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RESEARCH NOTE

Critical Core Skills Profiling in Singapore

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Introduction

In 2019, SkillsFuture Singapore (SSG) reviewed the generic skills and competencies framework (GSC) that was first introduced in 2016, and developed the Critical Core Skills (CCS) comprising 16 soft skills classified within three clusters.

According to SSG (2022), the CCS set create "a common skills language for individuals, employers, and training providers", thereby helping to "facilitate skills recognition and support the design of training programmes for skills and career development". It is also developed with the objectives "to build deep skills for a lean workforce, enhance business competitiveness and support employment and employability".

A better understanding of how these soft skills are distributed across the economy, and the potential best practices regarding their development among adults, will significantly enhance SSG's training and career guidance services to graduates and workers.

To achieve this better understanding, an instrument was developed drawing on the 16 CCS to explore the CCS profiles in the Singapore workforce.

Summary

The key findings of the study:

► The top three most demanded skills are: Self-Management, Influence, and Creative Thinking.

► The three least important CCS are: Global Perspective, Building Inclusivity, and Developing People.

► The patterns of CCS use depict seven unique working contexts.

► Practical applications of the instrument developed in this study include: (i) skills needs analysis and evaluation for CCS development interventions, (ii) job-worker matching for career counsellors and employment agencies, and (iii) direction of skills development policy through the identification of areas requiring directed effort.

Figure 1. CCS in Singapore context (https://www.skillsfuture.gov.sg/skills-framework/criticalcoreskills)

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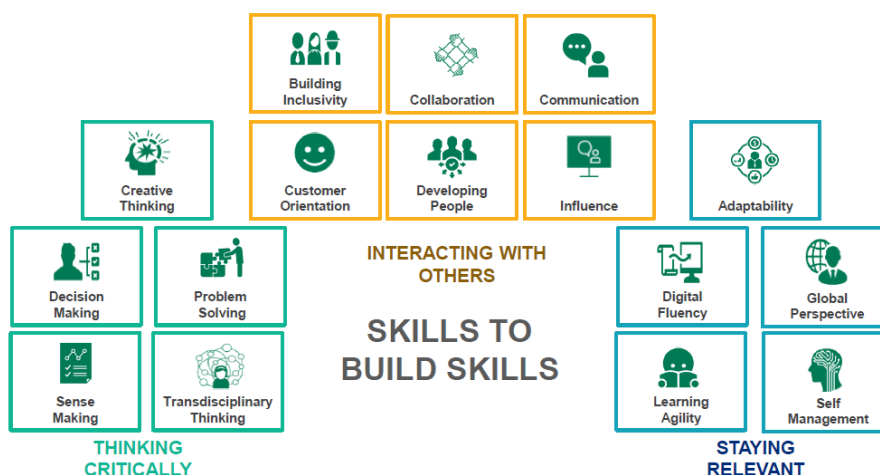
Methodology

The measurement of CCS and profiling of Singaporean workers on CCS importance required the development of a measurement instrument. The instrument was developed using the task-based method developed by Ashton, Felstead, Davies and Green (2000). This method required that each of the 16 CCS outlined in the SSG Skills Framework be converted into a bundle of understandable and relevant task statements. The strategy employed in achieving this followed several stages: coding the SSG CCS frameworks into dimensions, task generation from the dimensions identified, and instrument validation.

A survey (n=2,007) covering a target population of employed Singapore Residents (i.e., Singapore Citizens and Permanent Residents) aged 20 to 70 was conducted from September 2021 to January 2022. The survey questionnaire included questions on the personal characteristics of the individual and details about their job, in addition to that related to the instrument developed on the importance and self-efficacy of SSG CCS.

An initial cluster analysis was performed by calculating average CCS importance scores for each 4-digit Singapore Standard Occupation Classification (SSOC) group in the sample. Hierarchical cluster analysis was then performed on the sample of SSOCs using Ward's method with Euclidean distances.

CCS Profiling of the Singapore Workforce

Seven unique working contexts were clustered in terms of the most important CCS across different occupations (See Annex A for the CCS profile of each cluster). The unique working context, the top three most important CCS, and CCS to develop for each of the seven clusters are summarized in this section.

Cluster 1: Front-liners

Occupations under this cluster require a high level of customer engagement in daily work, managing varied requests from customers where communication is critical, and constant negotiation within tight business processes and regulations, e.g., taxi drivers, shop and store salespersons.

Most important CCS:
  i. Self-Management
  ii. Customer Orientation
  iii. Influence

CCS to develop:
After controlling for skill importance and demographics, in this cluster, no CCS was identified for development.

Cluster 2: Nurturers

Occupations under this cluster require strong interpersonal and emotional labour, and are dominated by educators, human resource practitioners, and nurses.

Most Important CCS:
  i. Self-Management
  ii. Creative Thinking
  iii. Communication

CCS to develop:
After controlling for skill importance and demographics, this cluster reported significantly low confidence in the following CCS:
  i. Adaptability,
  ii. Problem solving
  iii. Building Inclusivity,
  iv. Sense making,
  v. Communication,
  vi. Creative thinking,
  vii. Develop People, &
  viii. Influence

For example, respondents in this cluster felt challenged when finding out what other people need and when managing unusual requests.

Cluster 3: Deal-makers

Occupations under this cluster have high requirements for CCS. These occupations require synthesis of information and insights across a variety of sources and contexts, managing demands from employers and customers, as well as decision-making and problem-solving capabilities that have a significant impact on business outcomes and productivity.

Most Important CCS:
  i. Transdisciplinary Thinking
  ii. Problem Solving
  iii. Decision Making

CCS to develop:
After controlling for skill importance and demographics, this cluster reported significantly low confidence in the following CCS:
   i.   Building Inclusivity
   ii. Digital Fluency
   iii. Influence
   iv. Problem Solving

For example, respondents in this cluster lacked the confidence in finding solutions for work-related problems and learning how to use new technologies.

Cluster 4: Wayfinders

Occupations under this cluster ensure smooth operation of businesses and organisations. Managing customers' and stakeholders' needs is the core, e.g. management and business consultants, Managing Directors, Chief Executives and General Managers.

Most Important CCS:
   i.   Customer Orientation
   ii. Self-Management
   iii. Communication

CCS to develop:
After controlling for skill importance and demographics, this cluster reported significantly low confidence in Creative Thinking, and felt challenged to find and test new ways of doing things.

Cluster 5: Managers

Occupations under this cluster work across multiple stakeholders to coordinate delivery of services and solutions. Information processing and collaboration across stakeholders and use of digital tools are critical for this cluster, e.g., Supervisors and General Foremen (Building and related trades), Business Services and Administration Managers.

Most Important CCS:
   i.   Self-Management
   ii. Collaboration
   iii. Digital Fluency

CCS to develop:
After controlling for skill importance and demographics, this cluster reported significantly low confidence in the following CCS:
   i.   Adaptability,
   ii. Customer Orientation,
   iii. Self-management

When performing Customer Orientation tasks, respondents in this cluster lacked confidence in responding to various customers' needs.

Cluster 6: Administrators

Occupations under this cluster involve the creation of better solutions and enhancement of work processes and productivity, demanding orderliness, conscientiousness, and resources management, e.g. accountants, system analysts.

Most Important CCS:
   i.   Self-Management
   ii. Creative Thinking
   iii. Problem Solving

CCS to develop:
After controlling for skill importance and demographics, this cluster reported significantly low confidence in Self-Management. Particularly, they faced challenges in managing stress.

Cluster 7: Analysers

Occupations under this cluster include the typical knowledge worker in the digital economy who require strong cognitive skills to create value. Their decisions have major impact on the organisations, e.g., financial analysts, data scientists, buyers and purchasing agents.

Most Important CCS:
   I.   Sense-Making
   II. Decision Making
   III. Problem Solving

CCS to develop:
After controlling for skill importance and demographics, no CCS was identified for development.

Conclusions and Recommendations

The seven clusters provide an insightful overview of the distribution of CCS utilization in various working contexts in Singapore. As Singapore enterprises embark on business transformation, it is worthwhile paying attention to the design of job-roles and task activities to better leverage on CCS to achieve transformation.

Specifically, the results of CCS profiling could be applied in the following ways:

➢ **Skills needs analysis and evaluation for CCS development interventions:** For example,

employers may use the instrument to identify the skills needs of their employees, thereafter, developing them in the appropriate set of CCS as required by their different job roles.

➢ **Job-worker matching for career counsellors and employment agencies:** For example, career counsellors and employment agencies may use the instrument to identify the most demanded CCS in different job roles, thereby allowing them to better match prospective employees to suitable job vacancies.

➢ **Direction of skills development policy through the identification of areas requiring directed effort:** For example, the profiling results from this study provide important evidence for employers to plan the development of prospective and existing staff, by looking at CCS that requires development for each job role.

References

Ashton, D., Davies, B., Felstead, A., & Green, F. (2000). *Work skills in Britain*. SKOPE Monograph, (1).
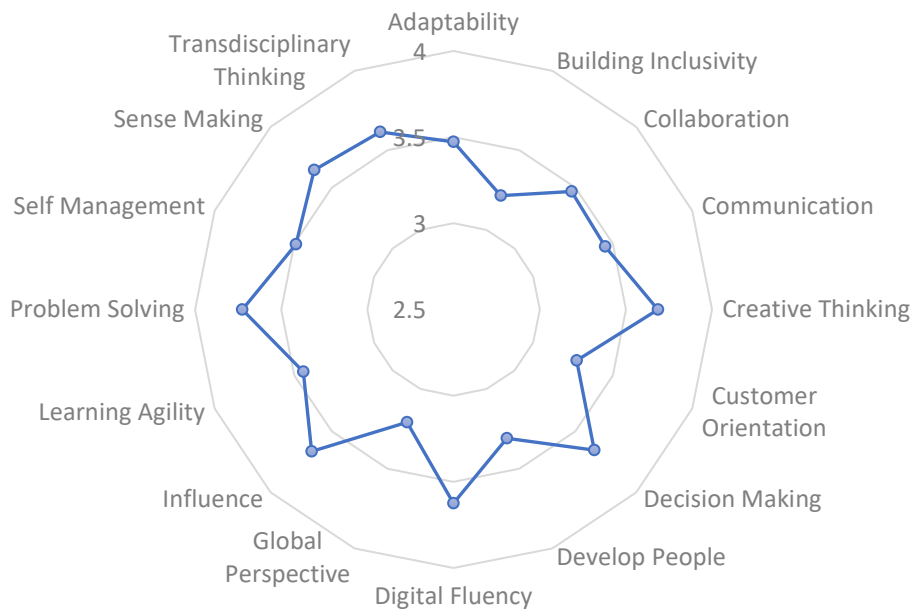
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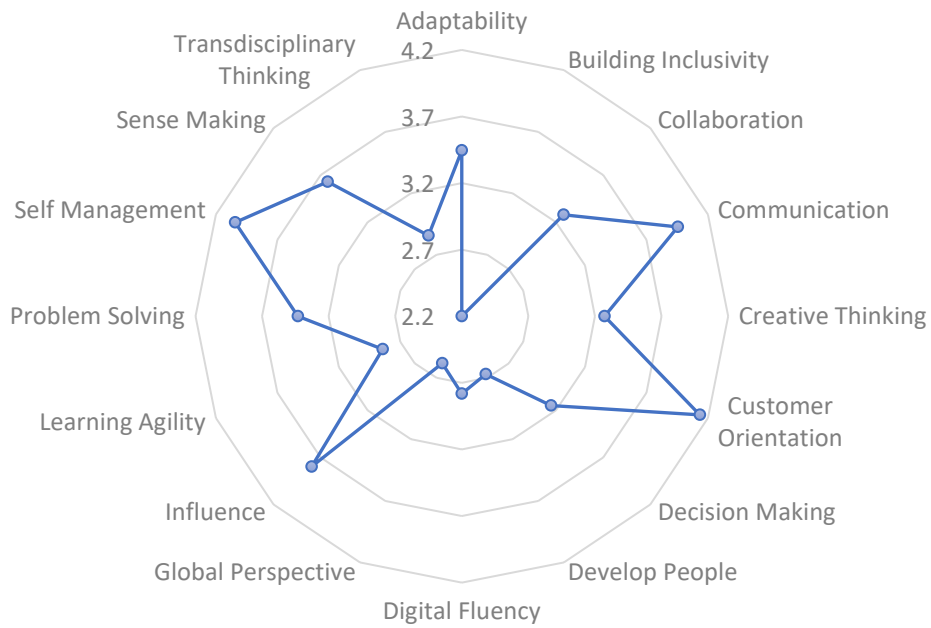
Appendix A

CCS use by cluster

CCS Use by Front-liners

CCS Use by Nurturers
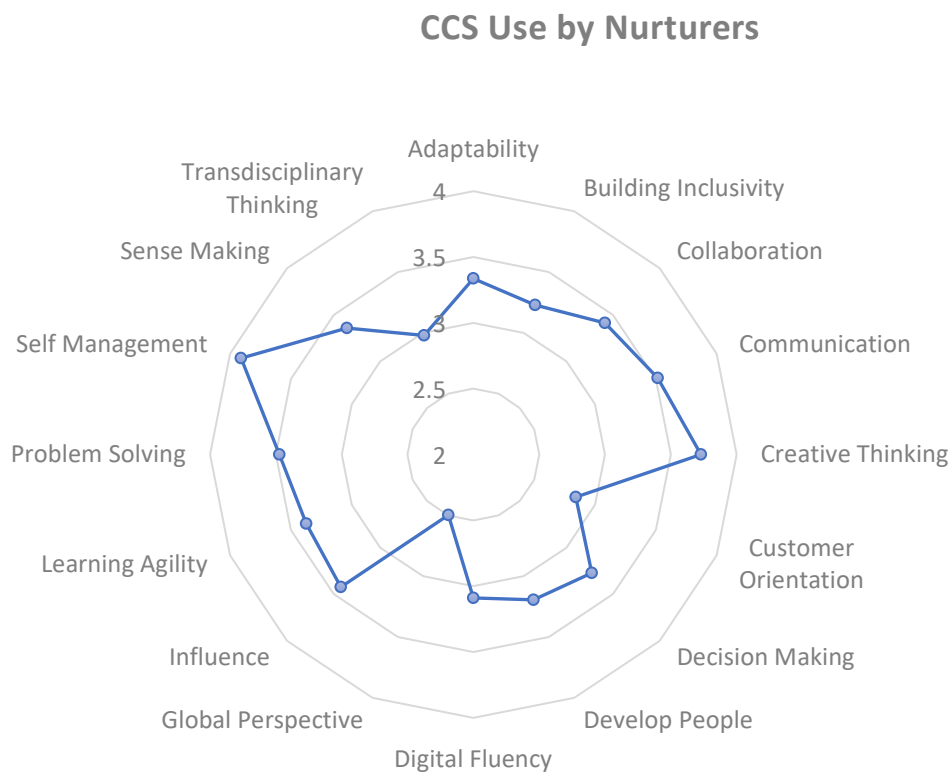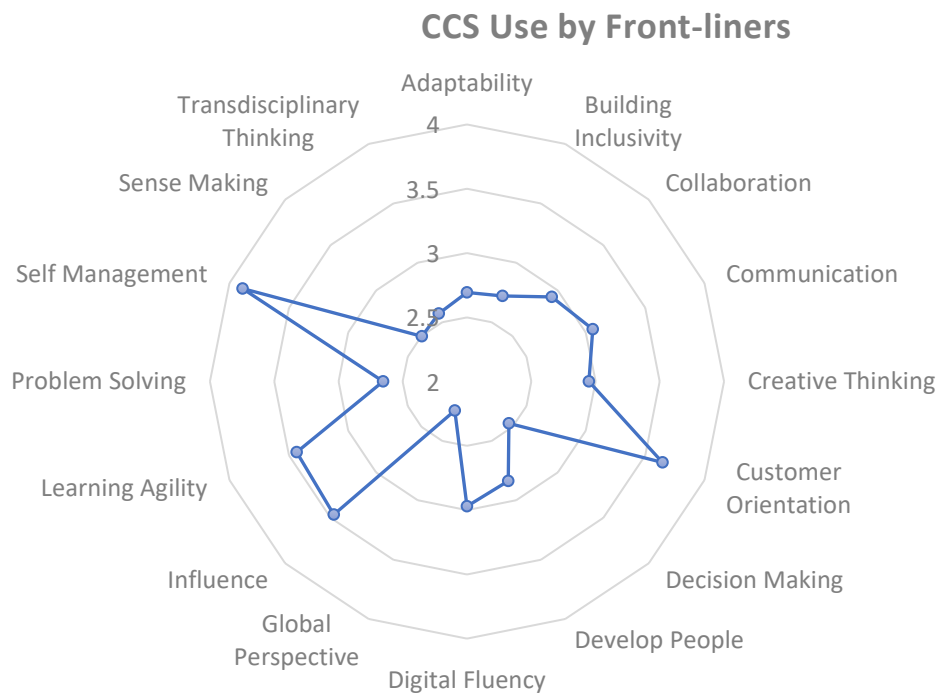
CCS Use by Deal-makers

CCS Use by Wayfinders

CCS Use by Managers

CCS Use by Administrators
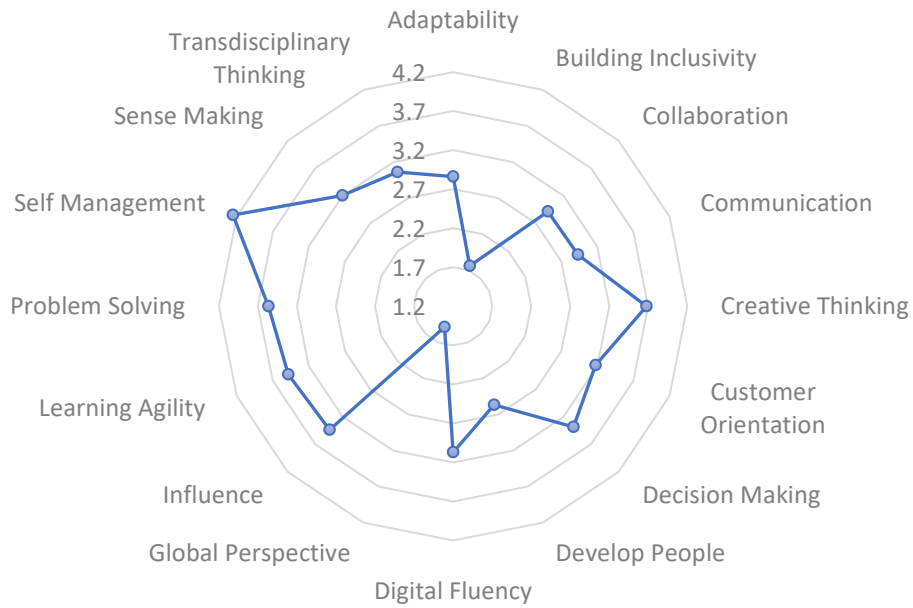
CCS Profile of Analysers

Radar chart titled "CCS Profile of Analysers" with axes: Adaptability, Building Inclusivity, Collaboration, Communication, Creative Thinking, Customer Orientation, Decision Making, Develop People, Digital Fluency, Global Perspective, Influence, Learning Agility, Problem Solving, Self Management, Sense Making, Transdisciplinary Thinking. Scale values: 2.2, 2.7, 3.2, 3.7, 4.2.

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