

Framework for Developing Economic Competitiveness Measures for the California Sustainable Freight Action Plan

July 2017

A Research Report from the National Center for
Sustainable Transportation

Genevieve Giuliano, University of Southern California



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A National Center for Sustainable Transportation Research Report

July 2017

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Framework for Developing Economic Competitiveness Measures for the California Sustainable Freight Action Plan

Next Steps and Consultant Scope of Work for Economic Competitiveness

The METRANS Transportation Center has been providing technical assistance to the California Governor's Office of Business and Economic Development (GO-Biz) and the California Air Resources Board (CARB) in support of implementing the California Sustainable Freight Action Plan (CSFAP). The work is focused on Action 6 of the CSFAP:

ACTION 6: Convene industry stakeholder working groups to *identify a target or targets* and deploy strategies that consider commercial viability and *promote the competitiveness* of California's statewide and local freight transport system. Develop *economic growth and competitiveness metrics*, models, and other tools and data *to analyze benefits and impacts of actions*, including costs, and develop and implement a suite of quantitative metrics to track progress in order to ensure that the impacts of actions on economic growth and competitiveness are considered throughout the development and implementation process.

The CSFAP further states:

- Establish a *target or targets* for increased State competitiveness and future economic growth within the freight industry based on *common-sense economic competitiveness and growth metrics* and models developed by a *working group*
- The targets and tools will **support** flexibility, efficiency, investment, and best business practices through State policies and programs that *create a positive environment* for growing freight volumes and jobs,
- while working with industry to *mitigate potential negative economic impacts*.
- The targets and tools will help **evaluate** the strategies proposed under the Action Plan to ensure consideration of impacts on economic growth and competitiveness throughout the development and implementation process (adapted from CSFAP, p. 10)

In order to launch implementation of the economic competitiveness part of the CSFAP, the METRANS team conducted two meetings with the Economic Competitiveness working group. The first meeting took place on January 30, 2017, with 18 in attendance (including METRANS and agency staff). The purpose of this meeting was to articulate the issues that need to be

addressed in order to develop the economic competitiveness target and metrics as required by the CSFAP. The meeting ended with a “homework assignment” to working group members to respond to the series of questions presented at the meeting. Four members sent responses to METRANS; 10 additional members responded via interviews conducted by a METRANS graduate student.

The second meeting took place on March 7, 2017, with 25 in attendance. This was an all day workshop organized to 1) develop and agree upon definitions required to establish metrics, and 2) introduce options for generating metrics. Definitions were agreed upon, and there was a good discussion of metrics.

Despite the progress, however, the working group has not made sufficient progress to articulate a detailed scope of work for a consultant at this time. In view of the need to request a budget for continuing the work, METRANS recommends a phased approach. Additional work and meetings with the working group would continue for an additional 3 months, and a consultant would then be employed to conduct the longer term work.

PHASE 1: Complete Work on Definitions and Metrics

Estimated cost: \$50,000, 6 months total

Task 1: Definition of the freight sector

The working group agreed on a broad definition of the freight sector based on the concept of value added. The freight sector constitutes all transportation based and transportation dependent enterprises involved in the supply chain from the point of origin to the point of consumption. It also includes reverse logistics chains from the point of origin to the point of termination. The definition includes all carriers and all cargo owners or their intermediaries. It includes all transportation and service providers involved in moving, handling, managing, or planning the flow of cargo. It also includes the transport infrastructure.

Figure 1 shows a simple example supply chain. The items circled, along with the information flows connecting them (not shown) are included in the definition of the freight sector.

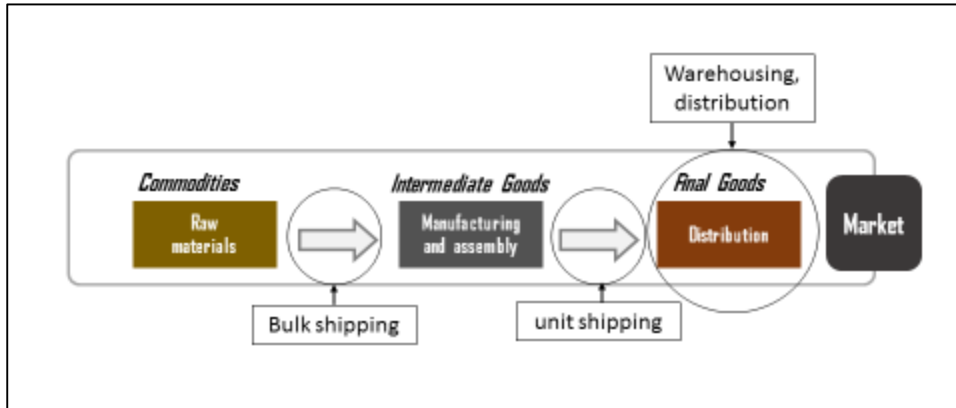


Figure 1: Freight sector and supply chain

Tasks:

- 1.1 Clarify the definition by enumerating the specific types of firms or industry sectors that make of the freight sector in California.
- 1.2 Clarify the definition by considering whether ownership in California is a requirement.
- 1.3 Identify data sources that would allow measurement of the sector’s economic activity.

Duration: 3 months

Responsibility: METTRANS

Deliverable: Comprehensive definition and data sources for measurement

Task 2: Definition of economic competitiveness

Economic competitiveness is defined as the California freight sector’s ability to 1) successfully compete with freight sectors in other states as measured by using existing comparable metrics, and 2) increase the productivity of freight and related sectors and contribute to the growth of California’s economy. Economic competitiveness is affected by policies, institutions, and investments that influence the freight sector’s productivity.

Tasks:

- 2.1 Operationalize the definition: how to measure “successfully compete”; how to measure productivity; how to measure contribution to growth of state economy.
- 2.2 Identify the policies, institutions, and investments that influence freight sector productivity.

Duration: 3 months

Responsibility: METRANS

Deliverable: Comprehensive definition

Task 3: Measuring economic competitiveness

The working group discussed various strategies for measuring economic competitiveness, but did not come to consensus. Here are some recommended parameters:

- Target of measurement is the California freight sector
- There should be at least one composite measure for the freight sector as a whole
- The composite measure(s) should be supported by sector specific measures
- Measures should be based on readily available data that is reliable and produced at least annually

Tasks:

Task 3.1: Generate examples of measures and discuss with working group

Task 3.2: identify types of measures to be developed by consultant.

Duration: 6 months

Responsibility: METRANS

Deliverable: Types of metrics to be developed by consultant team

Task 4: Economic competitiveness target

The working group has not discussed targets.

Task 4.1: Present alternative targets and discuss with working group; select a draft baseline and target

Duration: 3 months

Responsibility: METRANS

Deliverable: CSFAP economic competitiveness target

PHASE 2: Develop Economic Competitiveness Metrics for the CSFAP

Estimated cost: \$150,000, 12 months total

The second phase of work is to develop the economic competitiveness metrics to be used for monitoring the progress of the CSFAP. With the general approach identified, the consultant will develop the actual metrics to be used.

Task 5: Operationalize the metrics

For the purpose of this task we assume that there will be at least one composite metric (analogous to the freight efficiency metric, GHGs/transport sector GDP), and a group of metrics based on the various freight subsectors. In order to be used as part of monitoring CSFAP progress, the metrics must be based on data that is available at least annually for the entire freight sector as defined in Task 1 above.

Tasks:

Task 5.1: Develop the composite metric by conducting the following subtasks:

- review literature and best practices for potential composite metrics;
- evaluate advantages and disadvantages with respect to data access, computational complexity, data validity and reliability, data gaps, etc.;
- recommend small set of options;
- demonstrate options with California freight sector data;
- present to working group for discussion;
- finalize metrics;
- set up process for collecting data, generating metrics.

Duration: 6 months

Responsibility: Consultant

Deliverable: CSFAP composite metric

Task 5.2: Develop the sector specific metrics by conducting the following subtasks:

- define sectors to be measured;
- review literature and best practices for potential metrics;
- evaluate advantages and disadvantages with respect to data access, computational complexity, data validity and reliability, data gaps, etc.;

- recommend small set of options;
- demonstrate options with California freight sector data;
- present to working group for discussion;
- finalize metrics;
- set up process for collecting data, generating metrics.

Duration: 6 months

Responsibility: Consultant

Deliverable: CSFAP sector specific metrics

PHASE 3: Economic Impacts

Estimated cost: \$200,000/year, up to 3 years

Task 6: Economic impacts of the CSFAP on the freight sector

The most common way to examine the economic impacts of policies or investments is input/output analysis. Input/output (I/O) analysis is based on the economic linkages between industry sectors. Any given “shock” to an industry sector will have direct, indirect, and induced economic effects. Direct effects are within the industry itself (say drayage trucking), indirect effects are the effects on linked sectors (those who use or serve drayage trucking), and induced effects are the general effects (household consumption effects) on the economy as a whole. Regional economic or economic development consultants typically have expertise in I/O analysis.

I/O analysis is used for retrospective studies (e.g., what was the economic impact of the Northridge Earthquake), studies of contribution of a given sector to the economy (e.g., how much does international trade contribute to the California economy), or what-if studies (e.g., what would happen if we double the fuel excise tax). It is not a forecasting tool; hence questions such as, “what will be the economic impact of achieving the 100,000 clean heavy duty vehicles target by 2030?” cannot be directly answered with I/O analysis. I/O analysis relies on current economic flows between sectors, but in 2030 the entire economy will be different.

A consultant would need to have a list of the policies or investments from the CSFAP to be analyzed. The working group and/or Go-Biz would have to identify potential policies to be examined and develop a priority list. Each project would have a different price tag depending on its complexity, data availability, etc. Therefore, we recommend that a fixed amount per year (say \$200,000) be allocated to this task. Go-Biz and the working group would identify and prioritize a list of impacts to be analyzed. Consultants would then bid on specific projects, and the number of projects would be limited by the funds available.

Tasks:

Task 6.1: Generate the priority list for economic impact assessment

Go-Biz and the working group will work together to discuss economic impacts of the plan, and consider specific policies that should be examined. A priority list of CSFAP actions to be examined is developed.

Duration: 3 months

Responsibility: Go-Biz

Deliverable: Priority list for economic impact analysis

Task 6.2: Conduct economic impact analyses

The scope of this task depends on the policies or investments to be analyzed. In all cases I/O analysis requires:

- detailed cost data on the policy/investment to be analyzed. In the case of a capital investment, this includes costs of all inputs – labor, materials, fuels, etc.
- decision on unit of analysis level of geography (e.g., state, county, nation)
- inter-regional input/output table (because changes in California will have cross-state or cross-region effects)
- interpretation of results and sensitivity analysis

Duration: 6 – 12 months

Responsibility: Consultant

Deliverable: Economic impact analysis

Appendix A: CSFAP Economic Competitiveness and Workforce Development Workshop Presentation. March 4, 2017

CSFAP

Economic Competitiveness and Workforce Development Workshop

Genevieve Giuliano

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California State University, Long Beach

California Governor's Office of Business and Economic
Development

March 4, 2017

Agenda

Time	Item
9:00	Welcome and goals of the workshop
9:15	Overview: economic competitiveness in the CSFAP
9:30	Defining scope of economic competitiveness
10:30	Measuring growth and competitiveness
11:30	Potential CSFAP targets
12:00	Lunch
1:00	Overview: workforce development in the CSFAP
1:15	Prioritizing workforce development opportunities for the freight sector
1:30	ID skill sets/occupations needed for implementation of the CSFAP
2:15	Break
2:30	Scope of economic competitiveness
3:00	Measuring growth and competitiveness
3:45	Workshop wrap-up and next steps

Economic competitiveness

- Establish a *target or targets* for increased State competitiveness and future economic growth within the freight industry based on *common-sense economic competitiveness and growth metrics* and models developed by a *working group*
- The targets and tools will **support** flexibility, efficiency, investment, and best business practices through State policies and programs that *create a positive environment* for growing freight volumes and jobs,
- while working with industry to *mitigate potential negative economic impacts*.
- The targets and tools will help **evaluate** the strategies proposed under the Action Plan to ensure consideration of impacts on economic growth and competitiveness throughout the development and implementation process (adapted from CSFAP, p. 10)

Implementation

- ❑ Responsibility:
 - California Governor's Office of Business and Economic Development
- ❑ Proposed steps:
 - Background research
 - One day workshop to articulate implementation tasks
 - Develop RFP for consultant work
- ❑ Progress to date of working group

METRANS work to date

- ❑ January 30 working group meeting
 - Discussion of tasks
 - Preliminary discussion of definitions, scope of work, role of consultant
 - Homework assignment
- ❑ Background research
 - Economic competitiveness
 - Metrics
 - Interview with working group members

Workshop objectives

- ❑ Definition of freight sector
- ❑ Definition of economic competitiveness
- ❑ General approach to metrics and data
- ❑ Candidate targets for CSFAP
- ❑ Identification of roles of state agencies, industry in workforce development
- ❑ High level tasks for consultant

Defining the freight sector

- ❑ Different perspectives
 - Broad
 - Narrow
 - Utilitarian
- ❑ Considerations
 - Measurement and data
 - Relevance to economic competitiveness and growth targets
 - Relation to workforce development

Possible definitions

1. Broad: The freight sector is all businesses, including *transportation-based and transportation-dependent businesses*, which originate, terminate, handle, store, carry, distribute, aggregate, disaggregate, and manage goods and commodities, including all carriers, all cargo owners, their intermediaries, and customers.
2. Narrow: The freight sector is all *transportation and service providers* involved in moving, handling, managing or planning the flow of cargo between the point of origin and the point of consumption.
3. Utilitarian: The freight sector is the collection of industry sectors identified in NAICS 48 and 49, with passenger transport removed.

Possible definitions revised

1. Broad: The freight sector is all transportation-based and transportation-dependent enterprises from the point of origin to point of consumption ~~businesses, including transportation-based and transportation-dependent businesses, enterprises~~ which originate, terminate, handle, store, carry, distribute, aggregate, disaggregate, and manage goods and commodities, including all carriers, all cargo owners, their intermediaries, and customers **and supporting infrastructure**
2. Narrow: The freight sector is all *transportation and service providers* **and users (primarily service providers but also manuf, retailers and public sector)** involved in moving, handling, managing or planning the flow of cargo between the point of origin and the point of consumption.
3. Utilitarian: The freight sector is the collection of industry sectors identified in ~~USC 48 and 49, with passenger~~ transport removed.

New definitions

1. Broad: The freight sector is all businesses, including *transportation-based and transportation-dependent businesses*, which originate, terminate, handle, store, carry, distribute, aggregate, disaggregate, and manage goods and commodities, including all carriers, all cargo owners, their intermediaries, and customers.
2. Narrow: The freight sector is all *transportation and service providers* involved in moving, handling, managing or planning the flow of cargo between the point of origin and the point of consumption.
3. Utilitarian: The freight sector is the collection of industry sectors identified in NAICS 48 and 49, with passenger transport removed.

Defining economic competitiveness

- ❑ For the purpose of CSFAP
 - What are the critical considerations?
 - Measuring, bench-marking, tracking
 - Compared to what?
- ❑ Some alternative examples from the literature

Economic competitiveness pyramid

Jan Kiel et al. / Transportation Research Procedia 1 (2014) 77 – 88

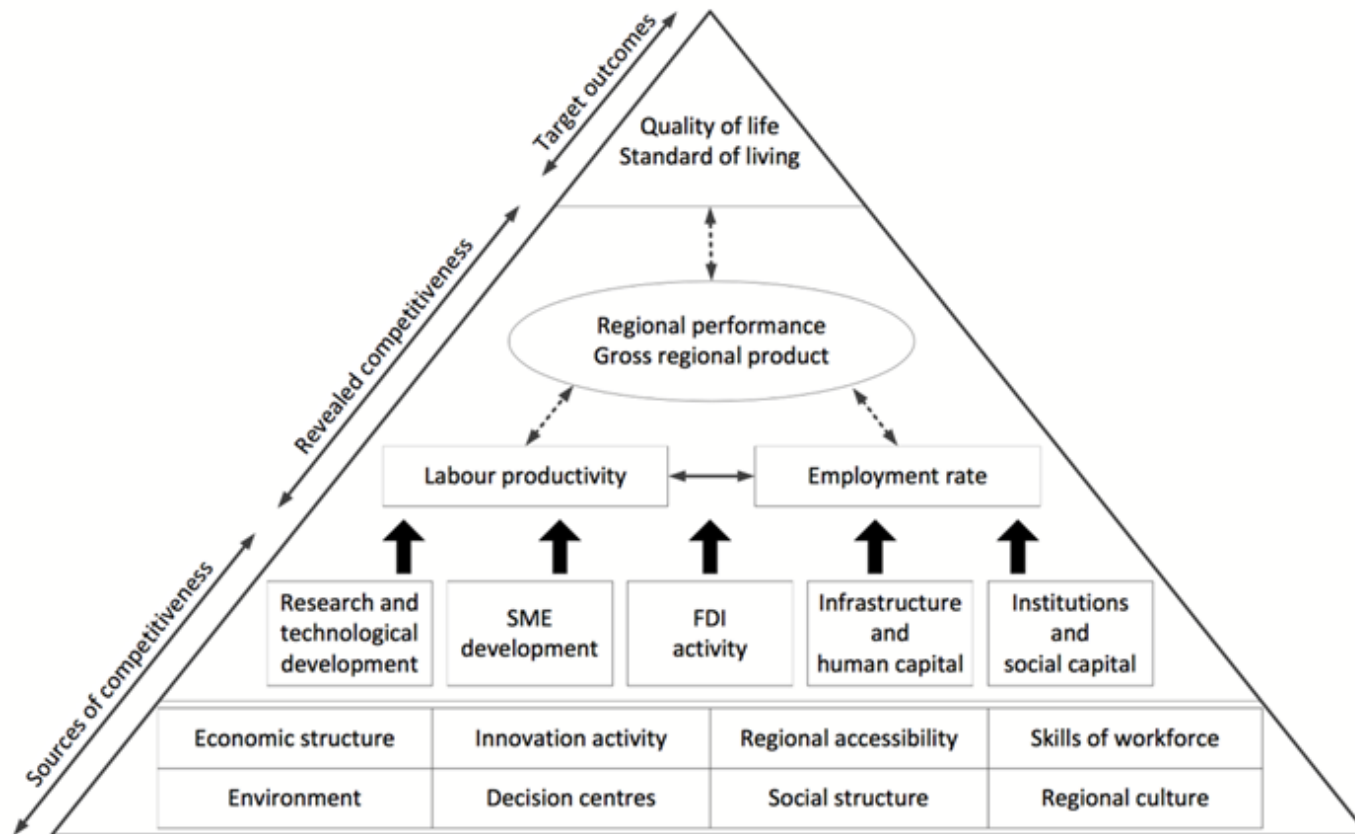


Fig. 1. Pyramid model for regional competitiveness (Lengyel (2003) and Gardiner (2004)).

Possible definitions

1. Economic competitiveness is a set of policies, institutions, **attitudes and investments** and factors that **influence** ~~determine~~ the level of productivity of an entity (**state**, region, industry sector) as well as the capacity to increase **productivity for the freight/goods movement sector in CA as measured by GDP** and the ability to successfully compete with other states and regions as measured using existing comparable metrics.
2. ~~Economic competitiveness is a set of factors that promote an increase in productivity for a given economy.~~
3. Economic competitiveness is defined as **CA's freight sector's ability** to: 1) successfully compete with **freight sectors in other states as measured** by using existing comparable metrics; and 2) increase productivity for **freight and related sectors** for CA's economy of a state's economy.

Elements that determine productivity: velocity, reliability, cost, throughput, capacity, attitudes and risk. Includes infrastructure and policy and investments.

Defining economic growth

- ❑ Productivity
- ❑ Profits
- ❑ GDP

Breakout assignment 1

1. Freight sector definition:
 1. Review and discuss the alternative definitions
 2. Consider with respect to criteria (measurement and data, relationship to economic competitiveness, relationship to workforce development)
 3. Generate a consensus definition and justification

Breakout assignment 1, con't

1. Economic competitiveness definition:
 1. Review and discuss the alternative definitions
 2. Consider with respect to criteria (appropriateness to purpose of CSFAP, measurement and data, comparisons with respect to other sectors, time periods)
 3. Generate a consensus definition and justification

Measuring competitiveness

□ Considerations

- Sectors vs states or countries
- Measures examples
 - Single measures: output/employee for the entire sector
 - multiple measures: output/employee for each sub-sector
 - composite measures: combinations of output/employee, average wage, capital investment, entire sector or subsector

A few examples of composite measures

World Bank Logistics Performance Index

Conexus Logistics Industry Health

Global Economic Symposium Economic Performance Index

World Bank Logistics Performance Index

Who	World Bank
What	Annual ranking of countries on logistics performance, 160 countries
Purpose	To compare capacity for national and international trade and competitiveness across countries
Measures	Customs performance, infrastructure quality, ease of arranging shipments, quality of logistics services, tracking and tracing, timeliness
Data sources	Surveys of freight forwarders and carriers; statistical data
Product	Annual overall score, measure score, and ranking

LPI ranks and scores

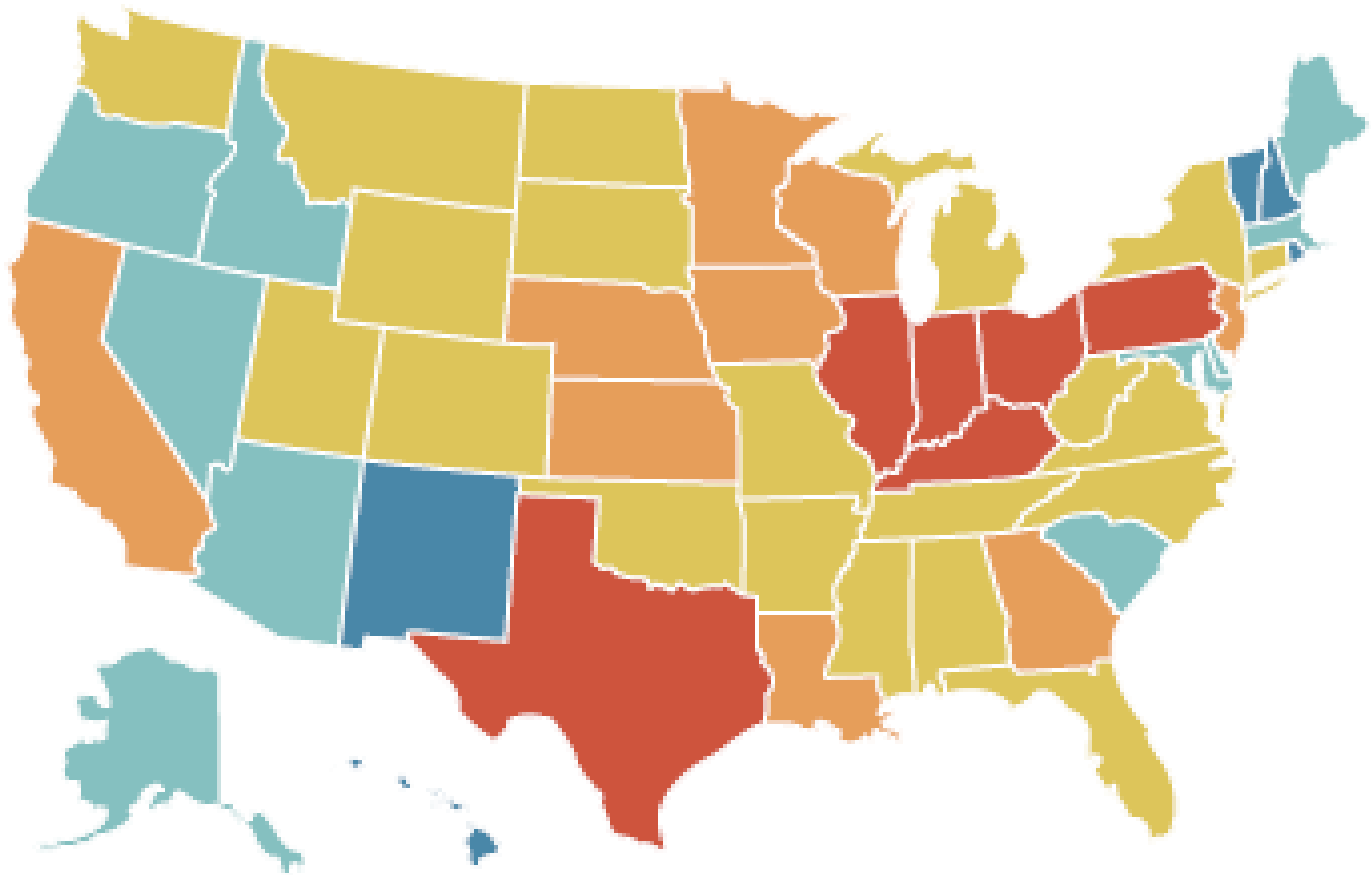
Country	Year	Rank	Score	Customs	Infra	Int'l ship- men	Log comp	Trk & trace	Time- liness
Germany	2016	1	4.23	4.12	4.44	3.86	4.28	4.27	4.45
Luxembourg	2016	2	4.22	3.90	4.24	4.24	4.01	4.12	4.80
Sweden	2016	3	4.20	3.92	4.27	4.00	4.25	4.38	4.45
Netherlands	2016	4	4.19	4.12	4.29	3.94	4.22	4.17	4.41
Singapore	2016	5	4.14	4.18	4.20	3.96	4.09	4.05	4.40
Belgium	2016	6	4.11	3.83	4.05	4.05	4.07	4.22	4.43
Austria	2016	7	4.10	3.79	4.08	3.85	4.18	4.36	4.37
UK	2016	8	4.07	3.98	4.21	3.77	4.05	4.13	4.33
Hong Kong	2016	9	4.07	3.94	4.10	4.05	4.00	4.03	4.29
US	2016	10	3.99	3.75	4.15	3.65	4.01	4.20	4.25

Source: <http://lpi.worldbank.org/international/global>

Conexus Logistics Industry Health

Who	Center for Business and Economic Research, Ball State University
What	State level index of logistics industry health
Purpose	Compare competitiveness of logistics industry across states
Measures	Shift share of logistics industry, rail and road commodity flows, per capita expenditure on highways
Data sources	US Census, BEA, USDOT
Product	Annual grade (A-F) by state (2016 California = B)

Logistics Industry Health Map



Source: *Conexus Indiana, 2016*

Grading Scale **A** **B** **C** **D** **F**

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Global Economic Symposium Economic Performance Index

Who	Global Economic Symposium
What	A “bottoms up” national measure of economic performance using firm and industry level data, G-20 countries
Purpose	Compare economic performance of countries, internationally and across time
Measures	Financial performance and productivity, innovation, cost of doing business, labor availability and quality, gov’t effectiveness and infrastructure, business environment, industry specific factors
Data sources	Publicly available statistical data sources, proprietary database on firms
Product	Overall rank, rank by industry sector

Examples of GES measures

- ❑ Financial performance and productivity
 - Revenues, profits, market capitalization
 - Revenue/emp, sales/emp, profit/emp
- ❑ Labor force availability and quality
 - Young workers, education rates, turnover rates, employee attitudes
- ❑ Gov't effectiveness
 - Public investment in infrastructure, health, education
 - Regulation, laws and enforcement
 - FDI, exchange rates, deficits, inflation rates
- ❑ Industry specific (transport)
 - Competition, exit and entry
 - Mergers and acquisitions
 - Infrastructure supply and quality, connectivity

Constructing the GES rankings

Stage 1: indicators level

- Identify the multiple factors that describe the competitiveness of each industry

Stage 2: Index level

- Standardize individual factors, group factors together into core components

Stage 3: Scoring and ranking

- Assign scores on each component and each industry to each country

Stage 4: Final ranks

- Compute average score across all components for each industry sector; rank by industry sector

Breakout assignment 2

1. Discuss advantages and disadvantages of single, multiple, composite measures
2. Discuss advantages and disadvantages of qualitative, quantitative data
3. Identify potential publicly available data sources
4. Identify proprietary data sources and potential for providing for this purpose

Potential CSFAP targets

- ❑ Working Group is responsible for identifying the targets
- ❑ What information is needed to identify targets?
- ❑ Should economic competitiveness target be as ambitious as the others?
- ❑ Should focus be on “do no harm”?

WORKFORCE DEVELOPMENT

Workforce Development in the CSFAP

- A skilled and nimble workforce will be one key factor in competitiveness as firms continue to adjust to rapidly evolving markets. **Expanding well-paid job opportunities** in the trade sector will improve the State's overall economic health and support the transition to a sustainable freight transport system.
- Convene stakeholders and the California Workforce Development Board to identify and implement steps to ensure that **the existing and future workforce** meets the needs of the California sustainable freight transport system and sufficiently skilled labor is available to meet the needs of an expanding freight-related job market.
- By July 2017, the State agencies will establish work plans for the workgroups on competitiveness, system efficiency, workforce development, and regulatory and permitting process improvements.

Workforce Development in the CSFAP

❑ Objectives:

- Alignment between freight plans and WD initiatives
- Pre-apprenticeship pipelines and upskilling
- Regional training partnerships

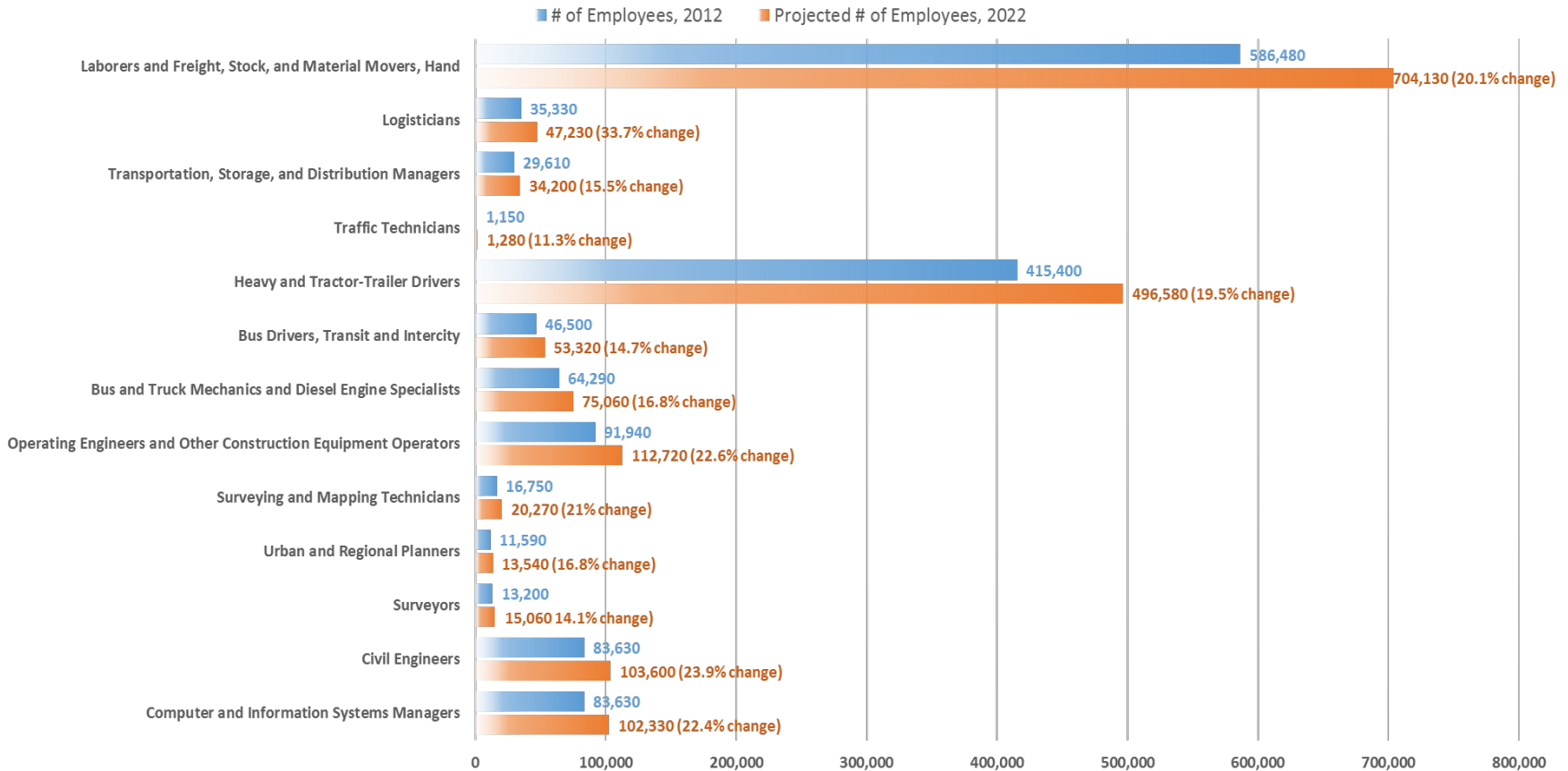
Workforce Development in the CSFAP

□ Proposed steps:

- Convene small working groups to outline and prioritize WD challenges and opportunities
- ID priorities associated with implementation of plan
- Map related skill and training requirements in mission critical occupations
- Identify opportunities for apprenticeship pipelines
- Foster community workforce agreements

Trade Sector Growth in the Southwest

EMPLOYMENT FORECAST FOR PRIORITY OCCUPATIONS IN THE SOUTHWEST

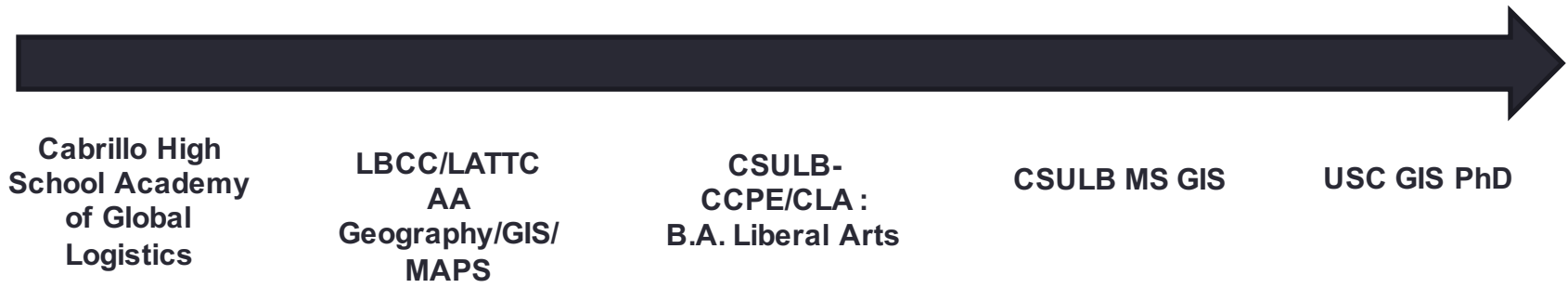
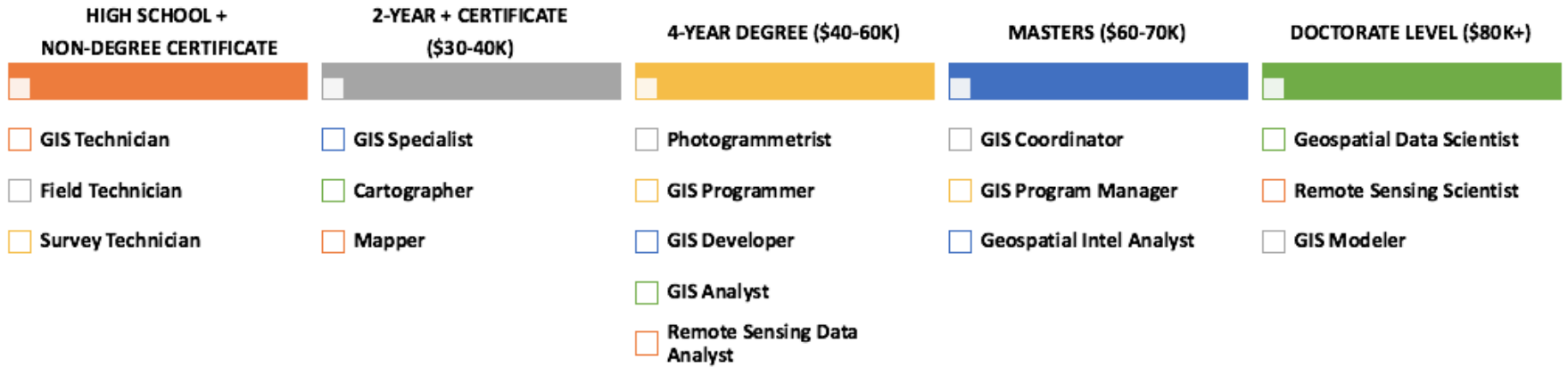


Trade Sector Growth in the Southwest

EMSI 2008-2018 Projected Growth in Supply Chain Technology Jobs

US	CA	TX
5.0%	9.9%	9.3%

Mapping Out a Career Pathway




YOU are
HERE now.




YOU can
reach HERE.

What will implementation require?

- ❑ Modeling and demand forecasting
- ❑ Accelerating use of clean vehicles, equipment and fuels
- ❑ Fueling infrastructure assessments
- ❑ Freight facility, siting, design and operations
- ❑ Freight network design
- ❑ Feasibility assessments

What will implementation require?

- Freight rail improvements
- Aviation efficiencies
- Truck trip planning improvements
- Incentives for oceangoing vessels
- Project financing
- Managing demos and pilot projects
- ID process improvements
- Development and tracking of KPIs

What will implementation require?

- Interagency coordination
- Policy direction
- Benchmarking
- Stakeholder coordination
- A freight champion
- Clear communication
- Marketing

Breakout Questions

- ❑ What should be short term (2016-17) focus for implementing CSFAP for implementing agencies? for freight sector?
- ❑ What should be long term (2017-30) focus for implementing CSFAP for implementing agencies? for freight sector?

Breakout Questions

- ❑ Where are there opportunities for apprenticeships/work-based learning?
- ❑ Where are there opportunities for regional/community workforce agreements?
- ❑ Who needs to be at the table at WD working groups?

Breakout session summaries and discussion

Freight sector definition

Economic competitiveness definition

Measuring growth and competitiveness

Role of consultant and next steps

QUESTIONS

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Appendix B: March 4, 2017 Working Group Workshop Notes

Name	Comment
Fran	<ul style="list-style-type: none"> ❖ Rule out single measure – no silver bullet. Need hybrid of multiple and composite measures. ❖ Other data out there but what is meaningful. Need to define data/measures. Macro GDP misleading. NPMRAs – Specific to trucks, highway only. ❖ Need information on dwell time, turn time, EDI Exchange. How to make publicly available.
Ben Dealba	<ul style="list-style-type: none"> ❖ Composite → holistic perspective. Need both quantitative/qualitative data. World Bank survey of users a good approach. ❖ Market share for seaports. Delays on system. Rail data propriety issues. Gate turn time for airports measurement. -Passenger driven. Relative imp. of frt not the same. What is the core business?
David Libatique and Heather	<ul style="list-style-type: none"> ❖ Multiple measures/composite. Quantitative more useful. Need survey of publicly available data and assess its usefulness. Some of it scrubbed for security purposes, makes it not very useful. ❖ Sco group grappling with multiple data sources. Some data available at state level or county level but not census tract. ❖ Can you make data availability a part/requirement of project funding?
Fran	<ul style="list-style-type: none"> ❖ What should consultant do? ❖ Need to know what we are going to do with work product after. -Come up with target and track progress consistently. ❖ This group should decide on target(s). GDP as global data source? Is efficiency measurement a synthesis of GDP – based measurements for competitive and ZEV? Global target helps define boundaries for sub-targets.

Appendix C: CSFAP Economic Competitiveness and Workforce Development Meeting Presentation. June 6, 2017

CSFAP

Economic Competitiveness and Workforce Development Meeting

Genevieve Giuliano

University of Southern California

Thomas O'Brien

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California Governor's Office of Business and Economic
Development

June 6, 2017

Meeting objectives

- ❑ Agreement on definitions
- ❑ Agreement on approach for metrics
- ❑ Endorsement of consultant proposal
- ❑ Identifying mission critical occupations for CSFAP and endorsement of pilot project approach for consultant

Economic competitiveness

- Establish a *target or targets* for increased State competitiveness and future economic growth within the freight industry based on *common-sense economic competitiveness and growth metrics* and models developed by a *working group*
- The targets and tools will **support** flexibility, efficiency, investment, and best business practices through State policies and programs that *create a positive environment* for growing freight volumes and jobs,
- while working with industry to *mitigate potential negative economic impacts*.
- The targets and tools will help **evaluate** the strategies proposed under the Action Plan to ensure consideration of impacts on economic growth and competitiveness throughout the development and implementation process (adapted from CSFAP, p. 10)

Definition 1: Freight sector

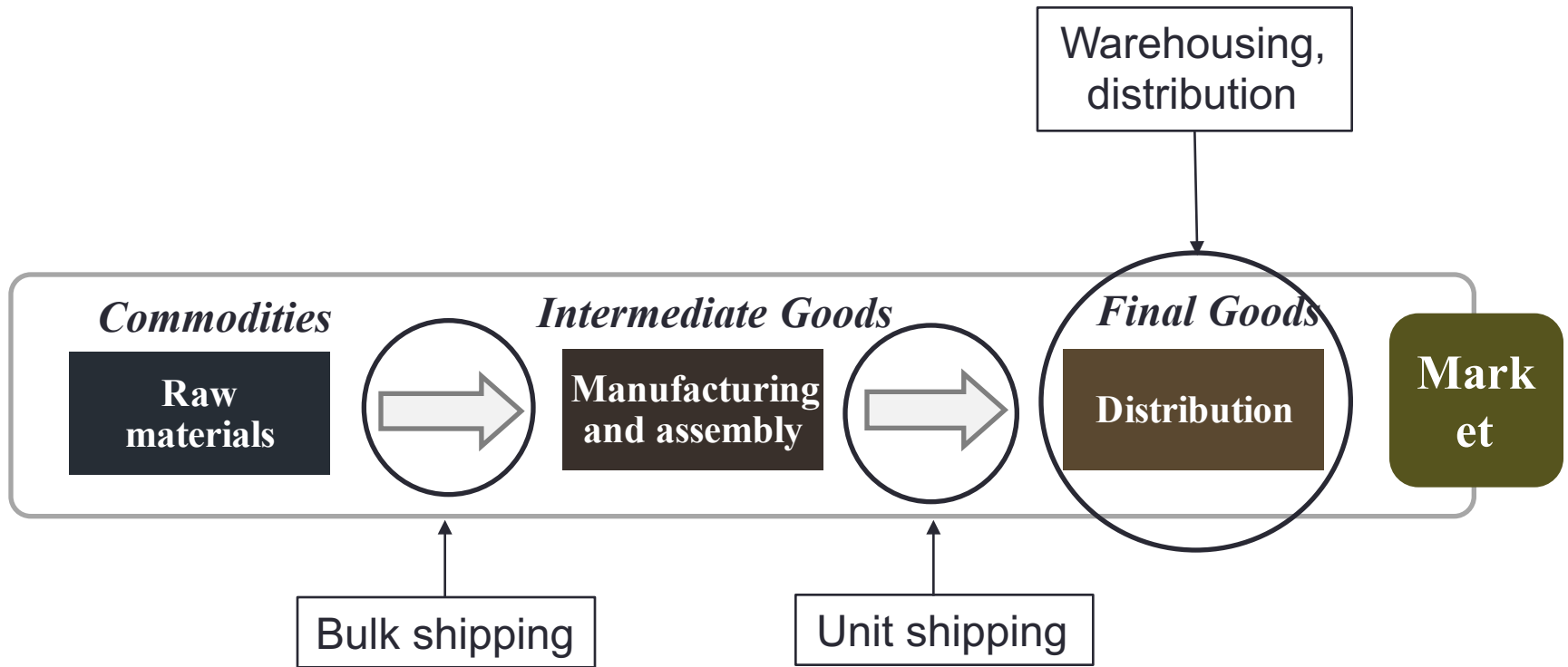
□ Alternative definitions

- *Broad*: All businesses, including *transportation-based and transportation-dependent businesses*, which originate, terminate, handle, store, carry, distribute, aggregate, disaggregate, and manage goods and commodities, including all carriers, all cargo owners, their intermediaries, and customers.
- *Narrow*: All *transportation and service providers* involved in moving, handling, managing or planning the flow of cargo between the point of origin and the point of consumption.
- *Utilitarian*: The collection of industry sectors identified in NAICS 48 and 49, with passenger transport removed.

Definition 1: Freight sector

Broad definition based on the concept of value added: Sector constitutes all transportation based and transportation dependent enterprises involved in the supply chain from the point of origin to the point of consumption. It includes reverse logistics chains from the point of origin to the point of termination. The definition includes 1) all carriers and all cargo owners or their intermediaries, 2) all transportation and service providers involved in moving, handling, managing, or planning the flow of cargo, and 3) the transport infrastructure.

Figure of freight sector



Operationalizing the definition

- ❑ What parts of the supply chain would be included?
- ❑ Which NAICS codes would be included?
- ❑ California-based firms, or all firms?
- ❑ Data sources?

Definition 2: Economic competitiveness

□ Alternative definitions

- A set of policies, institutions, attitudes and investments and factors that influence the level of productivity of an entity (state, region, industry sector) as well as the capacity to increase productivity for the freight/goods movement sector in CA as measured by GDP and the ability to successfully compete with other states and regions as measured using existing comparable metrics.
- A set of factors that promote an increase in productivity for a given economy.
- The California freight sector's ability to: 1) successfully compete with freight sectors in other states as measured by using existing comparable metrics; and 2) increase productivity for freight and related sectors for CA's economy of a state's economy.

Definition 2: Economic competitiveness

Definition:

The California freight sector's ability to 1) successfully compete with freight sectors in other states as measured by using existing comparable metrics, and 2) increase the productivity of freight and related sectors and contribute to the growth of California's economy. Economic competitiveness is affected by policies, institutions, and investments that influence the freight sector's productivity.

Operationalizing the definition

- How to measure
 - “Successfully compete”
 - Productivity
 - Contribution to growth of state economy
- How to incorporate the policies, institutions, and investments that influence freight sector productivity

Approach for metrics

- ❑ Single vs multiple vs composite metrics
 - No consensus at workshop
- ❑ Recommendations
 - Target of measurement is California freight sector
 - At least one composite measure for entire sector
 - Composite measure supported by sector specific measures
 - Based on readily available, reliable and produced annually

Approach for metrics

□ Why?

- CSFAP requires a target, and progress to target must be measured
- Supportive multiple measures will allow decomposing progress to target
- Data reliability is critical
- Readily available data allows for transparency

Draft competitiveness RFP

- ❑ Phase 1: Complete work on definitions and metrics
 - Definitions, measurement approach, economic competitiveness target
- ❑ Phase 2: Develop metrics
 - Develop and operationalize the metrics
- ❑ Phase 3: Economic impacts
 - Prioritize impacts to be examined, conduct impact analyses

WORKFORCE DEVELOPMENT

Workforce Development in the CSFAP

- A skilled and nimble workforce will be one key factor in competitiveness as firms continue to adjust to rapidly evolving markets. Expanding well-paid job opportunities in the trade sector will improve the State's overall economic health and support the transition to a sustainable freight transport system.
- Convene stakeholders and the California Workforce Development Board to identify and implement steps to ensure that the existing and future workforce meets the needs of the California sustainable freight transport system and sufficiently skilled labor is available to meet the needs of an expanding freight-related job market.
- By July 2017, the State agencies will establish work plans for the workgroups on competitiveness, system efficiency, workforce development, and regulatory and permitting process improvements.

Workforce Development in the CSFAP

❑ Objectives:

- Alignment between freight plans and WD initiatives
- Pre-apprenticeship pipelines and upskilling
- Regional training partnerships

METRANS Scope of Work

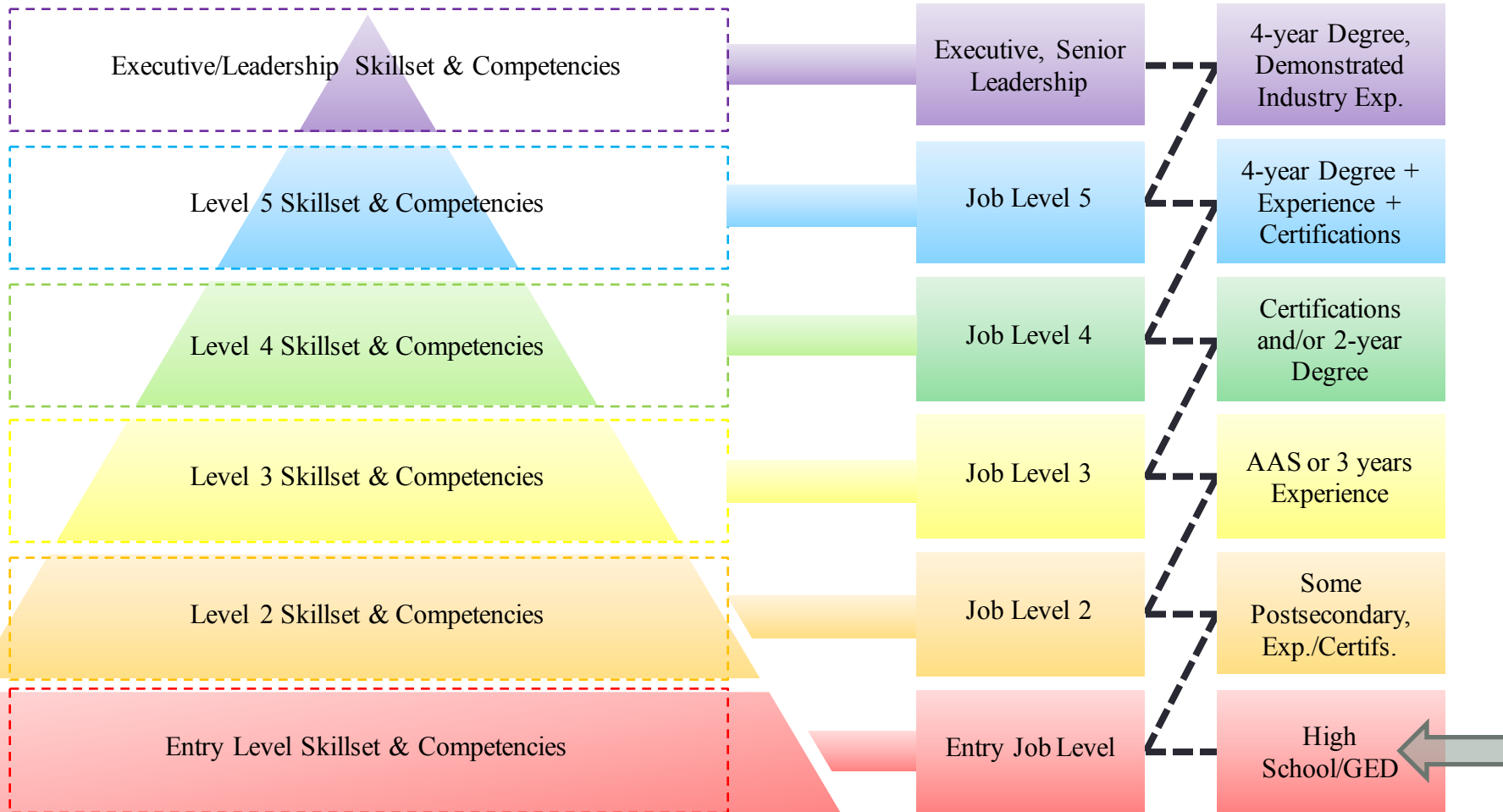
- Task 1: Prioritize Workforce Challenges
 - Assemble and synthesize existing studies on labor market demand
 - Identify preliminary list of mission critical occupations for validation 2 in-person and 1 virtual working groups
- Task 2: Map skills and training requirements

METRANS Scope of Work

MONSTER

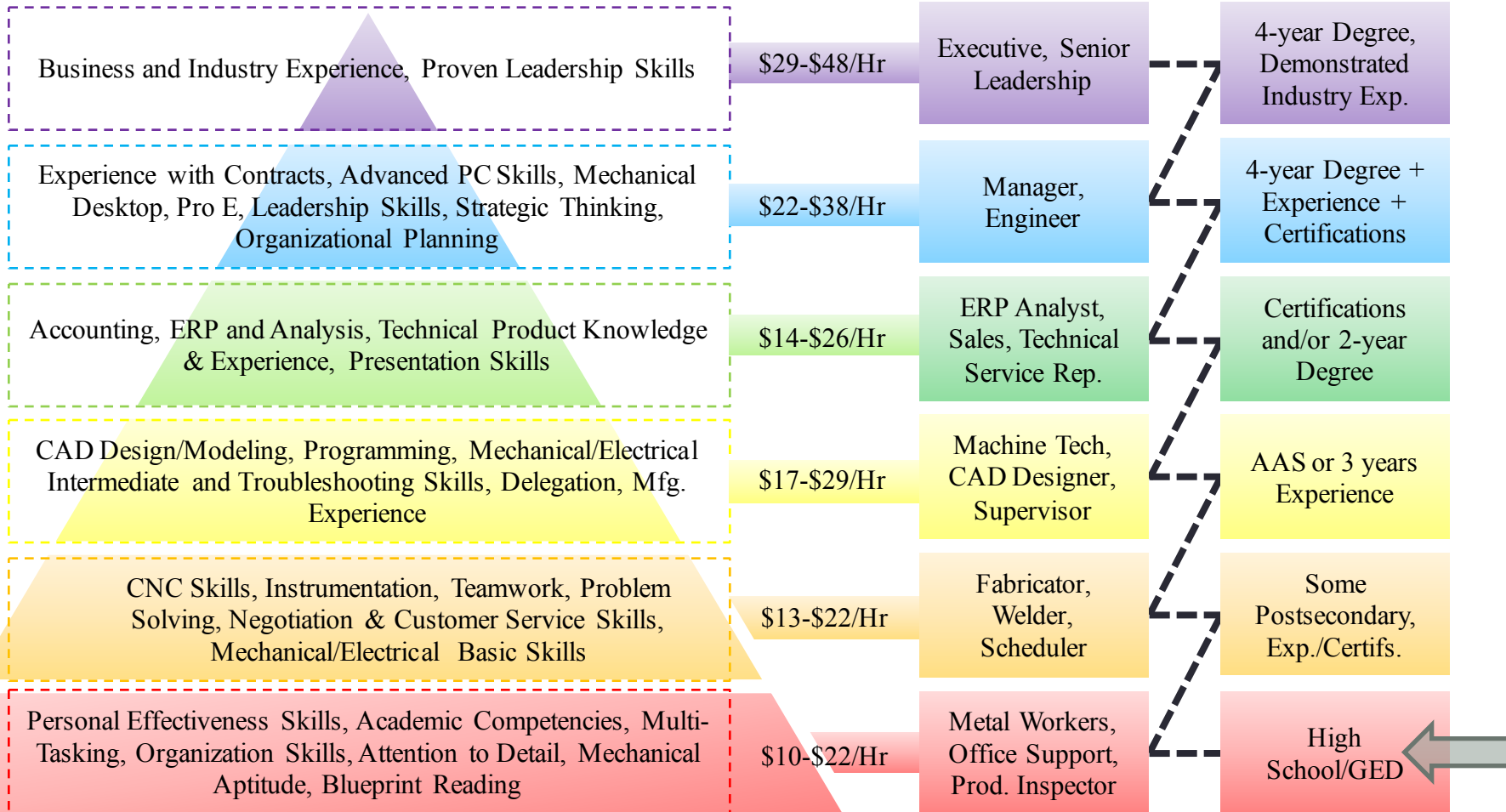


Example Career Pathways Template



Sample Career Pathways Template

ADVANCED MANUFACTURING PATHWAY (SAMPLE)



METRANS Scope of Work

- Task 3: Innovative Training Models
 - Document and assess existing freight related training programs
 - Develop concepts for apprenticeship pipelines
 - Develop concepts for community workforce agreements and regional partnerships

Leveraging Related Work

- Caltrans Freight Capacity Building
- LBCC Middle Skills Analysis
- SWTWC Apprenticeship Initiative
- FHWA Transportation Career Pathway Initiative

Draft Workforce Development RFP

Pilot Project

- Focus on demonstration and validation
 - Extend existing programs to broader audience
 - Develop assessment or placement tools
 - Establish formal and informal agreements that result in WD partnerships
 - Develop new curricular tools that facilitate implementation of CSFAP and can be embedded in existing programs
 - Develop new training program for Sustainable Freight (construction, operation, maintenance)

Draft Workforce Development RFP

Pilot Project

- Phase 1 (Task 1): Concept Paper
Outline objectives and partners
- Phase 1 (Task 2): Pilot Project Working Group
- Phase 1 (Task 3): Development Plan
Includes performance measurements
- Phase 2 (Task 1): Pilot Project Implementation

QUESTIONS

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