EXECUTIVE SUMMARY

The issue is clear. Companies in Oregon cannot grow or be competitive without the right talent. The alignment of worker skills with business needs means a worker quickly moves from a company liability into a productive asset. Yet, without the right combination of skills, it takes longer for workers to come up to speed. This time lag represents real costs – companies grow more slowly, worker wages stagnate, and the best and brightest leave our communities for other opportunities. Talent is the driver of economic growth; industry, education, workforce and government must work together to create more robust and agile education and training models for both incumbent workers and new graduates.

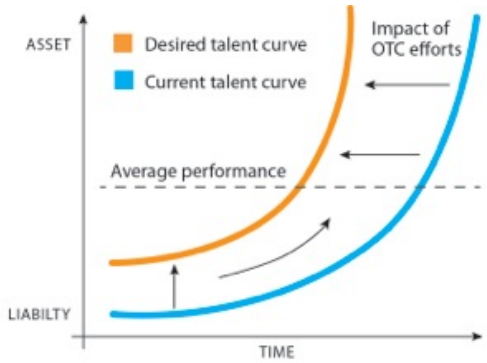
The Oregon Talent Council (OTC) was established by the legislature in 2015 to *"advise and be a resource for state agencies and educational institutions on issues of talent development, and to promote the growth and competitiveness of Oregon's traded sector and high-growth industries.*" Its mission is to ***"make Oregonians the first and best choice of Oregon employers."***

This legislation requires the OTC to develop an Oregon Talent Plan (the Plan) each biennium to identify talent issues and trends of industry and to unite the needs of industry with resources that can transform Oregon's talent pool. This initial plan is a living document, developed over time, to guide OTC decisions. Its purpose is to be a resource to help unite state agencies and education and training partners around a shared set of aspirations and actions to address Oregon's critical gaps in professional and technical occupations.

Today's desired skills mean that talent is far more than education -- it is the integration of applied skills and work experience, alongside formal degrees and soft skills. Graduates and workers with this mix are valuable and readily employable. Research and surveys reviewed for this plan noted that employers find little difference among graduates and educational institutions in terms of technical skills. They do, however, note significant differences in applied skills such as project management, teamwork, diagnostic thinking and problem-solving; the skills that help a person quickly "come up to speed" and that set them apart from others. Talent also means remaining competitive by continually learning new skills and technologies. With the majority of job openings in Oregon requiring experience, the need to have just-in-time training for incumbent and contingent workers is essential for business growth.

These realities lead to the need for programs with high return on investment (ROI) that:

- Increase initial skill levels; enhancing education with greater applied learning and work experience opportunities to provide the contextual skills sought by employers.
- Hasten the speed and cost-effectiveness by which education and training is delivered.
- Increase access to certifications and just-in-time training to keep existing workers competitive.



Today's lean business models mean companies have fewer resources for training programs; new graduates no longer have the luxury of long learning curves; and existing workers must retool their skills to remain employable. ***Focusing on agile systems, transformative programs and unifying policies can significantly reduce the time it takes for workers to be a contributing asset is a priority for the OTC***.

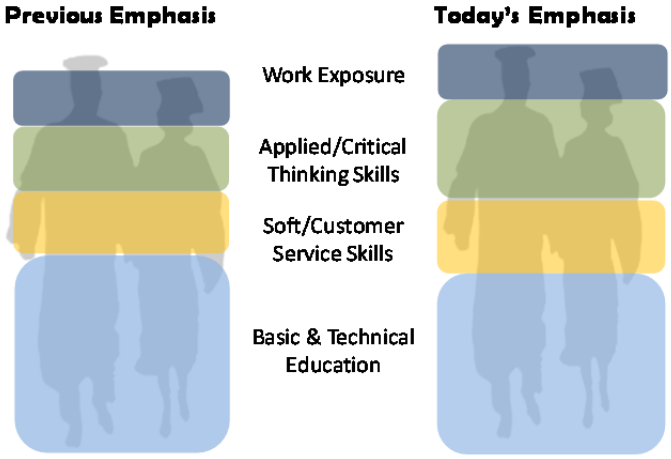
Critical Skills for Today's Desired Worker

The knowledge and technology base for the vast majority of professional and technical occupations is changing rapidly. Significant trends such as big data, cyber vigilance and the Internet of Things are changing the way we work. These changes mean the information we gather, manage and analyze, regardless of industry, is a driving force for every enterprise. So too are the advances in engineering and science that result in new materials for manufacturing, smart grid systems for energy, advanced diagnostic and therapeutic devices for health care and bioscience, and smart mobile technologies. These innovations and others are generating the need for occupations such as cybersecurity specialists, business intelligence analysts, and mechatronics engineers.

In Oregon and across the nation, the work environment that drives talent is also changing.

- Mid-size companies are disappearing, leaving a barbell economy of small and large firms.
- The average tenure in a job has decreased to seven years, and younger workers change jobs about every 3-4 years.
- More workers (~40%)[1] are freelancers, self-employed or contract workers, with the trend expected to grow.
- Human knowledge is estimated to double every 13 months; making much of what we learn today out of date in just a few years.
- Business is conducted in interdisciplinary teams, with consistent customer interactions.
- The Internet, social media and mobile apps give customers (including students and employees) more choices and influence than ever before.
- Technology is automating tasks, yet increasing the need for people to diagnose and rapidly respond to problems.

Those changes have resulted in the need for a dynamic workforce with much higher levels of applied or contextual skills that go beyond technical aptitude and schooled learning. Simply stated, workers need to learn how to learn. While these skills have been important for decades, today's fast-paced work environment has changed the ratio that makes today's workers attractive candidates for businesses.



Examples of applied learning or contextual attributes desired by industry include:

- Diagnostic thinking to assess operations, consider causes and devise appropriate actions.
- Visual and verbal communication skills to translate complex data into bite-sized chunks of understandable information
- Business acumen such as cost-benefit thinking to assess both operational and monetary outcomes, and the trade-offs incurred in decision making
- Project and time management skills including quality control measures
- Emotionally intelligent interpersonal skills for teamwork and customer service

[1] U.S. Bureau of Labor Statistics, 2012

Occupations Key to Oregon's Traded and High Growth Sectors

This initial Oregon Talent Plan is a needs assessment designed to establish a foundation for the OTC's work. The Plan was developed using primary and secondary data sources from industry, government, and academic sources. Data were analyzed for skills and occupations that cut across industries, as well mission critical skills for specific traded and high growth industry sectors.

The OTC initial plan focuses on five industry sectors[2] and occupations it believes will provide a strong return on public investment. These occupations:

- are classified as professional and technical in nature,
- pay at or above the state average wage,
- require some form of post-secondary training,
- have a demonstrated demand through 2022, and
- are identified by industry as high demand, hard-to-fill or mission critical.

The plan assessments resulted in the identification of ten top occupational clusters in three categories.

High-growth, high-demand occupations	Mission critical occupations	Emerging occupations
Significant new and replacement jobs with foreseeable demand, high growth rates, and hard-to-fill vacancies that cut across industries and/or regions	*Strong employment and above average projected growth; identified by industry as essential for core operations and often hard-to-fill*	*Relatively new and/or growing rapidly in support of multiple industries; ability to position the state as a leader in these skills*
Systems and data specialists who design, connect, and manage big data systems. **Data and business intelligence analysts** who analyze big data to enhance operations, predict market demand, mitigate risk, and control quality and standardization. **Industrial machinists, millwrights and operators** of highly computerized and/or automated processes requiring precision, quality control and strong diagnostic skills. **Rehabilitation therapists and assistants** (physical, occupational, respiratory, etc.) employed in hospitals, clinical and long-term care systems.	**Technologically skilled mechanics and maintenance technicians** who maintain and repair highly technical machines and equipment across industries including manufacturing, energy, healthcare, and others. **Mental and behavioral counselors** who are a growing part of integrated health systems and who support the ability of residents to have productive lives, especially in rural areas. **Interdisciplinary engineers** who can integrate mechanics, electronics, and computer systems that comprise smart machines and connected devices. **Primary health care practitioners** including specialty nurses who are at the heart of new coordinated patient care health models, and are significantly in demand in rural areas.	**Cyber and information security specialists** who can develop, monitor and mitigate security risks for data and information systems. **Advanced materials engineers & scientists** enabling the development of products and devices that are smaller, tougher, lighter, more flexible, less expensive, and more energy efficient.

[2] Initial industries include technology, advanced manufacturing, energy, healthcare and biosciences.

Addressing Professional and Technical Talent Demands

Talent is an issue that is critical in good and bad economic times. Economic growth will only exacerbate current job vacancies without qualified workers, and recessions tend to push those with marginal skills from the ranks of the employed to the unemployed. The size and variety of Oregon's talent challenges require solutions that are innovative and implemented quickly — doing more of what has been done is inadequate, and we cannot wait years for new programs to be developed. Strategies will need to coordinate with targeted state and regional industry sectors, high impact solutions will need to utilize collaborative approaches, low-cost, multi-modal channels with work-based elements.

Producing demand-driven talent recognizes that *students and businesses* are key customers; bridging them through metrics such as job placement that go beyond graduation or program completion rates. Focusing on measures such as job placement means that not only do students need employable skills, businesses need to be able to easily find qualified candidates for internships, apprenticeships and jobs.

The Oregon Talent Council has a unique opportunity to expand partnerships and pilot new programs that will create significant returns on public investments and have multiple layers of impact -- going beyond the technical content of individual programs and addressing the lever points that can transform and scale the systems that can produce the right talent at the right time. Projects that include:

- **Strong Contextual Content:** the provision of applied skills and work experience alongside technical aptitude.
- **Robust Industry Engagement**: the level of collaboration and commitment from industry, and the ability of industry to easily access programs and find qualified students.
- **Cost-effective and Agile Systems**: the ability to demonstrate cost-effectiveness, scalability, responsiveness and sustainability.
- **Expanded Reach and Diversity**: the ability to serve a diverse population, a variety of businesses and multiple regions across the state.

Successful examples are already in place in Oregon and elsewhere that demonstrate collaborative ways we can address talent that hits the ground running. They include programs that:

- Are co-developed and taught by industry and educators to retool recent graduates, contingent, and underemployed workers for high demand jobs in a variety of industries.
- Expand work-based models (e.g. apprenticeships) that integrate work experience with education in a cost-effective manner.
- Provide early and multiple exposures to industries of likely employment through job shadowing, capstone industry projects, and internships to ensure "fit" and to increase the likelihood that students complete their education with realistic expectations for their careers.
- Develop education and training "infrastructure" that reaches urban and rural areas and can be used across multiple degree and training programs.
- Develop shared and standardized content for priority occupations that can be delivered through multiple institutions and educational channels.

Over this first biennium, the OTC hopes to unite industry, education, workforce and government around a shared set of objectives to address key occupations. It also hopes to co-invest in projects that can demonstrate transformative solutions that can address today's critical needs while enhancing the delivery channels that can be responsive to jobs of the future. We simply cannot afford public investment in one-time or one-off projects. This initial plan is a starting point for this conversation.