MDEC®

#mydigitalmaker

Be a Dreamer. Be a Maker.

CHAMPION SCHOOL

PLAYBOOK

CONTENTS

INTRODUCTION TO THE #mydigitalmaker MOVEMENT

#mydigitalmaker Movement was launched in August 2016 and is a joint public-private-academia initiative **to transform Malaysian youth from digital users to producers in the digital economy**. This includes skills such as coding, app development, 3D printing, robotics, embedded systems and data analytics; all of which will ultimately help to strengthen problem solving and creativity amongst our current and future generation. As of August 2019, more than 1,200,000 students all over Malaysia have been impacted through various programmes under the initiative as below:

01 Integration of Computer Science and Computational Thinking Skills into the National Curriculum

02 Continuous Professional Development for Educators to ensure educator readiness

03 Digital competency assessment through Digital Competency Score (DCS)

04 Digital accreditation (badges) via #mydigitalmaker Hero platform

05 Digital Maker Clubs & Digital Maker Champion students

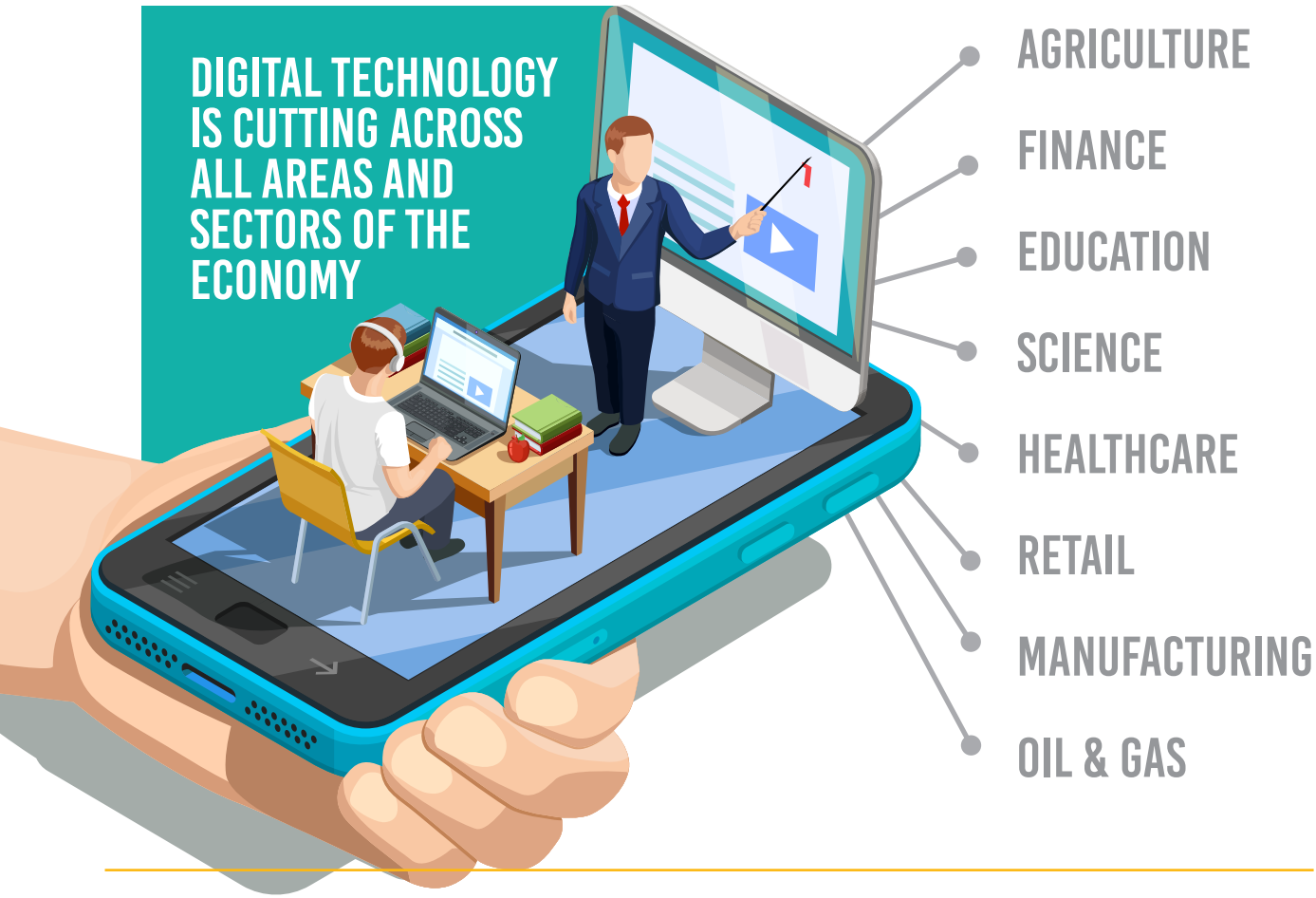
06 Cultivating digital innovation culture in schools through #mydigitalmaker Champion Schools

07 Nurturing of talented students ni digital technology through Digital Ninja program

08 Expanding digital making activities nationwide via Digital Maker Hub (DMH)

WHY #mydigitalmaker MOVEMENT IS IMPORTANT?

The **4th Industrial Revolution** focuses on the **21st Century skills**, **Computational Thinking** and **digital technology skills** such as **programming, App development, creative content,** and **robotics** are crucial to **strengthen problem-solving skills** and **creativity** amongst our **future generation** and most importantly, to prepare students for **future jobs** in the digital economy, which is the **economy of the future**. Also, digital skills are important because all industries in the future is heavily dependent on technology to improve productivity and ensure a better sustainability.



INTRODUCTION TO THE #mydigitalmaker CHAMPION SCHOOLS (#MYDMCS)

#mydigitalmaker Champion Schools are schools that are highly motivated and fully prepared to immerse #mydigitalmaker Movement initiatives to **drive digital innovation culture in school and in the local community**. Each school will be the hub (the main center) for conducting digital making activities with surrounding schools and the local community.

#mydigitalmaker Champion Schools embrace digital making and innovation as their core value by performing the below :

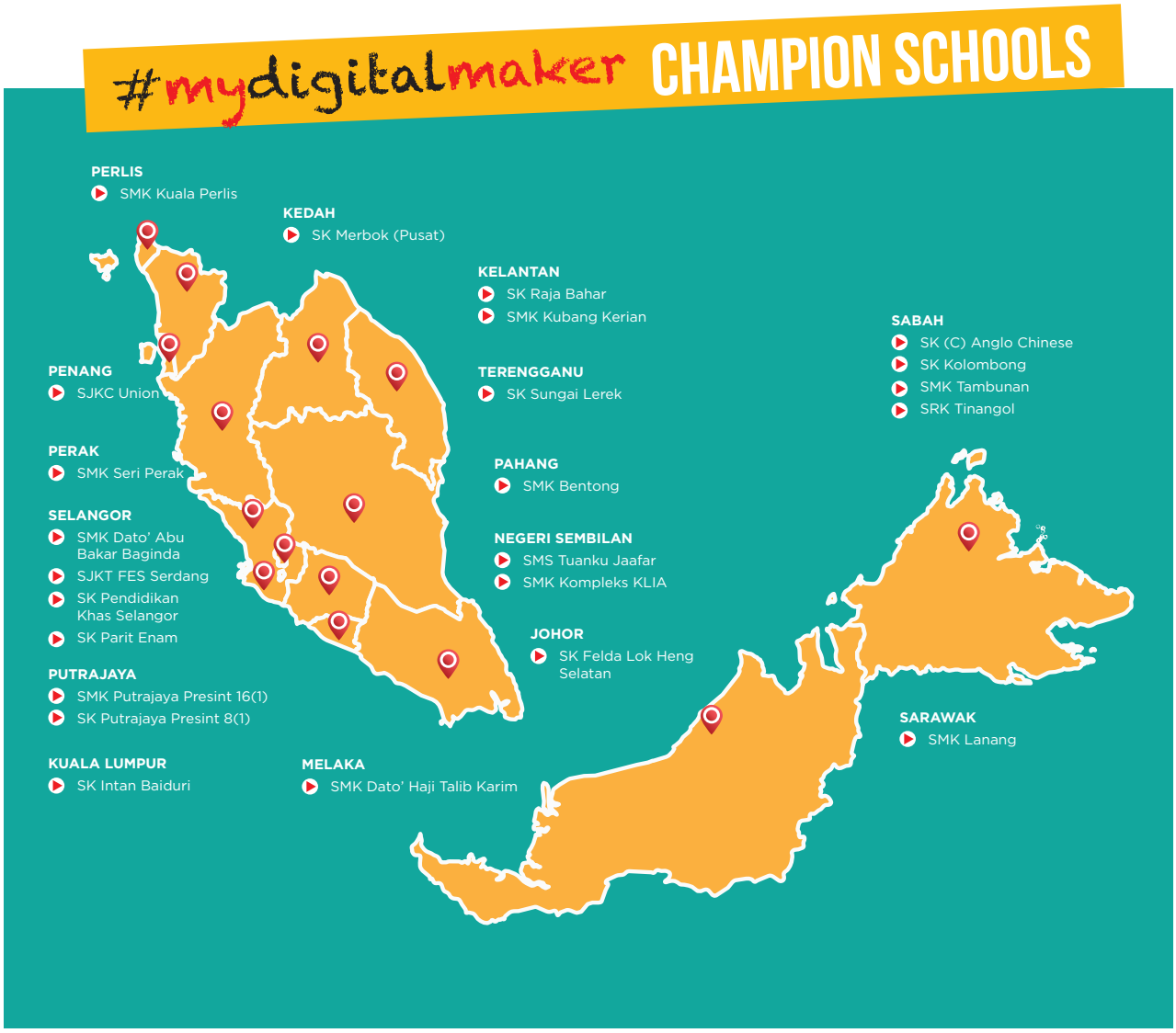
Establishing an active digital making space

Desire to impact society in digital-making through community engagement

Eager to participate in digital making competitions

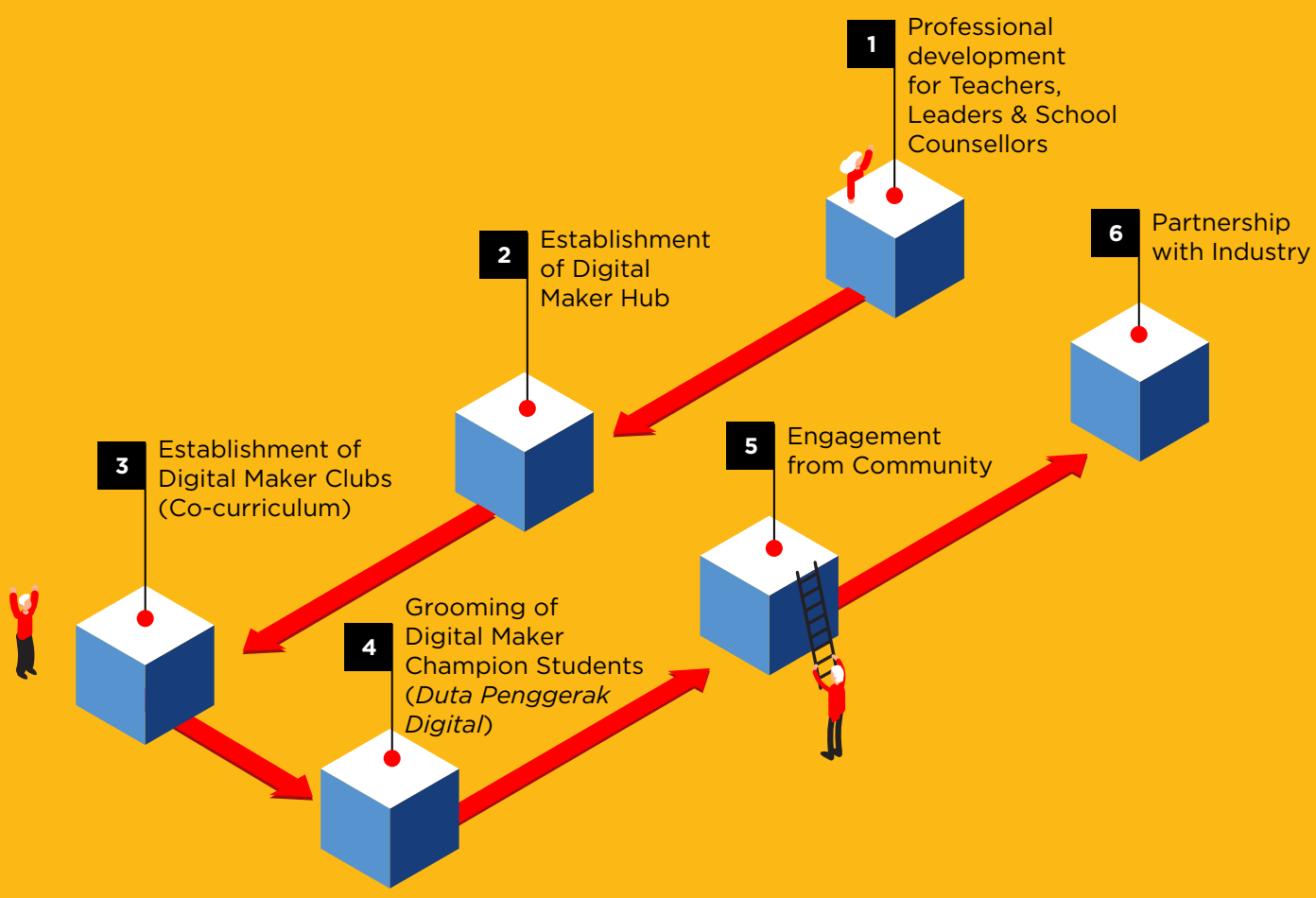
Constantly in search of industry partnership and support

The schools have Digital Maker Hubs, Digital Maker Clubs, selected students as Duta Penggerak Digital, Professional Development for Educators , participation in digital making competitions and engagement with schools nearby, community and industry.



*Updated January 2020

#mydigitalmaker CHAMPION SCHOOLS FRAMEWORK



Before looking at the framework in the previous page in more details, let's do a quick check on how ready your school is. Please use the checklist below as a guide.

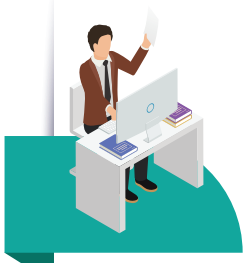
No.	Questions	Status	
1	Is your school leader supportive to drive digital innovation culture for the school?	Yes	No
2	Does your school have a team of teachers (5 to 10 teachers) who are ready and passionate about driving digital innovation for students?	Yes	No
3	Are you (the teachers in-charge) willing to learn new areas of technology?	Yes	No
4	Does your school have an empty classroom to be transformed into a Digital Maker Hub?	Yes	No
5	Is your school willing to help spread digital knowledge to surrounding schools and community?	Yes	No
6	Does your school want to establish a partnership with the industry?	Yes	No
7	Do you want to create a competent group of student innovators by encouraging them to participate in various tech-related competitions?	Yes	No
8	Does your school have a minimum of 20 working computers (PC or laptop)?	Yes	No
9	Is your school's (Smart School Qualification Standards (SSQS) rating 4 or 5 stars?	Yes	No

If there are more 'Yes' than 'No', your school is ready!

THE SCHOOL

HOW TO PREPARE YOUR SCHOOL ?

In order to prepare your school to become a #mydigitalmaker Champion School, the following must be set up or done in a school:

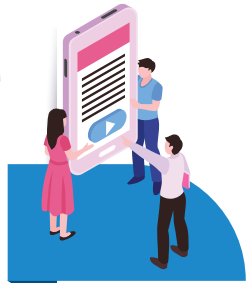


Educator Readiness

01

Digital Maker Hub (DMH)

02



Digital Maker Clubs (DMC)

03

Digital Maker Champion Students *(Duta Penggerak Digital)*

04

Digital Making Competitions

05

01 EDUCATOR READINESS

To ensure educators' readiness in producing digital innovator students, professional development for teachers, school leaders and counsellors is very important.

There are several methods for professional development such as :

Studying Online materials

Face-to-face training

Conducting training for other teachers via *Latihan Dalam Perkhidmatan (LADAP)*

ROLE OF TEACHERS

- To identify a team of passionate teachers to attend training or self-learn through online materials
- To study available online materials
  Samples
- To contact person in charge from any nearby CPD centers or Digital Maker Hubs and find out about the courses available
  Master Trainer list
- To allocate funding for professional development every year

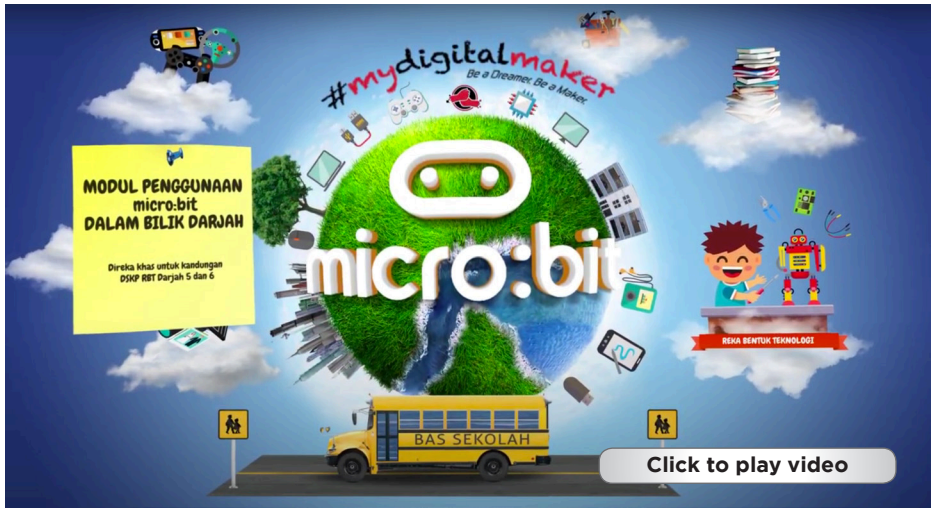
Listed below are some recommended professional development courses for Champion Schools

FOR SCHOOL TEACHERS

Professional development for teachers can be obtained via few ways. Teachers may explore any of the options below:

CONTINUOUS PROFESSIONAL DEVELOPMENT (CPD) CENTERS (FIGURE 1):

- Certificate Program:
  - Computational Thinking & Computer Science Teaching
- Continuous Upskilling:
  - Microsoft Educator Center **Website**
  - Computational Thinking & Computer Science Teaching
  - Managing a Digital Maker Hub
  - Design Thinking Process
  - Teaching micro-controller in Reka Bentuk Teknologi



Saya hadiri kursus ini untuk 3 hari dengan harapan untuk mendapat ilmu baru tentang pengaturcaraan, dan ternyata banyak benda yang saya pelajari daripada membuat game yang mudah, membuat pangkalan data dan membuat sistem. Terima kasih!"

Cikgu Nur Asmalinda Abdullah
SMK Seri Serdang
Kursus Pengaturcaraan bagi Guru-guru Asas Sains Komputer

Our Institut Pendidikan Guru Master Trainers' skills in Micro:bit Programming has improved. They are now more confident to conduct training to our RBT in-service teachers.

Alina Amir
Founder of Arus Academy
Kursus Reka Bentuk Teknologi (Sekolah Rendah Tahap 2)

"I liked the hands-on part of the content. I find the content very suitable for teaching and learning."

Mr. Wong Siew Jew
Lecturer & Master Trainer at
Institut Pendidikan Guru Kampus Rajang, Sarawak
Kursus Reka Bentuk Teknologi (Sekolah Rendah Tahap 2)

FIGURE 1: CPD CENTERS IN MALAYSIA

PREPARING AND EQUIPPING OUR EDUCATORS THROUGH CPD CENTERS

CPD centers (public universities certified by MDEC and IPG campuses nationwide) **train educators in integrating Computational Thinking (CT)** and **Computer Science (CS) in teaching and learning**. This is in line with the new revised *Kurikulum Standard Sekolah Rendah* (KSSR} and *Kurikulum Standard Sekolah Menengah* (KSSM) curriculum.

The centres also conduct awareness activities, upskilling and reskilling of teachers and students in digital making.

**Updated November 2019*

#MYDIGITALMAKER PARTNERS

- Conducts outreach program based on Digital Making course, programming and robotics for school students
- Digital Maker Hubs in each zone (Figure 2)

FIGURE 2: DIGITAL MAKER HUBS IN MALAYSIA

**Updated January 2020*

FOR SCHOOL COUNSELLORS

School counsellors may find suitable guidance on digital technology careers via Digital Counsellor Platform.

WHAT IS A DIGITALMAKER COUNSELLOR PLATFORM?

A one-stop platform to sustain engagement with career counselors via digital adoption, providing access to...

01 MENTORSHIP (Industry & Academia)

02 DISCUSSION/ NEWSFEED

03 RESOURCES

04 EVENT UPDATES

KEY OBJECTIVES DIGITALMAKER COUNSELLOR PLATFORM

01 Provide direct access to industry mentors

02 Serve as reference point to obtain latest updates, events and resources

03 Offer access for discussion on topics related to tech

04 Provide a structured tracking and reporting

05 Provide the necessary support system to school counsellors to help them play active role in career counselling

MENTORSHIP

Mentors consist of...

Key role: Inspire and influence

Made up of digital tech experts such as Data Scientist, Games Developer, Cybersecurity Specialist, Visual Effects Designer and many more

All mentors can be reached through:
- Video chat
- Private messenger
- Physical meet up

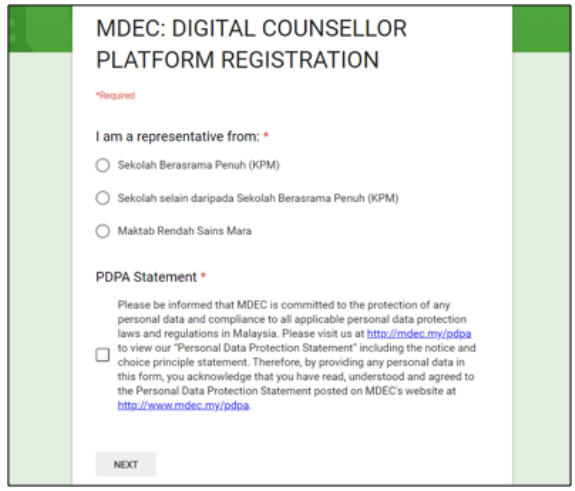
Consist of 4 public, 7 private universities & 5 polytechnics

Made up representatives from various departments:
- Bursary/Admission
- Faculty Members from tech related faculties (Dean/Lecturer)
- Career Centre

Premier Digital Tech University™ Premier Digital Tech Polytechnic™

This platform is a website maintained by MDEC for school counsellors which requires registration on this link below:

www.bit.ly/DCP4School



MDEC: DIGITAL COUNSELLOR PLATFORM REGISTRATION

*Required

I am a representative from: *

- Sekolah Berasrama Penuh (KPM)
- Sekolah selain daripada Sekolah Berasrama Penuh (KPM)
- Maktab Rendah Sains Mara

PDPA Statement *

Please be informed that MDEC is committed to the protection of any personal data and compliance to all applicable personal data protection laws and regulations in Malaysia. Please visit us at http://mdec.my/pdpa to view our "Personal Data Protection Statement" including the notice and choice principle statement. Therefore, by providing any personal data in this form, you acknowledge that you have read, understood and agreed to the Personal Data Protection Statement posted on MDEC's website at http://www.mdec.my/pdpa.

NEXT

After registering, the #mydigitalmaker Champion School secretariat will get in touch with you with an invitation email and credentials to get you onboard on the Digital Counsellor Platform as below:

www.bit.ly/DCP4School

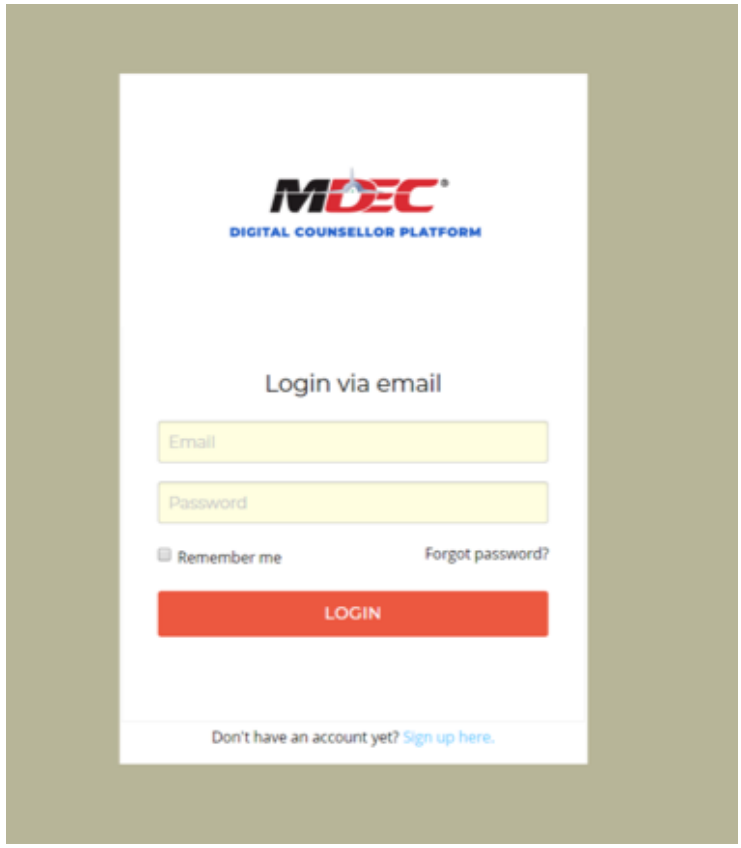
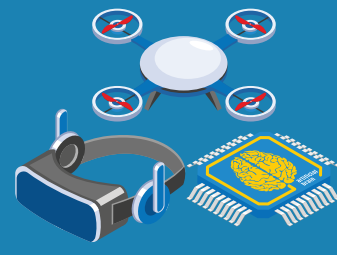


Figure 4: Interface of the registration

02 DIGITAL MAKER HUB (DMH)

Champion School will need to establish a Digital Maker Hub in schools – a dedicated space & facilities for students and nearby communities to learn or teach digital making.

WHAT IS A DIGITAL MAKER HUB ?



01 Physical Space in School

Physical space in school to bring the school and community members – kids, educators, parents, industry experts together to encourage digital making activities

02 Meaningful Digital Making Activities

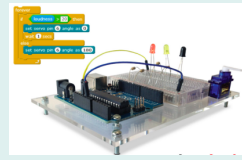
This includes awareness activities for relevant stakeholders

03 Available Tools for Learning

DMH will need to be equipped with diverse tools, materials and learning resources that are made available for its members that could help nudge them to invent and embark on digital making projects

School needs to **select a classroom** to be converted into DMH following guidelines given by MDEC (Guidelines). Below are the minimum equipment required in the Digital Maker Hub.

DMH EQUIPMENT

DMH ITEM	RECOMMENDED MINIMUM QUANTITY FOR EACH DMH	PRODUCTS (TO CHOOSE ONLY 1 TYPE)	PICTURE	SUPPLIER
Micro-controllers	15	Micro:bit		**Elvira Systems** Website Izwan Hadi Zamhuri +60 16-665 3975 *izwan@elvirasys.com*
		Raspberi Pi		**Cytron Technologies** Website Jenny Ho +60 16-3740668 *jenny@cytron.com.my*
		Arduino Starter Set	 	**Chumbaka** Website Chong Zhi Xiong +60 14-352 9983 *zhix.chong@chumbaka.asia*
		Arduino Professional Set		

DMH ITEM	RECOMMENDED MINIMUM QUANTITY FOR EACH DMH	PRODUCTS (TO CHOOSE ONLY 1 TYPE)	PICTURE	SUPPLIER
3D Printers	1	MakerBot Replicator 3D Printer		**Ricoh** **Website** Winnie Lim +6017-300 0943 *winie.lim@ricoh.com.my*
		Creative Minds 3D Printer		**Creative Minds** **Website** Izuan Alif Bin Mohd Arifin +60 13-359 8972 *izuan@creativeminds.edu.my*
mBot	5	mBot V1.1 – 2.4G Version (Bluetooth Version)		**Cytron** **Website** Jenny Ho +60 16-3740668 *jenny@cytron.com.my*
Projector	1	Epson EB-S41 Multi-media Projector		
VR Box	2	Online - Lazada		
Laptops	2	Any product that is able to support programming and 3D modelling softwares.		

HOW TO OPERATE A DIGITALMAKER HUB ?

1. To select an existing classroom to be converted as DMH
2. To select minimum of 2 teachers who are responsible in managing the school's DMH and facilities
3. To ensure DMH is fully equipped with necessary tables, chairs, internet connection and plug point to conduct digital making activities
4. To collaborate or hire program a consultant, from university or industry partner to conduct digital making activities for teachers and students

(see next page on the role of program consultant and list of consultant)

5. To ensure DMH is active in running digital making activities and projects
6. To participate in any digital making competitions
7. To conduct workshops for all students such as Hour of Code, microcontroller workshop, teacher training, host visit from industry or other schools

ROLE OF CONSULTANT

1. To become the mentor in digital making for the school and provide training for 30 selected Champion Students, and minimum of 5 teachers
   - Training on digital making equipment (microcontroller & 3D printer)
   - Program consultant is expected to go to the school to conduct these training 2 times in a month, for at least 6 months
   - Training on Design Thinking process and encourage students to be a creative problem solver
2. To conduct 2 boot camps on creating projects that solve problems using a microcontroller (each boot camp should be run for 2 to 3 days).
3. To mentor students to participate in at least 1 digital making competition.
4. To encourage the school to inculcate digital innovation culture in school through school-based competitions, workshops, community engagement, and many more.
5. A sample of the trainings and courses can be referred in link below.

   Sample

"Digital Maker Hubs in schools allow a close working relationship with industry players so the hubs can be equipped with digital facilities, enabling students to code and create using technology while being supported by a larger community of digital makers. This way, children could be transformed into "digital makers" who could creatively apply themselves in the fields of STEM instead of being passive digital users."

Dr. Maszlee Malik
Former Minister of Education,
#mydigitalmaker Fair 2019

LIST OF PROGRAM CONSULTANT

No	Name	Location	Website/Facebook
1	Telebort	Pulau Pinang	Website
2	Elvira Systems	Cyberjaya	Website
3	My Robot Time Asia	Nationwide	Website
4	My Invent Technologies	Selangor	Website
5	Project Mika	KL/Selangor	Website
6	Akademi DS	Selangor	Website
7	Chumbaka	Nationwide	Website
8	Creative Minds	Selangor	Website
9	Universiti Malaysia Sabah	Sabah	Website
10	Pusat Sains Kreativiti Terengganu (PSKT)	Terengganu	Website
11	University College of Technology Sarawak	Sarawak	Website

Digital Maker Hub merupakan satu platform yang memberikan pendedahan teknologi digital kepada guru dan murid. Ia menyediakan murid dengan kemahiran pemikiran kreatif dan inovatif dalam bidang digital. Platform ini juga dapat membentuk guru dan murid untuk berani menyahut cabaran untuk menjadi penggerak digital serta membantu mempromosikan budaya inovasi digital.

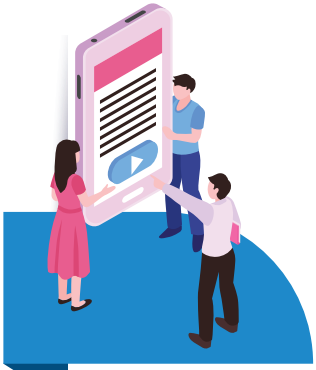
CIkgu Ngiew Kim Kee & Cikgu Tan Ley Ling
SJKC Union, Pulau Pinang

"Digital Maker Hub menjadi satu pusat penciptaan inovasi pembuatan digital dan dapat memupuk semangat murid-murid untuk mengembangkan bakat dan kemahiran dalam Computational Thinking"

Cikgu Dihana Md Dardiri
SMK Putrajaya Presint 16(1)

Dalam #mydigitalmaker Champion School, guru-guru menjadi agen pembaharuan yang memberi sentuhan dinamis untuk menjamin proses pendidikan yang berkualiti, kreatif dan berinovasi.

Cikgu Julie Mozianda
SMK Kuala Perlis



03 DIGITAL MAKER CLUB (DMC)

Digital Maker Clubs are co-curricular clubs that allow interested students to learn digital making skills during co-curricular hours.

Activities to be conducted will be based on DMC modules prepared by MDEC. Each Champion schools need to select a minimum of 30 students per club to establish DMC as follows :

DIGITAL MAKER CLUBS (DMC)	AREAS PREDOMINANTLY COVERED IN STEM
 Robotics Club	(S)- Science , (E)- Engineering, (T)- Technology
 Computing Club	(T)- Technology , (M)- Mathematics
 Photography & Videography Club	(T)- Technology

Program ini memberi peluang kepada murid sekolah luar bandar seperti di SK Felda Lok Heng Selatan membudayakan amalan inovasi daripada peringkat sekolah rendah lagi. Salah satu aktiviti yang berjaya kami buat ialah penggiliran aktiviti kelab digital kepada semua murid sekolah, di mana semua murid tahap 2 seramai 200 orang akan dapat mengikuti aktiviti kelab digital mengikut giliran yang ditetapkan.

Cikgu Huszaruddin Hussin
SK Felda Lok Heng Selatan, Johor

OBJECTIVES OF DIGITAL MAKER CLUBS

1. To strengthen digital tech related co-curricular clubs activities in schools via structured Project-based-learning. All modules are endorsed by the Ministry of Education.
2. To give exposure to more students in the school about digital making
3. To cultivate interest in STEM

Each module has guidelines for teachers to conduct activities for 12 weeks during co-curricular hours. Guidelines include lesson plans before, during and after lessons. **Guidelines**

Melalui kelab digital maker yang telah ditubuhkan di sekolah, para pelajar didedahkan dengan keperluan pasaran kerja dan prospek kerjaya masa kini. Hal ini kerana, pada masa akan datang para belia perlu mencipta kerjaya mereka tersendiri dengan kemahiran yang ada. Pada masa yang sama mereka tidak lagi menunggu tawaran bekerja daripada kerajaan mahupun swasta setelah mereka tamat pengajian nanti

Cikgu Ummi Hani Mohd Asarani
SMK Dato' Abu Bakar Baginda, Selangor

Aktiviti – aktiviti yang dijalankan di bawah Kelab Digital Maker sangat menarik perhatian semua pelajar. Modul yang disediakan oleh MDEC sangat membantu pihak sekolah untuk menjalankan aktiviti kelab. Kelab ini dapat mencungkil bakat murid yang terpendam dan mencetus pelbagai idea yang inovatif dari kalangan murid

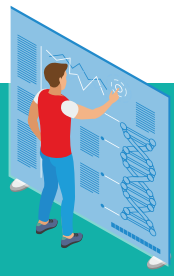
Cikgu Kamala Thevi Marimuthu
SJKT FES Serdang, Selangor

04 DIGITAL MAKER CHAMPION STUDENTS *(DUTA PENGGERAK DIGITAL)*

Our champion students are fondly called as the Duta Penggerak Digital. They are selected by the school teacher and they will become the change agent in spreading digital innovation culture in the school. These students are given the opportunity to learn digital making skills such as coding, robotics as well as design thinking skills, beyond the national curriculum, in order to become digital innovators and leaders in technology in the school. This is to further nurture their interest and talent and to provide them with the opportunity to learn hands-on digital making skills, design thinking skills, problem-solving skills, business & marketing and pitching skills.

They will also become the ambassadors in promoting digital innovation culture in school. They are also given the opportunity to participate in digital tech related competitions to further groom their talent and passion.

CRITERIA OF *DUTA PENGGERAK DIGITAL*



Excited to learn about technology

Have leadership qualities

Possess basic ICT skills

ROLE OF SCHOOLS IN ESTABLISHING DIGITAL MAKER CHAMPION STUDENTS *(DUTA PENGGERAK DIGITAL)*

01 To select interested and passionate students who will be the school's Digital Maker Champion Students *(Duta Penggerak Digital)*.

02 To source suitable trainer in digital making for these selected students. (refer to page 23)

03 To ensure the students will be committed to attend the training provided and be involved in promoting digital making culture in schools via school based competitions etc.

04 Sample of activities and responsibilities for Digital Maker Champion Students can be found here

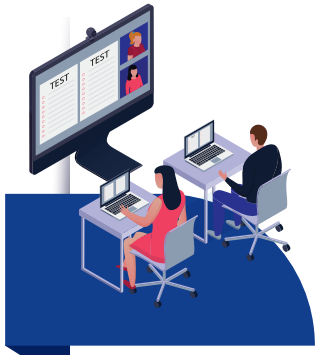
Duta Penggerak Digital

"#mydigitalmaker Champion School telah membuka laluan kepada para pelajar untuk mengasah bakat dan kemahiran dalam bidang digital teknologi. Program ini juga telah menjadikan pelajar celik teknologi bukan hanya sebagai pengguna tetapi sebagai pencipta."

Cikgu Husna Muhadzir
SMK Bentong, Pahang

"Pelajar hanya memerlukan peluang dan ruang untuk mengetengahkan idea dan bakat mereka. Mereka adalah generasi "Digital Native". Duta Penggerak Digital sekolah begitu selesa dan amat cepat menguasai ilmu digital. Kewujudan mydigitalmaker Champion School sangat bertepatan dalam penyediaan program digital dan prasarana yang diperlukan oleh pelajar.#mydigitalmaker Champion School TERBAIK!"

Cikgu Mohd Haniff Hafszal Seman
SK Putrajaya Presint 8(1), Putrajaya



05 DIGITAL MAKING COMPETITIONS

WHY JOIN A COMPETITION?

Digital making competitions provide the opportunity for students to strengthen leadership skills, learn to collaborate with others, improve social interaction skills, and learn the highs and lows of competing.

Through competitions, students are also able to be creative and a problem solver. Some competitions require them to do pitching in front of judges or public, learn marketing and business skills, encourages them to be innovative which are important skills required for future jobs.

Champion schools are encouraged to participate in at least 1 digital making competitions to provide opportunities for talented students to challenge their skills with other schools.

Below are a list of digital making competitions that schools can participate (not limited to):

01 YOUNG INNOVATORS COMPETITION

younginnovators.my **Website**

The Young Innovators Challenge is designed to help students develop technical and life skills in the areas of embedded systems, problem-solving, innovation, and entrepreneurship through workshops, competitions, and an accelerator camp.

02 BEAVER'S COMPUTATIONAL THINKING COMPETITION

beaver.my **Website**

The Beaver Computational Thinking Competition is an online competition that introduces computer science concepts and logical problem solving to students

03 4 X 4 IN SCHOOLS MALAYSIA

www.4x4inschools.com/ml/home **Website**

This challenge involve between 3-6 team members working together to design and build a radio controlled four wheel drive vehicle, to set specifications

04 KLESF CHALLENGE

www.klesf.net/klesf-challenge-2019 **Website**

This is an international competition to exhibit STEM projects and innovation developed by students

05 JUNIOR INNOVATE COMPETITION

juniorinnovate.asia/faq **Website**

The Junior Innovate Competition is created to inspire digital creator mindset and life skills amongst primary school students in preparation for jobs of the future

06 NATIONAL MICRO:BIT INNOVATION ROBOTIC CHALLENGE (MIRC)

www.facebook.com/ElviraSystems **Facebook**

National mIRC is the first innovation and robotic competition in Malaysia focusing on micro:bit.

07 RERO ROBOTICS COMPETITION

www.rero.io/programs/robotics-competition Website

This competition is to enhance interest in STEM education by introducing robotics and coding to students.

08 F1 IN SCHOOLS

www.facebook.com/f1inschoolsmalaysia Facebook

F1 in Schools is a global multi-disciplinary STEM challenge in which teams of students aged 9 to 19 deploy CAD/CAM software to collaborate, design, analyse, manufacture, test, and then race miniature compressed air-powered cars, made from F1 model block.

09 MAKE X

makex.my Website

MakeX is a robotics competition platform that promotes multidisciplinary learning within the fields of science and technology. It aims at building a world where STEAM education is highly appreciated and where young people are passionate about innovation by engaging them in exciting Robotics Competition, STEAM Carnival, etc.

10 NATIONAL ROBOTICS COMPETITION

nrc.sasbadi.com/competition.php Website

Stimulate students participating in the programme to solve problems through creative thinking, logic and out of the box solution

11 NATIONAL ICT SECURITY DISCOURSE

www.cybersafe.my/nictsed Website

Malaysia's first national cyber security school discourse initiated and organized by CyberSecurity Malaysia

12 FIRST LEGO LEAGUE

fll.sasbadi.com/competition.html Website

Sasbadi is committed to promote experiential and innovative learning through programs that engage children in hands-on learning activities.

13 PETROSAINS RBTX CHALLENGE

petrosains.com.my/rbtx-challenge/#competition **Website**

This program is aimed to provide the necessary STEM digital skill building to embrace the Industrial Revolution 4.0 i.e. coding, robotics, embedded programming.

14 YOUNG MAKER CHALLENGE @ AMERICAN CORNER

youngmakers.my **Website**

A program to heighten STEAM awareness & interest among underprivileged children

15 ROBONEO

roboneo.net **Website**

Sabah's premier community robotics event's main goal is to connect communities through technology such as robotics

16 INTERNATIONAL YOUTH ROBOTIC COMPETITION & CAMP (IYRC)

www.facebook.com/myrobot2020 **Facebook**

IYRC is global scaled robot competition for the younger generation.

17 MALAYSIAN COMPUTING CHALLENGE

ioimalaysia.org/competition/mcc **Website**

Malaysian Computing Challenge is an annual online competition designed to evaluate participants' computational thinking abilities. Knowledge of programming is recommended but not required.

ROLE OF SCHOOL TO PREPARE STUDENTS FOR COMPETITIONS

1. To select students who are interested to participate in the proposed competitions
2. To source funding for participation in competitions
3. To register students who will be joining competitions
4. To organize logistics, accommodation and parents' consent forms to participate in competition
5. To accompany students who will be participating in competitions

STORIES FROM OUR CHAMPION SCHOOLS

01 SMK Tambunan

We started off in this journey in 2018 since our school was chosen as the #mydigitalmaker Champion School in May 2018. We were so happy and excited as we were given a new facelift to one of the computer labs and provided digital making equipment. We even have a very supportive principal under the leadership of En Yusuf Rosli; whereby he gave the utmost support and motivation to all of the programs and competitions that we have joined for the year.

Thus, our journey to the new horizon begins. We joined the YIC Sabah State Level in 2018 with 8 teams of students. Our school won 1 Gold Award and 1 Bronze Award. As a Champion School, we need to choose 30 digital ambassadors among our students and those lucky students were trained by a few program consultants and third-year students from University Malaysia Sabah. To end 2018, we had 4 teams joining the Roboneo in Komplex Karamunsing Kota Kinabalu in November during the school holidays.

One of our star students, Mohd Samri Ruzaini Bin Rusili, a very passionate and innovative student, won the Gold Medal in YIC 2017 with a project entitled "self-watering plant" and went to attend the HapSeng Bootcamp National Level and YIC National Level in KLCC. Again, in 2018, he won the Gold Award with the project entitled "Traffic Control". He studied really hard for his subjects as he was sitting for his SPM in 2018. But, the proudest moment was when the SPM result was announced on the 14 March 2019, Samri was the best student in our school and district by getting 9As and 1B and he scored an A for Computer Science. We do hope that he will continue his studies in Engineering or Computer Science.

Since we began, we have conducted Arduino Workshop for SMK Desa Wawasan Tambunan, Mobile Application Development Workshop with MIT Inventor conducted for SMK St.Martin, SMK Desa Wawasan and SMK Nambayan school students, Computational Thinking Workshop & Design and Technology with Arduino for schools in Tambunan district. Currently, we are still working closely with MDEC , Hap Seng Group , Chumbaka, Kinabalu Coders, UMS and Politeknik Kota Kinabalu for competitions, digital making courses , boot camps and exhibitions. Our journey is still far, we haven't reached our destination yet. May #mydigitalmaker Champion School SMK Tambunan be a stepping stone for the students in the rural area.

By **Ann Doreen Dorall**
Coordinator of SMK Tambunan,
Champion School

02 SMK Kuala Perlis

SMK Kuala Perlis made history when it was selected as the first school in the state of Perlis to be transformed into the #mydigitalmaker Champion School.

Since being named Champion School, a Digital Maker Hub has been established and equipped with the latest technology needed for students and educators to create innovations that benefit the surrounding community.

Perlis State Education Department director, Mr. Izmi Ismail (third from left) officiated the #mydigitalmaker Champion School in SMK Kuala Perlis. One of the Duta Penggerak Digital, Halania Adila Ismadi, 13, is thrilled to be working on a "Lorry Blind Spot Detection" project with friends inside the Digital Maker Hub. These innovations provide direct warnings to heavy vehicle drivers especially trucks when small vehicles such as cars or motorcycles are on their side to avoid accidents and hope they benefit all road users.

Here are some of the achievements of SMK Kuala Perlis as Champion School:

1. Some students won Gold in the ICT, Silver and Bronze Innovations in the 2019 Young Innovators Challenge competition.
2. Champion School Coordinator, Teacher Julie Mozianda Binti Ahamat receives the ICT Teacher Icon 2019 award, and the Microsoft Innovative Educator award
3. Schools wins a Special Award (Johan) for Anugerah Pembestarian Sekolah Peringkat Kebangsaan 2019 dan Anugerah Emas dan Anugerah Khas Pembestarian Sekolah Peringkat Negeri Perlis 2019
4. The school was named as one of Microsoft Showcase School

> "Sekolah ini akan membudayakan inovasi digital dalam kalangan pelajar melalui program #mydigitalmaker yang akan memberi tumpuan kepada Kemahiran Pembelajaran Abad ke-21 (PAK 21) dan melatih pelajar dalam penghasilan teknologi digital."

Mr. Izmi Ismail
Pengarah Jabatan Pendidikan Negeri Perlis

03 Achievements of SMK Kubang Kerian

Below are a long list of amazing achievements by ONE school in ONE year! Congratulations SMK Kubang Kerian for being an active Champion School and keep making the nation proud.

Pertandingan Young Maker Challenge (YMC)
Silver Award

National ICT Security Discourse
Winner

Pertandingan RAC'19 Kategori Rero Micro
Zon Timur - Gold Award

Pertandingan RAC'19 Kategori Rero Junior: Live Coding Challenge
Zon Timur - Gold Award

Pertandingan RAC'19 Kategori Rero: Build Your Own Robot (BYOR)
Zon Timur - Gold Award

Pertandingan First Lego League Malaysia
Kebangsaan - Special Award (Against All odds)

Pertandingan Robot RBTX Petrosains
Zon Timur - Top 30

Pertandingan Minecraft #myschool19
Kebangsaan - First Prize

Pertandingan Robot RBTX Petrosains
Zon Timur - Top 30
Kebangsaan - Penyertaan

Pertandingan Minecraft #myschool19
Kebangsaan - First Prize

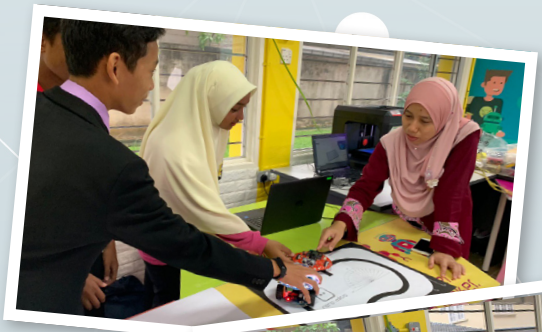
International Competition and Exhibition on Computing Innovation
Antarabangsa - Gold Medal

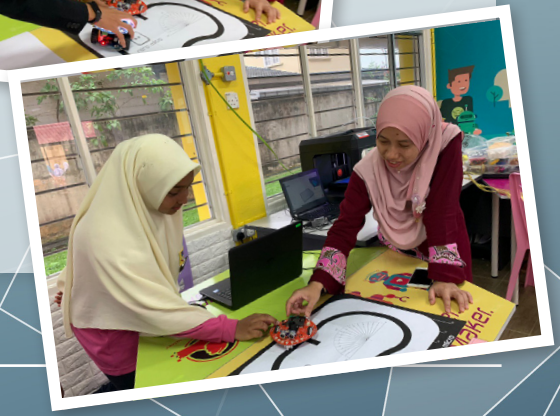
Young Innovators Challenge 2019
Negeri - Gold Medal
Pertandingan Design For Change (DFC) I CAN 2019
Antarabangsa - Tempat ke-2 Plate PioneerZ Award

Pertandingan Sistem Pengaturcaraan Terbenam (Embedded System)
Negeri - Tempat ke-2 dan Tempat Ke-5

"Selepas memasuki pelbagai pertandingan digital, saya lihat pelajar saya semakin proaktif dalam bidang digital seolah-olah mereka mahu mengubah dunia!"

Cikgu Wan Azrina
SMK Kubang Kerian, Kelantan





04 SK Pendidikan Khas Selangor

SK Pendidikan Khas Selangor is the only Special Needs school that is awarded as Champion School in 2018. Below are a list of achievements by this school:

1. Ranked 4th in the group in the National RBTX Robot Sumo 1kg Central Zone competition
2. Successfully earned the Bronze Medal State Level medal in 5 NRC (Rookie categories)
3. Selected for innovation exhibition at the #mydigitalmaker Fair 2019
4. Hosts benchmarking visits for other Special Need schools
5. Exhibits students projects at Petrosains KLCC Makerweek

"#mydigitalmaker Champion School merupakan satu TRANSFORMASI bagi Murid Berkeperluan Khas (MBK) SKPK Selangor. Penglibatan dalam dunia digital bagi MBK amat baik dan kami teruja untuk bergerak lebih aktif lagi, terutama dengan dalam bidang robotik dan inovasi. Mydigitalmaker Champion School SKPK Selangor telah menyertai beberapa siri pertandingan dan pameran, rata-rata murid kami menunjukkan minat serta gembira dengan pencapaian yang diperoleh. 'Hungry for more action' sering menjadi motto kami dan berharap dapat bersama seiring dalam kelajuan dunia digital masa kini."

Cikgu Faizal
SK Pendidikan Khas Selangor

05 SK Felda Lok Heng (Selatan), Johor

Sekolah Kebangsaan (Felda) Lok Heng Selatan is a rural school situated in a Felda estate in Kota Tinggi, Johor. The school has about 450 students and 30 teachers. Students are from low income families as the social economy in the area is mainly palm oil estate. Despite the location and background of students, the school is one of the most active Champion School, and the only Champion School in Johor.

Led by Ustaz Huszaruddin, this school has truly shown their success in being a Champion School through several achievements in digital making competitions, impacting the local community and working with local industry partners such as Pusat Internet, Tenaga Nasional Berhad, Telekom Malaysia, Ladang Mados, KEJORA, Felda Wilayah Johor and also Iskandar Regional Development Authority (IRDA) to develop more programs and opportunities for talented youth from this district.

The teachers are always more than happy to give free digital making classes and workshops for their students and also teachers from nearby schools.

06 SMS Tuanku Jaafar, Negeri Sembilan

Aiman Afiq Suradi, a student from one of #mydigitalmaker Champion Schools, SM Sains Tuanku Jaafar, Kuala Pilah won the Bronze Medal in World Skills Competition held in Kazan, Russia for 'Drone Operating' Category in 2019. The skill implies controlling, operating, and performing maintenance, and minor repairs of a drone system, as well as of the drone (or unmanned aerial vehicle) flight control equipment.

Aiman has been one of the active Duta Penggerak Digital mentored by program consultant, Akademi DS. Through this opportunity, he managed to polish his skills in drone and made the nation proud by bringing home the Bronze Medal from this prestigious global level competition.

07 SKC Anglo Chinese, Kota Kinabalu, Sabah

SKC Anglo Chinese has been an amazing example of a #mydigitalmaker Champion School. Led by a team of dedicated teachers coupled with strong support from their Headmistress, Ms Ong Kooi Huong, this school has creative ideas in cultivating digital making culture in school, amongst parents and also the community. They hosted Chumbaka's Junior Innovate 2019 State Level Competition, gave awareness on digital making for parents through a school level 'Digital Maker Fair' on report card day, and has been conducting workshops for the community such as students from IPG Kent, Sabah. Through collaboration with industry partners such as Hap Seng Group, SKC Anglo Chinese will be spreading digital making knowledge to 14 schools in Kota Kinabalu. This school also collaborates with Kinabalu Coders in building a mushroom farm with the usage of IoT. More stories on their mushroom farm can be read here.

Website

"Penubuhan Digital Maker Hub telah mewarnai suasana digital di SK (C) Anglo Chinese Kota Kinabalu, Sabah. Kemahiran digital merupakan arus pendidikan pada zaman kini dan ia juga merupakan ilmu yang boleh menentukan kecemerlangan seseorang murid.

'Dreams create Makers. Makers shape the culture. Culture determines the future.'"

Cikgu Lawrence Ling Kie Hung
SKC Anglo Chinese

SKC Anglo Chinese ended 2019 by involving 1200 students and 53 teachers and school staff in Hour of Code campaign. Congratulations for being an amazing Champion School and continue the amazing effort!

08 SK Raja Bahar, Kelantan

SK Raja Bahar is a great example of a school that is fully determined to achieve success. This school, whose #mydigitalmaker Movement is led by Cikgu Saifulnizan bin Che Ismail, has defined "success" in their own context. In 2019, success means

- spreading the awareness of protecting the environment throughout the school using technology - Design for Change, and
- further enhancing the culture of coding among its students - Hour of Code 2019.

Through its own initiative, SK Raja Bahar has participated in the Design for Change (DFC) and out of 86 participating teams in the I CAN Challenge, SK Raja Bahar placed in the top 10 and was selected to represent Malaysia in the I CAN Children's Global Summit 2019 in Rome, Italy. I CAN is a 4-day international gathering of more than 2,000 students from 60+ countries empowered with the I CAN mindset. It serves as a global platform to showcase their stories of change and the ways they have positively impacted their communities across the world.

SK Raja Bahar led a social impact project called "Save the Earth", as a part of I CAN SCHOOL CHALLENGE 2019. We addressed the problem of global warming (SDG Goal 13) by devising several activities to raise awareness and save the earth. The school planted trees with preschoolers and Year 1 pupils, reviving the School Herbs Garden by planting herbal plants and making a schedule for watering and treating these herbal plants. They have also spread the awareness on the importance of plants to all schoolchildren during school gatherings by using scratch games and videos.

Internally within the school, Cikgu Saifulnizan has successfully inculcated the coding culture by encouraging all students to participate in the Hour of Code (HOC) campaign. One interesting activity that students do is the banner designing competition. As a part of the post-UPSR program, all Standard 6 students were required to design HOC banners with their own creativity. This has improved students' interest in coding tremendously.

OTHER MAKER SPACES IN SCHOOLS INITIATIVES

While Champion School is one model to cultivate digital making culture in schools, there are many other models to encourage learning digital technology in schools driven by #mydigitalmaker partners as below:

	Tenom Innovation Center (TIC), Sabah	MakerLab for Schools, Penang	Program Titian Digital (PTD)
How it started	It was sparked via collaboration with Hap Seng Group and MDEC in 2017	Initiated by Penang Science Cluster in 2017. Industry engineers will volunteer as project advisors and mentors for students.	PTD was launched in 2009 to fulfil the ICT education in primary Tamil school
Activities conducted	Robotics & coding for Tenom district community	3D modelling and printing, microcontroller and programming.	Weekly ICT lesson including programming
Location	TIC was established in a rural school, SMJK Chung Hwa Tenom with the combined effort of 2 other schools in Tenom District; SM St Anthony & SMK Chinta Mata.	10 secondary schools and 3 primary schools in Penang	50 Tamil schools in Kedah, Penang, Perak, Selangor, Negeri Sembilan & Johor
Impact	In less than 2 years, TIC has managed to • connect to 15 primary schools • inspire >200 students and teachers • ran >20 workshops • carried out community projects • co-organized 2 Tenom Makers Fairs • took part in exhibitions and competitions	Students are more empowered, equipped with skills relevant to the 21st century and are able to discover their interest in digital making.	The program is expected to impact more than 50,000 students in Tamil schools.

THE COMMUNITY

HOW TO INVOLVE YOUR COMMUNITY?

#mydigitalmaker Champion Schools (#mydmCS) are called champions for one sole reason: the school needs **to be a leader in spreading the digital-making culture to the community** (surrounding schools and local community).

In conducting programs at the community level, a #mydmCS should always take the readiness of the target audience into consideration.

THERE ARE 3 WAYS IN WHICH READINESS CAN BE ASSESSED. MAKE SURE YOUR ACTIVITIES ARE:

PROJECT-BASED

Activities need to be stimulating and interactive. For example, a project-based learning approach or using games or online tools will be more interactive for your target audience.

ADAPTIVE

The digital-making activity should be contingent to the behaviour, background knowledge and the characteristics of the target audience. It is very important to remember that an activity can be interactive but not necessarily adaptive to a certain set of audience. In short, tailor your activity according to different difficulty levels. You may also use learning programs that are both interactive and adaptive such as the open sources below:

> Made With Code | Google — **Website**

> Hour of Code Activities — **Website**

> Code.org Unplugged Activities — **Website**

COMMUNICATIVE

The audience must communicate with each other who may range from different backgrounds, cultures and expertise. The communication can be either be done face-to-face, through a chatroom, via tutor-tutee approach and more. You may use other communicative methods too, as long as the idea of collaborative learning is happening amongst your audience.

HOW CAN A #MYDMCS CONDUCT COMMUNITY ENGAGEMENT?

01 Conducting digital-making activities

- Workshops
- Mini #mydigitalmaker Fair
- Including #mydigitalmaker in Family Day/Hari Kantin
- Providing access to local community to use the DMH
- Organise DMH Open Day
- Participate in STEM carnivals at district, state and national level

Image 1: *Duta Penggerak Digital* (in orange T-shirt) of SK Merbok (*Pusat*), Kedah conducted mBot, rero:micro, VR box and coding workshops for 20 surrounding schools in their school's mini Maker Fair.

02 Hosting bench-marking visits

As a #mydmCS, many schools would be interested to visit and learn the best practices that have been undertaken to acculturate digital-making. As a good-will ambassador, #mydmCS is highly encouraged to empower the Duta Penggerak Digital to be the frontiers in attending to visitors. Our champion schools have received visitors from wide range of institutions and programs for bench-marking such as (but not limited to) below:

- Nearby schools
- Schools from different district/state/country
- Institut Aminuddin Baki (IAB)
- Institut Pendidikan Guru (IPG)
- Jabatan Pelajaran Negeri (JPN)
- Pejabat Pendidikan Daerah (PPD)
- STEM Executive Consultation (STEMEC) 2019
- State Investment Agencies

Image 2: The teachers and Duta Penggerak Digital of #mydmCS SMK Putrajaya Presint 16(1) attended to visitors from SMJK Confucian, KL for a bench-marking visit.

03 Hosting digital-making competitions

#mydmCS can collaborate with any of the #mydigitalmaker partners to host innovation or digital-making competitions in their schools. By hosting competitions, school can gain various benefits such as:

- Visibility of #mydmCS as a digital tech champion among participants from various schools and institutions.
- Potential partnership with industry
- Showcasing of internal talents (such as the Duta Penggerak Digital) to be a part of the organising team.
- The school gets recognition at the state or national level.
- No planning on content is required; the school only needs to provide student manpower to the competition organiser (#mydm partner).

Image 3: #mydmCS SMK Dato' Abu Bakar Baginda(SMKDABB) hosted the National Micro:bit Robotics Competition 2018 by partnering with Elvira Systems Sdn Bhd. Around 28 schools competed in the finals at SMKDABB.

04 Organising group visits to the annual #mydigitalmaker Fair

While #mydmCS are highly encouraged to attend and participate in the annual #mydigitalmaker Fair, as a community leader in digital-making, Champion schools also need to promote and invite surrounding schools to attend the Fair. More details about the #mydigitalmaker Fair can be obtained in www.mydigitalmaker.com **Website**

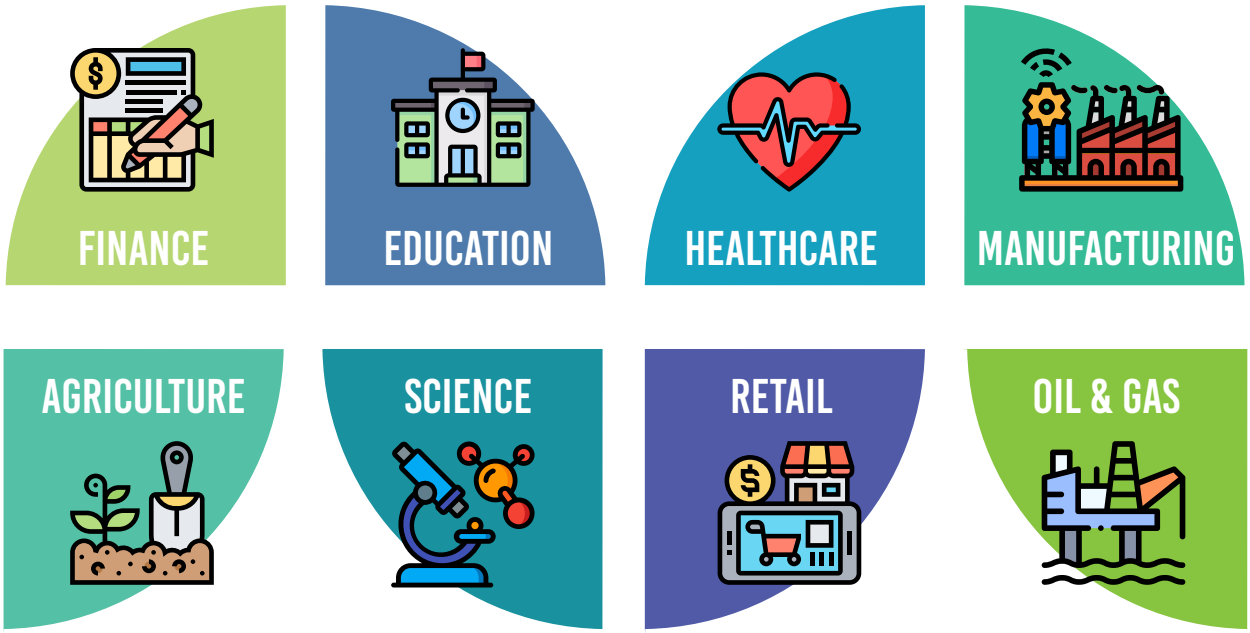




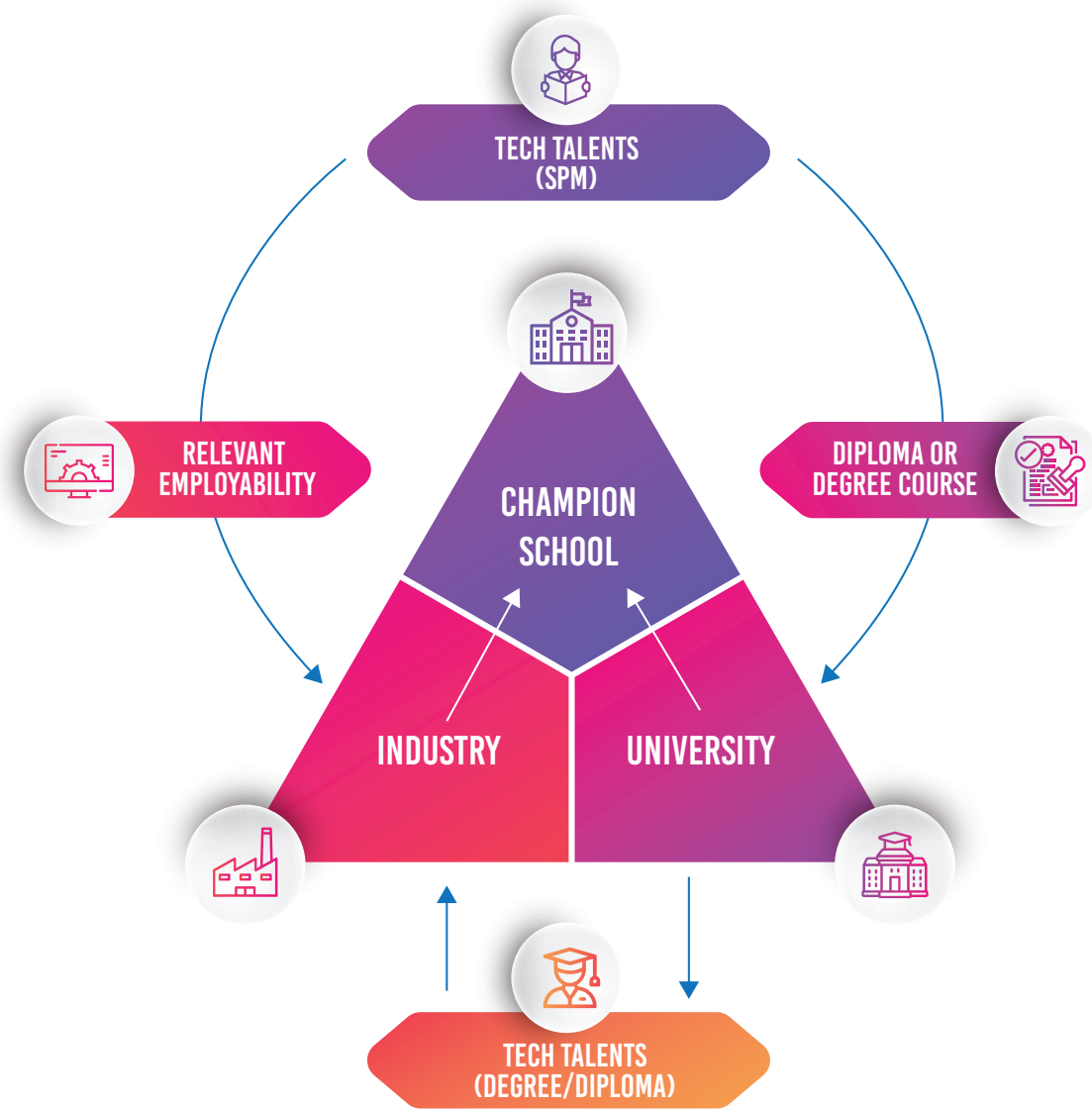

THE INDUSTRY & THE ACADEMIA

HOW TO PARTNER WITH THE INDUSTRY & ACADEMIA ?

The involvement of the industry or companies directly in schools has always been **the easiest way** to **develop young talents** that are **high in demand**. There are a variety of industries that a school can establish a collaboration with. Some of the more common sectors are:



To ensure sustainability of conducting digital-making activities at school, a #mydigitalmaker Champion School should **reach out to relevant industry or academia to establish a partnership, collaboration or a Memorandum of Understanding (MoU)**. The dynamics of the partnership is as the figure below.



The #mydmCS is supported by industry partners and academia partners from the university or colleges to **provide support** in terms of **resources, expertise** and **funding** under their **Corporate Social Responsibility (CSR) effort**. With this support, #mydmCS can develop tech talents that are well-equipped with the mindset and basic skills required by the industry in their employees.

Examples of activities that #mydmCS can collaborate with an industry or academia partner are:

01 Academic Enrichment/Career Awareness

02 Be a resource speaker or mentor

03 Become a mentor/judge for digital making competitions

04 Host job shadowing opportunities

05 Conduct interview skills workshops

06 Organize field trips to companies or other educational settings

07 Absorbing talents for internships

"Jaringan dan jalinan dengan pihak industri dan IPT penting untuk sekolah kerana kerjasama ini dapat membantu sekolah dalam penglibatan pertandingan-pertandingan digital kerana kepakaran mereka akan dapat membantu sekolah untuk menambah ilmu dan kemahiran terutama kepada Duta Penggerak Digital."

Cikgu Kamarulzamri Bakar
SM Sains Tuanku Jaafar, Negeri Sembilan

An academia or university partner can provide the following support:

01 Provide bootcamp on digital technology

02 Include the *Duta Penggerak Digital* in activities organised by the university

03 Provide proper post-SPM guidance on course selection for students in university

04 Absorb students in research projects in the university

#mydmCS should also take its **own initiative** to **organise fund-raising activities** to maintain equipment in the DMH and prepare students for digital making competitions. Below are online crowdfunding platform that schools can use to raise fund :

EXAMPLE - CROWDFUNDING PLATFORM

01 EdSpace Projects Sdn Bhd **Website**

02 GIVE.MY **Website**

MEASUREMENT OF OUTCOME

There are two ways in which a #mydigitalmaker Champion School can measure its own excellence in successful implementation of this model.

INDICATOR			
	Indicator	**Definition**	**Weight**
A	Students participation in digital making activities/ competitions	• Implementation of Digital Maker Club during co-curricular hours • Percentage Enrolment in Computer Science subject/Computer Science embedded subjects • Number of national/international competition participated • Number of training sessions conducted by program consultants	25%
B	Educator Readiness	• Number of teachers trained in Computer Science/coding/digital making activities • Number of in-house training (LADAP) conducted in school • Support level from school administrators • Usage of teaching modules provided in T&L • Embed digital making/Computational Thinking in curriculum	20%
C	Community Outreach	• Number of schools/community impacted via - Workshop - Bench-marking visits - Other relevant programs • Frequency of update in school social media • Support level from PIBG • Students participation in community engagement	20%

D	Industry Engagement	• Frequency of activities/programme conducted by industry/IHL with school • Number of industry/IHL partner in partnership Champion Schools • Number of school visit to industry/ IHL/ event/ conference/ maker fair • Outreach to industry/IHL for resources and guidance • Fundraising initiatives conducted by school	25%
E	Overall School Competency	• Smart School Qualification Standard (SSQS) Star Rating • Digital Competency Score • Ability to host digital-making competitions within the local community or schools • Number of students of winning competitions • Gred Purata Sekolah (GPS)	10%
	TOTAL		**100%**

Refer to complete measurement of outcome in this link **Rubrik**

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#mydigitalmaker

Be a Dreamer. Be a Maker.