MICHIGAN STATE UNIVERSITY

Using Logic Models to Represent Program Theories

Laurie A. Van Egeren, PhD
Director
Celeste Sturdevant Reed, PhD
Evaluator
Community Evaluation and Research Center
University Outreach and Engagement

Evaluation Circle
November 6, 2009

How familiar are you with logic models?

Heard about them		Use them from time to time		Plan my personal & professional lives using them
1	2	3	4	5

What this session will cover

- A definition of a logic model
- An overview of the basic uses
- Defining the component parts in simple logic model
- Developing a (more) complex logic model

A Logic Model Defined

A tool that describes the *theory of change* underlying an intervention, product or policy. It characterizes a project through a system of elements that include components and connections, with context being an important qualification.

Joy A. Frechtling, ***LOGIC MODELING METHODS IN PROGRAM EVALUATION*** *(2007), p. 1*

A Logic Model Defined

A picture of how your organization does its work the theory and assumptions underlying the program. A program logic model links outcomes (both short- and long-term) with program activities/processes and the theoretical assumptions/principles of the program.

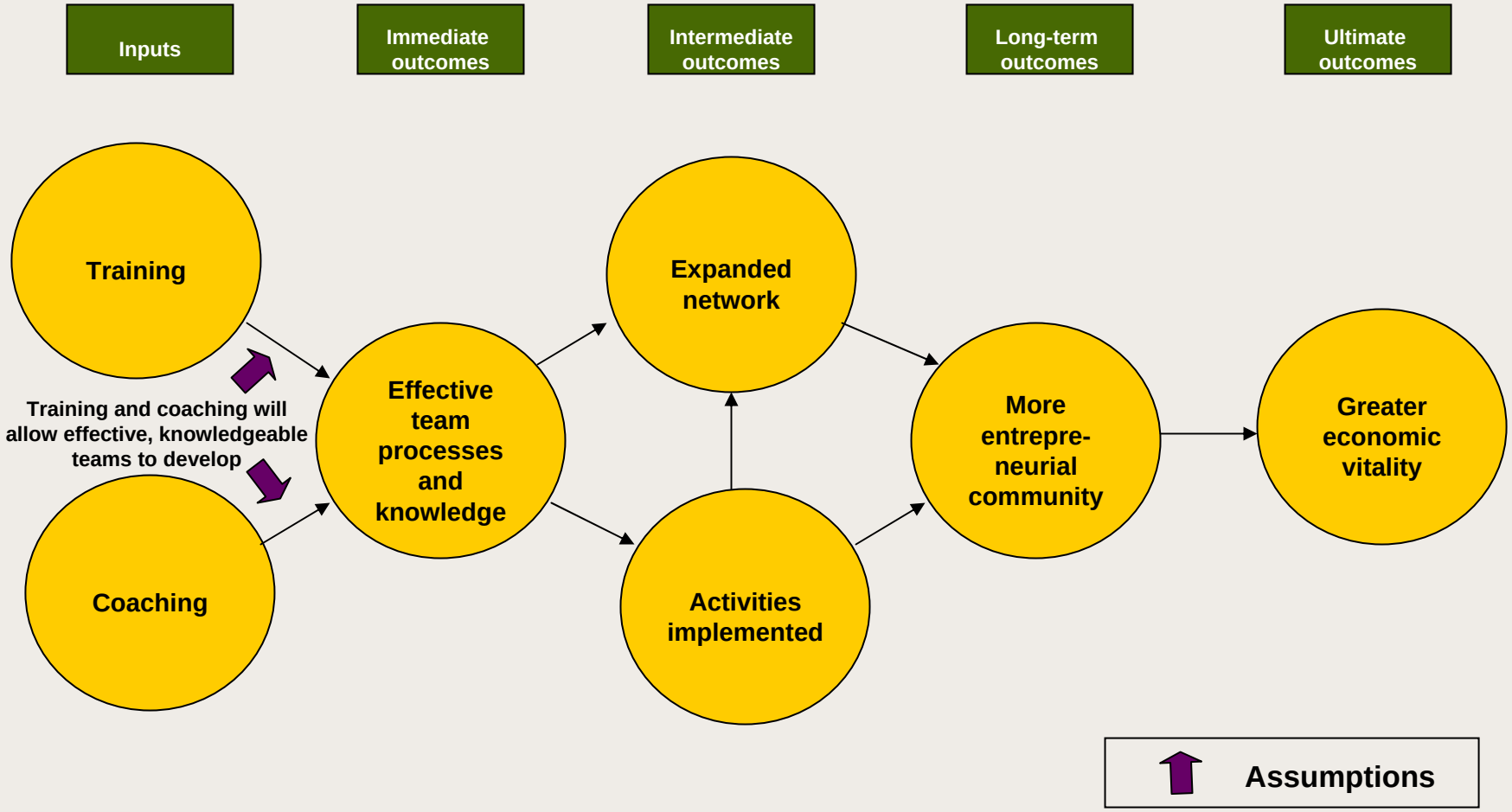
--W.K. Kellogg Foundation Logic Model Development Guide, 2004, p. III.

What Are We Talking About?

Logic Model—Table Format

Inputs	Activities	Outputs	Inter-mediate Outcomes	Long-term Outcomes

Logic Model—Graphic Approach



Note: Logic Model vs Theory of Change

- **Logic models** illustrates program components, and creating one helps stakeholders clearly identify outcomes, inputs and activities
  - Start with a program and illustrate components
- **Theories of Change** link outcomes and activities to explain HOW and WHY the desired change is expected to come about
  - Start with an outcome/goal and decide what approaches are best

Clark & Anderson, 2004

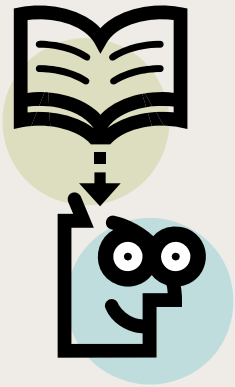
What might logic models be used for?

Frechtling's 6 Uses

1. Clarification what's really intended
2. Enhancing communication among team members
3. Managing projects
4. Designing evaluation plans
5. Documenting a project and how it worked
6. Examining a program or a constellation of programs

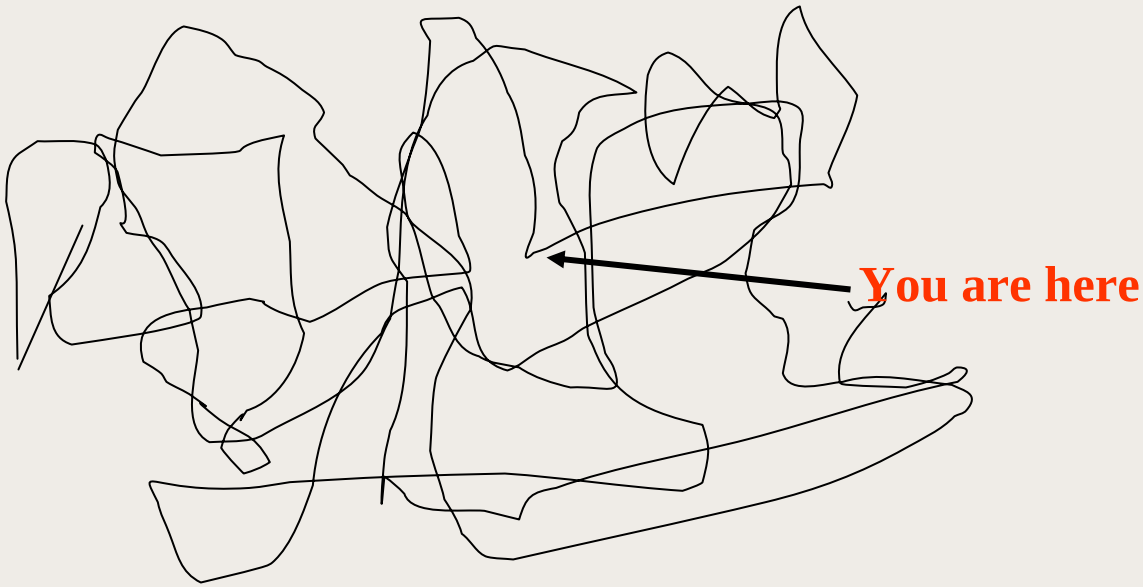
1. Clarification

- Do our activities really connect to our goals?



1. Clarification

- Are our outcomes specified precisely?



2. Enhancing Communication

Our view of the world shapes our interactions and understandings.

--Beck & Cowan, Spiral Dynamics (2001)

Our situations shape the types of information that we are willing to treat as credible evidence.

--Jack Shonkoff, 2000

2. Enhancing Communication

- **Scientists:** Construct theories, test hypotheses, are tentative in ascribing causality
- **Policymakers:** Reflect the society; and trust values and common sense as much as science
- **Practitioners:** Use their professional judgments and clinical experiences

2. Enhancing communication

- The same words have different meanings for different people.
- What is *academic achievement*?
  - Class grades
  - MEAP scores
  - Homework turned in on time
  - Student's perception of "helps me do better in school"
  - Parent's perception of "helps my child do better in school"

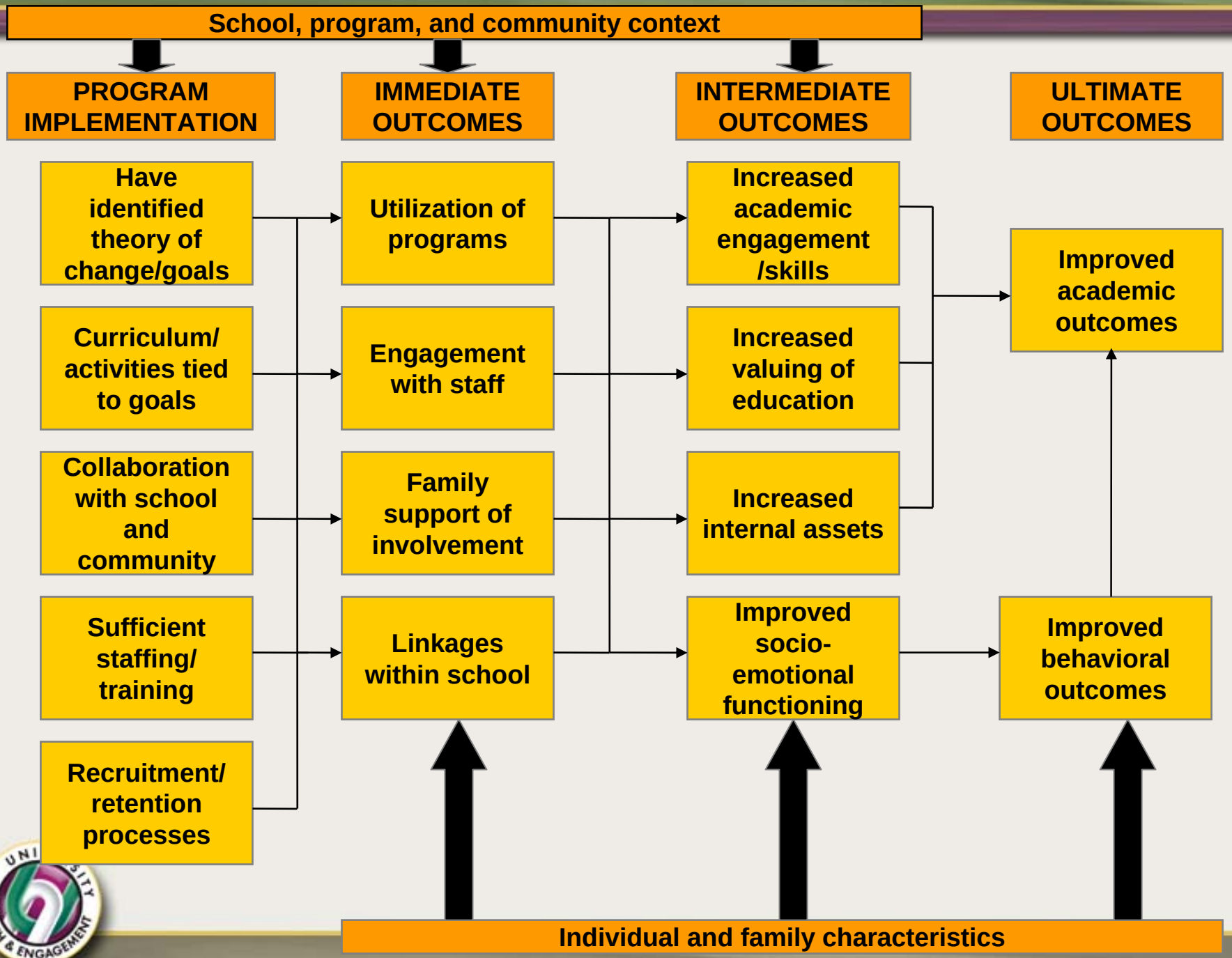
3. Managing Projects

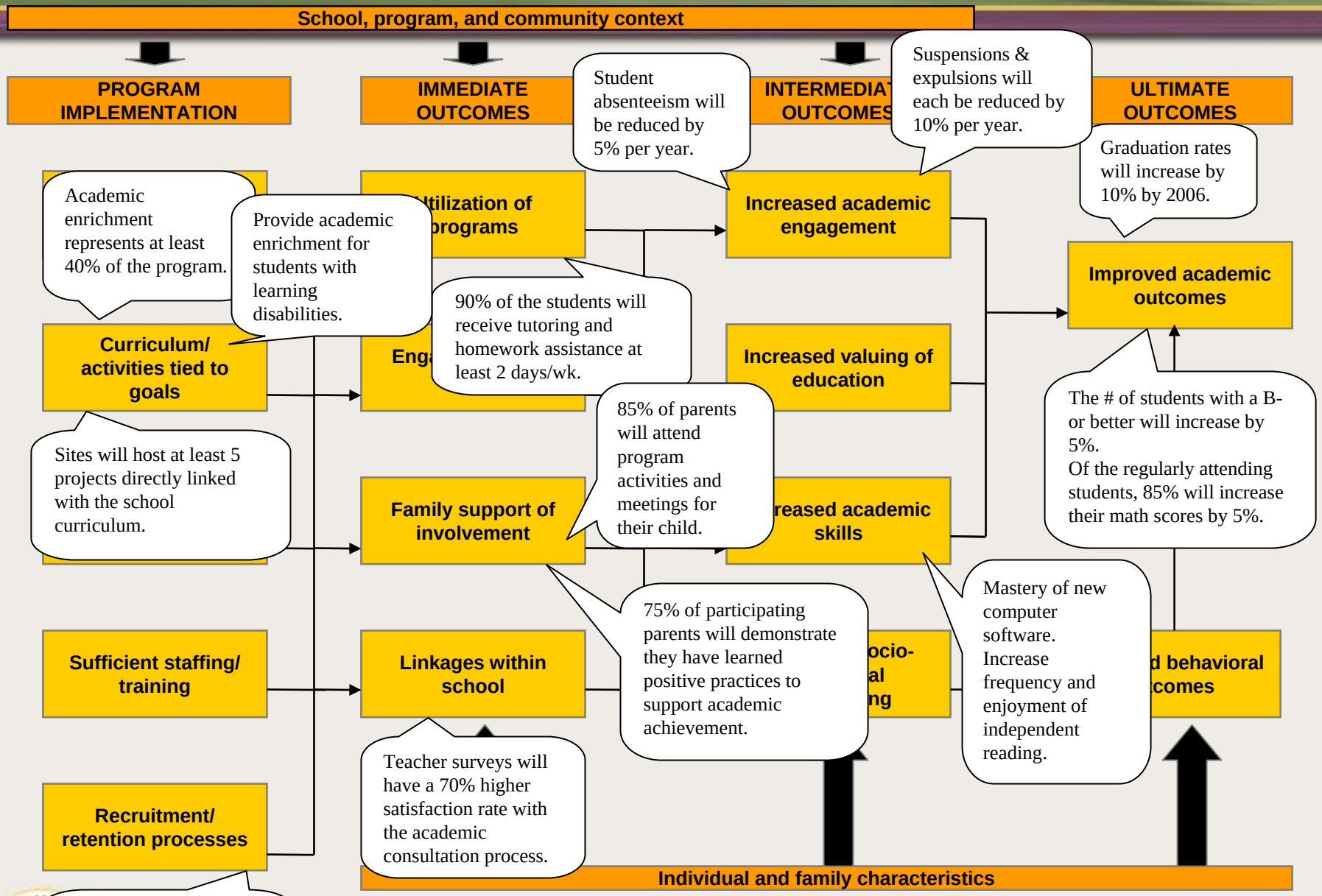
- With the addition of time lines or work plans, logic models can aid project managers in keeping on task and on track
  - FORECAST, a method designed by Goodman & Wandersman (1994), sets date milestones for significant activities.
  - Kellogg Foundation Logic Model Development Guide also has examples.

5. Documenting a project and figuring out how it worked (what did and didn't work)

21st CCLC Statewide Evaluation

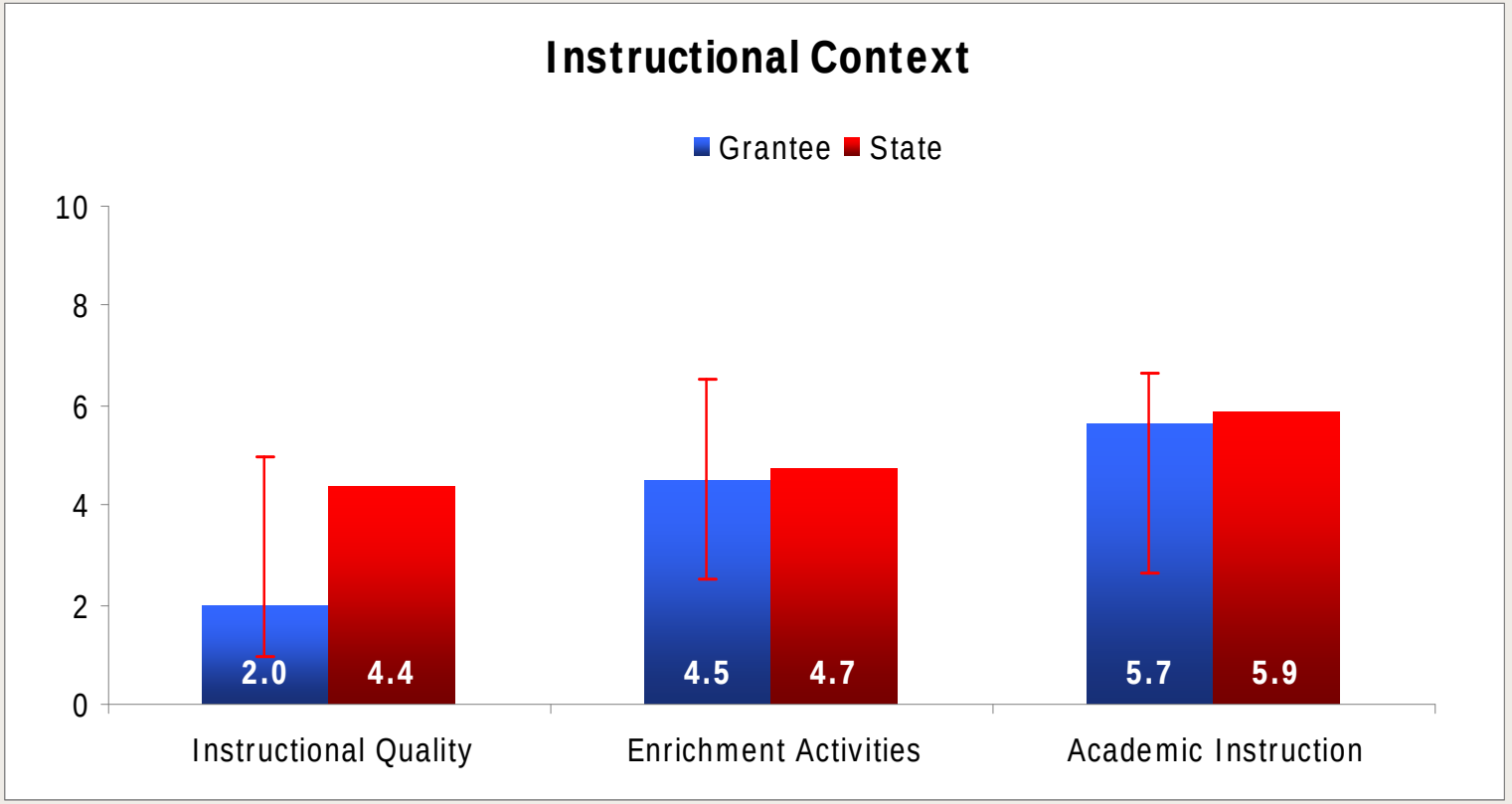
- Feds interested in outcomes
- MDE interested in:
  - grantees fulfilling their contracts
  - local evaluators working with grantees on program improvement
- CERC has the statewide evaluation contract
  - Repository for lots of data!


School, program, and community context
PROGRAM IMPLEMENTATION
IMMEDIATE OUTCOMES
INTERMEDIATE OUTCOMES
ULTIMATE OUTCOMES
Have identified theory of change/goals
Curriculum/ activities tied to goals
Collaboration with school and community
Sufficient staffing/ training
Recruitment/ retention processes
Utilization of programs
Engagement with staff
Family support of involvement
Linkages within school
Increased academic engagement /skills
Increased valuing of education
Increased internal assets
Improved socio-emotional functioning
Improved academic outcomes
Improved behavioral outcomes
Individual and family characteristics



Academic Logic Model

Leading Indicators Project



Being done in conjunction with the Weikart Center for Youth Program Quality

Instructional Context

	State	Grantee	Range across 4 sites	
			Lowest	Highest
Academic Instruction	**5.9**	**5.7**	**2.3**	**6.0**
Connection to school [a]	61%	100%	100%	100%
Full-time Site Coordinator [a]	63%	50%	0%	100%
Academic activity participation [b]	82%	86%	80%	92%
Provision of homework help [b]	46%	39%	25%	66%
Provision of academic enrichment [b]	63%	83%	79%	85%
Provision of tutoring [b]	10%	0%	0%	0%
Academics is top priority [c]	89%	100%	100%	100%
Certified teachers provide academic support [b]	48%	58%	50%	60%
Student reports of academic support quality [d]	55%	56%	37%	65%
Enrichment Activities	**4.7**	**4.5**	**4.2**	**4.8**
Provision of arts [b]	59%	38%	12%	61%
Provision of youth development [b]	59%	72%	60%	100%
Provision of technology [b]	32%	33%	22%	41%
Instructional Quality	**4.4**	**2.0**	**2.0**	**2.0**
Observed engagement (self assessment)[e]	52%	0%	0%	0%
Observed engagement (external assessor)[e]	52%	NA	NA	NA
Observed interaction (self assessment) [e]	32%	0%	0%	0%
Observed interaction (external assessor) [e]	32%	NA	NA	NA
Student-reported opportunities for governance and decision-making [d]	45%	43%	40%	44%
Student-reported engagement [d]	51%	43%	38%	55%
Student reported interaction [d]	42%	35%	29%	61%

So across the life of a project…

- **Program design and planning:**
  - Planning tool to develop program strategy
  - Provide way to explain how's and why's to stakeholders/funders
  - Develop common language and expectations among team members
  - Identify indicators and measures for assessment
- **Program implementation:**
  - Provides management plan
- **Program evaluation and reporting:**
  - Assess progress toward goals
  - Assess breakdown points in process or places where the model doesn't work

Let’s start with the basics…

A Logic Model Template (one of many)

Objective:				
Formative evaluation (fidelity and program improvement)		Formative *and* summative	Summative evaluation (outcomes and reporting)	
Pre-inputs (assumptions)	Inputs (activities)	Outputs	Initial outcomes	Intermediate outcomes

Logic Model

Objective:				
Pre-inputs (assumptions)	**Inputs (activities)**	**Outputs**	**Initial outcomes**	**Intermediate outcomes**
What your activities need to be successful. • Staffing • Resources • Expertise • Partnerships • Design • Fit with intended impacts • Leadership • Dissemination strategies				

Logic Model

Objective:				
Pre-inputs (assumptions)	**Inputs (activities)**	**Outputs**	**Initial outcomes**	**Intermediate outcomes**
What your activities need to be successful. • Staffing • Resources • Expertise • Partnerships • Design • Fit with intended impacts • Leadership • Dissemination strategies	The activities conducted that are expected to result in change. • Service programs • Education • Information • Support • Connections			

Logic Model

Objective:				
Pre-inputs (assumptions)	**Inputs (activities)**	**Outputs**	**Initial outcomes**	**Intermediate outcomes**
What your activities need to be successful. • Staffing • Resources • Expertise • Partnerships • Design • Fit with intended impacts • Leadership • Dissemination strategies	The activities conducted that are expected to result in change. • Service programs • Education • Information • Support • Connections	The immediate products of your inputs. • # served • # completed • # offered • # contacted • # distributed • # recruited • $ generated		

Logic Model

Objective:				
Pre-inputs (assumptions)	**Inputs (activities)**	**Outputs**	**Initial outcomes**	**Intermediate outcomes**
What your activities need to be successful. • Staffing • Resources • Expertise • Partnerships • Design • Fit with intended impacts • Leadership • Dissemination strategies	The activities conducted that are expected to result in change. • Service programs • Education • Information • Support • Connections	The immediate products of your inputs. • # served • # completed • # offered • # contacted • # distributed • # recruited • $ generated	What you expect participants to get if they are exposed to the activities. *Change in:* • Knowledge • Skills • Resources • Attitudes • Behaviors (short-term)	

Logic Model

Objective:				
Pre-inputs (assumptions)	**Inputs (activities)**	**Outputs**	**Initial outcomes**	**Intermediate outcomes**
What your activities need to be successful. • Staffing • Resources • Expertise • Partnerships • Design • Fit with intended impacts • Leadership • Dissemination strategies	The activities conducted that are expected to result in change. • Service programs • Education • Information • Support • Connections	The immediate products of your inputs. • # served • # completed • # offered • # contacted • # distributed • # recruited • $ generated	What you expect participants to get if they are exposed to the activities. *Change in:* • Knowledge • Skills • Resources • Attitudes • Behaviors (short-term)	*If* your participants show the intermediate outcomes, what you expect to then result. *Change in:* • Behaviors (long-term)

Logic Model

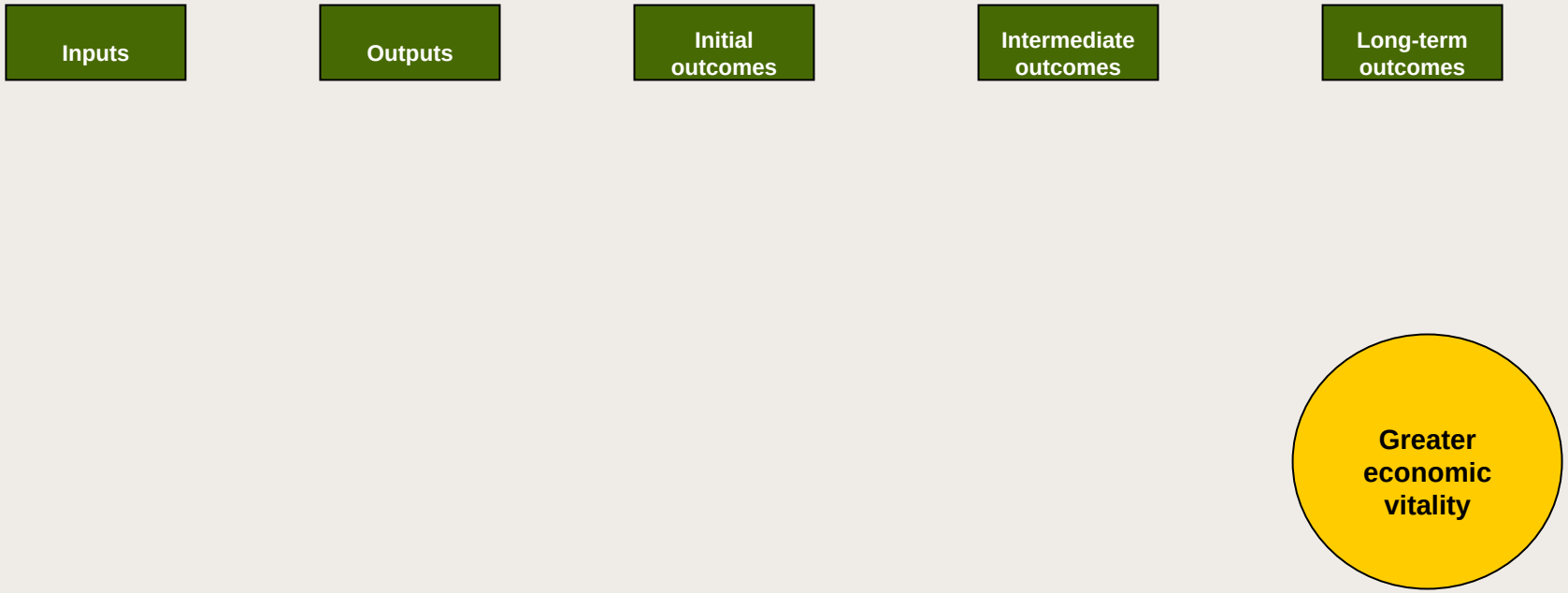
Objective:					
Pre-inputs (assumptions)	**Inputs (activities)**	**Outputs**	**Initial outcomes**	**Intermediate outcomes**	**Long-term outcomes**
What your activities need to be successful. • Staffing • Resources • Expertise • Partnerships • Design • Fit with intended impacts • Leadership • Dissemination strategies	The activities conducted that are expected to result in change. • Service programs • Education • Information • Support • Connections	The immediate products of your inputs. • # served • # completed • # offered • # contacted • # distributed • # recruited • $ generated	What you expect participants to get if they are exposed to the activities. *Change in:* • Knowledge • Skills • Resources • Attitudes • Behaviors (short-term)	*If* your participants show the intermediate outcomes, what you expect to then result. *Change in:* • Behaviors (long-term)	The ultimate goal. Usually affected by many other factors. **Very difficult to assess *your* impact at this level.** • More vital communities • Healthier, more successful individuals and families • Sustainable practices

Graphic Logic Models To Evaluate the Program, Think Backward--

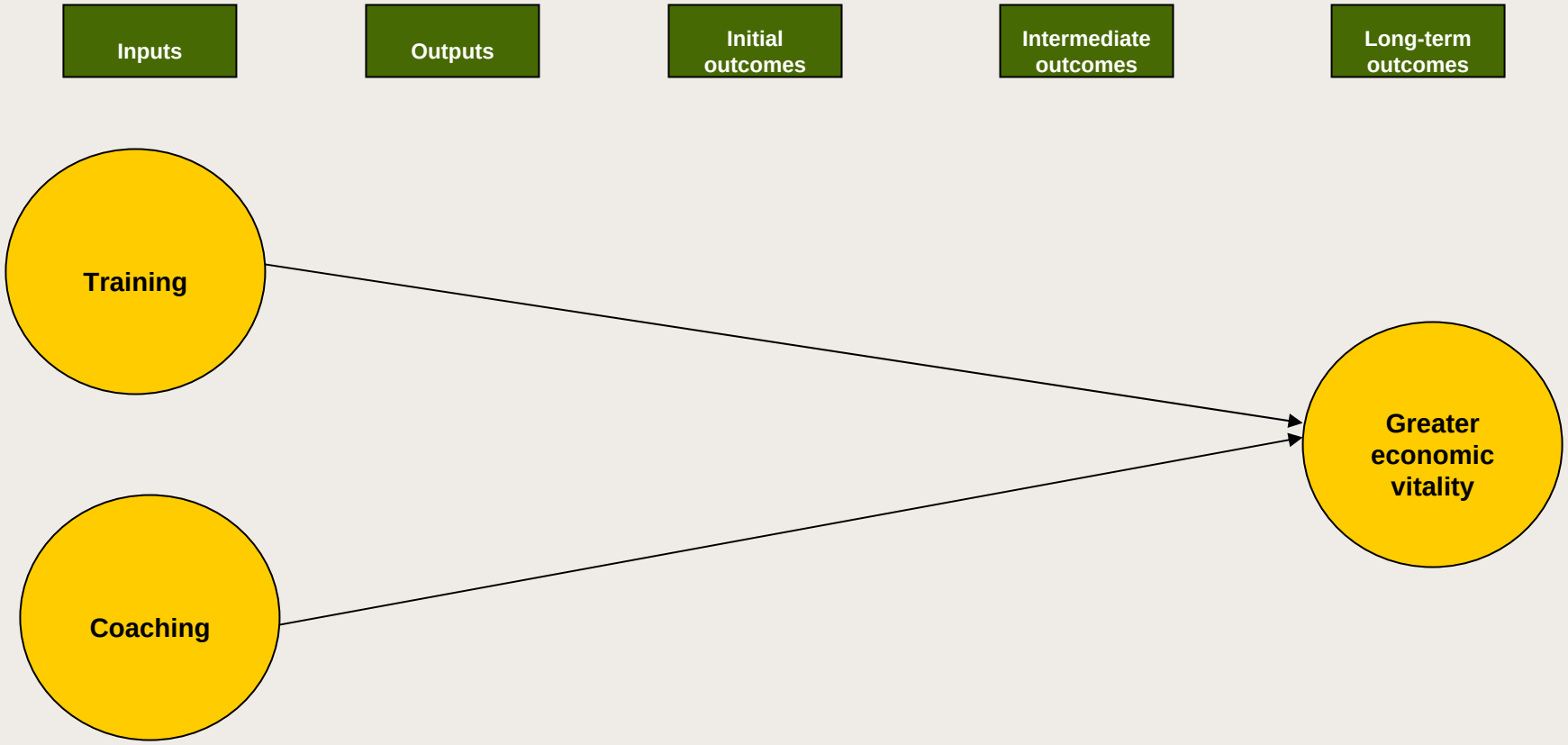
- Why?
- What do you hope will happen in the long run?
- What has to be in place for that to happen?
- What will you do to make those things happen?
- What do you need?

- An inadequate logic model…

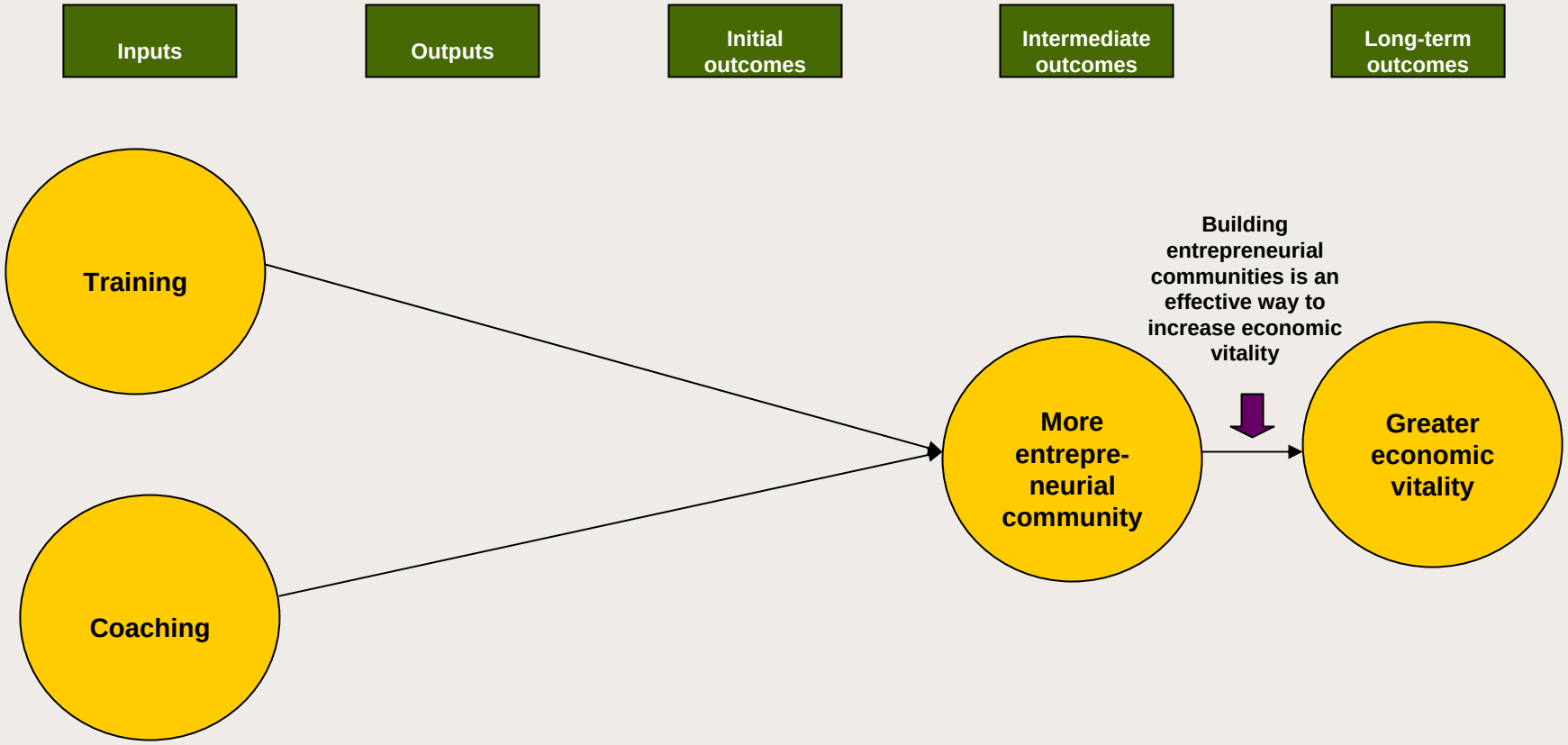
Creating Entrepreneurial Communities



Creating Entrepreneurial Communities



Creating Entrepreneurial Communities

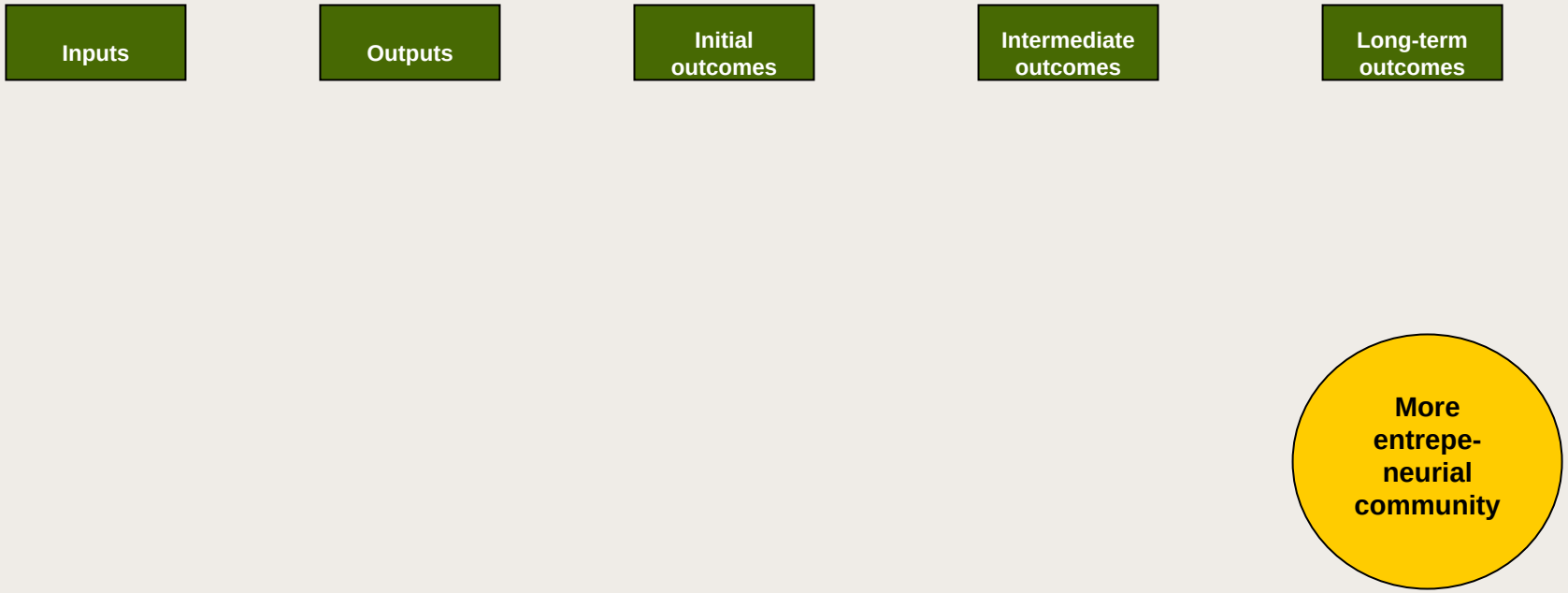


Models that don’t take into account the middle steps…

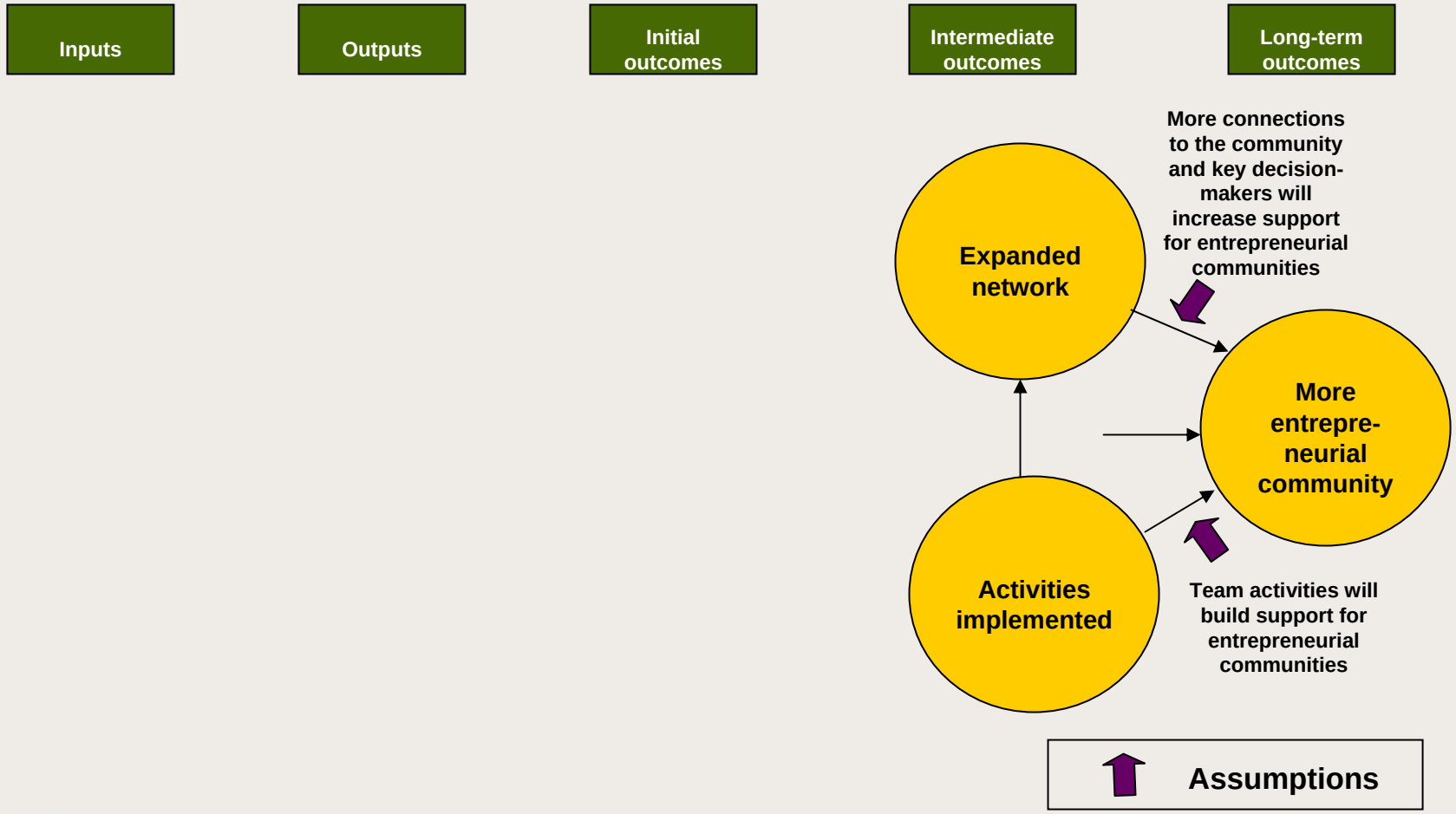
- Have outcomes that are far away; the farther the outcome, the more it can be affected by other factors besides your program
- Don’t provide you with information about where the program might not have been effective
- Don’t give you the opportunity to present data about where your program did work

Let’s try again…

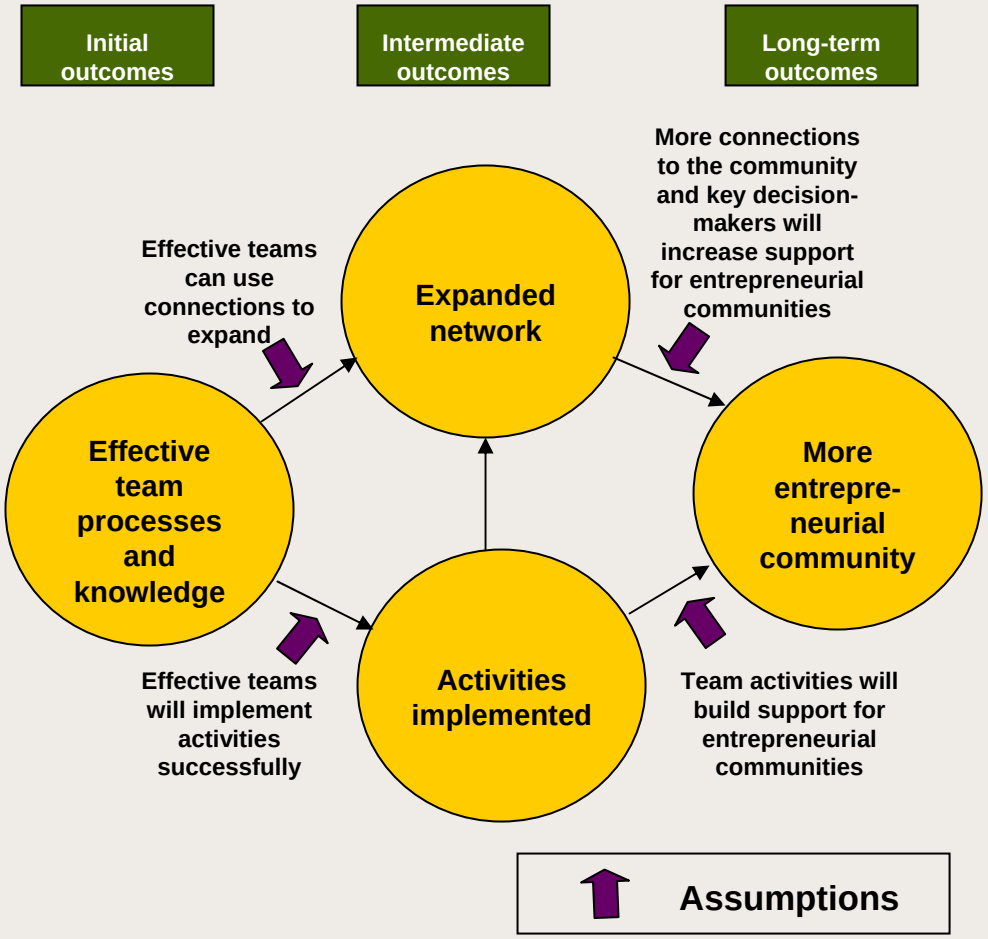
Creating Entrepreneurial Communities



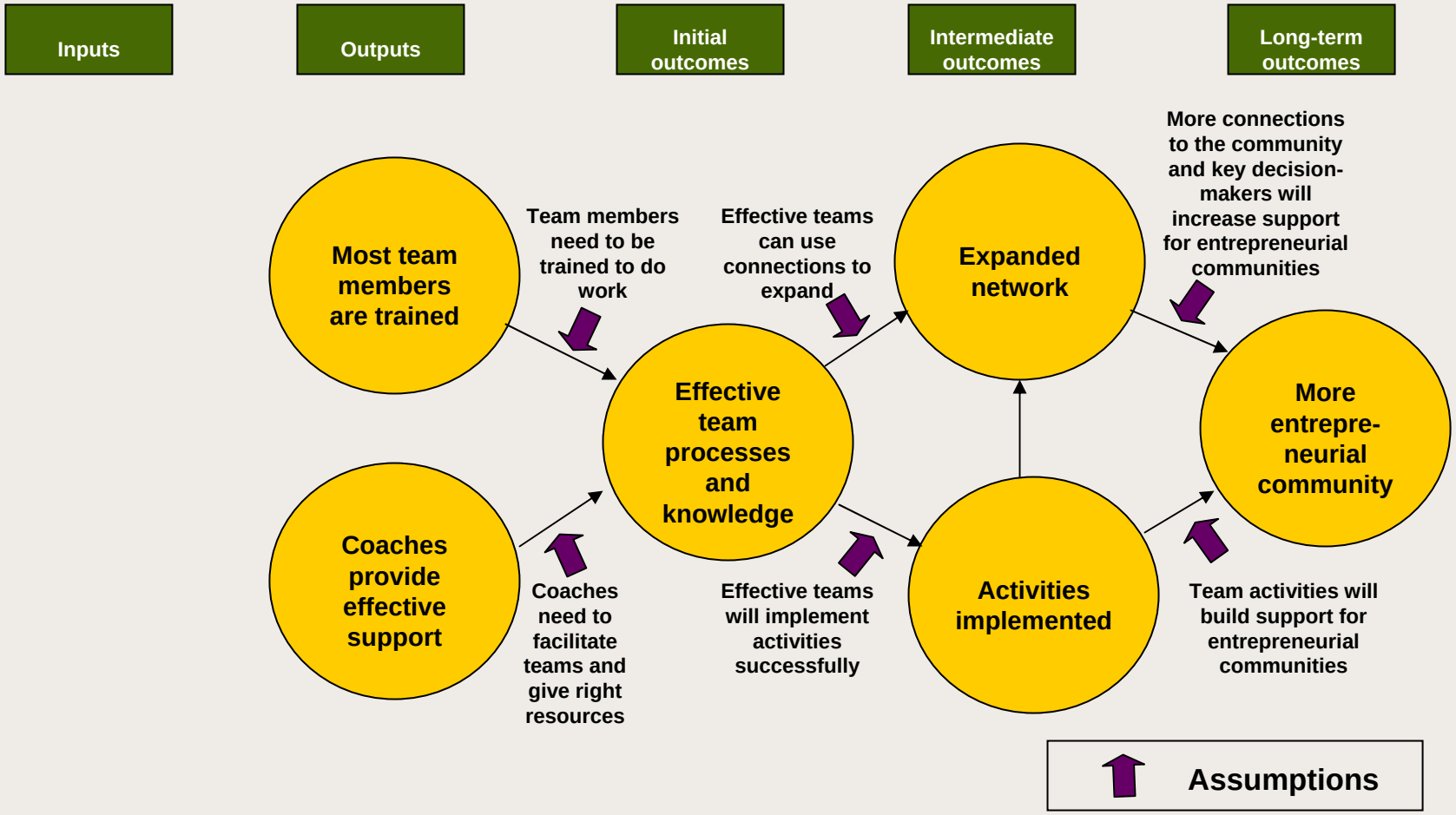
Creating Entrepreneurial Communities



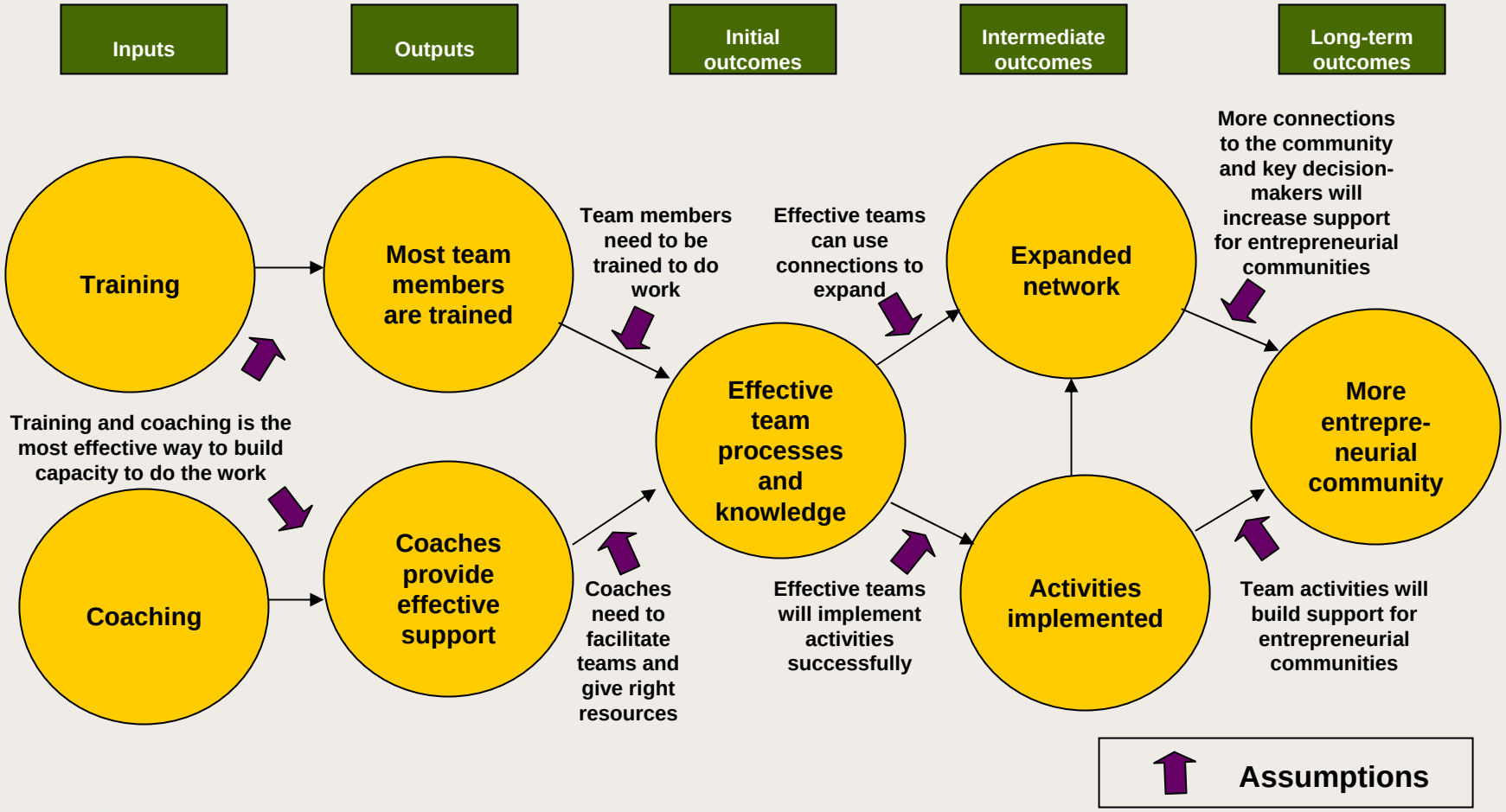
Creating Entrepreneurial Communities



Creating Entrepreneurial Communities



Creating Entrepreneurial Communities



- And how was this logic model useful?

Example: Entrepreneurship Program

This also becomes your blueprint to measurement.

Pre-inputs (assumptions)	Inputs (activities)	Immediate outcomes (outputs)	Intermediate outcomes	Long-term outcomes	Ultimate outcomes
• Partnership across organizations • Definition of team requirements • Identification of high-quality training program • Identification of experienced coaches • Buy-in from coaches' home agencies	• Review process for community team selection • Week-long training program for community teams • One-year coach to facilitate team • Ongoing support	• Teams develop and stabilize • Teams increase knowledge on how to create entrepreneurial communities • Teams complete community capacity assessment • Teams develop action plan and activities	• Effective team processes • Activities implemented • Expanded network of resources for entrepreneurs • Expanded network of key community members supporting entrepreneur-ship	• More positive attitudes about entrepreneur-ship in community • Increased community leaders' support • Implementation of supportive policies for entrepreneurs • Increased resources for entrepreneurs • Increased recruitment of entrepreneurs	• Increase in # new small business • Increase in # of new jobs • Increase in employment rate

Let's work through a logic model…

- You are the evaluation team for the Evaluation Circle series
  - Remember to work backwards
    - Start with goals in mind
    - Then ask, "what has to be in place for this to occur?"
    - You want to get consensus on not only the theory of change, but also
    - What we will see that tells us change has occurred – our ***indicators*** of change
  - Indicators: A measure or a set of measures that tell us when we've successfully achieved our desired outcome

What a Single Level Logic Model (like our example) can't do…

- Represent the complexity that most of us work with and within
- Help us understand that sometimes the solution to a outcome we want to achieve "lives on" a different level than the outcome

What are the possible levels?

	Activities	Initial Outcome	Intermediate Outcome	Long-Term Outcome
Individual				
Family				
Block				
Neighborhood				
Community				

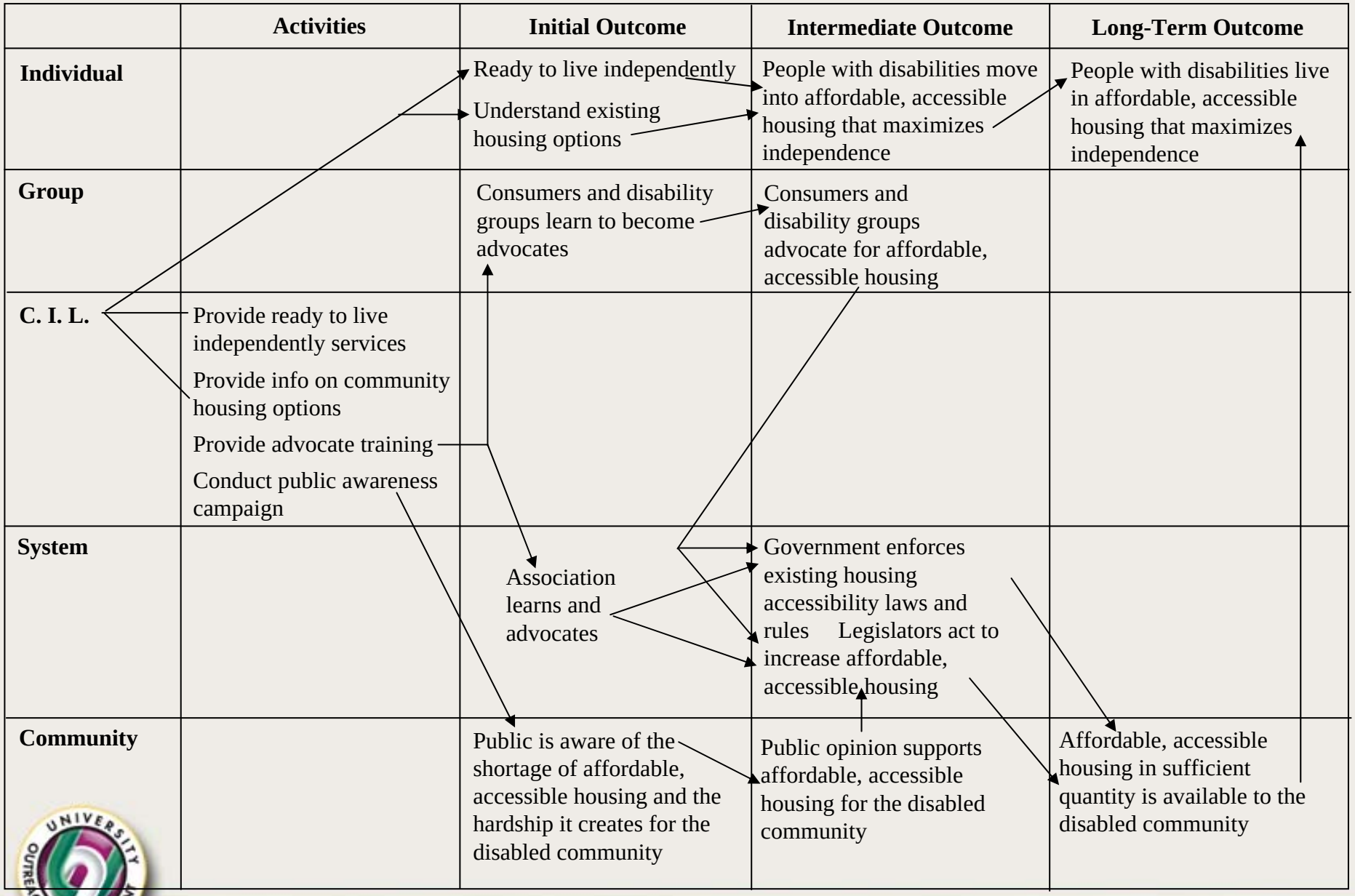
Or another – organizational – version…

	Activities	Initial Outcomes	Intermediate Outcomes	Long-Term Outcomes
Individual				
Group				
Organization				
Delivery System or Sector				
Community				

Weiss (2000) suggests using the following criteria when there are competing theories:

- The beliefs of people associated with the program
- The plausibility that the program can actually do the thing the theory assumes
- The lack – or amount – of knowledge in the field
- The centrality of the theory to the program

Level	Initial Outcomes	Intermediate Outcomes	Status Outcomes
Individual	> Skills > Values > Attitudes > Beliefs > Opinions > Understanding > Emotions > Self-expression > Spiritual awareness	> Individual practice and behavior > Spiritual practice	> Status > Condition
Group or Family	> shared Group/Family: culture, norms, values, beliefs, morals, ethics, worldviews > Mutual understanding > Mutual agreement	> Group/Family relationships > Group/Family practices > Group/Family interaction	> Status > Condition
Agency or Block	> Shared agency culture, norms, values, beliefs, morals, ethics, worldviews > Mutual understanding > Mutual agreement	> Inter-departmental relationships > Agency management practices > Service delivery practices	> Status > Condition > Agency structures/system and its governance
Delivery System or Neighborhood	> Shared system culture, norms, values, beliefs, morals, ethics, worldviews > Mutual understanding > Mutual agreement	> System member relationships > System member interaction > System practices	> Status > Condition > Delivery system structure and its governance
Community	> shared community social norms, culture, values, beliefs, morals, ethics, worldviews > Community interests > Mutual understanding > Mutual agreement	> Relationships among groups, neighborhoods > Civic action > Community dialogue	> Status and condition: social, economic, environmental > Community structures/infra structure > Community governance structure, laws


Activities
Initial Outcome
Intermediate Outcome
Long-Term Outcome
Individual
Group
C. I. L.
System
Community
Ready to live independently
Understand existing housing options
People with disabilities move into affordable, accessible housing that maximizes independence
People with disabilities live in affordable, accessible housing that maximizes independence
Consumers and disability groups learn to become advocates
Consumers and disability groups advocate for affordable, accessible housing
Provide ready to live independently services
Provide info on community housing options
Provide advocate training
Conduct public awareness campaign
Association learns and advocates
Government enforces existing housing accessibility laws and rules
Legislators act to increase affordable, accessible housing
Public is aware of the shortage of affordable, accessible housing and the hardship it creates for the disabled community
Public opinion supports affordable, accessible housing for the disabled community
Affordable, accessible housing in sufficient quantity is available to the disabled community

It’s not All Squares BINGO!

- Just because there’s an empty square, you don’t have to fill it.
- Think back to the purpose of the evaluation.
- Weiss (2000) says to choose links:
  - That are most critical to the success of the program
  - That there’s most doubt about

Challenges to using logic models

- The terms can be confusing
- Assuming things always move from left to right; failing to take into account feedback loops

More challenges…

- Finding the right measurement distance

VS.

One final challenge

- Following a single theory of change can blind the evaluator – and the clients – to important factors not included in the model.

But remember, when heading out on the road

- A map can be our best tool!

Moving Forward

- How will you use this approach?

References

Clark, H., & Anderson, A. A. (2004). *Theories of change and logic models: Telling them apart.* Presentation at the American Evaluation Association, Atlanta, GA. www.evaluationtoolsforracialequity.org/evaluation/resource/doc/TOCs_and_Logic_Models_forAEA.ppt

Frechtling, J.A. (2007). *Logic modeling methods in program evaluation*. San Francisco: Jossy-Bass.

Goodman, R.M & Wandersman, A. (1994). FORECAST: A formative approach to evaluating community coalitions and community-based initiatives. *Journal of Community Psychology*, CSAP Special Issue, pp 6-25.

Shonkoff, J.P. (2000). Science, policy, and practice: Three cultures in search of a shared mission. *Child Development*, January/ February, 71(1), pp 181-187.

United Way of America (1996). *Measuring program outcomes: A practical approach.* http://auth.unitedway.org/Outcomes/Library/pgmomres1.cfm

University of Wisconsin Cooperative Extension. Logic model website. http://www.uwex.edu/ces/pdande/evaluation/evallogicmodel.html

Weiss, C.H. (2000). Which links in which theories should we evaluate? *New Directions for Program Evaluation,* no. 87, Fall.

W.K. Kellogg Foundation (2004). *W. K. Kellogg Logic Model Development Guide.* Battle Creek, MI. http://www.wkkf.org/Pubs/Tools/Evaluation/Pub3669.pdf

Contact Information

Laurie Van Egeren, PhD., vanegere@msu.edu

Celeste Sturdevant Reed, PhD, csreed@msu.edu
Community Evaluation and Research Center
University Outreach and Engagement
Michigan State University
Kellogg Center, Garden Level
East Lansing, MI 48824-1022
Phone: (517) 432-8439
Fax: (517) 432-9541
Web site: http://outreach.msu.edu/cerc