





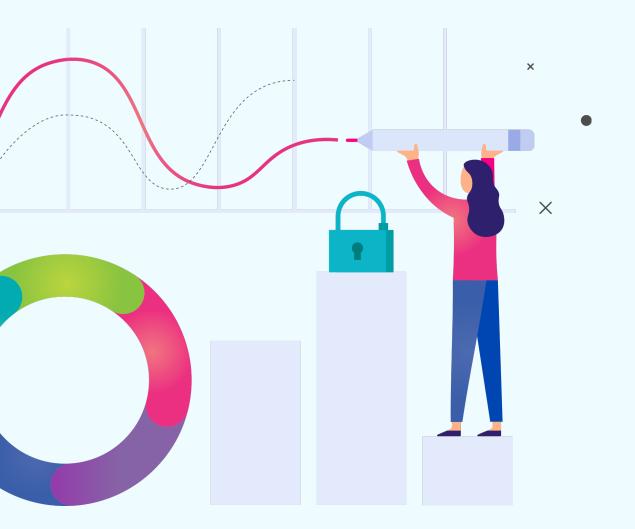
### **Launch Event for**

# Living Well Digitally

BY THE NUS CENTRE FOR TRUSTED INTERNET & COMMUNITY (NUS-CTIC)







# Section 01 Introduction & Opening Address







### **Photography & Videography**

We have a professional photographer and videographer who will be taking photographs and recording today's event for publicity purposes.

If you do not feel comfortable with being photographed / recorded, please do not hesitate to let us know anytime. (You may also drop us an email after the event today if you would like to request for your photos to not be posted.)



### **Q&A & Panel Discussion**

We will have a Q&A and panel discussion at the end of today's session. If you have any questions at any point during the presentation, please feel free to submit them anytime and we'll get to them during the Q&A later.

To do so, visit **menti.com** and enter the code **7205 4134** or scan the QR code above.





# **Keynote Address**

**Mdm Rahayu Mahzam** 

SENIOR PARLIAMENTARY SECRETARY
MINISTRY OF HEALTH & MINISTRY OF LAW



# **Opening Address**

**Dr. Park Yuhyun** 

FOUNDER, DQ INSTITUTE









Yuhyun Park, Founder of DQ Institute









DQ:

IEEE Global

Standards for

Digital Literacy,

Digital Skills,

Digital Readiness

(IEEE 3527.1TM)







# We honour <u>people who care</u>





# We honour people who care about children





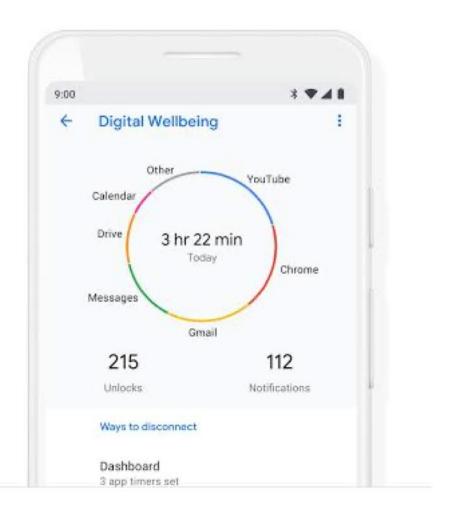
# We honour people who care about families





# We honour people who care about nations

# Digital Wellbeing



#### Source:

https://play.google.com/store/apps/details?id=com.google.android.apps.wellbeing&hl=en\_US&pli=1



# Digital Wellbeing







NUS
Digital Wellbeing
Assessment
Framework

**Robust** 

Comprehensive

**Practical** 





# Global Initiative













# Introducing the Research Team

## Meet the team



The main research team from the National University of Singapore:







### **Audrey Yue**

Professor in Media, Culture and Critical Theory, Head of Communications and New Media, National University of Singapore

### **Natalie Pang**

Associate Professor of Communications and New Media and University Librarian at NUS Libraries, National University of Singapore

### **Zhang Renwen**

Assistant Professor of Communications and New Media, National University of Singapore

### & our invaluable collaborators:





### **Yuhyun Park**

Founder of DQ Institute and DQ Global Standard on Digital Literacy, Digital Skills, and Digital Readiness

**Lim Ee Peng** 

Professor of Computer Science, Singapore Management University (SMU)





Introduction to Digital Wellbeing



## Background on digital well-being

# **Emergence of digital well-being** as a concept

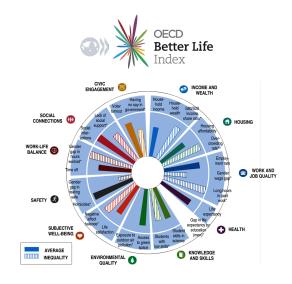
Digital wellbeing has arisen in recent public, governmental and policy discourse as a key measure of a person's wellbeing through a balanced and healthy use of technology<sup>1</sup>.



# Background on digital well-being



A myriad of frameworks and indicators currently exist...







# SENSE CYBER WELLNESS PRINCIPLES Respect for Self & Others Sofe & Responsible Use Positive Peer Influence Act: Translate understanding into actions so as to be safe and have a positive presence online









...but there are notable gaps and limitations.



Existing assessment frameworks & limited theoretical vocabulary struggle to explain digital wellbeing or the impact of technology use on quality of life



Rhetoric on technology use may be limiting as it is often associated with negative aspects like screentime and addiction, and do not directly discuss digital wellbeing



to define wellbeing in terms of literacy & skills, overlooking other key domains like employment & civic participation



Most existing frameworks developed in Western societies (e.g., Europe) and there is little data on the Asia-Pacific region; this makes benchmarking across countries challenging







To craft a holistic definition and construct a new theory of digital wellbeing that combines digital literacy and digital citizenship



To develop & validate a robust original indicator framework that is aligned with global measurement standards & accessible for international public use by government, community, industry



To conduct a comparative analysis of the state of digital wellbeing across 4 cities in Singapore, South Korea, China and the UK

## (Re)defining digital well-being



We define **digital well-being** as an umbrella term that encompasses various dimensions of the digital life<sup>1</sup>:



Crafting and maintaining a healthy relationship with technology that can be used in a balanced and civic way.



Identifying and understanding the **positive** and negative impacts of engaging with digital activities.



Being aware of ways to manage and control factors that contribute to digital wellbeing.





### Why is digital wellbeing important?

## DIGITAL SOCIAL RELATIONS

- Enable individuals to communicate effectively via different digital means and channels
- Enhance social connectedness and sense of belonging with others
- Allow individuals to interact with people around the world, fostering openmindedness and respect towards diverse backgrounds and cultures

### DIGITAL HEALTH

- Promote healthy, balanced use of technology
- Enable individuals to make use of digital technologies to enhance physical and mental health for themselves & the community
- Empower individuals with the right & responsibility to access and use e-health services

## DIGITAL CONSUMPTION

- Develop user literacy and competencies to shop online and navigate digital marketplaces in a safe & responsible manner
- Empower users with the ability to protect their own digital consumption rights (e.g., data privacy)
- Prevent and protect individuals from cybercrime (e.g., cyber scams, fraud)

## DIGITAL EMPLOYMENT

- Educate & empower individuals to upskill & reskill to stay relevant & competitive in the digital workforce
- Encourage greater digital innovation, entrepreneurship and productivity
- Safeguard employment rights of all workers, including digital workers, freelancers, gig/platform workers

## DIGITAL CIVIC PARTICIPATION

- Boost active civic citizenship and participation through digital technologies
- Empower individuals to participate in and promote social causes and civic goals and decisions
- Encourage communitydriven initiatives to contribute towards positive, meaningful social impact

## **Digital Citizenship**



# Integrating digital wellbeing and digital citizenship

One's wellbeing can be guaranteed only once the basics (i.e., skills, literacy) are fulfilled while ensuring a person's self-determination and empowerment. Thus, digital citizenship still plays an important aspect in digital wellbeing<sup>1</sup>.

We define Digital Citizenship as the ability to **articulate proactively and responsibly** in the digital environment while **using technology fairly and ethically**.







### 3 levels of digital citizenship



### **Digital Skills**

The ability to confidently, critically, and consciously identify, understand, and use digital tools and technologies in everyday settings



### **Digital Empowerment**

The ability to pursue and decide on personal goals and decisions; the ability to proactively engage with society and sustain meaningful online interactions through digital tools and technologies



# Digital Rights & Responsibilities

The ability to observe and practice various rights and responsibilities of digital life





**Section 03** 

# Digital Wellbeing Indicator Framework



## **Digital Wellbeing Indicator Framework (DWIF)**

The world's first original framework that assesses digital wellbeing in a holistic, inclusive way across five domains of digital life and three levels of digital citizenship.





## **Digital Wellbeing Indicator Framework (DWIF)**

How was the DWIF developed and validated?



#### **Literature Review**

Reviewed 31 policy and educational frameworks & more than 35 academic publications



### **Expert FGDs**

Consulted 9 academics (Singapore, China, US, UK) and 14 policymakers from government & social service agencies



#### **Pilot Tests**

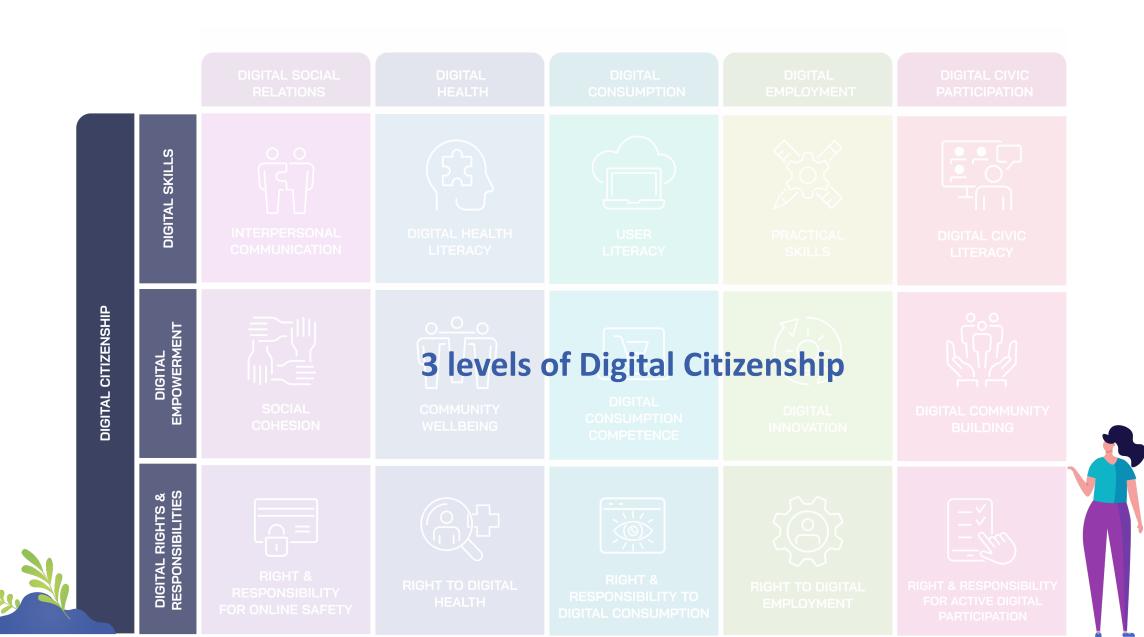
Conducted two pilot tests with over 1,000 NUS students & 200 adult participants worldwide



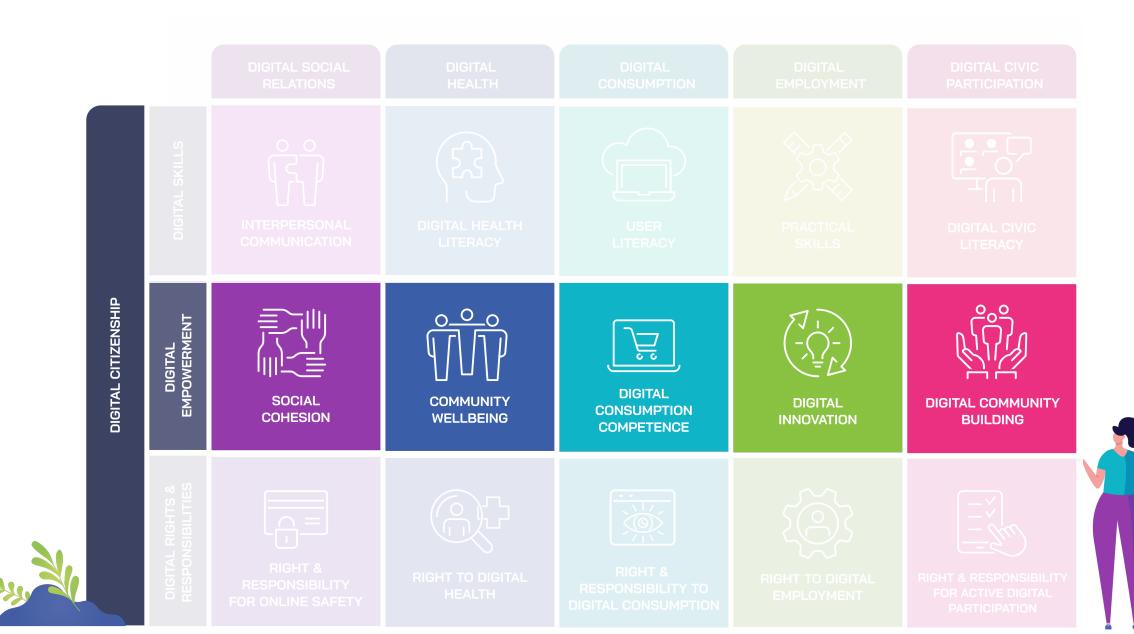
### **Quantitative Analysis**

Empirically validated psychometric qualities of the scales using exploratory factor analysis & reliability analysis

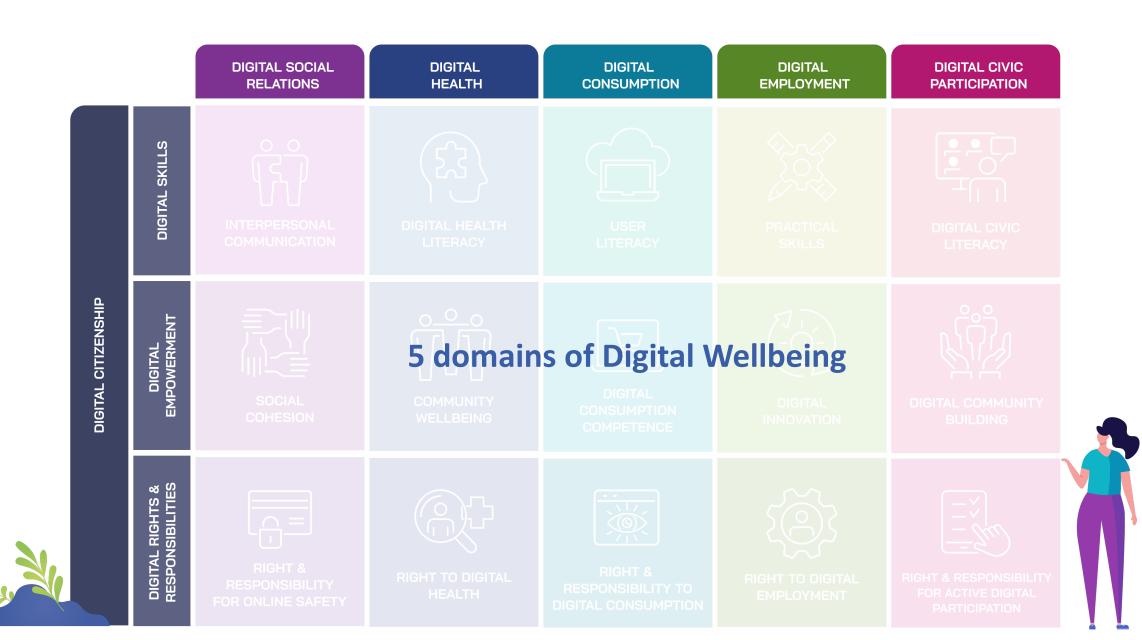














# 1 | Digital Social Relations

The ability to use technology to build and maintain relationships in family and social communities.













## 1 | Digital Social Relations

The ability to use technology to build and maintain relationships in family and social communities.



#### 1.1. Interpersonal Communication

I know how to communicate with others in digital environments.

I know how to communicate with others through different digital means.

I know how to communicate with others in different ways (e.g., images, text, videos etc.).



#### 1.2. Social Cohesion

I make new friendships with other people online.

I use the Internet to talk to people from places or backgrounds different from mine.

I find it is easy to talk with people from different cultures online.



#### 1.3. Right & **Responsibility for Online Safety**

I have the right to be protected by the law from online harm.

I am responsible for not causing online harm to others (e.g., hate speech and discrimination).

I have the responsibility to use appropriate language and behavior when interacting with others online.



# 2 | Digital Health

# 2 | Digital Health



The ability to **be aware of one's physical and psychological wellbeing** using technology.



## 2.1. Digital Health Literacy

I know where and how to find helpful health resources on the Internet.

I know how to use the Internet to answer my questions about health.

I know how to use the health information I find on the Internet to help me improve my health.



## 2.2. Community Wellbeing

I share health information online to give useful information to people I know.

I give people I know information that can solve their health problems.

When I see good health tips or advice online, I often share them with people I know.



## 2.3. Right to Digital Health

I have the right to be provided with digital tools to support a healthy lifestyle.

I have the responsibility to maintain an up-todate and accurate digital personal health record.

I have the responsibility to use digital tools (including apps) to maximize my health and well-being.



# 3 | Digital Consumption





The ability to access, make informed choices and understand rights and responsibilities in digital consumption.



#### 3.1. User Literacy

I am able to recognize and evaluate marketing and advertising online.

I am able to use digital marketplaces for buying and selling goods and services.

I am able to browse, search for and access information on goods, services, and transactions online.



# 3.2. Digital Consumption Competence

I share reviews, knowledge, advice, and experiences with other consumers on social media and digital platforms.

I share opinions about goods and services with other consumers on relevant online sites, communities, and/or social media groups.

I use online consumer communities to report and/or complain about misleading or fraudulent offers online.



# 3.3. Right & Responsibility to Digital Consumption

I have the right to fair and equitable treatment by businesses online.

I have the right to make consumer complaints and disputes in a fair, inexpensive, and efficacious way online.

I have the right to go to consumer protection authorities in order to assist me in solving problems with an online vendor.



# 4 | Digital Employment





The ability to identify and use opportunities to acquire **digital competencies to improve work life** and **contribute to the economy** (includes self-employed work, freelance workers, gig workers).



#### 4.1. Practical Skills

I know how to use digital skills to make my work more efficient.

I am able to use the internet to come up with solutions to problems at work.

I feel confident in using online tools such as search engines to gather information and data and to solve problems in the digital world of work.



#### 4.2. Digital Innovation

I am able to use the internet to execute my work tasks creatively.

I am able to use the internet to generate innovative ideas for my field.

I am able to use digital tools in new ways to address challenges and find solutions at work.



## 4.3. Right to Digital Employment

I have the responsibility to learn about the impact of new digital tools on work.

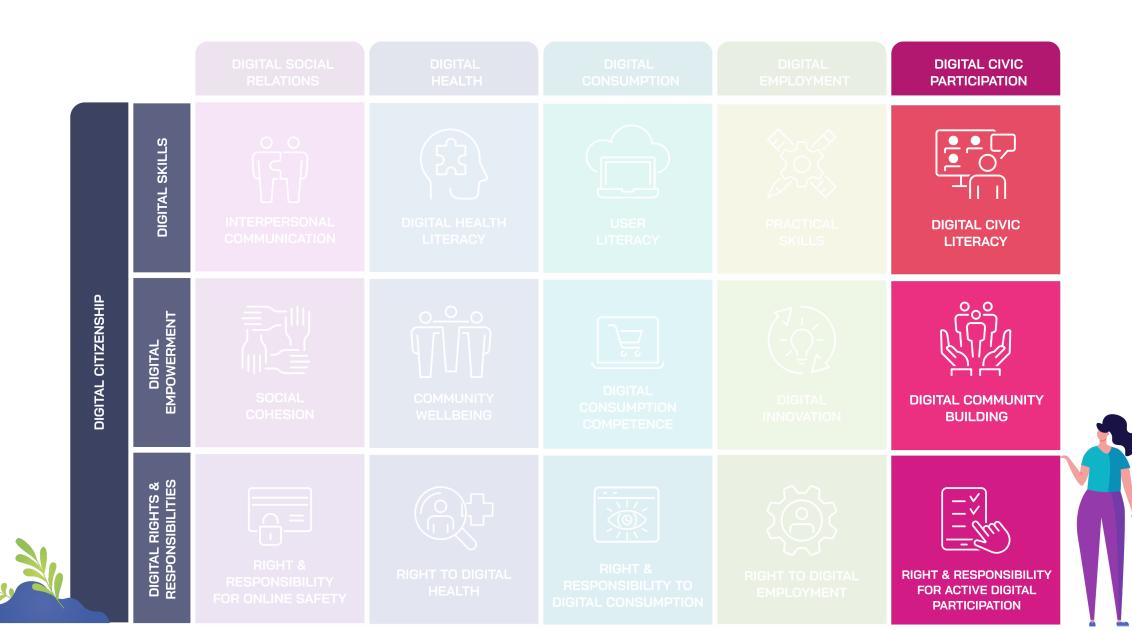
I have the right to flexible and remote working arrangements.

I have the right to have my personal data protected in the workplace.

I have the right to not be discriminated as a digital worker.

I have the right to access digital tools and information required as an entrepreneur.

I have the right to job security and protection as a digital worker (e.g., fair wages, healthcare benefits, sick leave etc.).



# | Digital Civic Participation





The ability to **lead and participate in cause-oriented groups and initiatives** towards meaningful changes in digital and physical environments.



5.1. Digital Civic Literacy

I keep myself informed of current political and/or social issues using the Internet.

I look for information on the Internet about political and/or social issues.

I use the Internet in order to participate in social movement/change.



5.2. Digital Community Building

I work with others online to solve local, national, or global issues.

I belong to online groups that are involved in political or social issues.

In the last 6 months, I have participated in at least one or more of the following actions online: voting, political engagement, volunteering, community building.



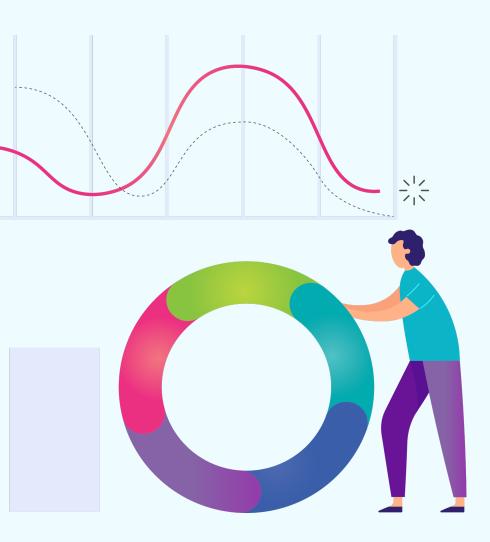
5.3. Right & Responsibility for Active Digital Participation

I have the right to access platforms to engage in online debates and discussions for various causes.

I have the right to use the Internet to bring people together to make a positive impact on issues that are important to society.

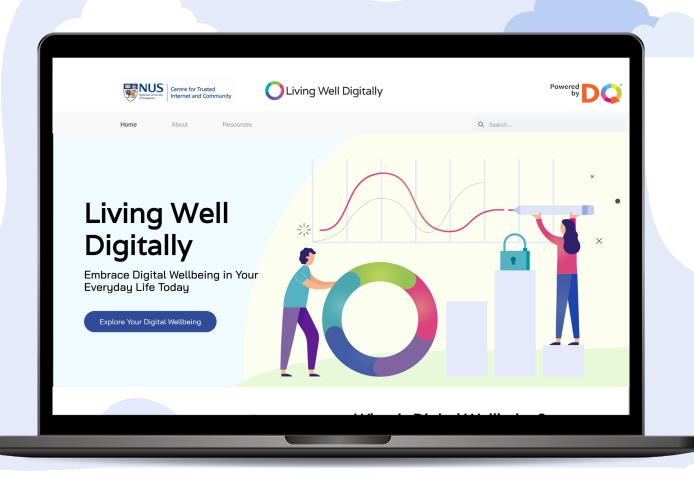
I have the right to seek, receive, and impart information and ideas online regarding civic issues.





**Section 04** 

Living Well Digitally platform & assessment tool



# Introducing the Living Well Digitally platform

In collaboration with DQ Institute and DQ LAB, we designed and developed Living Well Digitally, a website to educate, engage and empower individuals to learn more about digital well-being.

Visit livingwelldigitally.org!

# Making digital well-being inclusive for all

The website features free educational resources for individuals from diverse backgrounds, including youth, families, teachers, social workers and more.

#### IMPROVE DIGITAL WELLBEING FOR YOURSELF & OTHERS

### **Explore Our Resources**



Young Adult

Family

Educator

Social Worker



#### All Resources

Digital technologies and the Internet present seemingly endless opportunities to benefit and harm individual digital wellbeing, in the domains of social relations, health, consumption, employment or civic participation.

Find out how you can safeguard and enhance digital wellbeing for yourself and others, and mitigate online harms.

Users can explore & learn about the different domains of digital well-being.



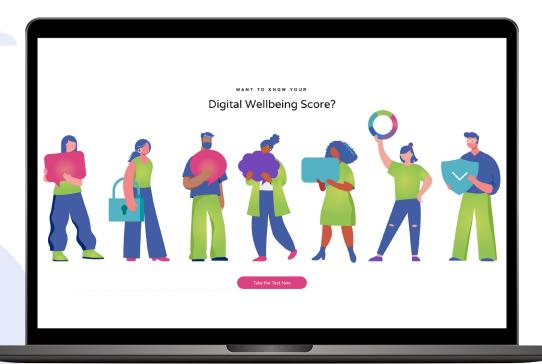
## Domains of Digital Wellbeing?





# **Digital Wellbeing Assessment Tool**

Teaming up with DQ Institute and DQ LAB, we designed and developed an interactive online assessment tool that operationalizes the DWIF and allows individuals to take the test for themselves and assess their level of digital wellbeing.







#### 1. Visit our website.

Visit <a href="https://bit.ly/livingwelldigitally">https://bit.ly/livingwelldigitally</a> (or scan the QR code) and click on the "Next" button to start taking the test.





### Let's Start

This questionnaire will help you measure your digital wellbeing score and also identify strategies on how you can improve.

**NEXT** 





2. Select how you would like to take the test.





#### 3. Answer all questions.

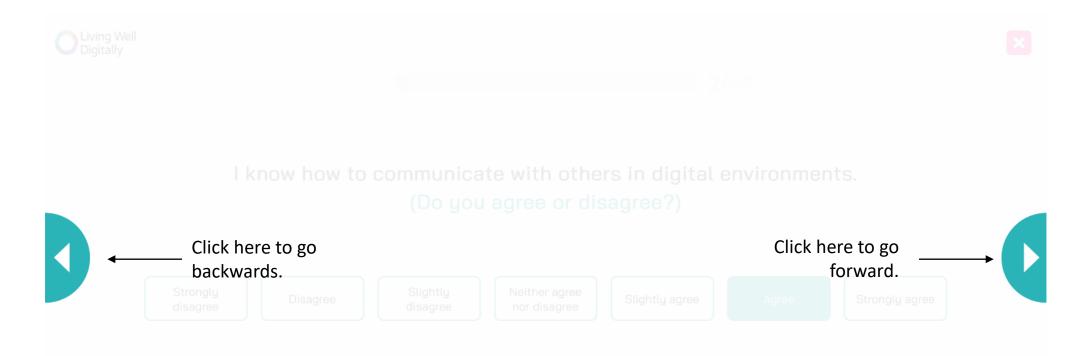
Respond to the statement, rating from "Strongly disagree" to "Strongly agree". Remember—there's no right or wrong answer: when doing the test, just be as honest as possible to get an accurate assessment.





#### 4. Want to change an answer?

Don't worry, you can navigate back and forth anytime by clicking on the blue buttons on the left/right side.





#### 5. Fill in your demographic information.

After completing the questionnaire, please enter your gender, year of birth, country and postal code.





#### 6. Almost done!

Please wait for 10-15 seconds while we compute your personalized Digital Wellbeing score.





7. View your Digital Wellbeing Score.

On the personalized dashboard on the left, you can see your Digital Wellbeing Score, and a breakdown of how well you did across the five digital wellbeing domains.



#### Screen Sorcerer



You're a Screen Sorcerer, mastering the digital arts! With proficiency in various tech skills, you wield your digital tools with finesse and navigate the digital world effortlessly, always mindful of maintaining your digital wellness.







## **Interpreting the Digital Wellbeing score**

The Digital Wellbeing score is calculated based on your responses to the questionnaire.

Each Digital Wellbeing domain is scored from 0 to 20. Your domain scores are added up to produce your total **Digital Wellbeing Score**.







## **Interpreting the Digital Wellbeing score**

# Based on your Digital Wellbeing score, you will be categorized into a **user profile** that is indicative of your level of digital wellbeing and competency.

### Screen Sorcerer



You're a Screen Sorcerer, mastering the digital arts! With proficiency in various tech skills, you wield your digital tools with finesse and navigate the digital world effortlessly, always mindful of maintaining your digital wellness.





## **Interpreting the Digital Wellbeing score**

Digital Novice

**2** Tech Explorer

3
Digital Adventurer

4 Screen Sorcerer **5**Wellbeing Whiz











Score: 0-20%
Digital Novices are just starting out in their digital journey. Focus on the basics to build a foundation for digital wellbeing.

Score: 21-40%
Tech Explorers have begun embarking on the path of tech exploration. Pick up more knowledge and expand your digital horizons.

Score: 41-60%
As a Digital
Adventurer, you've
progressed beyond the
basics and can
discover more
advanced digital
technologies.

Score: 61-80%
Screen Sorcerers are proficient in various tech skills, but there's always room to improve to the next level of digital wellbeing.

Score: 81-100%
Wellbeing Whizzes are experts in tech but should always still remember to prioritize & optimize digital wellness.





## Tea Break

Refreshments provided outside

3.00pm to 3.30pm

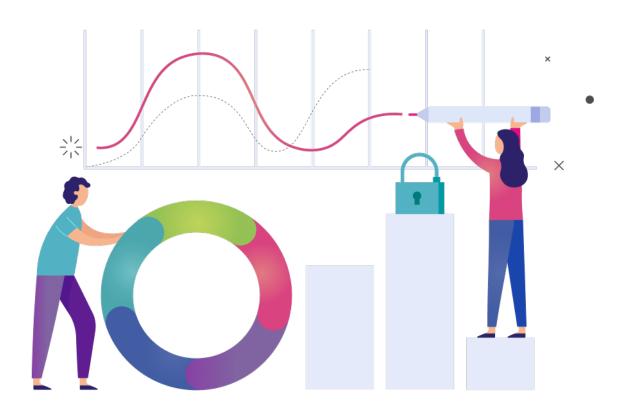




**Section 05** 

Cross-country comparison of digital well-being





# Operationalizing & scaling the DWIF

After developing the DWIF, we conducted four large-scale population surveys across Singapore, Seoul, Shanghai and London to further validate our instrument and expand its scale globally.

We will share some preliminary findings from our surveys.

## Sample populations



We surveyed **4,160 participants from across 4 cities** and countries...



#### **Singapore**

N = 1,053

Female (49.8%), Male (49.5%)

Average 2.89 devices (SD = 2.21)



#### Seoul

N = 1,037

Female (47.3%), Male (52.0%)

Average 3.26 devices (SD = 13.93)



#### Shanghai

N = 1,000

Female (48.2%), Male (51.8%)

Average 2.73 devices (SD = 0.90)



#### London

N = 1,070

Female (50.00%), Male (49.4%)

Average 3.44 devices (SD = 1.91)

# Key Finding #1: Differences in digital wellbeing exist across cities.





Results indicated that there were significant differences in levels of digital wellbeing across the four cities (all p < 0.001) for all 5 domains:

- 1. Digital Social Relations
- 2. Digital Health
- 3. Digital Consumption
- 4. Digital Employment
- 5. Digital Civic Participation





We found significant differences in **digital social relations** across the four cities ( $\chi^2(3) = 95.65$ , p < 0.001). Post-hoc pairwise comparisons revealed that:



Shanghai exhibited significantly lower levels of digital social relations compared to London, Seoul and Singapore.



Singapore, London and Seoul demonstrated comparable magnitudes of digital social relations, with small and no significant differences between these cities.





We found significant differences in **digital health** across the four cities ( $\chi^2(3) = 388.75$ , p < 0.001). Post-hoc pairwise comparisons revealed that:



Shanghai scored significantly lower than London, Seoul and S'pore in digital health.



S'pore scored significantly higher than Shanghai, but significantly lower than London.



The only two cities with no significant differences were S'pore and Seoul, indicating relative parity in digital health.





We found significant differences in **digital consumption** across the four cities ( $\chi^2(3) = 194.78$ , p < 0.001). Post-hoc pairwise comparisons revealed that:



Shanghai exhibited significantly lower levels of digital consumption compared to London, Seoul and Singapore.



Seoul scored significantly
lower in digital
consumption than London
and Singapore.



In contrast, Singapore and London demonstrated comparable magnitudes of digital consumption.





We found significant differences in **digital employment** across the four cities ( $\chi^2(3) = 80.58$ , p < 0.001). Post-hoc pairwise comparisons revealed that:



Shanghai exhibited significantly lower levels of digital employment compared to London, Seoul and Singapore.



Singapore, Seoul and London demonstrate comparable magnitudes of digital employment, indicating relative similarity in digital consumption habits.





We found significant differences in **digital civic participation** across the four cities ( $\chi^2(3) = 294.70$ , p < 0.001). Post-hoc pairwise comparisons revealed that



Shanghai exhibited significantly lower levels of digital civic participation compared to London, Seoul and S'pore.



Seoul scored significantly lower in digital civic participation than London but higher than S'pore.



**S'pore and London** scored comparably, indicating relatively similar levels of digital civic engagement.

## Key Finding #1: Differences in digital wellbeing exist across cities.





#### Yes, digital wellbeing differs across cities.

Overall, our findings demonstrate significant differences in digital wellbeing across the four cities for all five domains.



### Shanghai has the lowest digital well-being.

Shanghai consistently had significantly lower scores across all five domains compared to Singapore, Seoul and London.



### Singapore, Seoul & London are comparable.

The three other cities had relatively similar levels of digital wellbeing, possibly due to similar levels of digital literacy, access & systems.



### Different nuances & drivers of wellbeing

Differences may be driven by differences in consumer behaviour, culture, and regulatory frameworks governing digital infrastructure & platforms.





Seniors have lower digital wellbeing across all five domains, compared to other ages.

Those **aged 65 and above** had significantly lower levels of digital social relations, digital health, digital consumption, digital employment and digital civic participation.

There are also **differences across countries** in terms of how age affects digital wellbeing (e.g., Singaporeans aged 65 and above had lower digital social relations & employment, but this was not observed in the 3 other cities).



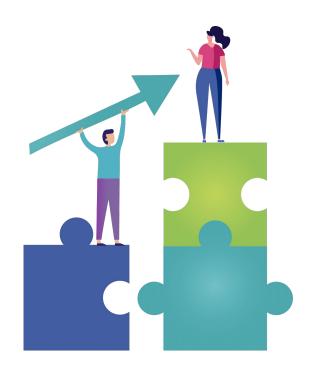
### Men have higher levels of digital wellbeing compared to other genders.

Men scored higher in digital social relations, digital health, digital consumption and digital employment (but no differences were observed for digital civic participation).

There are country specific differences in the effect of gender on digital wellbeing (e.g., men in Singapore and Seoul reported higher digital employment levels, but not in Shanghai).







Lower income groups have lower levels of digital wellbeing than other groups.

Low-income individuals scored significantly lower in digital social relations, digital health, digital consumption, digital employment and digital civic participation.

There are also variances across countries in how SES affects digital wellbeing (e.g., digital employment was lower amongst low-income individuals in London, but not the 3 Asian cities).





### Demographics factors are associated with digital wellbeing

Demographic factors like age, gender, socioeconomic status and more can have significant effects on individual digital wellbeing.



## Certain groups may be more vulnerable to digital wellbeing risks & harms

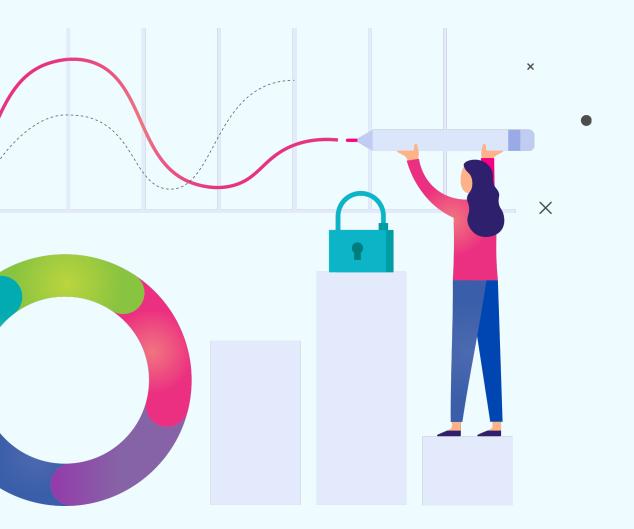
Elderly, females / LGBTQ+ and lowincome individuals may be at risk of lower digital wellbeing.



#### Role of demographic factors varies across countries

Digital wellbeing of different demographic groups are not the same across the board – when looking at different groups, the context (e.g., city, sociocultural factors) matters.





Section 06

Conclusion &

Discussion

#### Conclusion



#### What have we achieved?



#### Development of original digital wellbeing instrument

Constructed the Digital Wellbeing Indicator Framework (DWIF), the world's first framework holistically measuring digital wellbeing across various domains of everyday life



#### **Cross-country population survey** on digital wellbeing

Conducted large-scale surveys with 4,000+ individuals, gaining insight on the state of digital wellbeing across Singapore, Seoul, Shanghai & London



### Accessible web platform for public & practitioners

Launched a web platform & Powered by DQ Assessment Tool to engage, educate & empower individuals and practitioners to learn about digital wellbeing

#### **Current & Future Work**

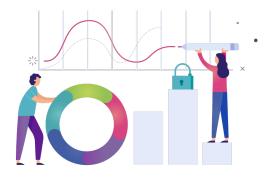


#### What's next?



#### Deep dives in digital wellbeing

- Digital wellbeing & smartphone sensing
- Digital employment & the future of work
- Women & digital wellbeing



#### **Training & education**

Train Digital Wellbeing Ambassadors & conduct workshops (e.g., workshop with TOUCH Community Services, NLB etc.) on digital wellbeing



#### **Scaling the DWIF internationally**

International collaborations with academics from China (Fudan Uni) and E.U. (Uni of Oulu) to scale & apply the DWIF worldwide





What are the significance and implications of our work for various stakeholders?



#### Individuals & members of the public

Gain tools & resources to evaluate digital wellness, & learn how to enhance digital wellbeing for themselves & their communities



### Social workers & nonprofit organizations

Better identify & help demographic groups (especially at-risk, vulnerable populations) safeguard digital wellbeing



#### **Tech companies & platforms**

Design tech platforms & tools to enable users to achieve balanced, healthy use of tech across all domains of digital wellbeing



#### Governments & policymakers

Inform and guide governmental policies, laws & regulations to augment citizens' level of digital wellbeing





Section 07

Q&A & Panel

Discussion













**Audrey Yue** 

**Natalie Pang** 

**Zhang Renwen** 

#### Have a question for the team?

Feel free to raise your hands, or submit it on menti.com (code 7205 4134 or scan the QR code).







# The End Thank You

SPECIAL THANKS TO OUR PARTNERS & SUPPORTERS





