

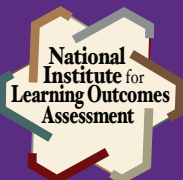
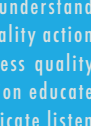
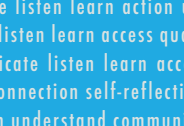
National Institute for Learning Outcomes Assessment

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Co-Designing Assessment and Learning: Rethinking Employer Engagement in a Changing World

Jason A. Tyszko & Robert G. Sheets

Foreword by Natasha A. Jankowski



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U.S. CHAMBER OF COMMERCE FOUNDATION

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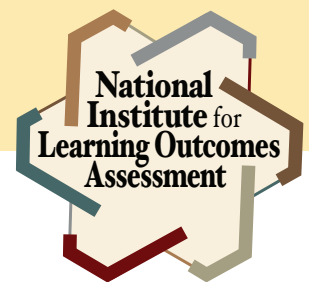
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NILOA Mission

The National Institute for Learning Outcomes Assessment (NILOA), established in 2008, is a research and resource-development organization dedicated to documenting, advocating, and facilitating the systematic use of learning outcomes assessment to improve student learning.



U.S. Chamber of Commerce Foundation's Mission

The U.S. Chamber of Commerce Foundation is dedicated to strengthening America's long-term competitiveness. We educate the public on the conditions necessary for business and communities to thrive, how business positively impacts communities, and emerging issues and creative solutions that will shape the future.



U.S. CHAMBER OF COMMERCE FOUNDATION

Abstract

The U.S. Chamber of Commerce—the world’s largest business federation—and the U.S. Chamber of Commerce Foundation have for the past five years been attempting to bridge the gap and address trust issues between the postsecondary education community and employer community. Rather than placing limitations on the curriculum or taking away academic freedom from faculty, such a partnership has the potential to unlock new learning pathways that can meet the needs of today’s diverse learners. With this in mind, the U.S. Chamber of Commerce Foundation created the Talent Pipeline Management® (TPM) movement as an effort to bridge the divide between postsecondary education and the employer community. TPM® provides a framework for re-imagining the partnership of these two communities, co-designing learning pathways, and developing authentic, performance-based challenges and learning experiences that address the demonstration of learning gap.

In this Occasional Paper, we describe the unique challenges a dynamic, changing labor market poses for employer-education partnerships; including the inherent limitations of current alignment practices and tools. Then, we introduce TPM as a partnership model that allows employers to more meaningfully signal their competency needs to educators and how educators can, in turn, describe their evidence of learning in ways that are understood by employers relative to those competency needs. The latter half of the paper explores how employers and education partners can use TPM as a framework for engaging one another in co-designing learning pathways that produce evidence of learning that is meaningful to both sides.

About the Authors

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Foreword

Employer Engagement and Assessment Connections

Natasha A. Jankowski

Most anyone working in higher education has heard at some point in time about a skills gap, where students exit their educational experiences without the knowledge and skills that employers desire. Higher education is often blamed as not being responsive to meeting employer needs. There are surveys of employers, seeking to find out what they want and need in graduates or credential holders. There are efforts to align curriculum to employer needs, to alter the language of learning outcomes to better align, and there are groups of employers and faculty brought together to craft learning outcomes for programs or develop curriculum to meet (or better align with) employer needs. Yet, the skills gap persists and higher education is seen as not preparing students who are work ready. Even students feel this way, reporting that they do not feel prepared to enter the “world of work”.

Reasons for the skills gap are often presented as a mismatch/misalignment between curriculum and employer needs, insufficient work experience on the part of recent graduates, the slowness of higher education to change with the shifting needs of employers, or graduates with credentials of unknown value that need to be unpacked and made transparent for employers. Various initiatives have been launched to increase internship and apprenticeship opportunities for students, as well as quick turnaround credential development for employer signaling through badging, credential transparency, and just-in-time learning. Faculty claim they are producing graduates who can meet employer needs in the form graduates who are equipped with both “hard” and “soft” skills, employability skills, life skills, or essential skills. Yet, the gap persists.

There may be some truth to each of the reasons given for the skills gap and maybe we have been surveying the wrong people within the employer community (i.e., asking executives as opposed to human resource personnel on the front lines of hiring), or maybe we need clearer or more accurate signals about what employers want and need (Tyszko, Sheets, & Reamer, 2017). Maybe there are issues of selection bias in which employers complete the surveys (i.e., those that are displeased), or it could be that because jobs often require several years of work experience for entry-level positions, it is difficult to determine whether the skills issue is a result of education or previous work experience. It could also be that employers do not know what they want or need, or that the gap is in being able to find the right person with the right skills at the right time needed. It could be something else entirely. Something very much to do with assessment.

In this paper by Jason Tyszko and Bob Sheets, they present the work unfolding with the U.S. Chamber of Commerce Foundation and the employer community. Instead of pointing fingers or shifting blame, they are producing employer-led solutions such as the Talent Pipeline Management initiative with its own curriculum and data infrastructure to mobilize the employer community. Their efforts reimagine employer and higher education partnerships, where there is ownership for learning and skill development unfolding across both higher education and employer communities. They share with readers the work occurring with employer communities to alert higher education to recent developments in the future of work and employer engagement. But most importantly to the assessment community, they shift the issue of the skills gap to one of demonstrations of learning—to to an assessment problem.

Elyse Watkins and Jess McKeown (2018) state that it is clear to students what they will *know* at the end of a learning experience through mechanisms such as syllabi or course descriptions, but it is less clear what they will be able to actually *do*. They claim that students need to “be made aware of the transferable...skills that they develop in their studies so that they can navigate diverse opportunities in the labor market. These skills should not be an indirect benefit of their education, but an explicit one” (Watkins & McKeown, 2018, p. 84). With a lens of transparency, they reframe the issue of the skills gap as a skills articulation gap, arguing that students do have the skills, but that they do not know how to talk about it or communicate effectively with employers. Basically, students are unaware of what they know and can do, and if they are aware, they are unsure how to communicate their skill set in meaningful ways to employers.

Awareness on the part of students of their knowledge and skills is valuable as well for employers trying to find the ‘right’ talent at the ‘right’ time. If students are not aware of what they know and can do, they struggle with articulating what they offer to an employer and they may self-select out of a talent pool because they do not think they fit the job description or have the requisite knowledge and skills, making them invisible to employers that are looking for them.

What Jason and Bob argue instead, is that skills articulation is part of it yes, but *proving* that students can actually do the things we say they can, in a *context* that matters to employers is what is most valuable to addressing the skills gap. Through determining what types of evidence count in what context for student demonstrations of learning to be validated or recognized by employers, both employers and educators can come to a shared understanding of what counts as evidence of learning in our different environments. Spending time trying to wordsmith learning outcomes or determining a common language for employers and higher education will not help if we do not agree on what the learning underneath means or looks like, or where it matters. That’s where assessment comes in—the demonstration of learning in a specific context. As they state in the paper,

To demonstrate this combination of soft and specialized skills requires a different approach than the individual assessment of one-off competencies. Instead, it is their combined demonstration, in the appropriate context, that truly communicates readiness and proficiency to employers (Tyszko & Sheets, 2019, p. 29).

The concepts of consensus on learning demonstrations, alignment to needs, transparency to the different constituents, and a focus on the student knowing what they know and can do fits well with the same four elements of the learning systems paradigm (Jankowski & Marshall, 2017). It also matches well with good instructional and educational design—where we need to collectively understand what counts as evidence and establish consensus on which contexts matter. We need to align some, but not all, of our demonstrations towards a transferable focus, and we need to involve students in the process as well as make the intent and design clear and transparent to them.

Moving the conversation towards a demonstration of learning gap provides the means to redefine partnerships between higher education and employers, to co-design assessments, and to rethink signals of hiring requirements. In this NILOA Occasional Paper, we are pleased to share the work of Jason and

Bob through their open and honest dialogue that helps move us from language games to actions through an insider look at the efforts unfolding within the employer community. We are glad to be supporters of their efforts and the TPM movement overall.

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Co-Designing Assessment and Learning: Rethinking Employer Engagement in a Changing World

Jason A. Tyszko & Robert. G. Sheets

We are in an economy that competes on talent. This means the business community succeeds or fails based on its ability to find and develop high-quality talent. Thus, the business community is very interested in what is taught in our nation's postsecondary institutions because their competitiveness rests on a consistent and reliable pipeline of talent that can adapt to the changing needs of the economy. Rather than an intrusion on postsecondary education's mission, it is a realization that what postsecondary education does and does not do has a real impact on the success of the business community and the competitiveness of the United States.

What is needed, however, is a way to bridge the world of employers with postsecondary education so together they can co-design the future of assessment and learning. Rather than placing limitations on the curriculum or taking away academic freedom from faculty, such a partnership has the potential to unlock new learning pathways that can meet the needs of today's diverse learners.

The U.S. Chamber of Commerce—the world's largest business federation—and the U.S. Chamber of Commerce Foundation have for the past five years been attempting to bridge the gap between the postsecondary education community and employer community. This is motivated by a pressing business need to find talent that can drive business growth and competitiveness. It is also motivated by the need to address key equity gaps in our education and workforce system. In an economy that competes on talent, employers more often than not find themselves in a position where they are unable to fill their job vacancies either because the talent available does not have the skills they need, or there simply are not enough people to fill the jobs. For these reasons and more, the Chamber and its Foundation have been seeking to not only close the equity gap, but also improve the overall quality of the talent pipeline—that is, the flow of talent needed to meet employer workforce needs (Tyszko & Sheets, 2014).

We are aware, however, that there are trust issues on both sides—postsecondary education and employers. Postsecondary education distrusts the employer community through what is perceived as a narrowing of the curriculum to job training rather than a well-rounded education that prepares students for careers, life-long learning, citizenship and other purposes (Jaschik, 2018). Employers, too, have trust issues when it comes to postsecondary education, which they see as slow or non-responsive to the needs of the economy (Fabris, 2015).

What is needed is a way to bridge the world of employers with postsecondary education so together they can co-design the future of assessment and learning. Rather than placing limitations on the curriculum or taking away academic freedom from faculty, such a partnership has the potential to meet the needs of today's diverse learners.

However, these arguments pose a false dichotomy and limited educational ends. Postsecondary education can be many things and have many purposes, often within the same institution. It can be an academy of learning and academic pursuits as well as an engine for producing top workforce talent. Employers are rarely interested in converting the postsecondary credentialing system into a workforce system. Today's workforce is valued for its ability to work in teams, be creative and solve problems, think critically and apply new ways of thinking to solve problems and drive innovation (Sheets & Tyszko, 2015). Put another way, employers are eager for talent that has breadth and depth when it comes to knowledge and skills, something postsecondary education touts as a particular strength of theirs (Supiano, 2018).

The Chamber and its Foundation are interested in working with the postsecondary education community to reframe the narrative and begin the more important work of establishing stronger partnerships between employers and postsecondary education. Employers and postsecondary education need one another to be successful. However, we are also in an economy that is increasingly dynamic where in-demand competencies and skills are changing faster than ever before, posing unique challenges to the way employers and postsecondary education have traditionally engaged one another.

The U.S. Chamber and its Foundation created the Talent Pipeline Management® (TPM) movement as an effort to bridge the divide between postsecondary education and the employer community. It is not an attempt to convert postsecondary education into workforce training or to outsource training responsibilities. In a dynamic economy, the connections between postsecondary education and employers needs to be re-imagined, and employers need to do their part to provide better signaling around in-demand jobs, skills, competencies, and credentials. They must also establish new partnerships that clearly define the roles of employers and their education partners in addressing them.

We begin by describing the unique challenges a dynamic, changing labor market poses for employer-education partnerships. From there, we explore the inherent limitations of current alignment practices and tools. Then, we introduce TPM® as a partnership model that allows employers to more meaningfully signal their competency needs to educators and how educators can, in turn, describe their evidence of learning in ways that are understood by employers relative to those competency needs. Next, we explore how employers and education partners can use TPM as a framework for engaging one another in co-designing learning pathways that produce evidence of learning that is meaningful to both sides. We conclude by describing how TPM provides a framework for co-designing authentic, performance-based challenges and learning experiences that address

Employers and postsecondary education need one another to be successful. The U.S. Chamber and its Foundation created the Talent Pipeline Management (TPM) movement as an effort to bridge the divide between postsecondary education and the employer community.

the real gap between postsecondary education and employers, namely the demonstration of learning gap.

The Changing World of Work and the Need for New and Stronger Partnerships

The changing economy and world of work requires stronger partnerships between employers and postsecondary education. The pace of change in the economy and labor market is only getting faster. For example, a 2018 survey of 750 employers conducted by Northeastern University's Center for the Future of Higher Education and Talent Strategy found that nearly half of jobs had changed in terms of increased education requirements within just five years (Fain, 2018).

The speed at which jobs and skill requirements are changing will likely accelerate, posing a significant challenge for designing and aligning career pathways that position learners for success. Employers in every industry are developing new business models and strategies to organize work to better leverage technological advancements and remain competitive, resulting in new types of jobs with different configurations of skill sets. Many of these new strategies involve expanded use of agile, cross-functional teams that require both breadth and depth when it comes to skills and knowledge.

Some have argued that the way to respond to the rapidly changing world of work is for postsecondary education to focus more on general skills students can apply in the future without focusing on specific job application contexts. This includes the argument to double-down on what many refer to as soft or essential skills that can be applied in nearly any context, are less likely to be automated, and complement many of the skills sets taught in postsecondary education today. In other words, why bother trying to predict the jobs of the future that are unknowable when instead we can teach learners how to think and adapt to change regardless of what those changes are?¹

However, an alternative viewpoint is that dynamic, labor markets require, by their very nature, closer partnerships with constant communication in order to adapt learning in real-time. Change occurs constantly and rarely all at once,

¹This argument has a long history dating back to the early 1990's. In 1991 the U.S. Department of Labor organized the Secretary's Commission on Achieving Necessary Skills (SCANS) and in 2000 produced a follow-up report titled *What Work Requires of Schools*. More recently, in 2014, the National Network of Business and Industry Associations (NNBIA) produced its own report titled, *A Foundation for Success in the Workplace: The Skills All Employees Need, No Matter Where They Work*, which elaborated on common employability skills consistent with the spirit and direction of SCANS, which preceded it. What they all had in common was a focus on a core set of skills, such as team-work, critical thinking, problem-solving, etc., that are generic, definable, and transferable skills.

TPM provides a framework for co-designing authentic, performance-based challenges and learning experiences that address the real gap between postsecondary education and employers, namely the demonstration of learning gap.

and most jobs of the future are carrying out similar functions in new ways with different configurations of job responsibilities and new skill sets. Most companies have a sense of where things are going in anticipation of changes to their organization of work and new skill requirement patterns, but the lag time in sharing that information with educators is often considerable, let alone the ability of educational providers to make accommodations or changes. Further complicating the matter, the tools available to us to interpret or get ahead of change are insufficient for the problem for which we are solving. In a dynamic labor market, education partners must be in constant contact with the business community to ensure alignment, but they need the right framework and tools to do it well.

In addition, any focus on general skills—including soft skills—still needs to take into account how these skills will be applied and assessed within the context of the new world of work, and how these skills will be developed and demonstrated at different stages of career preparation. In most cases, employers assess soft skills in the demonstration of work assignments and tasks which require the integration of soft skills and more technical knowledge and skills within industry and workplace contexts. It can be difficult for students to demonstrate communication and problem-solving skills without some level of domain-specific knowledge and skills. In some cases, performance problems are the result of a combination of general and technical skill issues that are not always easy to unpack. Employers also expect different levels of performance as students and workers move from novice to more advanced career progressions. And employers utilize their own assessment rubrics in determining the performance of these soft skills in internships, hiring, and promotion.

While the argument to double-down on soft skills on its face seems straightforward and hard to argue against, it fails, however, to account for today's labor market which requires workers to demonstrate both breadth and depth when it comes to skills, or, in other words, integrated essential and domain-specific skills applied within a real-world context. What that means is we need both soft skills coupled with specialized skills, though also applied in the right context and with the right evidence of learning to back it up. Context matters and the context in which skills are applied is important in terms of preparing a learner with the right skill, in the right context, at the right time throughout their careers.

Therefore, what is needed are stronger partnerships where employers continuously share competency data with their education partners and co-design how essential and domain-specific skills are developed, integrated, and assessed. These assessments can be integrated at different stages of career pathways with evidence of learning that is clear and meaningful to both employer and education partners.

We need stronger partnerships where employers continuously share competency data with their education partners and co-design how essential and domain-specific skills are developed, integrated, and assessed.

Thus, the problem we are solving for is not just an outcomes, accountability, or skills gap problem, but a systems and evidence of learning problem that, if solved, will equip learners and workers with the right demonstrations of learning that optimize their chances of a successful transition to career(s) or continuing education.

Limitations of Current Practices and Tools

A dynamic, changing world of work, has significant implications for how postsecondary education partners engage with the employer community. However, before we begin exploring new and emerging models of collaboration, we must first understand the inherent limitations of our current practices and tools. There exist many traditional methods that postsecondary education utilizes to ascertain employer needs. Two major methods are: (1) use of labor market information (LMI), and (2) employer advisory groups.

The most common LMI comes from federal and state governments. For decades, the Bureau of Labor Statistics (BLS), which operates within the U.S. Department of Labor, produces short-term (2-year) and long-term (10-year) occupation projections by industry. BLS uses a job taxonomy of 800-plus federally defined occupations known as the Standard Occupational Classification (SOC) system. This system helps organize data made available through the Occupational Information Network (O*NET) and other related resources and tools. These tools show what appears to be a comprehensive view of current employment levels by occupation, projected job openings due to growth, and replacement openings due to retirements. They also provide qualitative data about jobs, namely skill and credentialing/licensure requirements.

More recently, real-time LMI vendors have been supplementing government data with data aggregated from online job postings and job boards. Use of real-time LMI has grown in popularity in large part because of the increased availability of online job postings. They are able to scrape and aggregate data from thousands of websites and report back what employers are asking for today in terms of jobs and their requirements, hence the name “real-time.” They also aggregate data on common skills and credentialing requirements.

The use of government and real-time LMI is very useful for postsecondary education institutions in making sure that their mixture of programs align with major changes in the configuration of career and job opportunities in the labor market. They also help identify some of the most common skill requirements, including essential skills, as well as the types of credentials most commonly required or preferred.

The problem we are solving for is not just an outcomes, accountability, or skills gap problem, but a systems and evidence of learning problem that, if solved, will equip learners and workers with the right demonstrations of learning that optimize their chances of a successful transition to career(s) or continuing education.

However, this information is not sufficiently granular to fully understand how these broad changes relate to the changing needs of employers and how skills are defined and assessed by employers (Tyszko, 2018). In addition, this information is not always reliable in understanding employer credentialing requirements, and how much they actually depend on these credentials in assessing whether students are qualified. LMI is a useful starting point in working with employers, but it is not sufficient.

The second most common mechanism for engaging and aligning with employers is through institutional or program advisory boards. These advisory boards can be strictly made up of employers, or they can include other interested stakeholders, such as workforce or human service partners, community organizations, and student representatives. For many postsecondary education institutions and programs these boards are required in order to become accredited or to maintain their accreditation status.

However, while advisory boards are often the preferred employer engagement strategy, they are also often the most unreliable in terms of aligning programs with employer needs. For one, the role of employers on advisory boards is often unclear. Do advisory group members actually represent hiring managers for their companies or do they represent themselves as volunteers or alumni who want to provide assistance to an institution? Are they “customers” of the program and actively recruit from them, or are they contributing input, reacting to, or validating information presented to them and are not responsible for producing information of their own?

Second, employer advisory boards meet too infrequently to generate the kind of responsiveness needed in a changing economy (Tyszko, 2018). In addition, the employers represented are often too few and not reflective of the diversity of needs employers have, even within the same industry. Many times employers in these settings are asked to react to, approve, or “sign off” on something, such as a curriculum, that has already been developed by the institution or programs without their input or engagement in its design.

Finally, employer advisory groups many times do not use systematic methods for gathering data from employers on changing skill requirements and how these skills are assessed as part of the curriculum development process. Often the conversation stops at the learning outcomes or competencies and rarely goes into the detail needed to understand how the competencies or learning outcomes are applied or assessed in ways that have value to employers. In addition, they do not regularly evaluate the effectiveness of programs with data on how well their students are performing the most critical skills as interns and new employees. At the end of the day, advisory boards in today’s economy at best have limited utility.

While advisory boards are often the preferred employer engagement strategy, they are also often the most unreliable in terms of aligning programs with employer needs.

Given these limitations of LMI and advisory boards, what is needed is a new type of partnership between employers and postsecondary education. This partnership must have the right tools of action in place to address the need for better and clearer employer communication of changing competency and credentialing requirements as well as systems in place to define how the most critical competencies should be defined and assessed and with what evidence of learning.

Talent Pipeline Management (TPM) as a New Partnership Model

At the Chamber Foundation, we developed a different approach for supporting partnerships between postsecondary education and employers. It is a framework that is markedly different than the traditional methods and tools used to promote alignment, and it addresses the elusive demonstration of learning gap that so often leads to language games and misunderstanding between employers and educators.

Talent Pipeline Management (TPM) was originally developed by the Chamber Foundation as a business solution for a business problem. If employers are going to be able to access the talent they need on time and at the right level of preparation, then they need to be more proactively involved in sharing information about their workforce needs in a format that can be put to use by their postsecondary education partners. We built TPM to leverage industry best practices for how employers share information and manage partnerships across their supply chains. It is rooted in proven methodologies for forecasting demand and communicating partnership requirements and specifications. It also provides a structured process for developing shared value, competitiveness, and accountability. These same practices can be applied in new and innovative ways to structure employer-education partnerships that are a win-win for both and allow for the dynamic exchange of real-time information, except in this case on changing competency requirements and workforce demand.

In an economy that competes on talent, employers are sensitive to the costs and inefficiencies associated with talent development, recruiting, hiring, and retention. In TPM, we call these “pain points” and they focus on those areas where employers are facing problems, such as reducing onboarding and training costs, improving retention, building a more diverse workforce, or supporting upskilling and career advancement opportunities for entry-level workers, just to name a few.

For employers, TPM unlocks something that has often been the missing piece in public-private partnerships: employer return on investment or ROI. As stated earlier, most employer engagement is advisory and it is unclear how they directly benefit from the institutions or programs they advise. If employers are

TPM leverages best practices for how employers share information, manage partnerships, and forecast demand, while also providing a structured process for developing shared value, competitiveness, and accountability. These practices can structure employer-education partnerships that are a win-win for both.

going to become more and better engaged, then it will require that their needs are met in a clear and quantifiable way. TPM provides an organizing framework for employers to work collaboratively to unlock a shared ROI with education partners and students.

However, while TPM provides a new framework for how employers engage in collective action, it also provides a new partnership model for unlocking deeper and more substantive levels of employer leadership and engagement in postsecondary education partnerships. Current institution and employer engagement efforts are either through advisory boards—as previously discussed—or through one-off asks or engagements that are largely transactional. For example, employers are inundated with requests (sometimes multiple requests from different departments or programs within a single institution of higher education) to provide work-based learning opportunities, like internships, without regard to whether they address an employer need or pain point. TPM provides a framework to unlock deep and meaningful partnerships between postsecondary education and employers that impact the design of the entire learning process and what results thereafter.

One of TPM's value propositions for postsecondary education is that it takes much of the burden off of education partners who are often left on their own to engage employers and determine their workforce needs. Through TPM, employers follow a structured and guided process for producing data and decisions that ensure postsecondary education partners have the right level of participation needed from employers to align their curriculum, assessments, credentials, and career guidance, even while in a dynamic and changing labor market. It also has the added benefit of supporting more effective transitions to employment where a learner's evidence of learning counts towards an employer's hiring requirements while also meeting federal and state accountability and performance criteria.

TPM's Origins

In 2014, the Chamber Foundation launched the TPM movement by publishing a white paper titled, *Managing the Talent Pipeline: A New Approach to Closing the Skills Gap* (Tyszko & Sheets, 2014). The white paper called for a new, employer-led approach for building high-quality, performance-based partnerships with postsecondary education institutions and programs. TPM looked to industry best practices for inspiration and guidance and unpacked lessons learned from supply chain management to come up with a new way of thinking about the employer role in education and workforce partnerships. In TPM, employers are not simply advisors, but are instead “end-customers” of talent partnerships, requiring them to implement a more sophisticated and consistent set of

Through TPM, employers follow a structured and guided process for producing data and decisions that ensure postsecondary education partners have the right level of participation needed from employers to align their curriculum, assessments, credentials, and career guidance.

practices for producing data, engaging in decision-making with other employers, and partnering with education partners.

When we say TPM uses lessons learned from supply chain management, that is not to say that education institutions are “factories” or learners are “widgets.” Instead, supply chain management is a team sport and serves as a useful framework for organizing partnerships in ways that balance time, quality, and cost, and generates shared value, accountability, and competitiveness for all stakeholders involved. That includes education partners that benefit from high-quality employer engagement, learners that get more aligned education pathways to careers, and employers that get the talent they need with the right mix of competencies and skills.

The year following the launch of the movement, a group of seven pilot projects were assembled across the country to test new talent supply chain strategies and practices. Lessons learned from the pilots led to the release of our second publication, *Building the Talent Pipeline: An Implementation Guide* (Tyszko & Sheets, 2015), and the development of an end-to-end talent management process for employers. This process enables them to send better, faster, clearer signals about changing workforce needs, while also partnering effectively in building education and learning pathways that get results.

By 2016, TPM was being built for scale. The Chamber Foundation developed and launched the TPM Academy®, a training platform for business associations (e.g. chambers of commerce and economic development organizations) and employers to help them get better organized to collaborate with postsecondary education partners.

The TPM Academy was not designed for casual learners, but for business associations and employers to develop a skills set for implementing sustainable employer-education partnerships in their states and communities. Through the TPM Academy, participants learn as a cohort (ranging from 25-40 organizations per cohort) over the course of six months to a year, how to implement an end-to-end talent supply chain process in partnership with preferred and trusted education and workforce partners.

What began as a concept in late 2014 has now grown into a national movement involving over 230 trained organizations in 28 states and Canada, and growing. Through the TPM Academy, hundreds of employer collaboratives have been launched, engaging thousands of employers all working off of a shared set of implementation tools and practices that are evolving every day based on field-testing and peer-to-peer learning.²

²To view a list of participating organizations in the TPM movement visit <https://uschamber-webassets.s3.amazonaws.com/uschamberfoundation.org/maps/tpm-map/index.html>.

Using the TPM approach, one can unlock a different kind of conversation between postsecondary education partners and employers, one which has implications for assessment and learning.

How TPM Works: The TPM Academy and Curriculum

TPM is a system that is delivered primarily through the TPM Academy, which is supported by a free curriculum and implementation tools, including software tools that collect, aggregate, and visualize employer data, such as in-demand jobs and competencies.³ The TPM curriculum provides a structured, end-to-end process for promoting collective action among employers that results in granular data about their workforce needs and assembled in a format that can be used to develop performance-based learning pathways.

Using the TPM approach, one can unlock a different kind of conversation between postsecondary education partners and employers, one which has implications for assessment and learning. Stated another way, TPM provides a step-by-step instruction manual for employers to send dynamic signals to their partners in a labor market where in-demand competencies are constantly changing. The data they produce can then be used for meaningful and substantive engagement with preferred and trusted education partners.

The TPM curriculum consists of six strategies or units that when implemented in sequence make for what we call a talent pipeline management approach (Tyszko & Sheets, 2019).⁴ These six units provide a structured process that helps employers: (1) get organized, (2) do their “homework” together, and (3) engage partners to build learning pathways that can continuously improve over time using data and feedback. These strategies are taught throughout the course of 3-4 in-person meetings where we scaffold learning to coincide with where participants are in terms of implementing TPM systems and solutions in their communities.

To start, TPM provides communities and organizations with a self-assessment to determine their level of readiness for hosting a TPM Academy. Assuming TPM is the right framework for managing postsecondary education and employer partnerships, then a TPM Academy is co-designed and launched with local partners, including which business member organizations will take part in the Academy and receive the training.

The first unit covered during the TPM Academy focuses on how business organizations charged with launching and staffing one or more employer collaboratives can get organized. While any single company can implement TPM on their own, we encourage the formation of what we call employer collaboratives so that employer engagement is scalable with the inclusion of more small- to mid-size companies that otherwise may not be reachable.

The TPM curriculum consists of 6 strategies that create a talent pipeline management approach. These 6 strategies provide a structured process that helps employers:

- 1. get organized;*
- 2. do their “homework”; and*
- 3. engage partners to build learning pathways that can continuously improve over time using data and feedback*

³To learn more about TPM visit www.TheTalentSupplyChain.org.

⁴To view the entire curriculum visit <https://www.uschamberfoundation.org/reports/tpm-curriculum>.

Employer collaboratives can be standalone entities staffed by a business organization (e.g., a local chamber of commerce) or are built into existing public-private partnerships or initiatives to activate new levels of employer leadership. For example, the Greater Phoenix Chamber of Commerce is host to four employer collaboratives, each of which has a sector focus (e.g., healthcare). When done right, TPM should be delivered as a member service for companies participating in an employer collaborative; one where employers are willing to financially invest in and sustain the collaborative based on the value proposition and demonstrated ROI that is delivered to its members.

The first unit also covers how to manage communications with key stakeholders, most importantly postsecondary education institutions and programs who will be brought into the process later. While postsecondary education and other community partners may have been heavily involved in bringing TPM to their community, what makes the TPM Academy different is that it starts with getting the employers organized first.

When compared to traditional public-private partnerships models, this sounds counterintuitive at best and heretical at worst, the importance of this distinction cannot be overstated. When employers—often competitors—get in a room by themselves to go through a process of discovery and learning, the collective action that results cannot easily be reproduced when other stakeholders are around the table. TPM does not assume there is a shared need, capacity, or willingness to work together. This must be discovered through a process facilitated by the organization staffing the collaborative. Once buy-in is achieved, employers walk away with a shared value proposition, ROI expectation, and agreement to share proprietary workforce data and a talent pipeline solution. Through this process, TPM produces stronger shared leadership and accountability.

Units 2-4 provide a structured process for employers to do their “homework,” meaning they are able to share and aggregate their proprietary workforce data so that they can get their facts straight on what they need, when they need it, and who they have and could work with to address that need in the future. In other words, they provide a process for the companies that make up the collaborative to get the facts straight on what their workforce needs are inside and across their companies.

If employers are to achieve a return on investment, they have to get the data right on their own workforce needs and cannot rely on macro data and data analytics provided through traditional LMI sources. TPM provides a process for employers to make better short-term projections for the positions they are focused on and update those projections regularly.

What makes the TPM Academy different is that it starts with getting the employers organized first. TPM does not assume there is a shared need, capacity, or willingness to work together. This must be discovered.

From there, TPM provides a process for employers to develop a shared language for communicating competency and credentialing requirements for those positions. These are the hiring requirements that determine if someone is qualified for a position (or could be used to set requirements for work-based learning opportunities). TPM requires that employers develop more granular information on the skills and competencies that are more in demand, their level of importance, the frequency in which they are used, and their preferred demonstration. This is not to aim for average fit or lowest common denominator, but to more clearly signal to postsecondary education partners the similarities and important differences in competency and credentialing requirements across the employers that make up the collaborative, even for the same occupation.

It is important for employers to go through a process to get the hiring requirements right, because left to their own devices, the requirements can easily be set too high or too low resulting in longer vacancies or higher screening costs and turnover rates, respectively.

Next, TPM has employer collaboratives look backward and asks them to identify where they have sourced their best talent they were able to retain. This is called back mapping and can go as far back as the employers like in order to identify the network of partners that provided a worker with the education, training, or credentialing that made them qualified for the job. Employers can go a step further and analyze the capacity of those partners to meet their projected need in the future as well as what their effective “capture rate” of talent is from those partners. In other words, TPM is the inverse of longitudinal data systems used by education, but adds important insights into the actual career pathways and partners employers are tapping into, whether intentional or not.

The final two units of the TPM curriculum move employer collaboratives from the data collection phase to the partnership-building and management phase. Using the data produced, employer collaboratives identify their preferred and trusted education and workforce partners and work with them to co-design learning or career pathways, manage performance, and engage in continuous improvement.

A crucial takeaway is that talent supply chains are not built and then left to their own devices. They are continuous, constantly changing and adaptive based on changing workforce needs and requirements; not to mention changes in the business environment itself. That is what makes TPM the right tool for today’s challenge.

Using the data produced, employer collaboratives identify their preferred and trusted education and workforce partners and work with them to co-design learning or career pathways, manage performance, and engage in continuous improvement.

The Need for Organizing and Communicating Competency Requirements

In this section, we explore lessons learned from TPM implementation and their implications for learning and assessment. We also argue that, perhaps, the biggest lesson learned is that the problem the business community and postsecondary education need to solve is not the skills gap as it has been traditionally defined, but instead a demonstration of learning gap. In the section that follows, we go one-step further and elaborate on how TPM provides a new framework for how employers and postsecondary education partners can engage one another more effectively in co-designing learning pathways.

Throughout field-testing the TPM approach, the Chamber Foundation and its partners learned much in terms of its implications for learning. What we found is TPM helps unlock a more substantive and meaningful conversation around competencies, assessment, and demonstrations of learning. Through employer-led practices for communicating competencies, the business community has had the opportunity to unpack and explore the relationship between competencies and assessments and how they relate to employer hiring requirements. As such, we have learned a great deal about how to support and grow the competency-based learning field in partnership with postsecondary providers.

Before we dive into the TPM process, we must first understand how employers currently signal their hiring requirements. Many existing jobs descriptions and postings are either over- or under-engineered, which has real consequences for hiring and recruiting as well as for the learning pathways designed to reach those positions. What is more, few are organized in a way to communicate the assessment of competencies.

For example, an over-engineered job description or posting runs the risk of looking for someone that has a rare combination of skills, experience, and credentials that significantly limits the pool of qualified job applicants. There is a very real temptation for employers to want more requirements than is necessary or to use additional hiring requirements—such as more years of work experience—as a proxy for finding what they consider a good job candidate or a safe hire. The cost to employers? Positions often go unfilled for longer periods of time, which impacts productivity and their ability to take on new work.

As mentioned in a previous section, employers frequently are criticized for setting hiring requirements that lock out otherwise qualified job candidates, particularly for entry-level positions. The consequence for learners is underemployment and suboptimal earnings given their education and training. There are also equity considerations that come into effect as over-engineered hiring requirements can have the unintended effect of locking out historically underrepresented or low-

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income populations that do not have the supports, networks, or experience needed to meet more advanced hiring requirements.

If you under-engineer a job description or posting, the result is not much better. Setting the bar so low means that an employer runs the risk of being inundated with underqualified job candidates. The result? Employers have higher screening costs to review the volume of applicants, and potentially have higher onboarding and training costs with lower worker retention rates.

Both over- and under-engineering job descriptions and postings have very real costs for employers, particularly in an economy that competes on talent. This challenge is compounded by the fact that few employers engage in high-quality job analysis that results in well-thought thorough job descriptions and postings. The result has been employers using and reusing available job descriptions and postings that were poorly developed in the first place (Fuller & Raman, 2017). The implications for hiring and how people prepare for jobs or align their education to those opportunities are significant.

Lastly, and most importantly, the vast majority of job descriptions and postings are not based on open competency frameworks that enable employers to use a common language in describing their competency requirements so that their education partners can clearly see similarities and differences between employers. They also do not provide information on how these competencies are assessed through preferred or required credentials or through direct assessment.

Put simply, the business community has a long way to go in terms of organizing their hiring requirements in ways that can enable competency-based hiring as well as support or inform competency-based learning.

Improving Employer Competency Signaling through TPM

Earlier we explained how TPM is an end-to-end process, including the importance of communicating hiring requirements through a shared language. It is this part of the TPM approach that we now turn our attention to in order to understand the process employers use in TPM to organize their competency requirements and its implications for competency-based education and assessment.

TPM gives employers a process and set of tools for developing competency-based hiring requirements that are neither over- nor under-engineered, and are organized in a format that has utility for postsecondary education partners. This process, when performed routinely, provides employers the right tool to communicate effectively and consistently—and in a more granular way—the

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changing competency and other hiring requirements that make a job candidate qualified.

TPM is designed to enable employers to better signal changing competency hiring requirements more clearly and effectively to preferred and trusted education partners.⁵ The process begins with employers working in a collaborative to fully analyze their job descriptions and hiring requirements for one or more occupations or business functions (e.g., nursing or engineering). Employers are encouraged to do a job analysis if they have not done one recently. A job analysis is a process by which employers explore the work tasks and responsibilities and related skills of qualified workers and top performers and develop a job description based on those findings. In TPM, this initial job analysis is basic and asks employers to work to identify all potential hiring requirements based on feedback from hiring managers, top job performers, and other subject matter experts. After completing even a cursory job analysis, what many employers have found is that their current job descriptions and postings are often inaccurate or not organized in a way to find the talent hiring managers are actually looking for.

The completed review of job descriptions and job analyses are used to develop a survey of all potential hiring requirements that is then distributed to the employer collaborative member companies. This survey not only asks each employer if the competencies are required, but also their level of importance and the frequency in which they are used. The results of the survey are shared confidentially with the organization staffing the collaborative where the data are compiled and shared back in the aggregate.

The results are often illuminating. Collaborative members can better understand, at the competency-level, where there is consensus and shared need, and importantly where there is variation, even in the context of a single job. The aggregate results provide an opportunity for employers to engage one another in a conversation and explore whether they are over-engineering or under-engineering their requirements and whether to harmonize hiring requirements even further, or to more effectively communicate differences to education and workforce partners.

This process is not just used for competency hiring requirements, but to also better signal required or preferred credentials and education level(s), as well as other potential hiring requirements, such as experience.

After completing a job analysis, many employers found their current job descriptions and postings inaccurate or not organized in a way to find the talent they seek. TPM is designed to enable employers to better signal changing competency hiring requirements more clearly and effectively to preferred and trusted education partners.

⁵See Strategy 3 in the TPM Academy Curriculum for a detailed overview of the process used by employers to signal hiring requirements, including competencies. <https://www.uschamberfoundation.org/reports/tpm-curriculum>.

The Job Data Exchange (JDX)

An important lesson learned in implementing TPM is that the signaling issue for hiring requirements is not just an employer engagement problem, but also a technology problem. To further streamline and automate how quickly employers can signal changing competency hiring requirements to their education and talent sourcing partners, the Chamber Foundation is building a new set of tools based on a data standard for jobs. We call it the Job Data Exchange, or JDX. The JDX is a set of open data tools that will help employers communicate, in real-time, their changing hiring requirements direct from their HR systems.⁶

The JDX will help facilitate employers and their HR partners in creating structured, linked data about jobs. By using a data standard for jobs, employers can make their competency-based hiring requirements more searchable, discoverable, and comparable on the web, similar to how we are able to compare flight schedules or product specifications today. This standard also will support the direct sharing of data between human resource information systems and postsecondary education systems such as curriculum and learning management systems. The JDX will enable employers to communicate competency requirements in a more granular and comparable way, using a library of open competency frameworks that can include information not just on the in-demand competencies, but the preferred demonstrations of those competencies that can serve as evidence of qualifications for the position.

By going the extra step of making this data linked, employers will make data about in-demand jobs and competencies “living, breathing” data on the web, such that when a new competency is added or another removed, anyone linking to that data (e.g., community college faculty, curriculum developer, or guidance counselor) is immediately notified.⁷

The result? Better, faster, clearer signals of changing competency-hiring requirements direct from employers. Done right, the JDX can enable the first ever organic LMI system, providing data directly from the HR systems employers use thereby democratizing data about jobs. It will also help enable competency-based hiring at scale.

Implications for Competency-Based Learning and Assessment

TPM will help address the employer signaling challenge in a dynamic, labor market. It solves not only for organizing employer hiring requirements in a usable, competency-based format, but also provides a process and set of tools

The Job Data Exchange (JDX) will enable employers to communicate competency requirements in a more granular and comparable way.

⁶To learn more about the JDX visit <https://www.uschamberfoundation.org/workforce-development/JDX>.

⁷To learn more about linked data and the Semantic Web visit <http://www.linkeddatatools.com/semantic-web-basics>.

for how to update those signals as changes inevitably occur for in-demand jobs and skills. What is more, TPM practices are built for scale.

These employer-led tools and processes for organizing competency-based information bring with them implications for learning and assessment. Much like employers are interested in moving to more competency and skill-based hiring, postsecondary education is interested in growing the practice of competency-based learning and education, but like employers, they also have a long way to go (Fain, 2019).

In competency-based learning, individual learners are able to progress through their education and meet learning outcomes by acquiring and demonstrating competencies. Competency-based learning effectively unpacks the curriculum into its component learning outcome parts and shows the progression needed of competency attainment in order to meet proficiency or attain mastery. It can also show how far along they are in their chosen learning pathway and where they have gaps. It is an attractive approach to learning in that it is a granular and transparent approach for demonstrating content mastery.

However, when it comes to connecting competency-based hiring to competency-based learning, there are two challenges that need to be addressed. The first is unpacking what we mean by competencies and bridging the language divide. The second is how to map the attainment of learning outcomes over time in ways that sync up with employer competency hiring requirements. The former we take up in this section, and the latter we address in the next section through a learning pathway co-design process.

When it comes to discussion of competency-based learning and hiring, it is easy to get bogged down in the semantics of what we mean. Many resort to seeking out an agreed upon list of skills, competencies, or learning outcomes, thinking the problem to be solved is one of consensus over the words we use to describe them. However, even if consensus is reached on how to phrase competencies, we may still mean very different things

This is a challenge for education and employers alike. In education there is a challenge for how one institution or program describes competencies and learning outcomes and how they translate or relate to another institution's or program's competencies and learning outcomes. Employers too have this challenge where a competency, skill, or work task in one industry or company can look qualitatively different in another, even though we use the same or similar words to describe them.

The point is that competencies have context that can alter their meaning in considerable ways. Soft skills are a perfect illustration of this very point. Earlier

There are 2 challenges when it comes to connecting competency-based hiring to competency-based learning:

- 1. Unpacking what we mean by competencies and bridging the language divide.***
- 2. Mapping the attainment of learning outcomes over time in ways that sync up with employer competency hiring requirements.***

we made the argument that soft skills have context and without that context they can be functionally useless. Soft skills such as “problem solving” and “team work” mean very different things depending on the context in which they are applied. For example, team work in a healthcare occupation can look very different than team work in a financial services company. There is an inherent futility of overly simplified lists that are devoid of context.

The problem we are solving for—whether you are in education or in the business community—is communicating competencies with context. The semantics of writing a clear competency statement or learning outcome, while important, are secondary to being able to communicate the preferred demonstration of a competency. Therein lies its meaning and is the key to bridging the semantic divide between postsecondary education and the business community.

In order to bridge the demonstration gap—and the divide between education and employers—we need a three-dimensional view of competencies. This three-dimensional view can help unlock the meaning of a competency and render it useful for the purpose of co-designing a learning pathway. The three-dimensions include: (1) richer language describing the competency, how it is performed, and the context in which it is applied; (2) details on the mechanisms and tools used to validate a learner’s proficiency or mastery of the competency, including scoring rubrics; and (3) examples of it performed well in the right context.

The implications for employers loom large. For the most part, employers communicate through competency statements but rarely articulate a three-dimensional view of what a competency means to them to their talent sourcing partners, including their postsecondary education partners. However, if employers are going to be an effective partner in co-designing learning pathways with postsecondary education institutions and programs, it will require they communicate in this way.

TPM provides them with a process and set of tools to organize how they communicate competency-hiring requirements to partners more effectively. In addition to developing a shared language for describing competencies, employers must now articulate more clearly the preferred assessment of demonstration of those competencies with corresponding scoring rubrics and examples.

Both sides—education and business—need to be on the same page so that we are communicating not only about competencies, but also their preferred demonstration or assessments that are strongly correlated to work performance that contributes to both business and career success. Learners, too, will ultimately benefit from richer competency engagement. While learners have attained competencies, many are unable to effectively articulate or communicate them to employers in the right context and in the language employers use to assess performance.

The problem we are solving for—whether you are in education or in the business community—is communicating competencies with context. Skills such as “problem solving” and “team work” mean very different things depending on the context in which they are applied.

Co-Designing Learning Pathways

We now turn to how TPM provides a framework to make use of the competency-based hiring requirements provided by employers in order to co-design learning pathways with education partners. In this section we explain the process of using competency and other information provided by employers to co-design what we call a value stream map, otherwise known as a learning pathway. In TPM, this is what we mean by curriculum alignment with employer demand. We will also examine how, through this process, employers can unbundle the hiring process with their education partners allowing for employers to further reduce hiring requirements in ways that remove barriers to entry and open up opportunities for learners.

Value stream mapping is needed in an economy where learning pathways adapt and adjust at the speed of change in the labor market. When done well, a value stream map provides a framework for business-education partnerships that result in reduced time and cost in delivering a learning pathway, one with high-quality learning and assessment, and improved qualifications and readiness of learners when transitioning to the workplace.

A value stream map in TPM is a visual blueprint of a talent supply chain, one which is delivered as a partnership across employers, education programs, and other value-added support services. The value stream mapping process is designed to visually organize and display the continuum of learning and progression of competencies and assessments delivered across partners leading up to and through employment and upskilling. Value stream maps are useful tools for organizing partners around a common vision for the talent development process with line-of-sight on who is responsible for delivering which piece of learning. It also provides a way to clearly signal transition points and the major performance drivers for which each partner is responsible.⁸

A value stream map is not something that happens to education partners, it is something that happens with them. Employers, by and large, are not experts in instructional design, pedagogy, and assessment. However, provided employers bring their information in a suitable format, it can streamline the ability of education stakeholders to design a learning pathway and define the roles of employers and education partners throughout the pathway. A value stream map allows for the learning pathway to be designed in a way that is mutually agreeable to all parties.

When done well, a value stream map provides a framework for business-education partnerships that deliver:

- *high-quality learning;*
- *high-quality assessment;*
- *improved job qualifications; and*
- *improved readiness of learners when transitioning to the workplace*

⁸For a complete overview of the value stream mapping process see Strategy 5 in the TPM Academy Curriculum <https://www.uschamberfoundation.org/reports/tpm-curriculum>.



Figure 1: Basic value stream map (Tyszko & Sheets, 2019)

What is more, value stream mapping is meant to be a dynamic process allowing for constant adjustments based on updated information provided by employers, significantly reducing—if not eliminating entirely—any lag time based on changing conditions in the labor market.

In the TPM curriculum, the value stream mapping process is envisioned as a collaborative process between employers and their representatives as well as any number of education partner stakeholders. Individuals representing education partners can include, but are not limited to, senior organization leadership (e.g., deans and provosts); curriculum and instructional design experts; assessment and credentialing experts; guidance counselors; faculty; career services and work-based learning staff; and students/learners.

The value stream mapping process can be as basic as an employer collaborative working with a single postsecondary education partner. It can also be more complex with multiple education partners collaborating on a joint talent pipeline solution where there are multiple transition points and value-added services. It can also involve multiple education partners providing similar, but contestable talent pipeline solutions, each addressing a portion of the employer demand.

It is important to keep in mind that in TPM, employers are not merely consumers of talent; they are an integral part of the talent development process, playing a role at each stage of the process as learners develop and acquire skills and become better prepared to transition to the workforce. As we will demonstrate, value stream maps phase in the employer role and in some cases continue after a learner has transitioned into employment providing for continuous learning and upskilling opportunities that support upward mobility in the workforce.

Value Stream Mapping

There are basic and advanced value stream maps. Basic value stream maps visually display: (1) the talent development roles in delivering a learning pathway (e.g., career exploration); (2) the tiers, or number of partners needed to deliver each role (e.g., a high school to community college program of study)⁹; and (3) the education institutions or programs (i.e., preferred providers) that will play each role and at which tier.

Advanced value stream maps layer additional information that round out the learning pathway. For the purpose of this paper, we focus exclusively on how to make use of the employer provided competency-based hiring requirements during the value stream mapping process.¹⁰

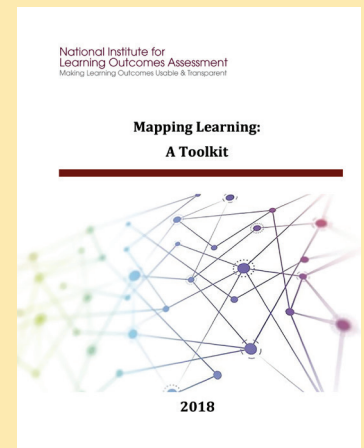
The employer representatives need to work with curriculum, instructional design, and assessment experts to build learning activities and outcomes. Rather than reinvent the wheel, the value stream and curriculum mapping process provides an opportunity for education partners to better explain what they are currently doing and the types of evidence of learning they currently have, and how it may or may not sync with the competency-based hiring requirements and demonstrations of learning employers are seeking. Knowing the true gaps, TPM provides a framework for addressing them and bridging the divide.

TPM makes use of curriculum mapping tools to assist in the value stream mapping process. The curriculum mapping exercise is a useful way of aligning learning as well as eliminating redundancies in the delivery of a learning pathway. These tools can be used to help partners map which learning outcomes relate to which competency hiring requirements, and which providers are responsible for delivering them in the progression of learning. They show learning as a continuum over time where competency attainment is demonstrated across partners. Figure 3 illustrates a basic curriculum map as a competency checklist.

⁹Tiers in TPM are used to designate an institution or program that is providing a value-added role in the talent pipeline with respect to how far removed they are from the transition to employment. A “tier 1” partner is one step removed from employment. For example, when a student transitions directly from a community college into employment, the community college is considered a tier 1 partner. If the same student had earlier transitioned to the community college from a high school, that high school would be considered a “tier 2” partner, meaning they are two steps removed from employment.

¹⁰Advanced value stream maps build on basic maps by laying in information related to: (1) the time period in which employers need new and replacement positions and the level of projected demand; (2) the learning activities and outcomes associated with each talent development role; (3) the performance metrics used to measure success and progress at each stage of talent development; and (4) the incentives employers—or public sector partners (i.e., government)—can make available at each stage that align with and contribute to performance.

Useful Resource:



Mapping Learning: A Toolkit of Resources

Competency Hiring Requirements (CHR)	Learning Outcomes (LO)	Tier 3 Providers	Tier 2 Providers	Tier 1 Providers	Collaborative Employers
CHR1	LO1		X		
CHR2	LO2		X		
CHR3	LO3			X	
	LO4			X	
CHR4	LO5				X
	LO6				X
	LO7			X	

Figure 2: Competency Mapping Checklist (Tyszko & Sheets, 2019)

After completing a basic curriculum map, employers and their partners should then make use of the data gathered on competencies to share more detailed information on the specific learning activities and assessments they plan to use. A more advanced curriculum mapping tool provides an opportunity for workshop participants to move beyond a checklist and make full use of the three-dimensional competencies employers have shared. Information can be inputted specific to the type of learning activity (e.g., courses, internships) and assessment(s) used to demonstrate the attainment of a learning outcome. In addition to identifying learning activities and assessments, partners can also provide examples or links to specific assessments and evaluation rubrics. Figure 3 provides an example of a curriculum map.

Competency Hiring Requirements (CHR)	Learning Outcomes (LO)	Learning Activity	Assessment Type	Assessment Description	Example Assessments and Evaluation Rubrics
CHR 1: Troubleshoot, repair, and replace motors (AC & DC)	LO 1: Troubleshoot motors	Industrial, Maintenance Program Unit 2.1: Industrial Motors (AC & DC)	Performance	Students are given an assignment and asked to diagnose a performance problem with industrial equipment. Students are then asked to determine the causes of the problem, what should be done to repair and replace, and how they came to that decision.	Evaluation rubric should address: (1) Motor is removed and reinstalled consistent with removal and installation checklist and (2) Motor performance problem is successfully diagnosed and explained.

Figure 3: Curriculum Mapping (Tyszko & Sheets, 2019)

The employer representatives should defer, when necessary, to the curriculum and instructional design experts on how they believe the employers' competency hiring requirements can best be achieved (e.g., scope and sequence of learning activities). However, employers should make sure that the competency hiring

requirements and learning outcomes are aligned and that proposed assessments of learning outcomes are also aligned with the preferred demonstrations of these competencies.

Employers are also part of the value stream and will need to be responsible for at least some of the learning needed in a learning pathway, and they often will insist on it. For example, employers may want to retain the ability to teach certain competencies because they prefer their way of delivering the instruction or it might be specific to their company's needs and not the needs of all members of the employer collaborative.

When done successfully, the result of the value stream mapping process is a fully aligned learning pathway that connects competency-based hiring requirements and competency-based learning in ways that address the needs of both employer and postsecondary education providers.

An added benefit of the value stream mapping process is the unbundling of the hiring process. Instead of hiring being a zero-sum game for learners, hiring is now replaced with a phase-in process with steady and consistent feedback and attainment of competencies over time up to and through employment. The value stream mapping process identifies the stages and progression of learning over time that demonstrates how a learner becomes career ready and competitive. As learners reach major milestones in their learning pathway, they can transition to the next stage of talent development as they meet requirements, attaining even more specialized skills, or they may become eligible for new learning opportunities, such as work-based learning experiences (e.g., internships).

Understanding that employment is not the end goal, but a milestone in a learning pathway, employers—and their education and other partners—are no longer asking “are you qualified for a job,” as much as “are you qualified for the next stage of learning and talent development?” The learning pathways need not end at the point of hire, but can be built on and expanded via the TPM process to support upskilling pathways where education and training partners are engaged in advancing the skills of incumbent workers and helping them become upwardly mobile while at the same time attaining learning outcomes and engaging in demonstrations that can transfer back into postsecondary education. Indeed, many corporate education and training professionals can help facilitate these incumbent worker-learning pathways.

This process also benefits employers by allowing them to ramp-down certain hiring requirements and expectations by building them into their own onboarding processes thereby becoming a more meaningful part of the learning pathway itself. This benefits education partners and learners by having employers share in the responsibility of delivering the learning pathway so it is not overly burdensome to any one stakeholder.

Curriculum mapping is a useful way of aligning learning and eliminating redundancies in the learning pathway. These tools can help partners map which learning outcomes relate to which competency hiring requirements, and which providers are responsible for delivering them in the progression of learning.

Also, the back and forth nature of the co-design process challenges employers to look back at their hiring requirements and adjust as needed based on the result of the co-design. Failure to adjust could result in redundancies where employers are asking education partners to deliver competencies that they fully intend on addressing themselves during the onboarding and training process.

Co-Designing Authentic Performance Demonstrations and Assessments

In this final section, we examine the implications of the value stream mapping process for co-designing authentic performance demonstrations and assessments. Mapping the value stream with employers provides postsecondary education partners the opportunity to deliver a learning pathway with learning activities and outcomes connected to hiring competency requirements. However, the value stream mapping process also provides an opportunity to co-design authentic performance demonstrations and assessments. The value stream mapping process is more than scaffolding the attainment of competencies, but provides a unique opportunity for employers and their education partners to rethink how competencies are bundled together and demonstrated in a specific context that meets employer performance expectations.

Earlier in this paper we argued that the problem to solve for is not just dynamic labor markets, but that the nature of work is changing as well. Talent in today's economy must have both breadth and depth and the ability to work in cross-functional teams. To demonstrate this combination of soft and specialized skills requires a different approach than the individual assessment of one-off competencies. Instead, it is their combined demonstration, in the appropriate context, that truly communicates readiness and proficiency to employers.

TPM and value stream mapping provides employers and education partners with the right set of tools to co-design performance-based demonstrations and assessments that address multiple competencies in the most relevant context. The Chamber Foundation has previously published on the role of project-based learning as a more authentic learning experience that addresses employer talent needs (Tyszko & Sheets, 2016). Then referred to as “innovation challenges,” these demonstration projects feature interdisciplinary, cross-functional teams of students collaborating on authentic, employer-sponsored project-based learning challenges.¹¹ Innovation challenges can serve as a more authentic form of assessment or demonstration of learning done in partnership with employers and one that is more closely aligned with employer hiring requirements and expectations (Jankowski & Tyszko, 2017).

¹¹An example of a demonstration challenge would be to have a team of students work on a co-designed challenge to redesign a dialysis machine to improve utilization rates among youth or to incorporate robotics into bridge maintenance and repair to account for safety concerns and shortage of inspectors.

Useful Resource:



**COMPETING ON INNOVATION:
DISRUPTING THE EDUCATION ENTERPRISE
TO BUILD TOMORROW'S TALENT, TODAY**

*Competing on Innovation:
Disrupting the Education Enterprise
to Build Tomorrow's Talent, Today*

Demonstration challenges have many advantages. For instance, demonstration challenges:

1. Address the integration of multiple learning outcomes at once.
2. Are ill-structured and open-ended, requiring creative thinking and problem-solving skills, skills that are often in high-demand among employer partners.
3. Are multidisciplinary and require a team-based approach for solving a real-world problem, one that requires the convergence of multiple specialties and disciplines, just like in most workplaces.
4. Provide opportunities for each learner to show the breadth and depth of their skills or competencies in ways that are valued by employers.
5. Are scalable where one challenge provides multiple students a highly sought-after authentic work experience that is more substantive and comprehensive than most place-based experiences (i.e., internships).
6. Are designed to be “stackable” in developing specific skills at different stages throughout a learning pathway from high school students to early college and more advanced demonstrations closer to the point of hire and beyond.
7. Can result in the learner earning a credential (e.g., a digital badge), one that is recognized and trusted by the employers that were part of co-designing the challenge and credential.

Combined with TPM, project-based learning through demonstration challenges can become an integral part of the value stream mapping process itself. What is more, it is consistent with existing postsecondary education best practices for capstone projects, such as those supported by the Association of American Colleges and Universities LEAP Challenge.¹² Through demonstration challenges, employers and education partners can design not just one, but a sequence of basic and advanced demonstration challenges where learners authentically demonstrate the full range of competencies that are valued by education partners and employers alike. In this way, employers and education partners do not merely map the value stream, but use it as a tool to co-design authentic performance demonstrations and assessments throughout a learning pathway.

Conclusion

The U.S. Chamber and its Foundation seeks to reframe the narrative around partnerships between employers and the postsecondary education community.

Through demonstration challenges, employers and education partners can design not just one, but a sequence of basic and advanced demonstration challenges where learners authentically demonstrate the full range of competencies that are valued by education partners and employers alike.

¹²For examples of project-based learning best practices see the Association of American College & Universities (AAC&U) Leap Challenge. www.aacu.org/leap/challenge.

The business community will continue to depend on the postsecondary system to find and source talent. However, in an economy as dynamic as ours, traditional practices and tools for aligning with employer demand are insufficient for designing and adapting meaningful learning pathways.

What is required are closer, more aligned partnerships between postsecondary education and the business community. To that end, the Chamber Foundation launched the TPM movement in order to bridge the divide between employers and education partners in an increasingly dynamic labor market. This paper has sought to build awareness and understanding of the TPM movement, including its value proposition for postsecondary education stakeholders. It has also sought to put forth a partnership model where employers and postsecondary education partners co-design learning pathways and authentic, performance-based demonstrations. Lastly, through co-designing learning pathways, we attempted to unbundle the hiring process so it is no longer a zero-sum game, but a continuum of learning and opportunity.

The paper began with explaining the changing world of work and the inherent limitations of current employer-education practices and tools. We introduced TPM as a new partnership model that allows employers to organize and communicate competency requirements in a dynamic, changing economy. We then unpacked the implications TPM has for competency-based learning and assessment and put forth a process for co-designing learning pathways via value stream mapping. We concluded by introducing how the value stream mapping process can also be used to co-design authentic, performance-based demonstration challenges.

The TPM movement continues to grow. We invite you to learn more and join the movement so that together we can co-design learning pathways for today's learners and employers. To learn more about TPM visit www.TheTalentSupplyChain.org and to join the movement visit <https://www.uschamberfoundation.org/talent-pipeline-management-join>.

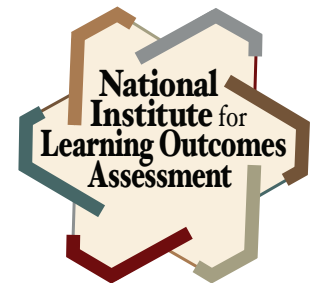
In an economy as dynamic as ours, traditional practices and tools for aligning with employer demand are insufficient for designing and adapting meaningful learning pathways.

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About NILOA

- The National Institute for Learning Outcomes Assessment (NILOA) was established in December 2008.
- NILOA is co-located at the University of Illinois and Indiana University.
- The NILOA website contains free assessment resources and can be found at <http://www.learningoutcomesassessment.org>.
- The NILOA research team has scanned institutional websites, surveyed chief academic officers, and commissioned a series of occasional papers.
- NILOA's Founding Director, George Kuh, founded the National Survey for Student Engagement (NSSE).
- The other co-principal investigator for NILOA, Stanley Ikenberry, was president of the University of Illinois from 1979 to 1995 and of the American Council of Education from 1996 to 2001.



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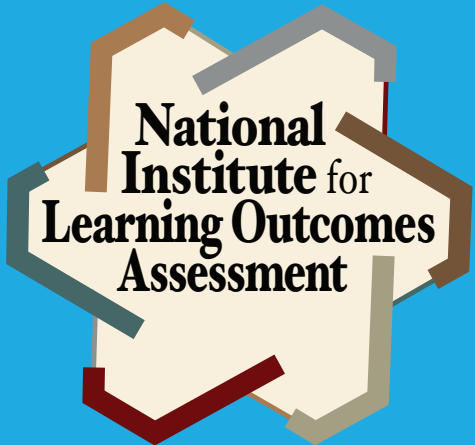


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