**Cluster Exploration/Selection Activity**

At the heart of Economic Development programming is business attraction, creation, retention and expansion. How do we create priorities for our services and resources? The industry cluster framework provides a means to identify clusters that are most important to our economy. It allows differentiation between how clusters contribute to our economic growth and helps us to determine which activities for which clusters can help advance us toward our economic development goals.

When selecting priority clusters, it is not only about **which** clusters are strong, but **how** they are strong. The characteristics of the cluster may be better suited for certain types of activities. The presence of a cluster as measured by employment or Location Quotient may not capture the number of small businesses or eagerness of business leaders to collaborate to build their industries within a region.

Deciding a cluster is a “good bet” for any purpose requires both economic data and the expert judgement and ground-truthed knowledge of the professionals and business community members who have stake in the results of cluster-based investments of time, effort and capital.

This exercise uses web-based apps combined with paper worksheets to explore Industry Clusters and evaluate their appropriateness as framings for economic development priorities at both the community and regional level. This exercise only uses the economic data combined with the judgements and current knowledge of the professionals in the room.

The result of this exercise should be a short list of clusters that can be further explored and verified as strong contenders for use in different cluster-based activities (such as targeted attraction or collaborative partnerships, etc.), support discussion about how these priorities overlap and support a short list of clusters in which the Northern Colorado region has stake.

Use the worksheets and the shared website to work through the questions posed on each worksheet. The process follows these steps:

1. Clarify your big picture goals and the key activities your organization engages in to move forward in those goals
2. Read over the list of clusters and see the default scoring assigned in Emsi’s “Cluster Identification” model to select a short list of industries to examine in more detail.
3. Based on how you intend to use a cluster lens (business attraction vs. BRE, etc.), evaluate each cluster based on customized criteria and mapping the pattern of employment across our region.
4. Dive into individual clusters to look at the subcluster and industry components.
5. (Optional) Experiment with creating new clusters that capture the mix of industries and activities that may speak to your community.

Record clusters that perform well for your purposes, to support group discussion about shared priorities and additional questions about the data.  
You’ll want to keep this website handy: [short URL for a website that linked to each app]

**STEP 1: What are your driving economic development goals and how do you achieve them?**Keep this at the 30,000 foot, big-picture level

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Your Organizations Big Picture Economic Development Goals** | **The broad types of activities/actions you use to move toward those goals** | | | |
|  | Business Attraction Activities | Business Retention and Expansion Activities | Entrepreneurship Support Activities | Other activities |
|  | *Increase and diversify the tax base* |  |  |  |  |
|  | *Job creation* |  |  |  |  |
|  | *Wealth creation* |  |  |  |  |
|  | *Promote economic inclusion and shared prosperity* |  |  |  |  |
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**STEP 2: Get a short list of “interesting clusters”**

Emsi produces a “cluster” score based on equal weighting of the Cluster as measured by

1. Earnings per worker
2. Job Growth (total)
3. Job Growth (competitiveness – growth exceeds expected industry growth)
4. Specialization (Employment Location Quotient), and
5. GRP

Each cluster is reported in a ranked list based on this score. Clusters that are typically associated with being non-traded (local services) are listed below the traded clusters.

**ACTION: Which clusters seem interesting or worth investigating further? Give them a check mark or a circle**

At this point: any reason to include a cluster is a good reason to include a cluster.

**Need more specific guidance? A searchable/sortable list of industries included in each cluster is available in the workshop website.**

*“Growing a cluster is not a goal in its own right. Rather, clusters are a way to understand what matters to groups of firms in order to create policies and programs that achieve broader economic development goals, which might relate to overall job growth, innovation capacity, or economic inclusion”* Donahue, R., J. Parilla, B. McDearman. Rethinking Cluster Initiatives. Metropolitan Policy Program at Brookings. July 2018.

**Emsi “Industry Cluster” Identification Tool Results (used in STEP 1 of the Cluster Selection Exercise)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | REGION 1 | | |  |  | REGION 2 | | |
|  | Cluster Name | classification | score |  |  | Cluster Name | classification | score |
|  | *Oil and Gas Production and Transportation* | high |  |  |  | *Education and Knowledge Creation* | high |  |
|  | *Production Technology and Heavy Machinery* | high |  |  |  | *Oil and Gas Production and Transportation* | high |  |
|  | *Education and Knowledge Creation* | high |  |  |  | *Aerospace Vehicles and Defense* | high |  |
|  | *Information Technology and Analytical Instruments* | high |  |  |  | *Information Technology and Analytical Instruments* | high |  |
|  | *Aerospace Vehicles and Defense* | high |  |  |  | *Business Services* | high |  |
|  | *Electric Power Generation and Transmission* | average |  |  |  | *Production Technology and Heavy Machinery* | high |  |
|  | *Biopharmaceuticals* | average |  |  |  | Recreational and Small Electric Goods | high |  |
|  | *Construction Products and Services* | average |  |  |  | *Biopharmaceuticals* | average |  |
|  | *Food Processing and Manufacturing* | average |  |  |  | *Medical Devices* | average |  |
|  | *Livestock Processing* | average |  |  |  | *Financial Services* | average |  |
|  | *Business Services* | average |  |  |  | *Construction Products and Services* | average |  |
|  | *Financial Services* | average |  |  |  | *Communications Equipment and Services* | average |  |
|  | *Agricultural Inputs and Services* | average |  |  |  | *Distribution and Electronic Commerce* | average |  |
|  | *Plastics* | average |  |  |  | *Electric Power Generation and Transmission* | average |  |
|  | *Distribution and Electronic Commerce* | average |  |  |  | *Food Processing and Manufacturing* | average |  |
|  | *Downstream Chemical Products* | average |  |  |  | *Lighting and Electrical Equipment* | average |  |
|  | *Lighting and Electrical Equipment* | average |  |  |  | *Livestock Processing* | average |  |
|  | *Medical Devices* | average |  |  |  | Marketing, Design, and Publishing | average |  |
|  | *Hospitality and Tourism* | average |  |  |  | *Plastics* | average |  |
|  | *Upstream Chemical Products* | average |  |  |  | *Downstream Chemical Products* | average |  |
|  | *Communications Equipment and Services* | average |  |  |  | *Upstream Chemical Products* | average |  |
|  | Upstream Metal Manufacturing | average |  |  |  | Leather and Related Products | average |  |
|  | Downstream Metal Products | average |  |  |  | *Insurance Services* | average |  |
|  | Metalworking Technology | average |  |  |  | *Agricultural Inputs and Services* | average |  |
|  | *Insurance Services* | average |  |  |  | Downstream Metal Products | average |  |
|  | Nonmetal Mining | average |  |  |  | Nonmetal Mining | average |  |
|  | Automotive | average |  |  |  | Wood Products | average |  |
|  | Marketing, Design, and Publishing | average |  |  |  | *Transportation and Logistics* | average |  |
|  | Trailers, Motor Homes, and Appliances | average |  |  |  | Environmental Services | average |  |
|  | *Transportation and Logistics* | average |  |  |  | Upstream Metal Manufacturing | average |  |
|  | Wood Products | average |  |  |  | *Hospitality and Tourism* | average |  |
|  | Vulcanized and Fired Materials | average |  |  |  | Metalworking Technology | average |  |
|  | Furniture | average |  |  |  | Vulcanized and Fired Materials | average |  |
|  | Environmental Services | average |  |  |  | Printing Services | average |  |
|  | Footwear (Leather Tanning/Finishing) | low |  |  |  | Trailers, Motor Homes, and Appliances | average |  |
|  | Performing Arts | low |  |  |  | Automotive | average |  |
|  | Recreational and Small Electric Goods | low |  |  |  | Furniture | average |  |
|  | Leather and Related Products | low |  |  |  | Paper and Packaging | average |  |
|  | Printing Services | low |  |  |  | Performing Arts | low |  |
|  | Apparel | low |  |  |  | Music and Sound Recording | low |  |
|  | Video Production and Distribution | low |  |  |  | Jewelry and Precious Metals | low |  |
|  | Jewelry and Precious Metals | low |  |  |  | Textile Manufacturing | low |  |
|  | Fishing and Fishing Products | not present |  |  |  | Footwear (Tanning/Finishing) | low |  |
|  | Forestry | not present |  |  |  | Apparel | low |  |
|  | Coal Mining | not present |  |  |  | Video Production and Distribution | low |  |
|  | Metal Mining | not present |  |  |  | Fishing and Fishing Products | low |  |
|  | Textile Manufacturing | not present |  |  |  | Forestry | low |  |
|  | Paper and Packaging | not present |  |  |  | Water Transportation | low |  |
|  | Music and Sound Recording | not present |  |  |  | Coal Mining | not present |  |
|  | Tobacco | not present |  |  |  | Metal Mining | not present |  |
|  | Water Transportation | not present |  |  |  | Tobacco | not present |  |
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|  | Non-traded | | |  |  | Non-traded | | |
|  | Local Government Services | high |  |  |  | Local Government Services | high |  |
|  | Local Education and Training | high |  |  |  | Local Utilities | high |  |
|  | State Government Services | high |  |  |  | Local Education and Training | high |  |
|  | Local Hospitality Establishments | high |  |  |  | Local Health Services | average |  |
|  | Local Health Services | average |  |  |  | Local Hospitality Establishments | average |  |
|  | Federal Government Services | average |  |  |  | State Government Services | average |  |
|  | Local Logistical Services | average |  |  |  | Federal Government Services | average |  |
|  | Local Utilities | average |  |  |  | Local Real Estate, Construction, and Development | average |  |
|  | Local Real Estate, Construction, and Development | average |  |  |  | Local Logistical Services | average |  |
|  | Local Financial Services | average |  |  |  | Local Food and Beverage Processing and Distribution | average |  |
|  | Local Household Goods and Services | average |  |  |  | Local Motor Vehicle Products and Services | average |  |
|  | Local Food and Beverage Processing and Distribution | average |  |  |  | Local Community and Civic Organizations | average |  |
|  | Local Community and Civic Organizations | average |  |  |  | Local Household Goods and Services | average |  |
|  | Local Motor Vehicle Products and Services | average |  |  |  | Local Commercial Services | average |  |
|  | Local Retailing of Clothing and General Merchandise | average |  |  |  | Local Financial Services | average |  |
|  | Local Commercial Services | average |  |  |  | Local Retailing of Clothing and General Merchandise | average |  |
|  | Local Entertainment and Media | average |  |  |  | Local Industrial Products and Services | average |  |
|  | Local Industrial Products and Services | low |  |  |  | Local Personal Services (Non-Medical) | low |  |
|  | Local Personal Services (Non-Medical) | low |  |  |  | Local Entertainment and Media | low |  |

“The highest ranked cluster is Education and Knowledge Creation, with a score of XX (out of 100) points. Your average cluster score is XX (out of 100) points. This is not a benchmark against other regions; it only compares the relative performance of your clusters to each other. Clusters ranked higher than XX are above average for your region, while clusters ranked lower than XX are below average. Top clusters must have a score of at least 37, while bottom clusters must have a score of XX or less. These thresholds are determined by applying the average deviation (plus or minus 8) to the average cluster score XX.”

“Your highest ranked cluster is Oil and Gas Production and Transportation, with a score of XX (out of 100) points. Your average cluster score is XX (out of 100) points. This is not a benchmark against other regions; it only compares the relative performance of your clusters to each other. Clusters ranked higher than XX are above average for your region, while clusters ranked lower than XX are below average. Top clusters must have a score of at least XX, while bottom clusters must have a score of XX or less. These thresholds are determined by applying the average deviation (plus or minus X) to the average cluster score XX.”

*Italics denote "priority clusters" tagged by NoCo REDI. These clusters are clusters where the group had high interest in additional learning around the industries, businesses, and employment details for each.*Emsi 20XX.X Industry Clusters. Class of Worker: Employees and Self-Employed. Note: Raw scores are not comparable between regions. Classification is relative to average performance. While Cluster Scores have been calculated for both traded and non-traded clusters, the Cluster Mapping methodology and this document focus heavily on the traded clusters. Traded clusters produce goods and services that can be traded internationally. The non-traded clusters comprise locally consumed products and services as well as public sector activities.

*Some Definitions:  
“center of gravity” – employment locations represented on the Cluster Map  
“key communities” – communities that are important to you and your stakeholders, not necessarily the region as a whole  
“regional competitive advantage” – the portion of employment growth that can’t be attributed to national growth or national industry trend.*

**STEP 3 - Evaluate how “Short-List” Clusters Perform Across the Region**

**Cluster Center of Gravity Map app:** This app uses actual establishment data to create Cluster based “employment center of gravity” by aggregating multiple establishments in the Census tracts they are located and then combining them together using an algorithm that pulls “outposts” of micro-employers into the nearest “center” of multiple employers with more employees than the output had. In cases where the large employers are closer to Denver (Aerospace) the “gravity” of these multiple very large companies “pulls” our small companies all the way down to the Broomfield area.

The result is that each bubble on the map doesn’t represent a specific business establishment or worksite, but instead, the employment weighted center of a cluster “neighborhood” of multiple businesses.

For each cluster still in consideration: pull up each cluster in the **cluster center of gravity map** app. Ask: Does this cluster have multiple centers of gravity in our region? Are there centers of gravity near the communities you are most interested in? Are there a diffuse group of small centers, or does a large firm or conglomeration of firms create a huge center within the region somewhere?

* Diffuse small centers of gravity speak to purposes that involve supporting small business development,
* A few large centers of gravity dominating the region likely represents few a large companies that anchor the cluster.
* A mix of large and small can support a wide range of BRE or attraction purposes

*What about metrics related to talent pipeline and training programs? Those topics, while important,* ***are out of scope for the workshop****. They are included in the Cluster Purpose Worksheet simply as a reminder that those are important aspects of cluster selection.*

**STEP 3 (continued) – How well do your cluster choices perform on your selected metrics?**

|  |  |  |  |
| --- | --- | --- | --- |
|  | *Notes and highlights of your observations go in the rows below for each cluster of interest* | | |
|  | **CENTERS OF GRAVITY  (map app)** | |
| **CLUSTER** | multiple centers of gravity near communities of interest? | large center(s) of gravity within the region? |
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If there are clusters in your list above that you feel strongly shouldn’t be further evaluated, feel free to ~~strike them~~ from the list.Are there clusters that didn’t perform well that you just aren’t willing to give up on*? That’s just fine.*

**In the list above, draw a star next to any cluster that you want to keep looking at. You can revisit it later to look at the subcluster components.**

If a cluster doesn’t perform well: the cluster may not be particularly strong, but if there is **strong interest** in that cluster from your organization or community, then it may be worthwhile to look at the subcluster components to see if there are regional strengths. *Is the strength of some subcluster(s) so compelling that you may want to pitch the cluster as a priority anyway? Could the strong subcluster(s) reasonably be combined with another cluster or subcluster to form a new cluster definition?*

**STEP 4: Understand each Cluster’s Subcluster Components**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | ***Application Tab:*** | **1. INDUSTRIES** | **2. COMPANIES** | **3. SUBCLUSTERS** |
| *You don't have to break down all of your clusters into subclusters. Start with those you are most interested in examining subclusters for and work backwards. This is a good place to examine clusters you suspected would perform higher in the cluster heatmap app -- what do their components look like?* | | Are any of the NAICS industries listed important to your community? | This is a list of representative companies (not a complete listing). Do any subclusters stick out because of the mix of companies? Do these represent the types of businesses you would expect to support within a specific Cluster Purpose? | Do any subclusters stand out for strong performance across any of the measures included here? |
| CLUSTER NAME | SUBCLUSTER NAME | INDUSTRY NAME | COMPANIES | STRONG/WEAK PERFORMERS (NOTES) |
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**STEP 5 Build a Cluster from Subclusters**

Our region is smaller than the BEA regions used to define these cluster definitions. For our purposes, it may make sense to create broader “super clusters” that add multiple cluster components together.

It may make sense to add a strong subcluster from a weakly performing cluster to a related cluster that has stronger performance in our region.

The ***Build a Custom Cluster*** app lets these ideas play through; you can create a custom cluster from any combination of subclusters.

Use this space to record what pieces you put together to create your custom cluster(s). This space is for your as-you-go notes.

**STEP 6: Summarize - Assemble a Priority List of Clusters and Gather Any Remaining Orphaned Subclusters***[Use this to guide your group discussion]*

Are there clear “winners” in your List from STEP 3? Which clusters?

Are there strong subclusters that emerged separate from their cluster in STEP 4? Which ones? (and what cluster did they belong to?)

Did you create any custom clusters? If so: summarize here: (see optional STEP 5)