



The Workforce Development Applied Research Fund (WDARF) Grant Call Singapore - 2019

RESEARCH FOCUS

PREFACE

Globalisation and the technological revolution that began in the last decades of the 20th century have affected how, what, and where we work. Coupled with the local labour market conditions, they are impacting current and future workforce development at a pace that has not been experienced before.

On the global front, there is growing access to and use of information and communication technology, which is changing how goods and services are produced and how they are provided and consumed. There is also growing employment in high-skilled and services occupations, as well as creation of jobs with new skills required. With the rapid pace of skills obsolescence and technology deployment at the workplace, many of the jobs today will not exist in 2030. A list of reports on the recent developments in the area of workforce development and lifelong learning is attached in Annex A.

On the local front, Singapore is restructuring its economy towards a knowledge-intensive and innovation-driven economy. As emphasized by Finance Minister Mr Heng Swee Keat during the Budget 2019: Building a Strong, United Singapore, he urged Singaporeans to be ready for three major shifts in the coming decade.

The first is the shift in global economic weights towards Asia. Asia will play a larger role in global trade and investment flows. ASEAN countries are moving up the value chain and their middle-class population is growing rapidly. All these developments represent significant opportunities for our firms and people. Our economy must be geared to ride on and contribute to Asia's growth.

The second major shift is the emergence of new technologies that will change the way we live, work and play. New technologies are re-shaping the economy and jobs. Securing better jobs and higher wages will not be just about how well we did in school, but how well we continue to learn, relearn, adapt and grow through our lives.

Thirdly, Singapore resident workforce will shrink, tightening our labour market and slowing economy growth further. Raising our workforce productivity and competency will be vital to addressing manpower issues and supporting economic restructuring. The continuation of investing in the education and skills upgrading become even more critical for Singapore prosper.

As part of our efforts to address the challenges ahead, Singapore's Deputy Prime Minister Tharman Shanmugaratnam launched the SkillsFuture national movement in 2015 to provide Singaporeans with the opportunities to develop their

fullest potential throughout their life, regardless of their starting point. The SkillsFuture is anchored by four key thrusts, namely:

- a. Helping individuals make well-informed choices in education, training and careers;
- b. Developing an integrated, high-quality system of education and training that responds to constantly evolving industry needs;
- c. Promoting employer recognition and career development based on skills and mastery; and
- d. Fostering a culture that supports and celebrates lifelong learning.

Realizing the SkillsFuture key thrusts requires evidence-informed policies and development of best-in-class practices that are underpinned by high quality, reliable, and responsive workforce development research. Unlike the quantity and quality of research efforts and capabilities in other areas, workforce development research activities in Singapore are at the infancy stage.

To proliferate research relevant to realize the SkillsFuture key thrusts, we have therefore set up a national-level research fund. Called the Workforce Development Applied Research Fund (WDARF), the fund will:

- a. Allow for the expansion of our research scope and capability in the three research thrusts presented in following chapter to meet our policy development and programme design needs; and
- b. Provide funds for competitive bidding to allow research institutions and individuals to further contribute to our research.

To be considered for funding through the WDARF, researchers' proposed projects must be in at least one of the three key research thrusts articulated in this document.

RESEARCH FOCUS

Research Thrust A

Enabling and Sustaining Economic Performance through Workforce Development and Skills

This research thrust aims to generate insights and provide recommendations for sustaining Singapore's competitive advantage in the global economy through workforce development and skills. Research should be directed at examining skills strategies and utilisation, nature of jobs and employment arrangements, returns and other benefits of Continuing Education and Training (CET) investments, and the impact of skills on workplace outcomes (e.g. productivity, innovation, learning, skills retention) and business performance.

Broad research question:

What is the role of workforce development and skills in enabling and sustaining economic vibrancy and growth in Singapore?

Areas of focus:

1. Skills strategies and utilisation
2. Returns on investment to workforce development and skills – individual, organization, society
3. Future of Work – Impact of technological advancements and new business models on skills and workforce development

Research questions may include but are not limited to the following:

1. What are the skill trends in the short, medium and long-term?
 - a. How can emerging skills be identified? How does training address skills trends and emerging skills?
 - b. How do enterprises identify current and future skills needs?
2. Talent and Skills Strategies

- a. How are talent and skills strategy(ies) understood and deployed in organisations?
- b. How do organisations' talent and skills strategy(ies) affect low income workers and the success of their businesses?
3. How are the following supported and what other ways can they be supported?
 - a. Recognition of skills;
 - b. Assessment of skills and workplace performance
 - c. Utilisation of skills
4. What are the drivers and implications of job redesign and its impact on skills and jobs (salary, retention, attraction)?
5. How can the workplace continue to leverage a diverse and segmented workforce in the deployment of robotics and technologies?
 - a. What actions have the workplace taken to cater to the needs of an ageing workforce?
 - b. How can workplaces transform to better leverage skills and experience (especially of the older workforce) vis-à-vis technologies?
 - c. What are employees and employers' perspectives on job re-design and job crafting, and how can they be supported in the transformation of workplaces?
6. What implications do the emergence of the gig economy have on skills development and acquisition?
7. How do we define and measure training outcomes? Apart from Kirkpatrick's Training Evaluation Model, how can we measure training quality and outcomes of courses?

8. What are the returns on skills investment (e.g., individual income, business performance, economic growth and competitiveness) to individuals, enterprises and society?
9. What are the benefits of on-the-job training in terms of workplace performance and employment outcomes (such as increased wages and employability), as compared to classroom training?
10. What is the impact of funding schemes on encouraging skills upgrading, improving career options and raising earning potential?
11. What is the relationship between productivity and lean manpower schemes and initiatives and skills utilisation?
 - a. Why, when and how do companies make use of productivity and lean manpower schemes and initiatives?
 - b. How do productivity and lean manpower schemes and initiatives shape companies' HR practices?
 - c. How do companies decide on the balance between a high skills manpower strategy and other manpower and productivity initiatives?
 - d. How can the interventions result in lasting behavioural change beyond the duration of the intervention/initiatives?
12. What is the impact of technology on the future of work, jobs, labour market structure?
 - a. How have job roles changed or are changing against the broader changing global and technological-laden landscape?
 - b. What are the methodologies to study and monitor job role changes as a result of impact of technology?

13. How can companies (re)design jobs and work processes to improve business performance?

14. How can workplaces facilitate skills acquisition and skills utilisation?

15. What is the extent of influence of large-, medium- and small-sized enterprises on skills of jobs and workforce in the priority sectors in Singapore?

- a. Do large enterprises have the influence to lead smaller enterprises in its industry to increase skills contents of jobs and skills of the workforce? If there is, how could the large enterprises lead the other enterprises?

Research Thrust B

Shaping Employment and Continuing Education and Training (CET) Decisions of All Stakeholders

This research thrust aims to support the formulation and implementation of policies, strategies and initiatives by identifying the key factors influencing career, employment and CET decisions, including the understanding of cognition, emotion and behaviours of all stakeholders concerned (i.e. individuals, employers, career facilitators, policy-makers). Research should include exploration of various approaches and tools (e.g. behavioural insights, financial and non-financial incentives) that could be used to guide locals towards better employment outcomes and improved career resilience.

Broad research question:

How can we support all stakeholders concerned to make better employment and CET decisions?

Areas of focus:

- i. Employment facilitation and career guidance
- ii. Work and job design
- iii. Lifelong learning culture
- iv. Incentive/ intervention design

Research questions may include but are not limited to the following:

1. Career expectations and career decision making
 - a. What kind of programmes/schemes are most appropriate to help the employed and the unemployed in their career decision making and employment changing efforts?
 - b. What is the short term to long run impact of professional career facilitators in supporting individuals' career navigation and decision-making (i.e. longitudinal study)?

- c. What are workers' attitudes towards employment and career development, and how do these affect how they plan for their careers/employment?
 - d. What are the strategies to encourage proactive career planning, especially for those who are currently employed?
 - e. What is the impact of various career transition programmes (public and private) in the market? What are features of successful career transition programmes?
2. Understanding the unemployed
- a. What are the common archetypes of the unemployed?
 - b. What is the recovery process following job loss and does it vary according to the different archetypes? What are the strengths and abilities of each archetype?
 - c. What are the characteristics of the long-term unemployed (LTU) in Singapore and what are the key contributing factors?
3. Building a career-resilient workforce
- a. What can be defined as a career-resilient workforce? What are characteristics that enable individuals to obtain and stay retained in a job?
 - b. What enhances and constrains career resilience and how can it support an individual's career development?
 - c. How do individuals develop career resilience? What are the strategies for fostering individual ownership of career planning and job search?
 - d. How do workers and employers perceive the relationship between education, employment, future of work, and how have their beliefs and perceptions changed over time?

4. What key competencies are needed in the changing employment landscape and what are the best ways to develop such key competencies?
5. Employers' recruitment needs and strategies
 - a. What are the key indicators used by employers for assessing potential job candidates (e.g. soft/hard skills, work experience, paper qualifications)?
 - b. What is the impact of wage subsidy on employer's decision to hire and retain workers?
 - c. How could employers work with education and training providers to improve training quality and the responsiveness of the training to business needs?
6. Career facilitation services
 - a. How can we enable job seekers to use self-help tools effectively to support their career development? What are the effective self-help tools available in the market today, and how can we enable job seekers to use self-help tools effectively to support their career development?
 - b. What is the impact of training subsidy on individuals' commitment to learning and eventual placement in job?
 - c. What is the impact of wage subsidy on individuals' placement, retention and job motivation outcomes?
 - d. How will labour market trends (e.g. gig economy and emerging growth sector) affect employment facilitation and career guidance strategies?
7. Pre-Employment Education and Training (PET) upgraders (referring to students who seek to continue upgrading before starting full time employment) and their decision making process
 - a. Who are the PET upgraders?
 - b. Where are they upgrading from?

- c. When do they make their upgrading decisions?
 - d. What are their mental models when deciding to upgrade?
 - e. What factors influence their choice of PET upgrade?
 - f. Who influence their decision-making?
 - g. Who finance their PET upgrade?
 - h. What channels do they get their information to shape their decisions?
 - i. What are employers' perceptions of PET upgraders?
 - j. How do employers' recruitment criteria affect PET upgraders?
 - k. How does PET upgrading decision affects graduate employment outcome?
8. Stakeholders' roles in enabling a vibrant, sustainable, responsive skills ecosystem
- a. How can employers work with education and training providers to improve training quality and the responsiveness of the training to business needs?
 - b. How can trade associations and chambers (TACs) in Singapore play a larger role in fostering a quality CET system/ high-skills ecosystem as well as facilitate skills matching and job placement?
 - c. What are the successful partnership models and roles of various stakeholders (learners, employers, training organisations, public agencies, Trade Association and Chambers) that enable a vibrant, sustainable, responsive skills ecosystem?
9. How can the features of work and job be designed to facilitate/ optimise the match between skills and aspirations of individuals and the work/ job demand? How can jobs be better clustered to facilitate/ optimise the match between skills and aspirations of individuals and the work/ job demand?

10. Skills Upgrading

- a. How can workers be better equipped with skills and experience to new jobs and next careers?
 - b. How can individuals make use of labour market insights to make sense of choices and make decision making on re-skilling and up-skilling?
 - c. What skills can be used across different occupations?
 - d. How can workers be better equipped with these adjacent skills?
11. How do we engender and sustain a lifelong learning culture? How do we inculcate a culture of self-directed learning from young?
12. What are the ways to motivate and influence individuals to take ownership of learning, skills acquisition and employment in a sustainable manner?
13. What is the extent of individuals' and employers' reliance on incentives/interventions for CET and employment facilitation?
14. What is the impact of government support for self-directed learning on the business models of training providers and individual learning behaviour?
15. What is the impact of government grant (including course fee funding) and initiatives in shaping CET decisions?

Research Thrust C

Developing Effective and Impactful Approaches in Learning, Technology and Pedagogy to Enhance Learning and Employability

This research thrust focuses on enhancing the effectiveness and impact of learning approaches, via technology, pedagogy and innovations, as well as corresponding policy and practice considerations to achieve the desired CET outcomes. These approaches should take into account the varying needs and differences of adult learners including the aspects of accessibility, adaptability and appropriateness.

Broad research question:

What are the ways to ensure and enhance the accessibility, adaptability and appropriateness of learning, through technology, pedagogy and innovations for effective and impactful learning and employability outcomes?

Areas of focus:

- i. Blended and E-learning
- ii. Adult learning
- iii. Workplace learning
- iv. Adult educator professional development

Research questions may include but are not limited to the following:

1. How does blended learning improve adult learning outcomes? What are the best practices for blended learning?
2. What is the profile of the workers with low levels of digital literacy?
 - a. What are the barriers and reasons that contribute to the low level of digital literacy?
 - b. How can we up-skill the digital literacy of target segments of the workforce (i.e. older workers, rank-and-file workers)?
 - c. How can we enhance the efficacy of digital literacy programmes?

3. What are the learning needs and strategies of different groups (e.g. sectors, occupations, age, qualification backgrounds, etc.)? What is the definition of a quality training programme by different groups? How does each group identify quality training programme for work and for personal development?
4. How can workplaces be transformed for effective workplace learning?
5. What are some of the barriers faced by employers in implementing and for employees in participating in work-learn initiatives? What is the support required by employers to effectively implement workplace learning programmes?
6. Recognising learning in, at and through work
 - a. How do companies and individual value learning in, at and through work?
 - b. How does learning innovation/technology transform workplace learning to support virtual workplace learning?
7. How should training providers respond in the new landscape of workplaces that are impacted by technologies/robotics and new demands from changing business models?
8. What are the effectiveness of new trends of learning (methodologies such as informal learning/ microlearning/ blended learning/in between learning) in Singapore context?

Thrust A: Enabling and Sustaining Economic Performance through Workforce Development and Skills

International Labour Organisation (2019). *Work for a Brighter Future: Global Commission on the Future of Work*. Retrieved from https://www.ilo.org/wcmsp5/groups/public/---dgreports/---cabinet/documents/publication/wcms_662410.pdf

(Focuses on a human-centred agenda for the future of work)

World Economic Forum (2019). *Strategies for the New Economy Skills as the Currency of the Labour Market*. Retrieved from <https://www.weforum.org/whitepapers/strategies-for-the-new-economy-skills-as-the-currency-of-the-labour-market>

(Documents strategies for building a skills-based labour market)

Thrust B: Shaping Employment and Continuing Education and Training (CET) Decisions of All Stakeholders

Organisation for Economic Cooperation & Development (2019). *Getting Skills Right: Future-Ready Adult Learning Systems, Getting Skills Right, OECD Publishing*. Retrieved from https://read.oecd-ilibrary.org/education/getting-skills-right-future-ready-adult-learning-systems_9789264311756-en#page15

(Analysis of the adult learning systems across 32 countries)

World Economic Forum (2017). *Realizing Human Potential in the Fourth Industrial Revolution: An Agenda for Leaders to Shape the Future of Education, Gender and Work*. Retrieved from http://www3.weforum.org/docs/WEF_EGW_Whitepaper.pdf

(Offers ideas and concepts of transforming the education ecosystems)

World Economic Forum (2017). *Accelerating Workforce Reskilling for the Fourth Industrial Revolution: An Agenda for Leaders to Shape the Future of Education, Gender and Work*. Retrieved from http://www3.weforum.org/docs/WEF_EGW_White_Paper_Reskilling.pdf

(Offers a common set of future-oriented priorities for leaders to champion and implement to reskill the workforce.)

Thrust C: Developing Effective and Impactful Approaches in Learning, Technology and Pedagogy to Enhance Learning and Employability

UNESCO Institute for Lifelong Learning (2016). *3rd Global Report on Adult Learning and Education*. Retrieved from

https://unesdoc.unesco.org/ark:/48223/pf0000245913_eng

(Global developments on adult learning that is updated once every three years. The next update is in 2019.)