[Music]

>> Systems thinking is an approach
to building understanding that has the following core tenant.
The structure of the system is responsible
for driving the behavior.
By structure, I refer to the rules, procedures, policies,
ideas and thinking, that we use to make the decisions.
For this video, we're going focus in on behavior.
When a focus on a key skill of a systems thinker that I refer
to is dynamic thinking.
Dynamic thinking helps us to identify and frame an issue
and how it plays out over time.
And we can do this in a way that helps us to also
to begin building our understanding
of what the structure is for generating that behavior.
In order to understand this concept
of dynamic thinking, let's use an example.
Assume for the moment that you're on an executive team
of a large corporation.
Last quarters profits were in the red.
How do you feel?
Not good, right?
What would you likely want to do in order
to respond to this event?
Most likely you'd try to do cost cutting measures,
such as laying off people, reducing training.
Maybe getting rid of a part of the business.
Now, let's assume that over the last year,
you saw your profits go from positive millions of dollars,
down to negative millions of dollars.
What kinds of reactions might you take then?
Well, most likely you'd still be doing the same kinds of things,
cost cutting, probably worse cost cutting.
You'd probably really be thinking
about divesting part of the business.
You might be laying off people, etcetera.
Being a member of the executive team, you might be likely
to also be thinking about how you could you get off this team?
Or who might you blame?
Now, let's assume that over the last several years you see
this pattern.
It's oscillating, right?
Several peaks and valleys,
but they look approximately the same.
How do you feel now?
Probably a sigh of relief.
Why? Because you now have a picture of the business
that you're working with.
It's probably something like a seasonal business, right?
Or maybe it's a commodity business like oil,
where prices go up and down,
but they have sort of regular patterns.
Now what are some of your solutions?
Well, if you're a seasonal business, you might try
to figure out some way, during the off seasons,
to also generate some revenue.

Maybe if you're a commodity business, you'll figure out ways
to cut costs or reduce expenses during the down turn,
so that you're more profitable.
And if you're an entrepreneurial type adventure like Apple or 3M
or others, you might invest in R and D's, so that over time,
during the downturns, when you're investing in an R and D
and in the upturns you get to ride it up.
So, the fundamental difference here, between the primary way
of reacting in the first set of situations, which are reactions,
cost cutting, slashing, etcetera
and this more proactive approach,
is that you now have a picture of the business in your mind.
And this is the value of dynamic thinking.
You're much more likely to see the business
for how it is and how it works.
And by doing so, you start to see the structure
and have an opportunity for making the changes that you wish
to make, if you're going to improve the quality
of the future that you're trying to bring about.
Here's another example.
Let's assume that you're trying to reduce childhood obesity.
And you're looking for a state that's doing a good job
to be a coach to other states.
In this graph, A has the worse childhood obesity relative
to Z. So, who would you choose to coach?
You'd choose state Z. Now, looking at this graph,
you see something different, right?
A is getting better, while Z is getting worse.
So, now who would you choose to coach?
Well, you would choose A. They've obviously figured it
out, whereas Z may have something to worry about.
This is the value of using a dynamic perspective.
By having a trend line, you get a fuller, richer,
more operational picture of what's going on.
You're more likely to identify the right leverage points
to lean on.
We're going to now talk about how you can use systems thinking
and dynamic thinking, to develop your own trend graphs.
First, try to figure out what variable, if you understood it,
might really help you to understand the issue
in a deep full, rich way.
Think about, as that trend, what has been happening to it?
Has it been getting worse?
Has it been getting better?
Something where you might have an ability
to really delve into the issues.
So, once you've figured out the variable,
then think about could you normalize it?
By normalizing it I mean, turning it into a percent
or an average or dollars per capita
or outcome per dollars spent.
So, why would we want to normalize a variable?
Well, let's assume you're trying to compare the amount
of money spent on sports in 2 different states,
high school sports, for example.
Comparing Texas versus Vermont.
Total dollars spent in Texas versus total dollars spent

in Vermont, probably a huge difference.
But maybe if you looked at dollars spent per student
in Vermont and dollars spent per student in Texas,
they might be more comparable.
The next step is to figure
out over what time frame you're going to analyze this.
If you're working the public policy space for example,
you might be looking at multiple years, maybe even decades.
Things in that arena, such as obesity
and other demographic associated issues,
often take a long time to change.
This becomes the X axis.
In other words, what's the time over which we're trying
to solve this problem or understand this problem?
You would then on the Y axis, figure out what's that variable
and how it's been changing over time, over that period.
You can continue sketching out in the future where it's going
to go, if you do nothing.
If we continue to be effective at solving this
or if we ignore it, if it's business as usual,
what's the price we pay into the future?
This could be highly motivating and to get people excited
about working on the problem with you.
You can also use this as an opportunity to engage people
in developing a vision of the future.
If we were wildly successful in the next 10 to 20 years,
what would happen over that period
of time with this variable?
Would it get better?
How so? This can also cause people to be motivated to try
and work on the problem with you.
I found other kinds of graphs to be useful
for a variety of reasons.
The first graph I'm going to refer
to is the family of graphs.
Why a family?
Well, you might be delving into 1 issue,
but there might be multiple aspects of it
that different people
or different stakeholder groups are interested in.
For example, childhood obesity.
Some people may be interested in the short term implications
of childhood obesity on children.
And you might have a graph that looks at that.
Others might be looking at the economic costs.
How it might be playing out in the future of healthcare costs.
There might be a graph on that.
And others might be interested in terms of looking
at where it's going
and comparing it in different regions.
And so, there might be a graph for that.
Putting all these graphs together in a family of graphs,
allows you to engage people in the learning process.
And is more likely to make sure that you got the richer,
fuller picture of the issue that you're trying to solve.
Another type of graph is what I refer to is the narrative graph.
This is a graph that may look at a trend line over time,

say in the past, where you can look at different events
or interventions that occur at along that trend line.
This gives you an ability
to anchor different experiences along that trend line
and to tell a dynamic story.
Another type of graph is what I refer to as a goals
and initiative impact graph.
This type of graph helps you to get team members
on the same page about what are the achievable goals
and how you're going to get there.
Take for example, the CDC maybe even trying
to implement evidence based programs.
And they want to increase the percentages
of target populations that adopts it.
On a team of 4 members perhaps,
3 of them believe you can triple that.
And 1 person believes the best you can do is to double it.
Right there you have an opportunity for learning.
Why is it that 3 team members are much more optimistic
than the fourth?
In addition, you can then ask how would
that play out over time?
You may find that 1 team member things
that you can quickly triple the percentage of adoption
from that target population.
Another team member might think they would take a long period
of time to get there.
While a third might actually think there could be a worse
before better dynamic, which could be really scary
in the midst of an implementation, right?
Applying a goals and initiatives impact graph,
allows you to get clearer about what the assumptions
that people are using, the mental models.
And to be able to get on the same page
about what the interventions could possibly be
and what's achievable.
This increases the likelihood
that you will have an effective high leverage strategy
in the future.
Another type of graph I use with teams, is what I refer
to as the leading and lagging indicators graph.
This type of graph helps you to visualize the cause of linkages
between multiple factors in a system.
Pretend for example, that you're working at a community
and you're trying to some community
improvement initiative.
Where at the end of it, there's some variable
in the community that's getting a lot better.
It may take a long time before that happens.
So, for example, you may need funding
to occur before some sort of a resource is applied
to allow people to improve that community.
But it also might take even more,
before you get the funding, some level of community support
and engagement to get there.
So, you can see in a graph like this, the first thing
that would improve, a leading indicator might be

community engagement.
The next level that it might improve
and the next indicator might be something financially related.
And the final ultimate outcome might be years
in the future before it happens.
If you were only using the lagging indicator,
you might be discouraged early on,
if you didn't see that improving.
Even if the engagement
or the funding was starting to take place.
Having a leading lagging indicator graph, like this,
will allow you to make sure that you don't misunderstand
or misread the tea leaves, so to speak and make sure
that you know that as your moving forward
that you're getting where you want to go.
If a leading indicator doesn't change when you expect it,
then you have an opportunity for learning.
Maybe your theory or your thinking was wrong
or maybe you need to look at some other variables, as well.
No matter what happens though,
a graph like this can give you the early warning indicators
that you're either on or off track
and create an accelerated pace of learning.
It's essential, particularly in situations like public policy,
which often move in glacial speeds.
So, I hope you can see that there are many different ways
to use trend over time graphs.
They help us to improve our ability
to apply dynamic thinking.
All of the graphs that we've just covered,
give you a better picture of the system
that you're trying to change.
That's the structure behind a behavior.
You start with a behavior you're trying to change,
understand what's the price you pay for not solving it.
And then doing it trend over time,
expanding your temporal horizons,
gives you a much better picture of this system and opportunities
for identifying the leverage points you need.
So, get the picture, get the leverage.
Using trend over time graphs, can make you more effective.
I encourage you to use them.