Improving Labor Market Functioning

Information, better information, and the development of a learning-labor exchange

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National Transportation Workforce Summit

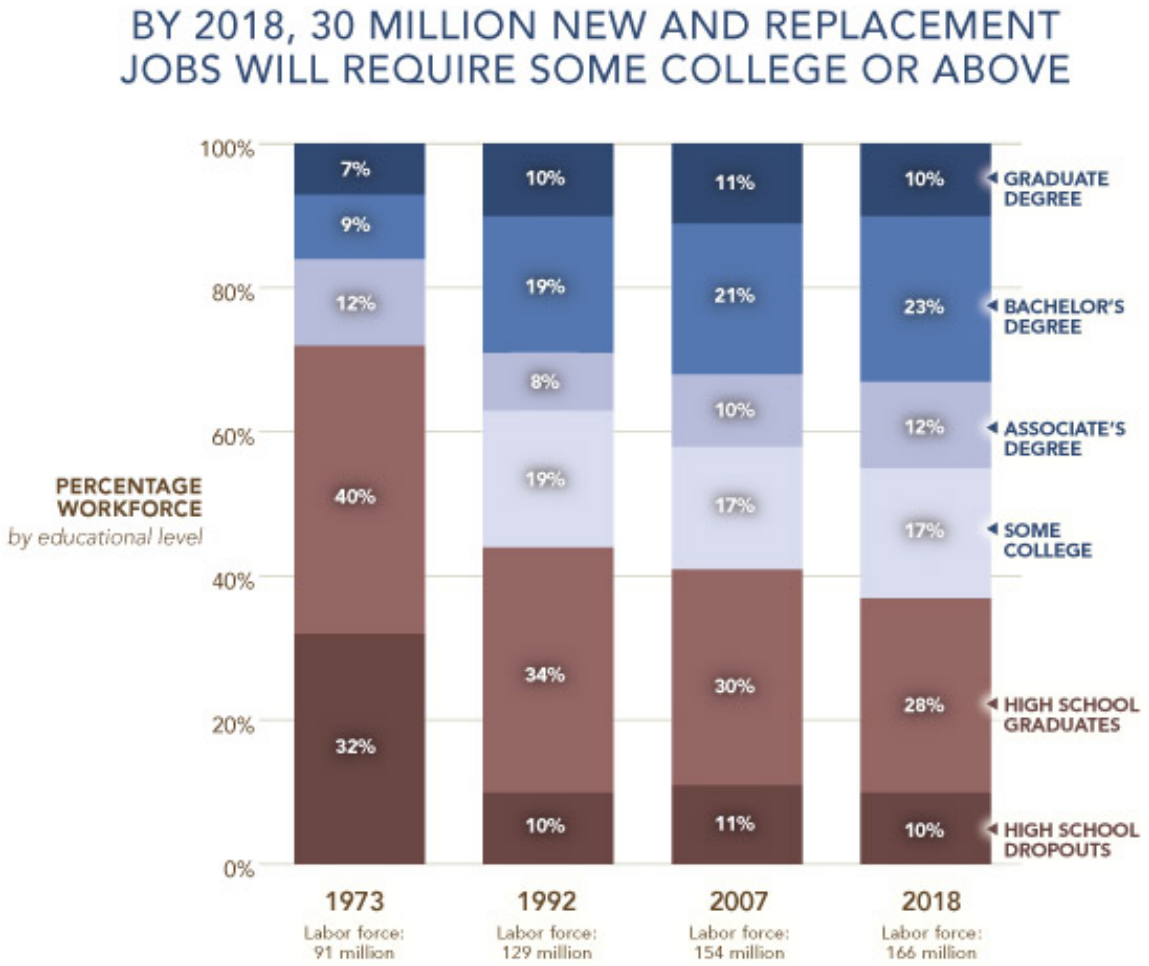
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The World is changing: Our grandparents' high school economy has been replaced by one requiring post-secondary education and training..



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So what about transportation?

- **Tranportation is heavily male, predominantly lower education level, but still faces large post-secondary needs moving forward – 49% of all job openings(1.7M total) between 2008-18 will require some postsecondary education.**
- **Even though the industry is very reliant on workers with high school education 2 factors underscore the industry's need for enhanced skills:**

100%

  - **1.) We project, from 1983, to 2018 that PSE requirements will increase from 28% to 50%.**
  - **2.) Skill-biased technological change is raising the levels of required skills in even high-school level jobs. Our analysis of mechanics in other industries, for instance, increased from 7% PSE in 1968 to 34% in 2006. This upskilling in degrees lags far behind modernization of the workplace that requires more of workers on the job well before a degree gets created.**

Transportation is not homogeneous, education needs and occupational staffing vary widely

occ08	all	Airtran	Truck trans	Bus urban trans	Tport incidental services	Postal	Couriers
	100%	9%	33%	9%	10%	13%	11%
Management occupations	7%	6%	5%	5%	14%	6%	7%
Office and administrative support occupations	26%	25%	11%	7%	20%	81%	39%
Transportation and material moving occupations	50%	24%	76%	64%	35%	4%	43%
		100%	100%	100%	100%	100%	100%
1.) LT HS	11%	3%	17%	11%	11%	3%	6%
2.) HS	42%	21%	50%	46%	36%	40%	37%
3.)SomeColl	23%	27%	18%	23%	21%	28%	30%
4.) AA	9%	15%	7%	9%	11%	10%	10%
5.)BA+	15%	35%	7%	12%	21%	19%	18%
total PSE	47%	76%	33%	43%	53%	57%	58%

Just looking at utilization of Bas in transportation highlights that the alignment between school and work is not always tight. BUT we know even the history major is productive.

Majors	%of BAs is Trans
BUSINESS MANAGEMENT AND ADMINISTRATION	11.6%
GENERAL BUSINESS	6.5%
ACCOUNTING	4.9%
TRANSPORTATION SCIENCES AND TECHNOLOGIES	4.6%
PSYCHOLOGY	3.3%
MARKETING AND MARKETING RESEARCH	2.8%
ECONOMICS	2.6%
CRIMINAL JUSTICE AND FIRE PROTECTION	2.6%
POLITICAL SCIENCE AND GOVERNMENT	2.5%
GENERAL EDUCATION	2.2%
HISTORY	2.2%
FINANCE	2.1%
COMMUNICATIONS	2.1%
COMPUTER SCIENCE	2.%
ENGLISH LANGUAGE AND LITERATURE	1.9%
LIBERAL ARTS	1.8%
ELECTRICAL ENGINEERING	1.6%
SOCIOLOGY	1.6%
GENERAL ENGINEERING	1.6%

What is and why build a learning labor exchange?

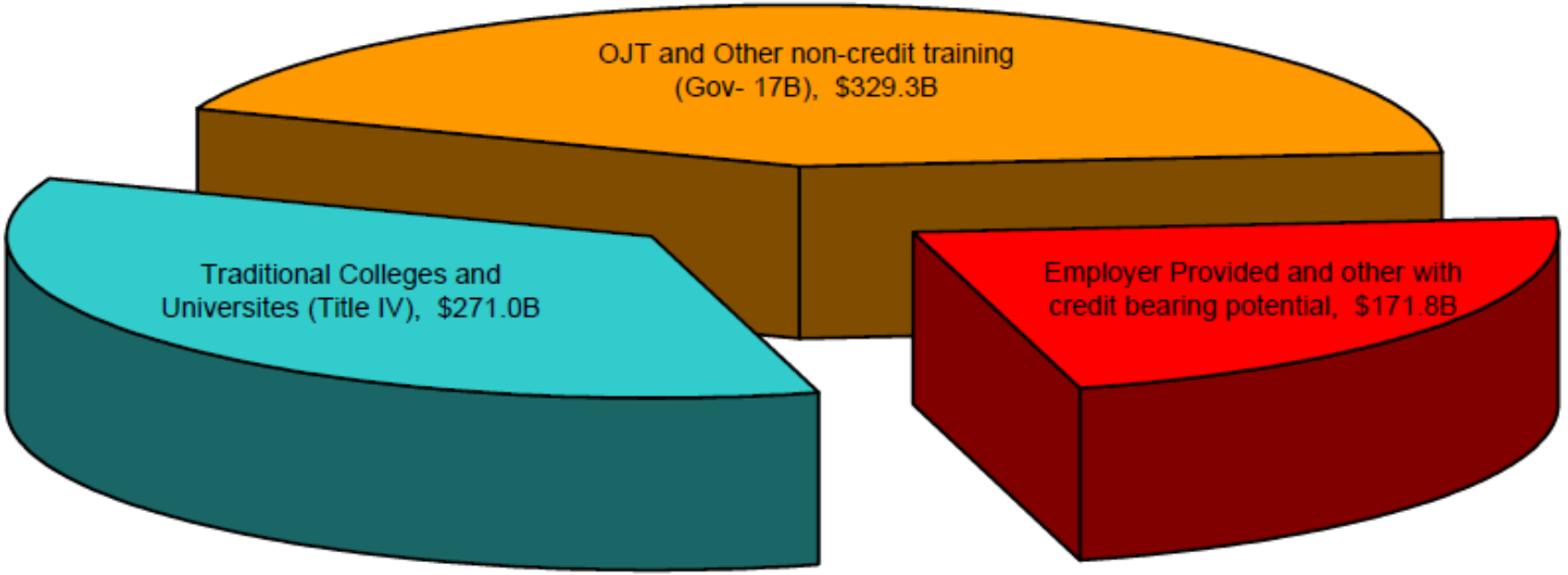
Learning-labor exchange – enhance information flow from the labor market to the education system to improve currriculum across time and space (i.e. have Educators on the same page as employers)

Human capital development occurs primarily in the labor market, formal Education currently prepares students for workforce training. Current politics Are challenging education and training to be more efficient and better focused On employablity.

Data system development has advanced and new data exist to inform Curriculum development and institutions to obtain better alignment.

- **Projection help align across time**
- **Real-time (internet postings data) help update hard skill requirements**
- **O*Net helps expose underlying competencies.**

The American Way –Education and training are separate spheres- a learning labor exchange aims to bring these spheres closer



Information improves the efficient operation of labor markets. It is absolutely critical for development

- **Labor market inefficiencies arise with longer time horizons which is exacerbated in private markets when individual business planning is proprietary information (imperfect information)**
- **The US addresses this problem by generating and providing information to avoid market inefficiencies**

The American Model is a rejection of formal education as workforce development

Tracking is an Ugly word: The US has soundly rejected an education system purposed solely to prepare students for the workforce. Job matching occurs in the labor market.

The result in the US is high occupational mobility and more agile economy. The downside is high job churn which is minimized by general ability to learn on the job.

Learning-labor exchange aims to work within these Constraints- by indentifying work requirements that can impact Curriculum development

So then, what is the Problem?

•We need good information better labor market efficiency, especially that informing students but

•Federal and state **statistics are lagged**.

•Labor market data from the workforce/UI system **doesn't have occupation**, with very few exceptions; **Occupation is critical** to understanding granular labor demand.

•The Bureau of Labor Statistics (BLS) does a good job projecting occupation and industry growth but **does not offer any projections of education and skill demand**. Attempts to use the BLS education and training requirements data leads to gross underestimation of education demand.

- •22 million short at baseline, and
- •0.3% point increase in BA demand over 10 years.

•**Business information is proprietary** (see revealed employer preference later)

•The stigma of 'tracking' has **diminished efforts to link labor market information with education**, specifically curriculum development.

•The higher education establishment and the American public perceives education as having the lofty mission of creating well educated and good citizens which is ***only one among many*** missions that leaves workforce development on the bench. (less so true of community colleges)

Gainful employment might begin changing this.

So then, what is the answer?

- **The US needs to include skill and education demand** as part of projections. Our center has done this –accounting for both upskilling and changing occupational composition, but BLS is better suited to do this.

- **Our aversion to tracking needs to be rethought**, at least in the training and retraining spheres.

- **We need to be careful to maintain our production of general education** if it truly imbues the ability to 'learn' and is, thus, critical to the economic flexibility of individual workers and the overall economy.

- **We need to education to become more efficient and if employablity is a key function, or mission, then the learning-labor exchange will help obtain these efficiencies by creating information channels to inform educators more.**

The Future of data systems is now

• **Momentum has been building** to link postsecondary transcript data to wage records. This give us ex post evaluation of the relationship between program/ field of study and a host of labor market outcomes.

•This **doesn't provide a feedback mechanism** because we don't know what people are doing on the job. Our loosy-goosy education-labor market connection makes it difficult to infer occupation from industry of employment and wages.

•**Cutting edge work is in using internet job postings** to defeat the problems of timely data, proprietary employer information, skills/job tasks and technologies ,and other occupation-related requirements. (Job postings as revealed employer demand)

•These data **enable short-term** occupation, skills, etc. **projections models** that can break job requirements into information about upcoming labor market needs in ways beneficial to training/retraining programs.

Why is the future now?

The Internet and associated technologies are enabling collection of information that can be put to work.

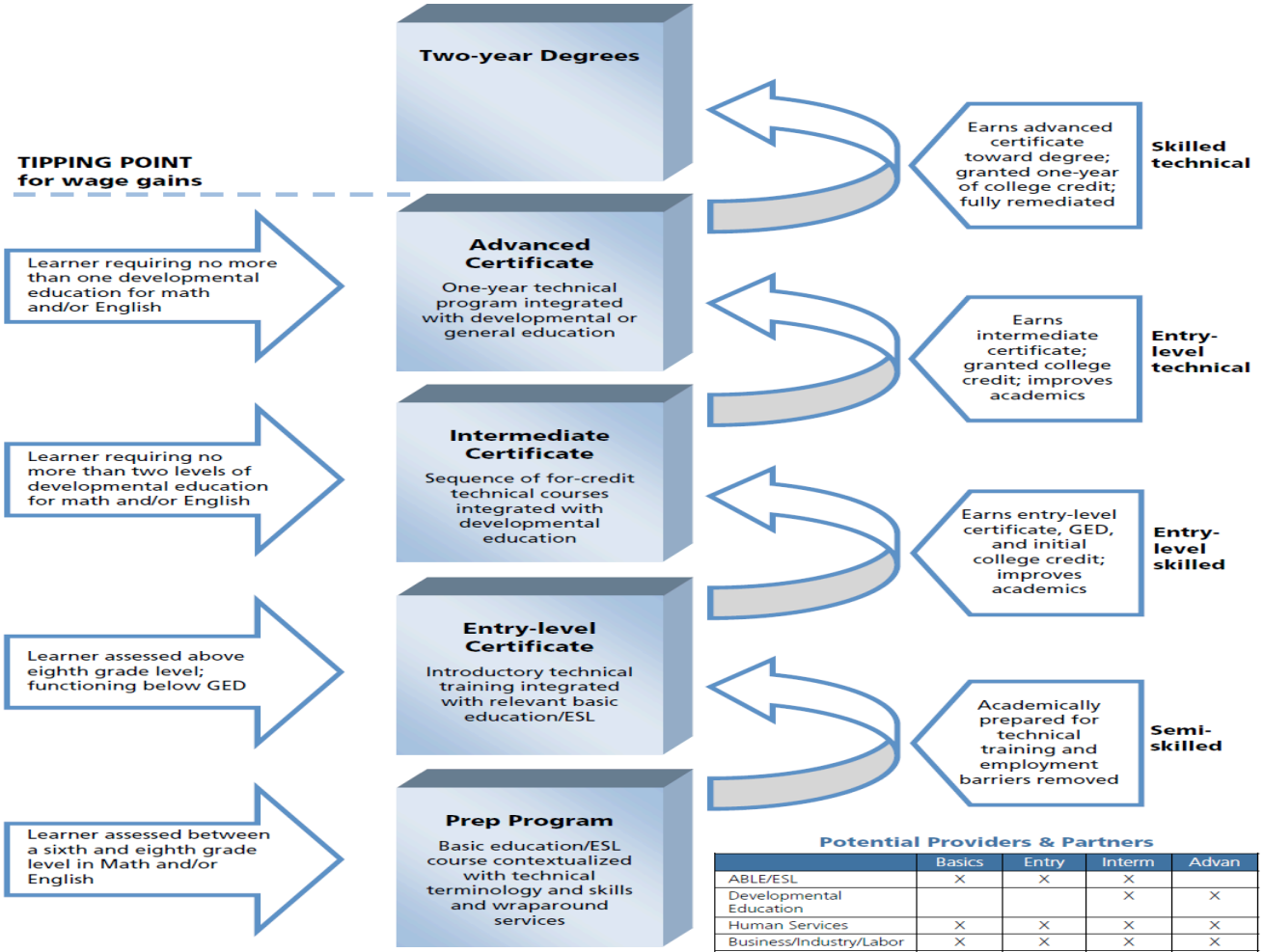
1. **Data, like O*NET, allow us to connect skills required by employers, occupation-specific tasks, and education and training programs.**
2. **Work on skills transferability can help focus training programs for dislocated workers on the skill sets needed in related occupations.**
3. **Stimulus funds have promoted efforts to integrate k-20 transcript data with wage record data, which can be used to link education and training with labor market outcomes. Thus employer demand could better inform workforce development.**
4. **Federal data collection efforts are poised to fill in vital missing data.**

Remainder of this PowerPoint is background information only.

Discussion of projecting ed demand
examples of what internet postings tell us about VA-MD-DC
Layout of problems with real time data
Green jobs projections.

Ohio's stackable certificate

Figure 1. Ohio Stackable Certificates Schematic



Potential Providers & Partners

	Basics	Entry	Interm	Advan
ABLE/ESL	X	X	X	
Developmental Education			X	X
Human Services	X	X	X	X
Business/Industry/Labor	X	X	X	X
Adult Career Center	X	X	X	X

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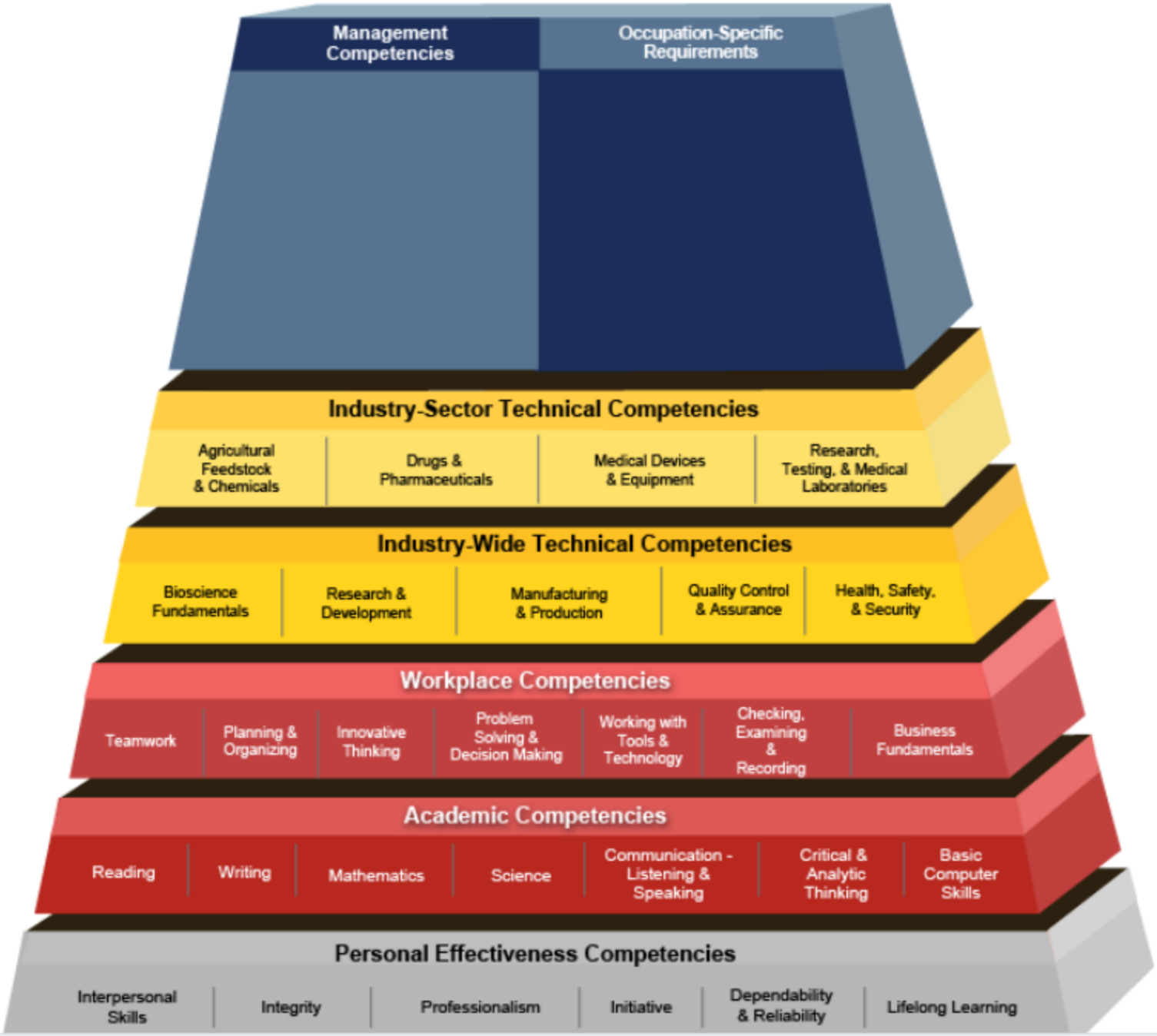
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Bioscience Competency Model



What would a modernized learning-labor exchange do?

- Improve information flow between the workplace and the education and training system by utilizing internet job postings, wage record-transcript data, and O*NET data detailing underlying KSAs
- Combine the competency model, stackable certificate concept, and occupational transferability with more study on just how education programs/field of study are utilized in the labor market which would:
  - Minimize the tracking issue by linking education clusters to broad occupational clusters.
  - Increase efficiency of retraining by identifying minimum skills gap to move displaced worker quickly to new occupations
  - Enable education and training efforts to focus on teaching up-to-date occupationally specific skills as close to labor market entry as possible to minimize mismatch (and more stories of workers trained to jobs that don't exist.) (See Freeman on counter-cyclical problems as education period lengthens)



BLS does not project education demand

BLS provides education and training requirements data

These data are indicative measures aimed at describing the single most significant pathway into an occupation.

Education demand is widely varied in almost all occupations, something recognized by BLS.

- **"Because of the variability of job functions within a given occupation, and because different employers have many different requirements of education and training, workers in the same occupation can have different education and training background" [BLS, 2009]**

The education and training requirements are not an accurate picture of education demand: 22 million workers with post-secondary degrees are missing.

TABLE 1 Comparison of BLS education and training requirements and education among employed workers in 1996 and 2008.

Sources: Silvestri, G. (1997), "Occupational employment projections to 2006," Monthly Labor Review, Table 6, p. 82, Nov. 1997. BLS; CPS March Supplement, various years; Lacey, A. and B. Wright (2009),"Occupational employment projections to 2018," Monthly Labor Review, Table 3, p. 88, Nov. 2009

	BLS 1996		Labor Market 1996		BLS 2008		Labor Market 2008	
	%	#	%	#	%	#	%	#
Postsecondary degrees	25%	33,008	34.3%	45,397	25.1%	37,884	40.1%	60,524
1st professional degree	1.3%	1,707	1.6%	2,118	1.3%	2,001	1.7%	2,566
Doctoral degree	0.8%	1,016	1.1%	1,456	1.4%	2,085	1.4%	2,113
Master's degree	1%	1,371	5.9%	7,809	1.7%	2,531	7.3%	11,018
Bachelor's degree or better, with work experience	6.8%	8,971	NA	NA	4.3%	6,516	NA	NA
Bachelor's degree	12%	15,821	17.6%	23,294	12.3%	18,584	20.4%	30,790
Associate's degree	3.1%	4,122	8.1%	10,721	4.1%	6,129	9.3%	14,037
Post 2nd vocational training	6.1%	8,091	NA		5.8%	8,787		
Work experience in a related occupation	7.5%	9,966			9.6%	14,517		
Long-term on-the-job-training	9.3%	12,373			7.2%	10,815		
Moderate-term on-the-job-training	12.7%	16,792			16.3%	24,569		
Short-term on-the-job-training	39.4%	52,125			36%	54,396		

Over qualification in the Labor Market?

22 million too many post-secondary degrees in the labor market? Is the President's Goal wrong????

- **Our analysis earnings data demonstrates that variation in education requirements within occupations is a real phenomenon.**
- **Over qualification is not an answer**
- **Unpublished research by Newmark and Johnson (2010) supports this position**
- **Certainly mis-match exists but this doesn't explain away 22 million post-secondary degrees**
- **We need projections of education demand to improve indicative planning**

Our report documents a method to project education demand

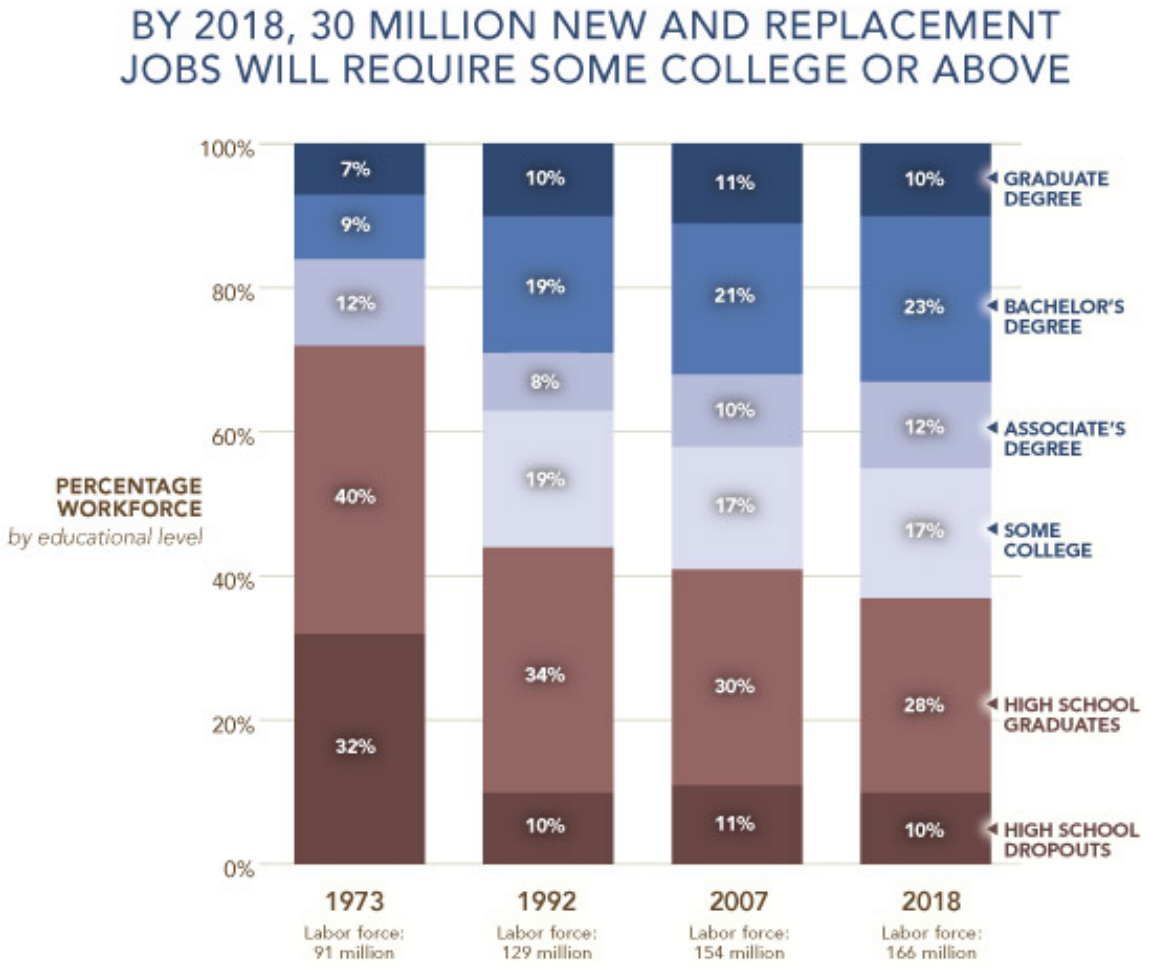
We use the full distribution of education within occupations to build a model that accounts for changing education demand in occupations derived from things like skill-biased technological change. For example our projections model accounts for upskilling like observed for auto mechanics.

EXHIBIT A Distribution of education among auto mechanics in three eras.[2]

	1968–1971	1988–1991	2004–2007
High school dropouts	58%	29%	19%
High school graduates	34%	52%	47%
Some college/Associate's degree	6%	16%	30%
Bachelor's degree or better	1%	3%	4%

Author's analysis of March CPS data, various years

None of this is surprising: The historic trend and projected future is increasing demand for education and training beyond high school.



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Educational attainment is widely distributed within the BLS categories, and in the case of AAs the BA requirement is larger.

TABLE 3 Average education distribution within each of BLS's education and training categories.

Source: Georgetown University Center on Education and the Workforce calculations using (http://www.bls.gov/emp/ep_table_111.htm) Table 1.11, Education and training measurements by detailed occupation

	Less than high school diploma	High school diploma or equivalent	Some college, no degree	Associate's degree	Bachelor's degree	Master's degree	Doctoral or professional degree
1st professional degree	0.1%	0.7%	0.7%	0.5%	5.2%	6.4%	86.5%
Doctoral degree	0.2%	1.6%	4.7%	3.3%	28.4%	29.3%	32.6%
Master's degree	0.6%	3.2%	6.7%	4.3%	30.8%	39.6%	14.9%
Bachelor's degree or better, with work experience	1.6%	8.7%	13.7%	5.8%	35.3%	21.2%	13.6%
Bachelor's degree	1.2%	8.1%	13.8%	7.8%	42.9%	20.9%	5.3%
Associate's degree	2.4%	16.3%	23.7%	24.0%	25.2%	5.9%	2.4%
Post 2nd vocational training	7.3%	29.6%	29.1%	14.3%	15.9%	2.9%	0.9%
Work experience in a related occupation	9.1%	27.5%	26.1%	9.9%	21.2%	5.3%	1.0%
Long-term on-the-job-training	13.8%	35.0%	23.9%	9.3%	14.1%	3.2%	0.7%
Moderate-term on-the-job-training	18.1%	41.9%	22.2%	7.0%	8.8%	1.6%	0.4%
Short-term on-the-job-training	17.8%	37.8%	23.5%	8.0%	10.4%	1.9%	0.5%

And, there is so much missing data.

We will:

- **Fall 3 million short in terms of postsecondary awards.**
- **Need an additional 4.7 million postsecondary certificates.**

Our best estimate is that we will be short 1-1.5 million certificates (See report for details).

We need care about the missing data because:

- **Formal certificates are roughly 23% of annual degree production in the IPEDS system.**
- **We estimate that here are between 30 million and 50 million active industry or occupationally-specific certifications in the US labor market.**

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