INTRODUCTION

The study on the Skill Competencies Matrix for the Malaysia ICT Industry which was completed in 2010 is an initiative undertaken by MDeC to establish a common Terms of Reference for knowledge workers, employers in the ICT sector, institutes of higher learning, and government planners.
Bridging the supply and demand imbalance

Years of supply demand imbalance … fuel intense competition for talent and increase pressure on competitiveness

| Spent huge $$$ to study imbalance | Implemented multiple solutions to stop the gap | Have no common language | Lacked a central “meeting point” platform |

supply
Universities

?  

demand
Industries
Linking industry and university

Industry look for essential job functions and required experience while academia speak about skills and knowledge learnt.

<table>
<thead>
<tr>
<th></th>
<th>supply</th>
<th>demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universities</td>
<td></td>
<td>Industries</td>
</tr>
</tbody>
</table>
Adopting a structured approach

• Adopt a structured approach to classify the job types and industry
• Mirror a hierarchical system of classification used in the living organism study - taxonomy
• Critical to define the most logical principle of classification to group the jobs

<table>
<thead>
<tr>
<th>Living Organism</th>
<th>Skills Matrix</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong></td>
<td>Order</td>
</tr>
<tr>
<td><strong>Level 2</strong></td>
<td>Family</td>
</tr>
<tr>
<td><strong>Level 3</strong></td>
<td>Genus</td>
</tr>
<tr>
<td><strong>Level 4</strong></td>
<td>Species</td>
</tr>
</tbody>
</table>
Before we get to the Skills Competencies Matrix, let’s review the **target users** of the classification.
Terms of Reference

1. Employers
2. Working Professionals
3. Students
4. University Administrators
5. Government Planners
1. Employers

- Standardize job descriptions
- Identify core and elective skills
- Have better understanding of job fit
- Use to recommend training needs
- Know range of salary for specific job roles
- Use for work appraisal and compensation scheme

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• Understand job expectation and job fit/match

• Calibrate salary expectation

• Better knowledge of market rate and skills expectation

• Less dissatisfaction on overpay and underpay
• Pursue education with clearer understanding of job expectation

• Assist to select right courses or subjects and relevant projects focus

• Aware of the skills competency levels required

• Know the range of salary and expectation

• Use to chart career path
- Understand precisely what the industry wants and requirement
- Be more objective when developing curriculum for entry level jobs
- Define the fundamental body of knowledge required for job groupings
- Objectively introduce projects and assignments to develop the required skills
• Better understanding of Talent Development requirements and Training Needs of the Industry

• Improve ROI of Training and Development plans

• Focus on differentiating factors

• Improve quality of data collection and measurement

• Enable focus on high-value jobs and skills expectation

5. Government Planners

4. University Administrators
I know you are keen to get to the Skills Competencies Matrix, but let’s us share the key findings in the process of classification.
### Sharing the key findings

<table>
<thead>
<tr>
<th>Level</th>
<th>Classification</th>
<th>Findings</th>
<th>Findings Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>By Industry</td>
<td>1</td>
<td>ICT Industry</td>
</tr>
<tr>
<td>Level 2</td>
<td>By Cluster</td>
<td>4</td>
<td>Job Clusters</td>
</tr>
<tr>
<td>Level 3</td>
<td>By Value Chain</td>
<td>17</td>
<td>Job Groups</td>
</tr>
<tr>
<td>Level 4</td>
<td>By Function</td>
<td>114</td>
<td>Job Types</td>
</tr>
<tr>
<td>Level 5</td>
<td>By Naming</td>
<td>432</td>
<td>Job Titles</td>
</tr>
</tbody>
</table>

Normal MSC Malaysia Industry Cluster - CMM, SSO & INT but in Skills Competency Matrix, a new cluster (SDD) was classified and added.
MSC Malaysia Skills Competency Matrix

ICT Industry

CMM
- Creative Content Management
- Pre-Production
- Content Production
- Post-Production
- Content Management

SDD
- Architectural Design
- IC Design
- System Design
- Software Engineering

INT
- Software Development
- Database Management
- Technical Support
- IT Consultancy
- IT Sales & Marketing
- IT Management

SSO
- Contact Centre
- Human Resources
- Finance & Accounting
<table>
<thead>
<tr>
<th>Level</th>
<th>Classification</th>
<th>Matrix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>By Industry (ICT Industry – MSC focus)</td>
<td>ICT Industry – MSC Malaysia</td>
</tr>
<tr>
<td>Level 2</td>
<td>By Industry Cluster (MSC Malaysia Cluster)</td>
<td>CMM 27 Job Types</td>
</tr>
<tr>
<td>Level 3</td>
<td>By Job Grouping (Job Value Chain)</td>
<td>SDD 25 Job Types</td>
</tr>
<tr>
<td>Level 4</td>
<td>By Function (Job Types)</td>
<td>INT 42 Job Types</td>
</tr>
<tr>
<td>Level 5</td>
<td>By Naming (Job Titles)</td>
<td>SSO 20 Job Types</td>
</tr>
<tr>
<td></td>
<td>Special Study By Entry Level (Job Titles)</td>
<td>Total of 432 job titles studied across the 4 clusters, 239 job titles (55%) are suitable for entry level</td>
</tr>
<tr>
<td></td>
<td></td>
<td>112 Job Titles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>64 Job Titles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>180 Job Titles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>76 Job Titles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>75 Job Titles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>47 Job Titles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>71 Job Titles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>46 Job Titles</td>
</tr>
</tbody>
</table>
### Content of Skills Competency Matrix

1. Industry Cluster
2. Job Type
3. Job Code
4. Job Description
5. Job Grouping
6. Education Level
7. Similar Job Titles
8. Experience Level
9. Certification Level
10. Salary Range
11. Technical Skills
12. Soft Skills
13. Competency Expectation
14. Entry Level

- 14 vital information captured in each Matrix
- Challenge was to dissect the job value chain and identify the skills requirements and competency expectations
- Lack of industry consistency, scale of operation and pace of technology usage are critical elements dictating the content of matrix
Now, let’s take a look at the Skills Competencies Matrix
An example of a skills competency matrix
### Industry Cluster: Information Technology

**JOB CODE**: INT100200

**JOB TITLE**: C/C++ Programmer

**JOBSITE GROUPING**
- Software Development
- Database Management
- Technical Support
- IT Consulting
- IT Sales & Marketing

**EDUCATION**
- SPM
- Diploma
- Bachelor's
- Master's

**SIMILAR JOB TITLES**
- C++ Developer
- C++ Graphics Programmer
- C++ Software Analyst
- C/C++ Software Engineer

### Skill Entry Matrix

<table>
<thead>
<tr>
<th>No</th>
<th>Skill Description</th>
<th>Entry</th>
<th>Inter</th>
<th>Senior</th>
<th>Advanced</th>
<th>Master</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Industry Experience</td>
<td>2-3 Years</td>
<td>3-4 Years</td>
<td>7-10 Years</td>
<td>10+ Years</td>
<td>Life Time</td>
</tr>
</tbody>
</table>

### Technical Skills Competency

1. **Ability to define, develop, and deploy application program**
   - Entry: Look for new exposure on the subject matter
   - Senior: Seek out and explore new exposure on the subject matter

2. **Competent in C/C++ Programming Skills**
   - Entry: Apply technical skills to achieve results
   - Senior: Utilize solid technical competence to achieve exemplary results

3. **Has knowledge of Operating System (e.g., Windows, Linux, UNIX) Native API**
   - Entry: Has detailed knowledge of the concept, systems or area of expertise
   - Senior: Has detailed knowledge and emerging trends of the concept, systems or area of expertise

4. **Proficient in Object-Oriented (OO) Programming**
   - Entry: Deliver results in a timely and consistent manner
   - Senior: Document and deliver expectations and expectations of complete projects

5. **Demonstrates a good understanding of Kernel Development**
   - Entry: Know fundamental standards
   - Senior: Meet industry standards routinely and offer improvement suggestions

### Soft Skills Competency

1. **Communication**
   - Entry: Have good communication skills
   - Senior: Interpret customer requests and technical requirements accurately and communicate concerns clearly
   - Advanced: Convey customer, technical requirements and business impacts with impact

2. **Time Management**
   - Entry: Able to plan and maintain task schedule
   - Senior: Able to organize and plan tasks and plans to achieve plans
   - Advanced: Dictate the time usage and controls of resources

3. **Multitasking**
   - Entry: Can handle multiple assignments or project tasks
   - Senior: Can handle multiple assignments or project tasks
   - Advanced: Can handle multiple assignments or project tasks

4. **Problem Solving**
   - Entry: Apply structured problem solving process and tools to solve basic problems
   - Senior: Use advanced problem solving approaches and tools to solve complex problems
   - Advanced: Recognize and identify problems that may have a wide range of benefits

5. **Presentation Skills**
   - Entry: Define the purpose and components of presentation and able to deliver quality presentations to a small group of audience
   - Senior: Define the purpose and components of presentation and able to deliver quality presentations to a moderate group of audience

6. **Managing People**
   - Entry: Focus on individual effort to increase output and contribution
   - Senior: Focus on individual effort to increase output and contribution
   - Advanced: Focus on individual effort to increase output and contribution
   - Master: Focus on individual effort to increase output and contribution

Lines 13-14 indicate suitable for entry level.
Job Grouping within this industry cluster

Academic qualification preferred by employers

Description of Job Function

Job description:
Develop, create, and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions. Design software or customize software for client use with the aim of optimizing operational efficiency. May analyze and design databases within an application area, working individually or coordinating database development as part of a team.
**Industry Cluster:** Information Technology

- **JOB CODE:** INT10100
- **JOB TITLE:** .Net Programmer

**JOB GROUPING**
- Software
- MIS

**JOBS LEVEL & INDUSTRY EXPERIENCE APPROPRIATE FOR THIS JOB TYPE**

<table>
<thead>
<tr>
<th>No</th>
<th>Description</th>
<th>Entry</th>
<th>Intermediate</th>
<th>Senior</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Industry Experience</td>
<td></td>
<td>3-6 Years</td>
<td>7-10 Years</td>
</tr>
<tr>
<td>2</td>
<td>Industry Certification</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Salary Range</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SIMILAR JOB TITLES**
- .Net Developer
- Application Developer (.Net)
- Application Engineer (.Net)
- Software Engineer (.Net)
- Software Programmer (.Net)

**Other job titles used for the same job function**

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**Technical Skills Competency**

(Note: Skills marked in darker color are "required skills"; skills marked in lighter color are "elective skills."

<table>
<thead>
<tr>
<th>No</th>
<th>Skill</th>
<th>Entry</th>
<th>Intermediate</th>
<th>Senior</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ability to analyze, develop and improve the web application</td>
<td>Stay current on the subject matter</td>
<td>Look for new subject matter</td>
<td>You will be responsible for keeping up-to-date with new technologies</td>
</tr>
<tr>
<td>2</td>
<td>Demonstrate a solid understanding of .Net Framework</td>
<td>Perform at basic level under supervision</td>
<td>Perform with minimal supervision and able to handle moderate scope</td>
<td>Fully proficient, has in-depth knowledge, work independently on moderate to high complex scope</td>
</tr>
<tr>
<td>3</td>
<td>Competent in .Net Programming Skills (e.g. VB.Net, C#.Net, ASP.Net)</td>
<td>Apply technical skills to complete assigned tasks</td>
<td>Apply strong technical skills to achieve results</td>
<td>Utilize solid technical competence to achieve exemplary results</td>
</tr>
<tr>
<td>4</td>
<td>Proven ability in MS SQL Server Programming Skills</td>
<td>Stay current on technology development</td>
<td>Look for opportunities to gain exposure to new technical skills</td>
<td>Seek out and explore new assignments, exposure or challenges in order to enhance technical skills</td>
</tr>
<tr>
<td>5</td>
<td>Demonstrate a good understanding of Web Technologies (e.g. XML / Web Services / AJAX)</td>
<td>Learn and know industry standards</td>
<td>Know and meet industry standards</td>
<td>Meet industry standards routinely and offer improvement suggestions</td>
</tr>
</tbody>
</table>

10. Description of technical skills associated to this job function

11. Skills in darker shade are "required skills"

12. Skills in lighter shade are "elective skills"
<table>
<thead>
<tr>
<th>No</th>
<th>Skill</th>
<th>Description of competency expectation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Communication</td>
<td>Have good command of language skills and able to communicate effectively between peers or customers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Interpret customer requests and technical requirements accurately and communicate concerns clearly</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Convey customer requests, technical requirements and business messages with impact</td>
</tr>
<tr>
<td>2</td>
<td>Time Management</td>
<td>Able to plan and complete tasks as schedule</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Able to organize and plan tasks as schedule or ahead of time</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Able to organize and optimize usage of time to complete action plans</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dictate the time usage and controls of resources</td>
</tr>
<tr>
<td>3</td>
<td>Multitasking</td>
<td>Can handle basic assignments or project tasks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can handle multiple assignments or project tasks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can handle multiple assignments or project tasks of moderate complexity</td>
</tr>
<tr>
<td>4</td>
<td>Problem Solving</td>
<td>Able to apply structured problem solving process and tools to solve basic problems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Use advance problem solving process/tools and understand the impact of solutions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recognize conceptual trends and impact of solutions to moderate problems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Generate solutions of significant problems over a wide range of benefits</td>
</tr>
<tr>
<td>5</td>
<td>Presentation Skills</td>
<td>Understand the purpose and components of presentation and able to present to a small group of audience</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Define the purpose and components of presentation and able to deliver quality presentations to a moderate group of audience</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Able to deliver quality presentation to a sizeable group of audience or decision makers and obtain appropriate decisions</td>
</tr>
<tr>
<td>6</td>
<td>Managing People</td>
<td>Focus on individual effort to increase output and contribution</td>
</tr>
</tbody>
</table>
Here’re the next steps on the **Skills Competencies Matrix**
SCM 2.0 which is currently ongoing and expected to be completed later this year, will focus on the following:

- Review & update job groups, job types and skill competencies for each job type
- Provide snapshot of salary ranges for each job type
- Provide professional industrial certification for each job type, if any
- Provide job demand & high value job (HVJ) indicators for each job type
- Searchable Online version
KEY ENHANCEMENTS-SCM 2.0

- High Value Job Indicator
- Job Demand Indicator
- Salary Range
- Certification

Industry Cluster:
System Design & Development

Trigonometry

TRIZ

Salary Range: RM 2,000 - RM 2,500

Certification

Similar Job Titles:
- Analog IC/Designer
- Digital IC/Designer
- Mixed IC/Designer

Soft Skills Competency

KDI K-WORKERS DEVELOPMENT INITIATIVES

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