, or areas where the two crossover.

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https://upload.wikimedia.org/wikipedia/en/d/d6/The_Third_Industrial_Revolution_Book_Cover.jpg

**Published - April 2011
Palgrave-McMillan Publishers**



<http://solarcanadainconference.ca/news/an-interview-with-mr-jeremy-rifkin/>

**Author: Jeremy Rifkin
Social Theorist / Professor
University of Pennsylvania**

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Text for Slide 20

That brings me to another book – “The Third Industrial Revolution” published in 2011 by Jeremy Rifkin, a professor at the University of Pennsylvania. Rifkin puts forward the idea that we are entering a Third Industrial Revolution.

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Industrial Revolution #1 – mid -19th Century

Mechanization of the textile industry – followed by other industries

The factory is born

Industrial Revolution #2 – early 20th Century

Creation of the assembly line and adoption of fossil fuel energy on a wide scale

Mass production fueled by cheap energy

Industrial Revolution #3 – late 20th / early 21st Century

Digital Technology and High Technology Transform Information, Money and the Market

Technology Decentralizes Information, Energy Production and Transportation

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Text for Slide 21

In the 1st Industrial Revolution the factory was born.

In the 2nd Industrial Revolution mass production powered by cheap fossil fuel drives the economy.

The 3rd Industrial Revolution is focused on technology and its application which is resulting in decentralization – of information, energy production and our area of focus - transportation.

The move toward decentralization also is a move toward balance and sustainability, because it results in shared control rather than central control.

The process isn't perfect – as we have seen in the decentralization of information and what happened to newspaper and TV media following the rise of the internet, but it is undeniable that the change is happening.

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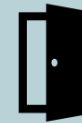
The Third Industrial Revolution is not about ownership . . .
It is about access

Ownership



VS.

Access



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Text for Slide 22

In the 3rd Industrial Revolution – a key concept is technology allows for access - and access is more important among many people, especially younger people, than ownership.

Ownership of many things in life restricts people to one option. It's cumbersome and expensive, while access offers many options at a much cheaper price.

Do we want the keys to one door or the keys to nine doors?

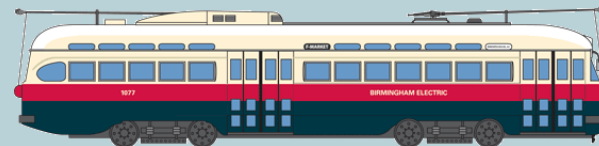
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Transportation OLD

Private Transportation Options



Public Transportation Options



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Text for Slide 23

A generation ago, transportation options were limited: buy a car, buy a bike, call a taxi, rent a car, carpool, or take transit.

Public transportation was limited to large vehicles – the 40-foot bus was supreme - and only a few cities such as New York, Chicago, Boston, Montreal, Philadelphia and San Francisco still had rail transit. Transit options offered to the public were few and hadn't changed in decades.

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Transportation -- THIRD INDUSTRIAL REVOLUTION

Private Transportation Options



Public Transportation Options



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Text for Slide 24

Now all has changed and continues to change. Ownership is still an option, but joining taxis and rental cars on the non-ownership side we have TNCs, on demand car or scooter services, bike share, and private leased - shuttle buses nicknamed “the Google buses” in the Bay Area. To address the last mile has seen the introduction of truly personal motorized transport, such as motorized skateboards and Segways – without the pole.

On the operations side over 40 North American cities now offer rail transit – a rail renaissance, buses come in many sizes and Bus Rapid Transit and bike lane networks are concepts that were un-imaginable a generation ago.

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<http://www.imagineeringdisney.com/blog/2013/2/6/what-remains-of-the-1964-65-new-york-worlds-fair.html>



<https://www.youtube.com>

Competition for streetspace forces planners to be referees and umpires

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Text for Slide 25

The increase in options does have drawbacks. Different modes and their supporters compete over precious streetspace with planners and transit agencies being the referees and umpires -- and most people don't like referees and umpires.

Have you heard of the term curb equity?

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<https://labyrinth-institute.com/counseling-what-is-it-like>

The increase in transportation options may actually be a reason for recent declines in transit ridership

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Text for Slide 26

The many transportation options target areas where traditional transit never dared to venture, but they also target daily commuters and mid-day trips that are at the core of our business. In many instances they offer better service than transit is offering or than transit can afford to offer.

This may be a major reason for recent declines in transit ridership after a steady growth following the Great Recession. We don't know?

Data is scarce and we are playing catch up.

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Waiting in the wings are driverless cars

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Text for Slide 27

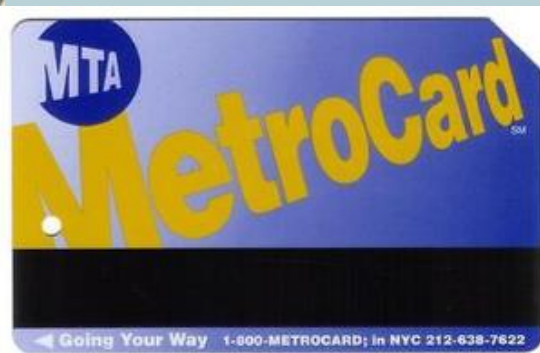
Waiting in the wings are self-driving cars, which may be the most disruptive change yet?

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Transportation -- OLD



Transportation -- THIRD INDUSTRIAL REVOLUTION



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Text for Slide 28

A generation ago almost everyone paid by cash, except for a few who used credit cards to buy multi-ride or monthly passes – where they were offered, which wasn't everywhere.

Now the stored value card is the rule, but the smart phone app - like the type we are using this week in Minneapolis is the next innovation. A phone transit app is great, but remember on most phones they share space next to the Uber app, or Zipcar app, or the bikeshare app, and if the user isn't happy with what transit is offering, another option is just a few clicks away.

Again, it's about access, and the smart phone – the mini-computer of the decentralized information system - is the key that unlocks all of the doors to access in the Third Industrial Revolution.

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Transportation -- OLD

Fuel and Propulsion Options

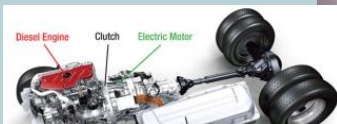
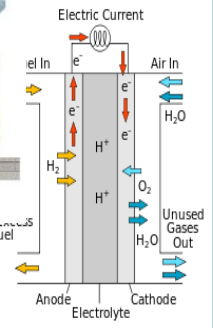
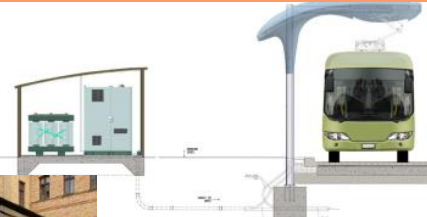


Transportation -- THIRD INDUSTRIAL REVOLUTION

Fuel and Propulsion Options



Valence U-Charge® U27-24XP & U24-24



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Text for Slide 29

Transit technology is also very different than it was a generation ago. Oil and the internal combustion were king. The traction motor in transit was sort of an oddity, only found at the transit agencies still operating streetcars, trolley buses or electric commuter rail trains.

Now fossil fuel vehicles are still dominant, but the future for transit vehicles is likely to be electric. The traction motor is prepared to become dominant, although hydrogen fuel cells may provide some competition. If you don't know how a traction motor works, you probably will know very soon.

The largest battle appears to be between “rapid charge” and “traditional slow charge” technology – and the infrastructure both require. As batteries are expected to continue to increase in power, decrease in weight, and improve in travel range, the traditional slow charge appears set to win out, but right now, there is plenty of opportunity for both camps.

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Multimodal Operations Planning is about transforming a sustainable transportation vision into a reality

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Text for Slide 30

As the past few slides show – Multimodal Operations Planning is no longer about just planning good bus routes, or train service, or drafting a good schedule. It is about transforming a sustainable transportation vision into a reality at the local level. In some ways in San Francisco we have been ahead on this as the city acted to place transit, street traffic engineering, taxis, and all of the support needed – planning, finance, engineering, etc. in one agency over 15 years ago. We don't always work well together, but we have to work together period, because we are all under the same roof. That is our vision.

Last Friday SFMTA and the San Francisco County Transportation Authority convened the first workshop that attempted to bring all the players: transit, TNCs, regional funding officials, traffic engineering, etc. into one room – just to meet each other – and maybe to start to work together to plan out the future.

Looking at the overall picture - for all of us, San Francisco included, we have to better understand and seek to master the issue of access, and develop a sustainable vision to find where our transit agencies fit in an access driven world.

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Sustainability



Multimodal Operations Planning

These two groups need to work together more now than they ever have before

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Text for Slide 31

At the start of this presentation I asked if you thought it was a good idea to bring these two workshops together? I will admit when APTA told me this was going to happen

- I was opposed to it, but after seeing the evidence I have shared with you this morning**
- I believe it is a good idea that has great potential in the future.**

These groups need to work together more now than they ever have before. Sustainability needs to provide the vision, and Multimodal Operations Planning needs to provide the technical skills and knowledge to get it to work.

I like to say – we have “make it happen” as part of our DNA.

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We are at a workshop

The future is being made right here and we have to succeed !

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Text for Slide 32

So stop for a second and think.

We are here at this workshop, and since this is a workshop, we are sort of in the shed or garage behind the house where most great stuff has been invented in history.

**We are at Richmond when Frank Sprague is inventing the streetcar,
we are in New York when August Belmont was planning the IRT subway,
and we are in San Francisco when Garret Camp conceptualized Uber.
We are at Stanford and Oxford when lithium-ion batteries were being developed.**

Look at the people sitting around you. One of them may be the origin of a big breakthrough?

We are at “ground zero” where concepts are shared and innovations are made.

Go enjoy the sessions and learn and share ideas. Crossover into sessions on different tracks to learn something new. Make contacts that will last through your entire career.

The future is being made right here, and we have to succeed.

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This is what is at stake

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Text for Slide 33

This is what is at stake

What is Real Sustainability ?

Thank you.

Paul Bignardi

Principal Planner

Chair – APTA Multimodal Operations Planning Subcommittee

Sustainable Streets / Finance and Information Technology Divisions

San Francisco Municipal Transportation Agency (SFMTA)

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