

Human Resources Development Fund (HRDF)

INDUSTRIAL INSIGHTS REPORT

Issue: 1/2019

**Telecommunication Industry, Computer Industry,
Manufacturer of Electrical Machinery, Apparatus Appliances and Supplies**



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Chapter 1: INTRODUCTION

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QUICK TAKEAWAYS AND HIGHLIGHTS

Contents on industrial insights :

- Importance of industry
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HRDF Industrial Insights Report is intended to share the latest training related updates and insights from various industries in Malaysia. More importantly, the report will be crucial for HRDF and other related stakeholders to learn from the industries on their human capital issues and take measures to improve, and thus contributing to more effective human capital development for the nation.

Instead of taking the traditional social science research approach, the method for this report adapted an action research approach inspired by Kurt Lewin's process, with the aspiration of inducing changes in HRDF to better meet the changing needs of employers registered under HRDF. Using HRDF's internal data as well as selected employer's qualitative feedback, insights and recommendations will be provided for the reader's enlightenment. Nevertheless, it should be noted that since the contents of this report is confined to the context of the selected HRDF subsectors and their registered employers, there is limitation on the extent of how the contents can be generalised to the overall industries.

The highlights for this issue are these three industries:

- Telecommunication;
- Computer; and
- Manufacturer of Electrical Machinery, Apparatus Appliances and Supplies industry.

We will highlight their general industry outlook, training trends under HRDF and employers' qualitative feedback on training.



Chapter 2: TELECOMMUNICATION

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GENERAL OUTLOOK

The telecommunication industry including communication and media, experienced steady growth where it grew from 5.3% of Malaysia GDP in 2011 to 5.9% in 2017 (*Industry Performance Report 2017, Malaysian Communications and Multimedia Commission*). With the aspiration of 5G technologies to be gaining grounds due to increasing demand for mobile data, this industry is deemed to have great potential of growth given that there are already existing capable organisations to support its development (9.6% of market capitalisation in Bursa Malaysia in as of 2017).

IMPORTANCE OF THE INDUSTRY

The telecommunication industry is critical for a developing economy and Malaysia's deregulated cellular telephone market is one of the most competitive in the world. The telecommunication industry is made up of companies that make communication possible on a global scale, whether it is through the phone or the Internet, through airwaves or cables, through wires or wirelessly. These companies created the infrastructure that allows data in words, voice, audio or video to be sent anywhere in the world. The largest companies in the sector are wireless operators, satellite companies, cable companies and internet service providers.

QUICK TAKEAWAYS AND HIGHLIGHTS

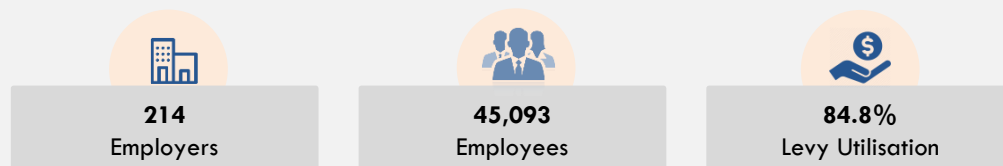
The telecommunication industry including communication and media experienced steady growth between 2011-2017.

TRAINING OVERVIEW IN HRDF

Telecommunication industry is defined as: System for the conveyance, through the agency of electric, magnetic, electro-magnetic, electrochemical or electro-mechanical energy of speech, music and other sounds, visual images, signals serving for the impartation (whether as between persons and persons, things and things or persons and things) of any matter otherwise than in the form of sound or visual images; or signals serving for the actuation or control of machinery or apparatus.

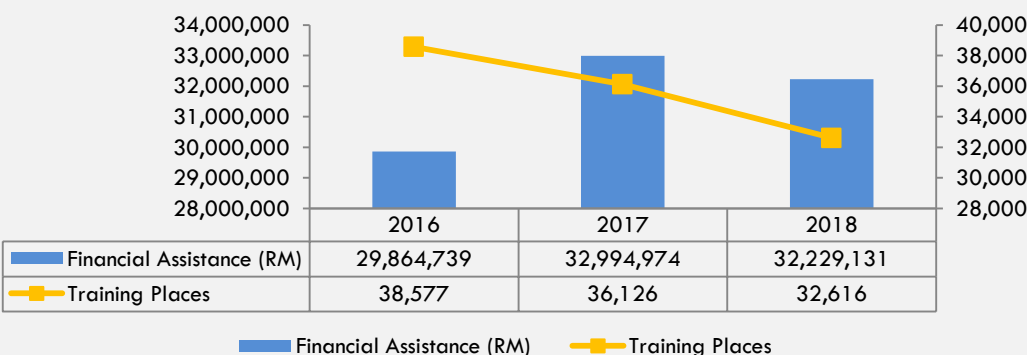
Source: *Pembangunan Sumber Manusia Berhad Act, 2001 (Act 612)*

DEMOGRAPHIC INFO: TELECOMMUNICATION COMPANIES REGISTERED WITH HRDF



Out of 214 employers, **75.2%** (161) of the employers are Small and Medium Enterprises (SME) and only **24.8%** (53) are large employers. The statistics shows that the Telecommunication Industry is active in attending training where in average, the levy utilisation in year 2018 is about **84.8%**. The details breakdown of training places and financial assistance approved for Telecommunication Industry starting from year 2016 to 2018 are as per chart below.

75% of telecommunication companies in HRDF are SMEs, and the overall levy utilisation is 84.8% in 2018.



*The financial assistance and training places calculated based on grant schemes only, it does not involve other special initiatives.

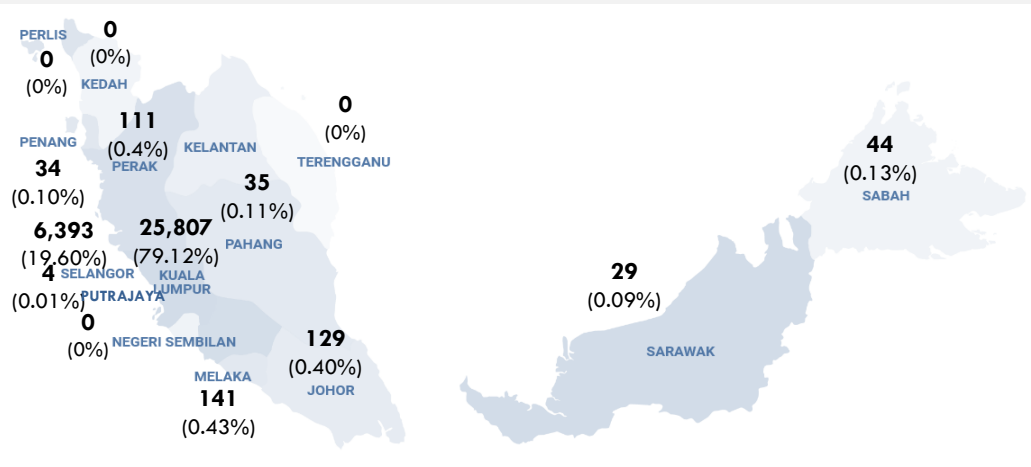
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NUMBER OF TRAINING PLACES BY STATE OF EMPLOYERS FOR 2018

In year 2018, employers of Telecommunication Industry sent their staffs for training amounting to **32,616** training places which mainly are conducted in Kuala Lumpur (79.12%) and Selangor (19.60%), followed by Melaka 0.43% and Johor 0.40%.



SKILL AREA: TELECOMMUNICATIONS

Engineering was among the skills that were considered as most critical by employers in the Telecommunication industry for some of the job categories. Apart from that, the Computer/Information and Technology skill was also the most preferred skill of this industry followed by Safety and Health and Management/Strategic Management and Team Building/Motivation.

SKILL AREA BY TRAINING PLACES		
1	Engineering	18%
2	Computer/Information and Technology	16%
3	Safety and Health	14%
4	Management/Strategic Management	10%
5	Team Building/ Motivation	9%

SKILL AREA BY FINANCIAL ASSISTANCE		
1	Management/Strategic Management	16%
2	Marketing and Sales	16%
3	Computer/Information and Technology	15%
4	Engineering	14%
5	Safety and Health	9%

Some of the examples of high cost and low cost Public courses (per pax/day) are as below:

Courses Cost: 90th Percentile

1. Accredited PRINCE2 Foundation & Practitioner: RM1,300/day (6 days)
2. Building the Cisco Cloud with Application Centric Infrastructure 1.0: RM1,300/day (5 days)
3. Certified Data Centre Expert: RM1,300/day (5 days)

Courses Cost: Median

1. Certified Information Security Auditor: RM710/day (10 days)
2. Interconnecting Cisco Networking Devices: RM700/day (5 days)
3. RH124 Red Hat Enterprise Linux System Administration: RM700/day (5 days)

Courses Cost: 10th Percentile

1. Kursus Separuh Masa Penjaga Jentera Elektrik AO: RM22/day (148 days)
2. Expressway Operation Safety Passport RM43/day: (6 days)
3. Working at Height (WAH) RM47/day: (16 days)

QUICK TAKEAWAYS AND HIGHLIGHTS

Every year, in average (2016-2018) the telecommunication industry has utilised **RM31,696,281** financial assistance for attending **35,773** training places.

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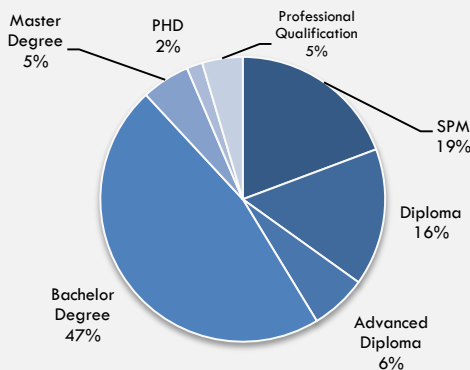


FEEDBACK FROM SURVEY

A qualitative survey involving large and Small and Medium Enterprises (SME) employers has been conducted to the industry with the objectives to identify skills and trainings needed and identify challenges, impacts on industries in relation to training caused by internal and external factors.

Academic Qualification

The survey shows that employees registered with HRDF are from various academic qualification starting from SPM, Diploma, Advanced Diploma, Bachelor Degree, master Degree, PHD and other professional qualification. The highest groups are from Bachelor Degree (47%), followed by SPM (19%) and Diploma (16%).



Skill Area

The figure below reveals that Technical related skills of telecommunication industry were the most preferred skills (19%) by the HRDF registered employers. Among the technical skills under this industry are 5G, Radio Access Network architecture (RAN), Optimization Telecommunication. This industry also focusing on the skills of Engineering (15%) and Big Data Analytic (15%). Apart from that, Digitalisation (12%) and Network Services (12%) were categorised as the top critical areas of telecommunication industry.

Table below outlines the top five (5) critical areas of skills / training needed by the Telecommunication Industry for both hard and soft skills.

Definition Hard Skill: Practical and specific teachable abilities or skills (refers to an understanding of, and proficiency in, a specific kind of activity, particularly involving methods, processes, procedures, or techniques) that can be defined and measured like technical skill, functional skills etc.

Definition Soft Skill: Behavioural skill and personal attributes (like body language, eye contact, use of language, optimism, time management, organisational skills, confidence and leadership etc.) that enhance employee's interaction with others in the workplace.

a) Hard Skill

Skilled Workers

1. Radio Access Network architecture (RAN)
2. Project Management
3. Cisco Certified Network Associate
4. Network Engineering
5. Firewall and Proxy Management

Semi-skilled workers

1. Machine Learning & Artificial Intelligence
2. Security Compliance
3. IP Core
4. Incident Management
5. e-Commerce

Low skilled Workers

1. Service Delivery
2. Routing and Switching
3. Consultative Selling
4. Troubleshooting
5. Installation of network peripheral

b) Soft Skill

Skilled Workers

1. Leadership Management skill
2. Problem Solving and Decision Making
3. Negotiation Skills
4. Critical Thinking Skill
5. Influencing skills

Semi-skilled workers

1. Communication Skill
2. Time Management
3. Presentation Skills
4. Language skills
5. Teamwork skill

Low skilled Workers

1. Administrative
2. Time Management
3. Communication Skill
4. Motivation
5. Teamwork

QUICK TAKEAWAYS AND HIGHLIGHTS

Top five (5) skills areas by telecommunication industry were as below.



Technical related Skills (19%)



Engineering (15%)



Big Data Analytics (15%)



Digitalisation (12%)



Network Services (12%)

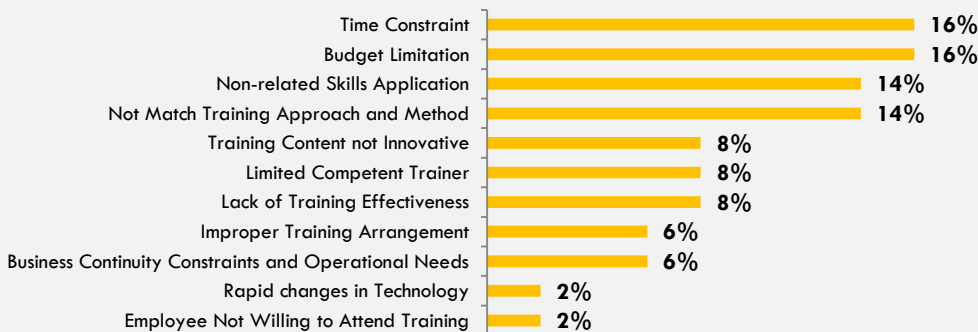
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Challenges in Training

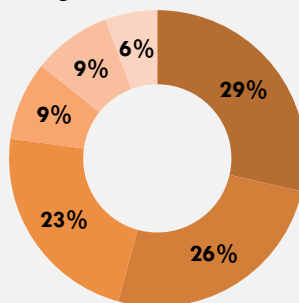
Feedback made by the employers on the challenges in trainings have been classified into eleven (11) themes, as described below. Majority of the employers (16%) highlighted that “Time Constraint” and “Budget Limitation” was one of the major challenges that they faced followed by “Not Suitable Training Approach and Method” and “Skills Application” (14%).



The employers surveyed also recognised the importance of upskilling and reskilling their staff. Majority of the employers (29%) indicated that the negative effects will be “Low Productivity” to the organisation if staffs are not attending training, followed by “Low Number of Skilled Workers” in the firm.

Negative effects without training

- Low Productivity
- Low Skilled Workers
- Low Number of Relevant Trainings Provided
- Low Motivation
- Inefficiency of Training Leading to Waste of Cost and Time
- Lack of Time Management



Utilisation of HRDF Levy

When asked about participation in training using HRDF in future, their willingness to participate in training due to reasons mentioned below:

Willing



- ✓ Ensure consistent training and development
- ✓ Further upskill employee's skill set
- ✓ Training to increase the level of productivity

Less Willing



- ✓ Budget constraint
- ✓ Poor TNA planning of training for employees

QUICK TAKEAWAYS AND HIGHLIGHTS

Time constraints and budget limitation are the main challenges in training.

Major impact due to no trainings conducted may caused low productivity (29%).

Registered employers in Telecommunication industry refer to Training Needs Analysis (TNA) in planning their trainings.

Chapter 3: COMPUTER INDUSTRY

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GENERAL OUTLOOK

Contribution of ICT to Malaysia GDP recorded at 18.3 per cent in 2017 comprised of ICT industry 13.2 per cent and e-commerce for the non ICT industries 5.1 per cent. Similar to telecommunication industry, computer industry is expected to grow given that it is also the backbone of IR4.0.

Source: Department of Statistics Malaysia, November 2018

IMPORTANCE OF THE INDUSTRY

The Malaysian government has been very supportive in the development of Malaysia's ICT sector. In the 1990s, Malaysia launched the MSC Malaysia initiative in which it was envisioned that the ICT sector would play a pivotal role in transforming the country into a developed economy by 2020. As a result, Malaysia has enacted policies that have led to the rise of a mature telecommunications infrastructure with high broadband penetration relative to that in most of its ASEAN counterparts. In addition, e-commerce has been growing in Malaysia with supportive policy environment and infrastructure. This, in turn, is providing significant business opportunities for employers especially in the postal and courier services subsector.

TRAINING OVERVIEW IN HRDF

Computer Industry is defined as : Software development or improvement, the maintenance of software or database, systems integration or networking, contract staffing, facilities management, computer installation or maintenance service, or the provision of advisory service or consultancy. Source: Pembangunan Sumber Manusia Berhad, Act 2001.

DEMOGRAPHIC INFO: COMPUTER COMPANIES REGISTERED WITH HRDF



1,372
Employers

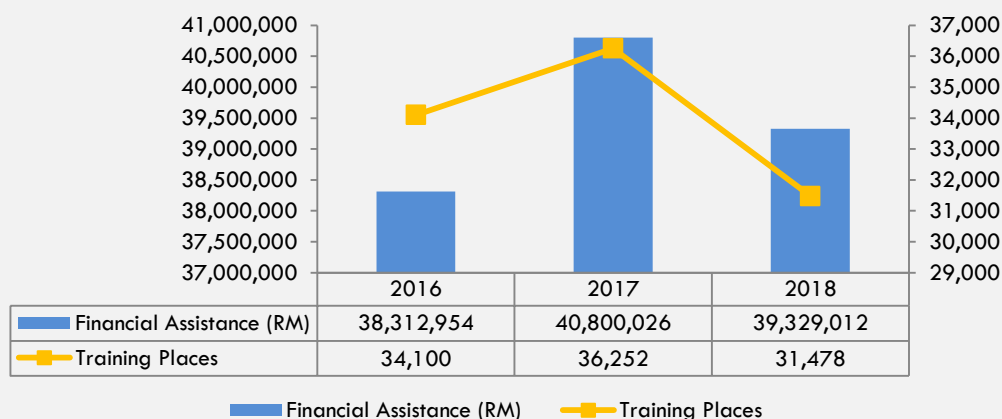


51,803
Employees



76.41%
levy utilisation

Computer Industry is one of the subsector covered under the PSMB, Act 2001 with a number of 1,372 employers and 51,803 employees. Out of that figure, 91% (1,246) of the employers are Small and Medium Enterprises (SME) and only 9% (126) are large employers. The statistics shows that the Computer Industry is active in attending training where in average, the levy utilisation in year 2018 is about 76.41%. The details breakdown of training places and financial assistance approved for Computer Industry starting from year 2016 to 2018 are as per chart below.



QUICK TAKEAWAYS AND HIGHLIGHTS

The Malaysian Government has actively fostered modernisation and investment in the ICT sub-sector, which has led to a modern telecommunication infrastructure and high broadband internet penetration rates.

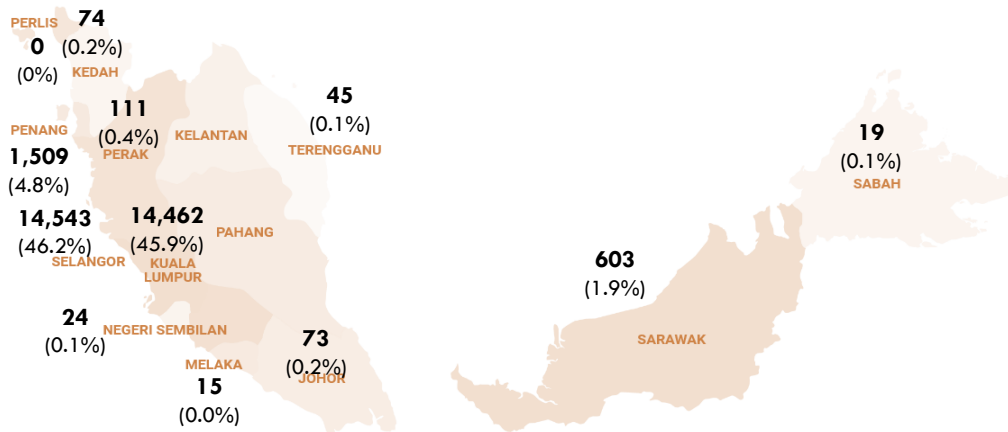
Every year, in average (for three years data) the computer industry has utilised RM39,480,664 financial assistance for attending 33,943 training places.

Chapter 3: COMPUTER INDUSTRY

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NUMBER OF TRAINING PLACES BY STATE OF EMPLOYERS FOR 2018

In year 2018, employers of Computer Industry sent their staffs for training amounting to 31,478 training places which mainly are conducted in Selangor (46.2%) and Kuala Lumpur (45.9%), followed by Penang 4.8% and Sarawak 1.9%.



SKILL AREA: COMPUTER INDUSTRY

Interestingly, Teambuilding / Motivation was one of the top skill where the employers of Computer industry sent their employees for training. Apart from that, the computer / information and technology skill also was the most preferred skill of this industry as expected, followed by Management / Strategic Management, Safety and Health and Journalist/Publishing/ Communication/ Media.

SKILL AREA BY TRAINING PLACES			SKILL AREA BY FINANCIAL ASSISTANCE		
#1	Team Building / Motivation	21%	#1	Computer / Information and Technology	38%
#2	Computer / Information and Technology	21%	#2	Team Building / Motivation	13%
#3	Management / Strategic Management	12%	#3	Management / Strategic Management	12%
#4	Safety and Health	5%	#4	Human Resources	4%
#5	Journalist / Publishing / Communication / Media	4%	#5	Journalist / Publishing / Communication / Media	4%

Some of the examples of high cost and low cost Public courses (per pax/day) are as below:

Courses Cost: 90th Percentile

1. Cyber Security Foundation: RM1,300/ day (5 days)
2. EC-Council Certified Security Analyst: RM1,300 / day (5 days)
3. Information Systems Security Practitioner: RM1,300 / day (5 days)

Courses Cost: Median

1. Front-End Web Development Bootcamp: RM334 / day (10 days)
2. Programming in C+ Essential: RM333 / day (3 days)
3. Solidworks Simulation Basic: RM333 / day (3 days)

Courses Cost: 10th Percentile

1. AWS Certified Cloud Practitioners: RM42 / day (1 day)
2. Mobile Hacking and Security: RM42 / day (4 days)
3. Critical thinking & Problem Solving: RM25 / day (4 days)

QUICK TAKEAWAYS AND HIGHLIGHTS

Employers in Central region more active (92.1%) compared to the other region.

The course fee for training programmes under skill area "Computer / Information and Technology" were expensive compared to skill area "Teambuilding" where the financial assistance approved was 25% higher eventhough both of the skill areas were among the top skills being considered by the employers.

Chapter 3: COMPUTER INDUSTRY

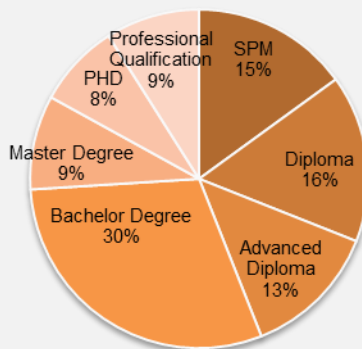
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FEEDBACK FROM SURVEY

A qualitative survey was conducted in the respective industry with the objective of identifying skills and trainings needed by critical leaders and identify challenges and impact on industries in relation to training caused by external factors (e.g. technology disruption). Employers from both large and Small and Medium Enterprises (SME) responded to the survey.

Academic Qualification

The survey shows that employees registered with HRDF are from various academic qualification starting from SPM, Diploma, Advanced Diploma, Bachelor Degree, master Degree, PHD and other professional qualification. The largest group are those with a Bachelor Degree (30%), followed by Diploma (16%) and SPM (15%).



QUICK TAKEAWAYS AND HIGHLIGHTS

The largest group of employees for Computer Industry are those with a Bachelor Degree (30%).

Skill Area

The statistics below reveals that Technical skills of computer industry were the most preferred skills (50%) by the HRDF registered employers. Among the technical skills under computer industry were Software/net/mobile development, testing skills, and cyber security. The computer industry also focuses on the skills of data mining (9%) and big data (6%). Apart from that, accounting (6%) and project management (6%) were categorised as the top critical areas of computer industry. Top five (5) skills areas by computer industry were as below.



Technical Skills
(50%)



Analyst and Data mining
(9%)



Big Data Analytics
(6%)



Accounting and Taxation
(6%)



Project Management
(6%)

Table below outlines the top five (5) critical areas of skills / training needed by the Computer Industry for both hard and soft skills. It depicts that this subsector requires the employees to obtain occupational or industrial relevant specialised skills in hard skill.

a) Hard Skill

Skilled Workers

- #1 Development of Software/Application
- #2 Advanced Computer Troubleshooting
- #3 Oracle Database
- #4 Programming
- #5 Project Management

Semi-skilled workers

- #1 Sales and Marketing
- #2 Report Writing
- #3 Oracle Development
- #4 English Proficiency
- #5 JavaScript

Low skilled

- #1 Administrative
- #2 English Proficiency
- #3 Time Management
- #4 Communication
- #5 Microsoft

b) Soft Skill

Skilled Workers

- #1 Presentation skill
- #2 Management and Interpersonal
- #3 Public Relation & Communication
- #4 Problem Solving
- #5 Leadership

Semi-skilled workers

- #1 Communication
- #2 Time Management
- #3 Interpersonal skill
- #4 Leadership
- #5 Presentation skill

Low skilled

- #1 Communication
- #2 Time Management
- #3 Interpersonal skill
- #4 Administrative
- #5 Teamwork

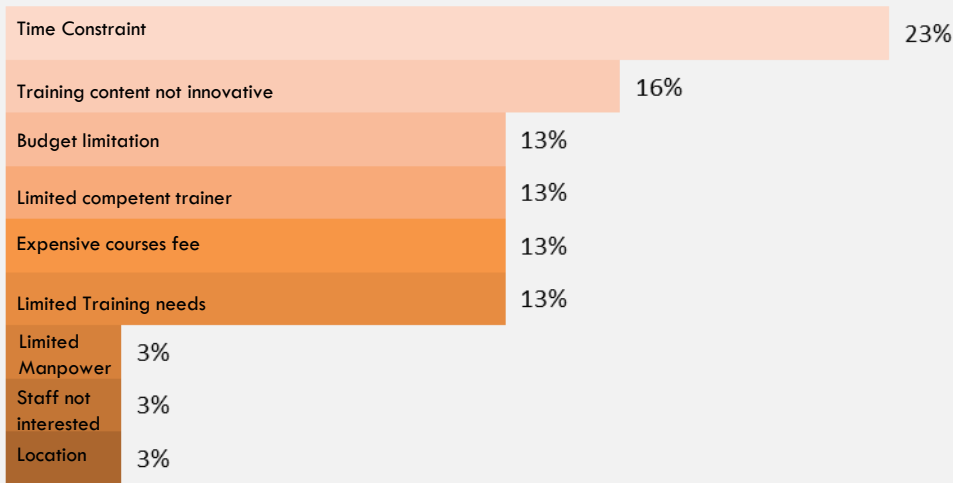
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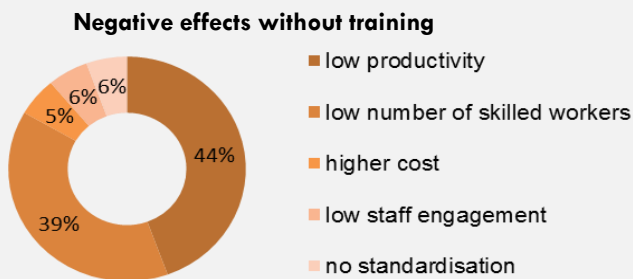


Challenges in Training

Comments made by the employers have been classified into nine (9) themes, as described below. There are 31 responses in total. Majority of the employers (23%) highlighted that “time constraint” was one of the major challenges that they faced followed by “Training content not innovative” (16%) and “budget limitation” (13%).



The employers also realised the importance of upskilling and reskilling their staff. Majority of the employers (44%) indicated that the negative effects will be “Low Productivity” if the staff does not attending training, followed by “low number of skilled workers” (39%) in the firm.



Utilisation of HRDF Levy

When asked about participating in HRDF trainings in the future, these were their responses and reasoning:

Willing



- ✓ Upgrading skills and knowledge
- ✓ Demand from Employees
- ✓ There are suitable trainings available in the market

Less Willing



- ✓ Budget constraint
- ✓ Time constraint
- ✓ Manpower constraint
- ✓ No suitable training programme

QUICK TAKEAWAYS AND HIGHLIGHTS

Time constraint (23%) was one of the major challenges faced by employers.

44% of employers realised that their productivity will be lower if they do not attending training.

QUICK TAKEAWAYS AND HIGHLIGHTS

The Manufacturing sector index increased by 4.4 per cent in December 2018 after registering a growth of 3.7 per cent in November 2018. The major sub – sectors that contributed to the growth in December 2018 were: Electrical and Electronic Products (7.2%), Transport Equipment and Other Manufacturers Products (7.0%) and Petroleum, Chemical, Rubber and Plastic Products (3.6%).

(Source: Department of Statistics Malaysia).

Chapter 4: MANUFACTURER OF ELECTRICAL MACHINERY, APPARATUS APPLIANCES AND SUPPLIES

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GENERAL OUTLOOK

Malaysia's December 2018 Manufacturing sales posted an increase of 7.5 per cent, rising to RM 72.3 billion as compared to RM 67.3 billion reported in December 2017. The biggest contribution in manufacturing sector came from Electrical and Electronics Product (12.0%), Transport Equipment & Other Manufactures Products (9.1%) and Petroleum, Chemical, Rubber and Plastic Products (5.0%).

Manufacturer of electrical and electronics (E&E) is a key driver of Malaysia's industrial development and contributes significantly to GDP growth, export earnings, investment and employment. Malaysia is a key player in the fast expanding E&E market, its major export destinations include China, US, Singapore, Hong Kong and Japan. The E&E industry will gear the nation towards a high-income economy by focusing on high-value and high-growth manufacturing activities.

IMPORTANCE OF THE INDUSTRY

The machinery, appliances and parts segment of the manufacturing sector is a strong export leader. The Machinery and Equipment (M&E) industry has also been identified as one of the catalytic sub-sectors under the 11th Malaysia Plan due to its cross cutting linkages with all economic segments such as the primary, manufacturing and services sectors. The growth will focus on the manufacturing of high value added and high technology M&E.

DEMOGRAPHIC INFO: MANUFACTURER OF ELECTRICAL MACHINERY, APPARATUS APPLIANCES AND SUPPLIES COMPANIES REGISTERED WITH HRDF



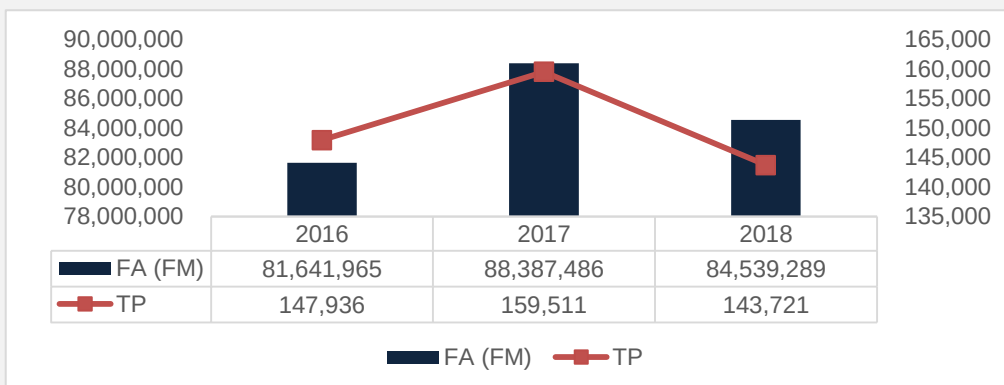
Total number of employers and employees under Manufacturer of Electrical Machinery, Apparatus Appliances and Supplies are 1,140 and 294,817 respectively. Small and Medium Enterprises (SME) covered 60% (680) of total employers with 20,146 employees. The statistics also shows that the Manufacturer of Electrical Machinery, Apparatus Appliances and Supplies is active in attending training where in average, with 92.31% the levy utilisation in year 2018. Among the three subsectors in comparison, this is the most active subsector in training judging from levy utilisation.

QUICK TAKEAWAYS AND HIGHLIGHTS

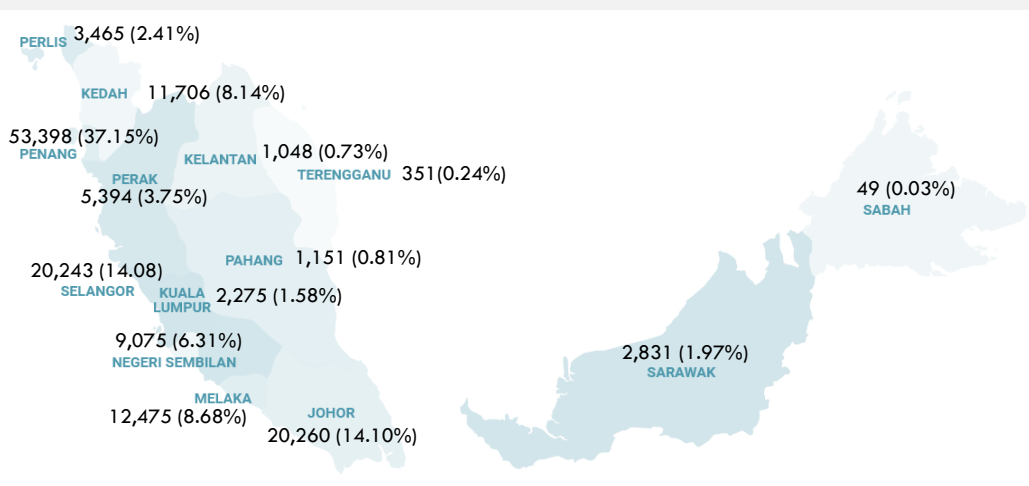
Chapter 4: MANUFACTURER OF ELECTRICAL MACHINERY, APPARATUS APPLIANCES AND SUPPLIES

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The graph shows a detailed breakdown of training places (TP) and financial assistance (FA) approved for this industry starting from year 2016 to 2018.



NUMBER OF TRAINING PLACES BY STATE OF EMPLOYERS



Quality and productivity is the skill area that is prioritised by employers.

Engineering had the most expensive financial assistance approved with 14.24% out of the total financial assistance approved for this industry in 2018.

In 2018, there were 143,721 training places for Manufacturer Of Electrical Machinery, Apparatus Appliances And Supplies. Training is mainly conducted in Penang (31.15%) , followed by Johor (14.10%) and Selangor (14.08%). Penang, Johor and Selangor are states that have the largest industrial and manufacturing area among others.

SKILL AREA: MANUFACTURER OF ELECTRICAL MACHINERY, APPARATUS APPLIANCES AND SUPPLIES

SKILL AREA BY TRAINING PLACES

1	Quality And Productivity	17.44%
2	Safety And Health	15.41%
3	Management or Strategic Management	13.24%
4	Team Building or Motivation	11.94%
5	Engineering	7.61%

SKILL AREA BY FINANCIAL ASSISTANCE

1	Engineering	14.24%
2	Management or Strategic Management	13.96%
3	Quality And Productivity	12.90%
4	Safety And Health	10.59%
5	Team Building or Motivation	8.65%

Chapter 4: MANUFACTURER OF ELECTRICAL MACHINERY, APPARATUS APPLIANCES AND SUPPLIES

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Some of the examples of high cost and low cost Public courses (per pax/day) are as below:

Courses Cost: 90th Percentile

1. Ultrasonic Welding Technology: RM1,300/ day (1 day)
2. AWS-TE Technical Essentials on AWS (PN): RM1,300 / day (1 day)
3. Flip Chip Package Technology And Assembly Processes: RM1,300/ day (1 day)

Courses Cost: Median

1. Dialux Evo User Training: RM663/ day (3 days)
2. Effective Production Planning & Control: RM663/ day (2 days)
3. Mastering Presentation Techniques Using Excel Charts And Powerpoint: RM663 / day (2 days)

Courses Cost: 10th Percentile

1. Contractor Safety Passport Systems - High Risk Work (CSPSHR): RM40/day (1 day)
2. Safe Work Practices With Hazardous Energy (LOTO): RM32.50/ day (2 days)
3. Digital HR Transformation: RM42/ day (2 days)

QUICK TAKEAWAYS AND HIGHLIGHTS

Skill Area

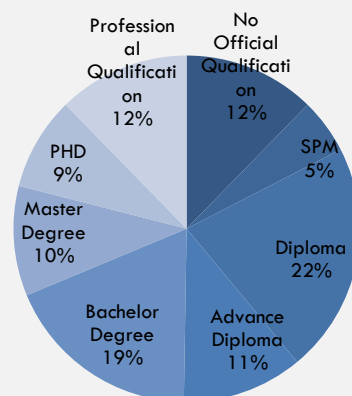
Engineering skills were the most preferred skills by the HRDF registered employers. Engineering skills in this industry are mechatronics, semiconductor, software, quality assurance and electrical design. In addition, it also shows that computer or information technology is in demand. Apart from that, project management is also needed in this industry. Top five (5) skills areas were as below.

FEEDBACK FROM SURVEY

A qualitative survey has been conducted in the respective industry with the objective of identifying skills and trainings needed by critical leaders and identify challenges and impact on industries in relation to training caused by external factors (e.g. technology disruption). Twenty (20) employers from both large and Small and Medium Enterprises (SME) had responded to the survey.

Academic Qualification

The survey shows that employees registered with HRDF are from various academic qualification starting from SPM, Diploma, Advanced Diploma, Bachelor Degree, master Degree, PHD and other professional qualification. The highest groups are from Diploma (22%), followed by Bachelor Degree (19%), and Professional Qualification and No Official Qualification (12%).



Engineering Skills
30%



Electrical Skills
13%



Computer or Information and Technology
8%



Management or Strategic Management
4%



Manufacturing and Production
4%

Chapter 4: MANUFACTURER OF ELECTRICAL MACHINERY, APPARATUS APPLIANCES AND SUPPLIES

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QUICK TAKEAWAYS AND HIGHLIGHTS

Table above outlines the top five (5) critical areas of skills / training needed by the Manufacturer of Electrical Machinery, Apparatus Appliances and Supplies for both hard and soft skills. Overall, workers in all job categories need engineering and technical skills based on their respective output especially in electrical, programming, software and IT. Safety and security were among skills needed in this industry.

In terms of soft skills, across all job categories, time management and communication were among the skills needed by Manufacturer of Electrical Machinery, Apparatus Appliances and Supplies.

Hard Skill

Skilled Workers

1. Engineering (in related field)
2. Information Technology
3. Programming Skills
4. Software Development
5. Electrical

Semi-skilled workers

1. Operation
2. Safety and Health
3. Security
4. Technical
5. Electrical

Low skilled workers

1. Storekeeper
2. Packaging
3. Safety and Health
4. English Language
5. 5S

Soft Skill

Skilled Workers

1. Leadership skill
2. Time Management
3. Organisation Skills
4. Management
5. Communication

Semi-skilled workers

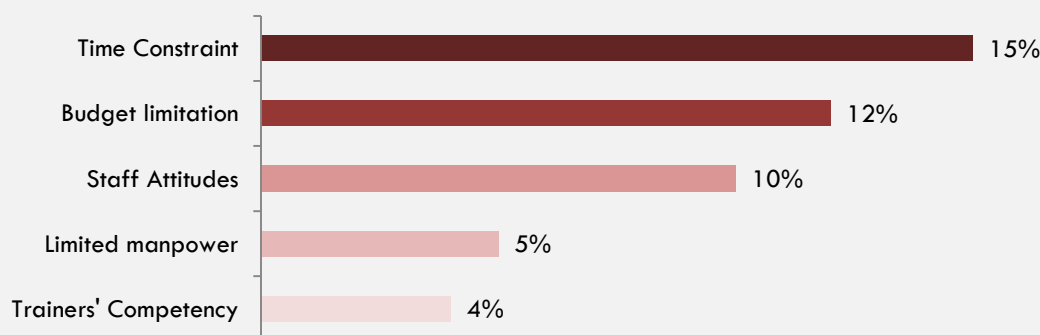
1. Communication Skill
2. Administrative Skill
3. Problem solving
4. Teamwork
5. Time management

Low skilled

1. Communication skill
2. Teamwork
3. Time Management
4. Microsoft Suite
5. 5S

Challenges in Training

Graph below indicates the top 5 challenges in training according to employers. 15% highlighted that "time constraint" was the major challenge that they faced followed by "budget limitation" and "staff attitudes" with 12% and 10% respectively.



When asked about participation in HRDF training in future, all of the employers surveyed agreed to participate. Factors that contribute to the activeness of levy utilisation are as per below:

- ✓ Training that will upgrade skill and knowledge
- ✓ Training that more suitable for both in-service worker and internship student
- ✓ Up-skilling and reskilling training
- ✓ Training that will improve in-service workers' competency
- ✓ Training that meets organisational and technological change

Summary: COMPARISON

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OVERALL ACTIVITIES IN TRAINING MOVING FORWARD WITH HRDF

Telecommunication, Computer and Manufacturer of Electrical Machinery, Apparatus Appliances and Supplies Industry mostly consist of SME employers, however the levy was mostly utilised by industry key players that are part of the large employers category. In terms of levy utilisation, all three subsectors have been active in training. The Manufacturer of Electrical Machinery, Apparatus Appliances and Supplies is the most active subsector with 92% levy utilisation. This indicates that employers within these subsectors are clear of what trainings they need, and HRDF should play a more active role moderating, in order to understand their needs, revise training scheme mechanisms, and propose strategic initiatives that will enhance their human capital development. Moving forward, HRDF will engage with industries more closely through a dedicated Customer Engagement Team and HRDF will continuously improve through constructive feedback from its registered employers. Secondly, the Sectorial Training Committee (STC) will be re-established and structured to understand training needs better. This will enable the committee to formulate new strategies and revise existing schemes to meet industry needs.



Customer Engagement

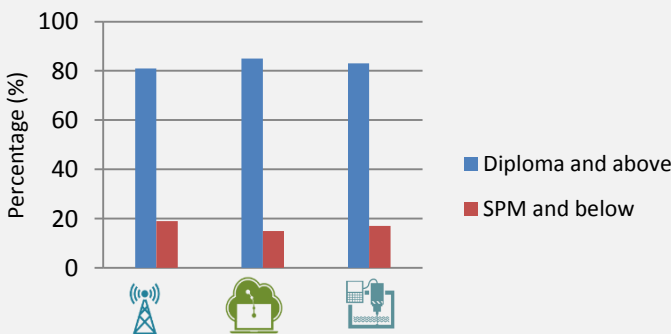


Sectorial Training Committee



Revise Scheme Mechanism & Strategic Initiatives

ACADEMIC QUALIFICATIONS BY SUBSECTORS



Anecdotal evidence from the survey has suggested all three subsectors prefer to hire skilled workers over semi skilled or low skilled workers. This need for skilled workers will grow further in these subsectors with the emergence of automation and other pillars found in IR4.0. As of 2018, Malaysia's percentage of skilled workers remained at 28% (Department of Statistics Malaysia, 2019) and we are in dire need to increase the number of skilled workers. For HRDF, it is imperative to implement schemes that will support the growth of skilled workers such as Recognition of Prior Experiential Learning (RPEL), SLDN-Apprenticeship scheme and among others that will increase the human capital competitiveness for the nation.

QUICK TAKEAWAYS AND HIGHLIGHTS

All three subsectors have been active in training, with more than 75% levy utilisation.

Moving forward, HRDF will engage with industries more closely with a dedicated Customer Engagement Team, understand training needs better via STC, and thus formulate new strategies and revise existing schemes to meet the industry needs.

All three subsectors prefer to hire skilled workers rather than semi skilled or low skilled workers. It is imperative to implement schemes that will support the growth of skilled workers.

Summary: COMPARISON

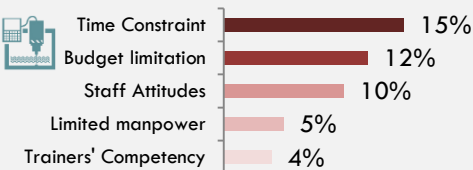
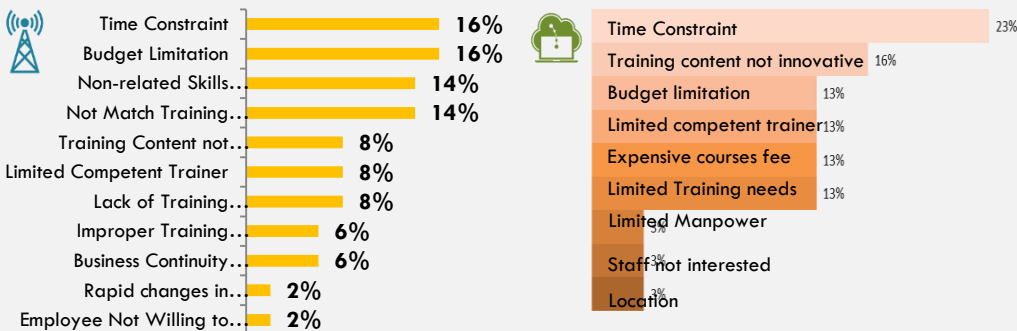
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LEARNING AND DEVELOPMENT PERSPECTIVES

By looking into the training landscape, these industries are having similarities in the hard skills areas focusing on **Technical related skills** and **Engineering**. In addition, these three industries are also consistently up-skilling and re-skilling their employees in **Project Management** courses. For soft skills, the industries mostly require **Leadership and Communication skills** in order to enhance the employees' personal effectiveness area.

CHALLENGES



In terms of challenges in trainings, time constraint and availability of employees to undergo trainings is the main concern. This issue may need to be addressed by the respective industries and employers in planning their time and opportunities to upgrade their knowledge and skills through training sessions. Further, training budget limitation is also a challenge for industries and this can be addressed by HRDF through the financial assistance provided to ensure continuous learning will take place.

TOWARDS INDUSTRY 4.0

The telecommunications industry has been the pioneer of smart technologies and high-speed connectivity at its core, making digital innovation possible. Besides, one of the catalyst for Industrial Revolution 4.0 (IR 4.0) is E&E. Further to support the IR4.0, digital Infrastructure and Eco-System is required. On the same note, Computer Industry and Electrical Machinery are important and critical industries for the development of Malaysia's economic. These three industries are also the key contributors towards the transformation of IR 4.0. With the emergence of IR 4.0 and rapid changes in the industries, we need to constantly work with the latest information and development and react quickly to market changes with industry insights.

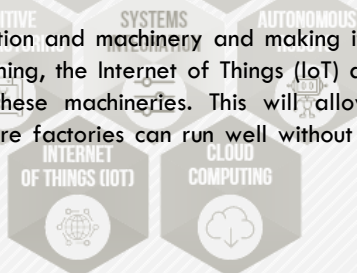
IR 4.0 is defined as taking the automation and machinery and making it better through smart systems such as data and machine learning, the Internet of Things (IoT) and AI. IR 4.0 with the introduction of connectivity between these machineries. This will allow for an even more advanced automation, to the point where factories can run well without any human – a smart factory, essentially.

QUICK TAKEAWAYS AND HIGHLIGHTS

Five (5) themes emerge that drive the development of an end-to-end IR 4.0 ecosystem in Malaysia:

- **Upskilling and reskilling existing and future labour pools**
- **Inclusive involvement of SMEs** is critical to power a holistic step up in labour productivity across the economy
- **Significant evolution in innovation** capabilities and collaboration platforms is essential to foster the development of and access to cost-effective technologies that address specific sector needs
- **Focused funding support** is needed to kickstart the adoption and complement private sector investments
- **Good digital infrastructure** is required to enable reliable and secure Industry 4.0 operations

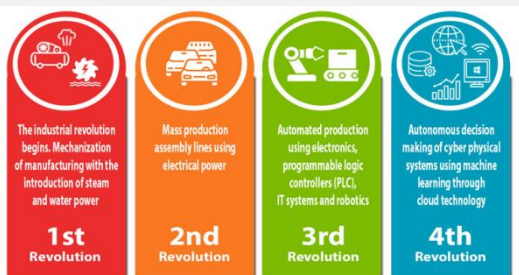
- National Industry 4.0 Policy Framework,
Ministry of International Trade and Industry



Summary: TOWARDS IR4.0

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INDUSTRIAL REVOLUTION



The IR 4.0 is now changing how we live, work, and communicate. The IR 4.0 is also likely to change the things we value and the way we value them in the future. Presently, we can already see changing business models and employment trends in terms of the skills areas as reported for Telecommunication, Computer and Manufacturer of Electrical Machinery, Apparatus Appliances and Supplies Industry.

Automation and artificial intelligence are change agents in IR 4.0 that will make certain groups of employees redundant, replacing them with new workers equipped with the needed skills or with machines that do the job cheaper. In relation to this, and moving to the automation and artificial intelligence, here are the skills required to be able to support the revolution.



Technology that will supplement smart factory towards networked factory, in which data from supply chains, design teams, production lines and quality control are linked to form a highly integrated and intelligent engines.



Big data techniques are being applied in manufacturing industries to improve customer experience and product quality, realise energy efficiencies, and conduct predictive maintenance.



Simulate manufacturing processes using different production settings to find the optimal way to manufacture a product.



Leverage cloud based product design, simulation, artificial intelligence and big data solutions to improve production processes and build products better suited for customers.



Machinery and robots can do more on its own and technology that allows systems to think, act and react autonomously to help contribute to a company's competitiveness, productivity and profitability.



Advancing with the use of new materials opening completely new possibilities.



Application can be found in the delivery of information and training or used to deliver part replacement instructions to maintenance staff in the field.



Technology embodies an unprecedented proliferation of sensors and connectedness among the sensors possible to envisage entirely autonomous systems that revolutionise manufacturing.



New materials and nano-structures are being developed that allow for beneficial material properties and allow for massive customisations and development of products that were not possible until now.



Achieving end-to-end digital integration across the entire industry value chains.



Embed security functionality into the IoT devices with sophisticated cybersecurity.

QUICK TAKEAWAYS AND HIGHLIGHTS

It is estimated 65% of kids enrolling in primary education today will end up working in jobs that haven't been created yet.

- World Economic Forum

<<< Skillsets to support IR 4.0

It should be noted that this report has limitations as it does not cover all the employers within the selected industries. In the meantime, HRDF aspires to have continuous improvement in our industrial insights. Therefore, if you are an employer, we welcome your input by participating in our survey through the URL: <https://bit.ly/2GL0S9w>. Your input will be incorporated into our future publications of HRDF industrial insights. Thank you very much.

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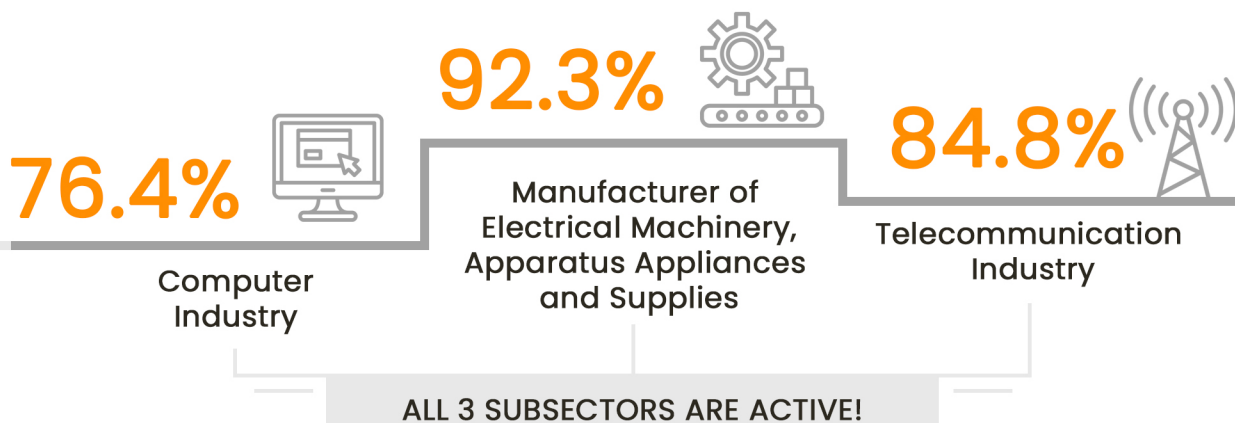


Human Resources Development Fund (HRDF)

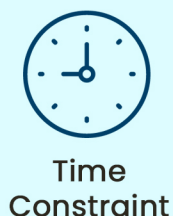
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Issue: 1/2019

HRD LEVY UTILISATION IN 2018



CHALLENGES IN TRAINING



Time
Constraint



Budget
Limitation



Limitation in
trainers and
training content



Staff's willingness
and attitude

CRITICAL SKILLSETS



Radio Access
Network
architecture
(RAN)



Oracle
Database
Management



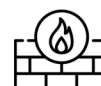
Relevant Engineering
related skills (design
and manufacturing)



Negotiation
Skills



Cisco Certified
Network Associate



Firewall and Proxy
Management



Critical
Thinking Skill



Development of
Software/Application

[Click Here for FULL REPORT](#)

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