



Taiwan Network Information Center Stakeholder Survey 2019



Organizer : Taiwan Network Information Center


Implementer : InsightXplorer Ltd.

Contents

CONTENTS	1
CHAPTER I. STUDY OVERVIEW.....	2
I. Online Survey.....	2
II. In-depth Interviews	2
CHAPTER II. OPERATIONAL OVERVIEW	4
I. Organizational Performance Summary.....	4
II.  Future Opportunities	5
III.  Future Opportunities	6
CHAPTER III. DOMAIN NAME REGISTRARS.....	8
I. Summary of implementation.....	8
II. Service usage and satisfaction.....	9
III. Evaluation of the overall satisfaction and value perceptions	9
IV. Usage rates, satisfaction and value perceptions for the primary services 10	
V. Business development needs and supports.....	11
VI. Participation in events and expectations and preferences.....	12
VII. Information service	13
VIII. Market awareness	14
IX. Effectiveness of promotion in the market.....	16
X. Expectations and recommendations.....	17

XI.	Section	19
CHAPTER IV. DOMAIN NAME REGISTERED REGISTRANT . 21		
I.	Summary of implementation	21
II.	Service usage rate.....	22
III.	Satisfaction of the primary services	23
IV.	Evaluation of the overall satisfaction and value perceptions	24
V.	Business development needs and supports	26
VI.	Participation in events and expectations and preferences.....	27
VII.	Information service	29
VIII.	Expectations and recommendations.....	30
IX.	Section	32
CHAPTER V. IP MEMBERS 34		
I.	Summary of implementation	34
II.	Evaluation of the overall satisfaction and value perceptions	37
III.	Evaluation of service value perceptions	39
IV.	Formulation of IP allocation policies and satisfaction	40
V.	Service challenges and difficulties in IPv4 scarcity.....	40
VI.	IPv6 provisioning and preparation	42
VII.	Participation in events	44
VIII.	RPKI services.....	46
IX.	Strategy for charges	47
X.	Participation in events and expectations and preferences.....	48
XI.	Information service	49

XII.	Section	51
CHAPTER VI. SUBSCRIBERS OF TWCERT/CC E-NEWSLETTER 54		
I.	Summary of implementation	54
II.	Service awareness and usage rate	54
III.	Service helpfulness and reasons.....	56
IV.	Overall satisfaction and trust	57
V.	Cybersecurity threats and problems in Taiwan	58
VI.	Expectations and preferences for training courses.....	58
VII.	Information service	60
VIII.	Section	61
CHAPTER VII. TAIWAN CERT/CSIRT ALLIANCE..... 63		
I.	Summary of implementation	63
II.	Status of the services used	63
III.	Evaluation of satisfaction and values for the services used.....	64
IV.	Evaluation of trust and values	65
V.	Cybersecurity threats and problems in Taiwan	66
VI.	Section	68
CHAPTER VIII. GOVERNMENT AGENCIES..... 70		
I.	Collection and sharing of cybersecurity intelligence	70
II.	Strengthening the domestic roles	71
III.	The force pushing for links with the global market.....	72
CHAPTER IX. INTERNATIONAL ORGANIZATION STAKEHOLDERS..... 75		



I.	Past & Current collaboration.....	75
II.	The Future.....	76
CHAPTER X. RECOMMENDATIONS.....		79



Chapter I.

Study Overview

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I. Online Survey

- A third party provider supplied access to the online survey instrument - SurveyMonkey
- The survey period: From August 8, 2019 to September 8, 2019

Stakeholder	Sample Requirements	Email Sent	Email Opened	Email Open Rate	Email Replied	Valid Email Amount	Click-through Rate
Domain Name Registered Registrant	Those who used TWNIC domain name services in the past year	71,184	23,397	32.9%	3,562	1,774	2.5%
Domain Name Registrar	-	17	13	76.5%	7	5	29.4%
IP Members	-	204	104	51.0%	54	40	19.6%
Taiwan CERT/CSIRT Alliance	-	38	20	52.6%	8	8	21.1%
TWCERT/CC Newsletter Subscribers	Newsletter subscribers	3,751	1,910	50.9%	685	501	13.4%

II. In-depth Interviews

- The interview period: From August 20, 2019 to September 6, 2019

	Sample Requirements	Number of Interviewee	Interviewing Method
ICANN and APNIC	International organizations responsible for administering internet resources	2	Online telephone call due to distance constraints
Relevant Government Agencies	Points of contact with frequent operational engagement	4	Face to face interview



Chapter II. Operational Overview

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I. Organizational Performance Summary

A. TWNIC maintains exemplary and diverse communications channels ensuring outstanding interchange with all interlocutors.

| *TWNIC is pragmatic, organized and seen as one of the leading contributors to the internet community.*

| *TWNIC and it's influence lies in building stronger and closer relationship with other key members. As well as being more proactively and take leading positions in sub-committees/communities.*

B. We deploy pragmatic and organized leadership implementation, while leading an organizational culture of excellence.

| *Relationship going well. Feel after NCC control, the relationship is much more aligned and more collaboration. Moving from just doing what it needs to taking a proactive approach in doing more for the internet community.*

C. We offer benchmark technology capabilities and technical support competencies.

| *As new innovation such as 5G, driverless cars, wearables...etc. hit the market. We would look to TWNIC whom is best positioned to explore/connect with companies at the forefront of bringing these technology to life*

II. Future Opportunities

A. Cooperation and Collaboration

We aim to strengthen interactions and collaborations among social networks, enhance social group contact density, and foster the role and voice of TWNIC in the internet ecology.

B. Technology

Technical cooperation and technology transfer are the most direct and expeditious forms of continuous, committed collaboration with international stakeholders.

C. Brands

TWNIC aims to strengthen its comparative advantages, value, and differentiation, urging relevant stakeholders to proactively engage TWNIC in cooperation efforts.

III. Future Opportunities

A. Comprehensive Planning Security Blueprint

- Domestically, serve as Taiwan information security blueprint planning and organizational role
- Internationally, work with International stakeholders and prioritize breakthrough objectives and targets.

Three Strategic Objectives: deploying a mechanism, establishing the national information security team, and cultivating industry. If TWCERT(TWCERT /CC) can attain private sector goals, then this will tremendously assist in attaining the three key objectives. In this regard, we aspire to ensure they assiduously endeavor to engage and interlocute with every country's CERT for international connections, to provide the aforesaid three goals of information security exchange, technology transfer, and the third being to establish not a fortress approach to information security, but an active common defense system, which if in this respect we can properly deploy our international exchange roles, will mean that the joint information security system will be all the more comprehensive and complete.

B. Establishing Short-term, Medium-term, and Long-term Objectives

- Domestically: Establish competitive advantages and strengths and unique characteristics complementary to each stakeholder.
- Internationally: Ensure value and positioning in respect of international stakeholders.

It is imperative that all existing information security threat trends be avoided and appropriately handled. Our goal for TWCERT(TWCERT /CC) is to establish connections ensuring the private sector and civil society can enjoy robust notification and reporting, ensuring the public and affected persons are willing to proactively report, such that if an information security incident arises affecting someone, they will know how to report to and notify TWCERT(TWCERT /CC), and what responses can be expected as a result thereof.



Chapter III.

Domain Name
Registrars

Chapter III. Domain Name Registrars

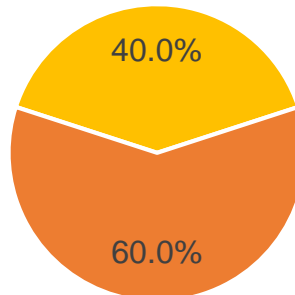
I. Summary of implementation

A total of five domain name registrars have given their responses. Three of them do not have an independent department responsible for domain name registration and instead assigned the task to the concerned operating departments. 40% of the registrars have independent departments responsible for domain name registration.

With n=2

Independent department responsible for [domain registration]

Responsible dept.
Exec Marketing dept., product dept. Supporting dept.
Supporting dept.
Management, Policy, Operations, Technical, Customer service, Accounting



Without n = 3

Independent department responsible for [domain registration]

Responsible dept.
Business/Value-added service Business customer dept. Business product service and management dept.
Supporting dept.
Operations, Technical, Customer service

II. Service usage and satisfaction

The usage rate of the primary service “used the domain registration system” is 100%. “Read the TWNIC annual report, e-newsletter or others,” “contacted customer service via email, phone, or others” and “participated in TWNIC conferences” are also 100% used.

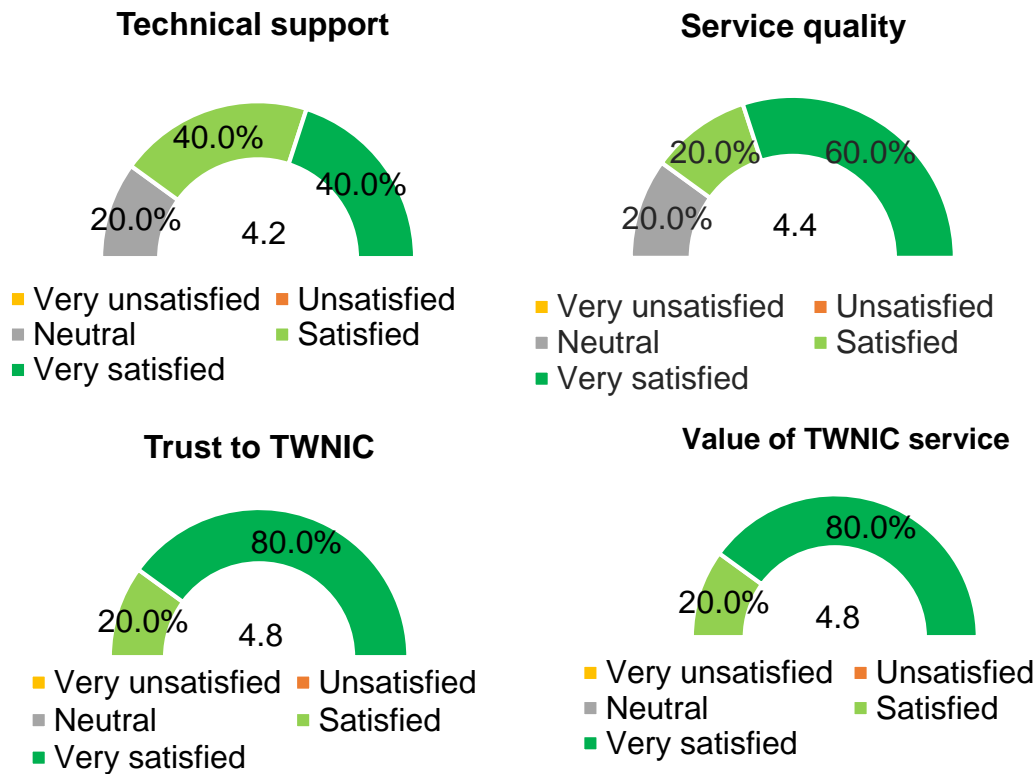
All the services used are rated positively. 80% of the interviewees are satisfied with “used the domain registration system,” “read the TWNIC annual report, e-newsletter or others” and “contacted customer service via email, phone or others” respectively.

	Usage rate (n = 5)	N =	Satisfaction	
			Satisfied	Very Satisfied
Used the domain registration system	100%	5	20%	80%
Read the TWNIC annual report, e-newsletter, or others	100%	5	20%	80%
Contacted customer service via email, phone, or others	100%	5	20%	80%
Participated in TWNIC conferences	100%	5	40%	60%
Browsed the official website or blog	80%	4	25%	75%
Participated in TWNIC training courses	80%	4	25%	75%
Followed official social media, such as Facebook and Twitter	40%	2	0%	100%

III. Evaluation of the overall satisfaction and value perceptions

According to the evaluation of the overall satisfaction of the domain name registrars toward TWNIC, both “service quality” and “technical support” are rated positively by 80% of the registrars, with an average score of 4.4. The average score of “technical support” is 4.2.

In addition to the overall satisfaction, the rating indicators for trust and value perceptions are included. Both “Trust to TWNIC” and “Value of TWNIC service” are rated positively by the registrars, with an average score of 4.8.



IV. Usage rates, satisfaction and value perceptions for the primary services

“Technical support,” “policy support,” “market support” and “price schemes” have a usage rate of 80%, respectively. Except for “market support” and “price schemes,” the interviewees are either “satisfied” or “very satisfied” with the remaining services. This shows that the usage rate and satisfaction are both high. Overall, the value perception for every service is between 60% to 80%. The highest percentage of “very satisfied” appears in the cases of “policy support” and “customer support.”

The reasons for the high ratings include a complete policy system and good communication. Examples of comments from the interviewees:

The different needs and opinions of the registrars will be taken into account for the evaluation of communication and policy formulation.

Fast response, easy to have a meeting.

Focus on two-way communication and updated related information in a timely manner.

The reasons why the interviewees think the services are “valuable” include good service contents and performance, e.g., availability of fast and comprehensive supports, as shown in the following comments:

Localization, zero differentiation and internationalization.

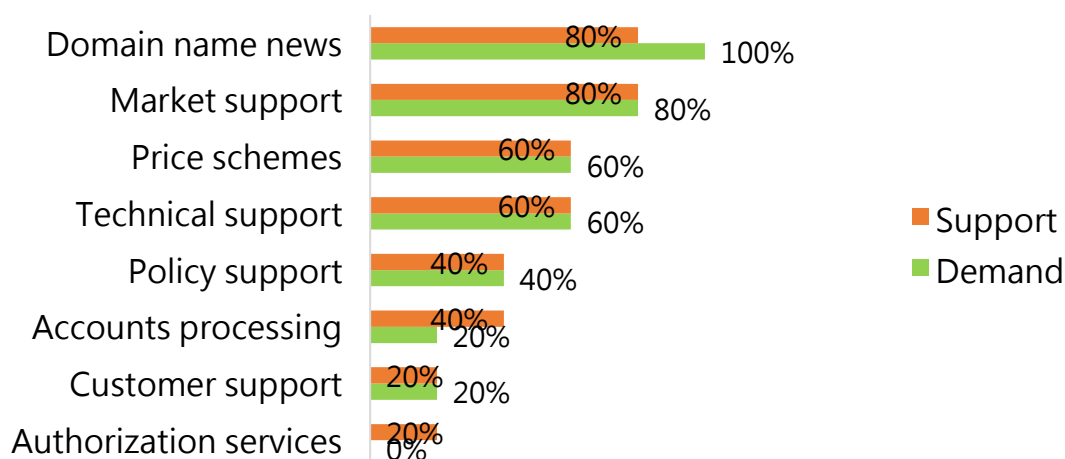
Comprehensive services for domain names are available.

Effective assistance can be provided to the registrars in promoting their services.

	Usage rate (n = 5)	n=	Satisfaction		n=	Value perceptions	
			Satisfied	Very satisfied		Satisfied	Very satisfied
Technical support	80%	4	25%	75%	5	20%	60%
Policy support	80%	4	0%	100%	5	0%	80%
Market support	80%	4	0%	75%	5	20%	60%
Price schemes	80%	4	0%	75%	5	20%	60%
Authorization services	60%	3	0%	100%	5	0%	60%
Customer support	60%	3	0%	100%	5	0%	80%
Accounts processing	40%	2	0%	100%	5	0%	60%

V. Business development needs and supports

With regard to registrar-registry cooperation in the authorization, the demands are consistent with the contents that need assistance. This indicates that every demand is accompanied by a need for assistance. All the interviewees consider the demand for “domain name news” to be high and 80% of them think that they need assistance.



VI. Participation in events and expectations and preferences

The rate of participation of the domain name registrars in conferences is 100%, while 80% of them have participated in training courses. This shows a high participation rate for both events. Among the future expectations for events, “host Chinese speakers or provide instant translation,” “upload videos for future reference” and “downloadable conference or course content summaries,” respectively, have the expectations of 60% of the interviewees.

The domain name registrars have, however, shown no preferences for training courses and forms and only hoped to add more topics such as industrial issues. Examples of comments from the interviewees:

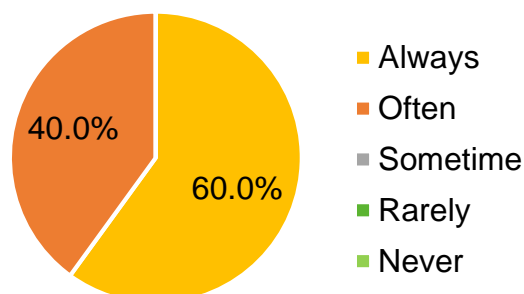
DNSs related to network technologies, diversification of domain value-added services, analysis of market status, etc.

Participation rate n=5	%
Conferences	100%
Training courses	80%
Event expectations n=5	%
Host Chinese speakers or provide instant translation	60%
Upload videos for future reference	60%
Downloadable conference or course content summaries	60%
Host more international speakers	40%
Provide live-streaming	20%
Provide certificate of participation or completions for attending	0%

VII. Information service

With respect to the frequency of attention from registrants to the Internet issues published by TWNIC, 60% of the registrants “always” pay attention and 40% of them “often” do so. The highest percentage of the registrants consider “work requirements” (100%) to be the reason for attention.

Frequency of attention



Reasons for attention		
	n	%
Work requirements	5	100.0%
To keep up with Internet news	4	80.0%
Personal interest	3	60.0%

The interviewees wish to add the following issues or information:

Real cases -

- | *customer use cases. why domains are better than a facebook page*
- | *Whois, cases of domain name application*

Latest knowledge worldwide -

- | *Trends in international development, sharing of cases*
- | *Development of foreign markets and its related news or applications*

Issues expected		
	n	%
A wider range of topics	4	80.0%
More varied perspectives	3	60.0%
More active publicity or advocacy	2	40.0%

VIII. Market awareness

80% of the interviewees consider market awareness to be high, and they think the reason for such awareness is that the service is already quite popular in the domestic market. The country code of Taiwan is well-known in the

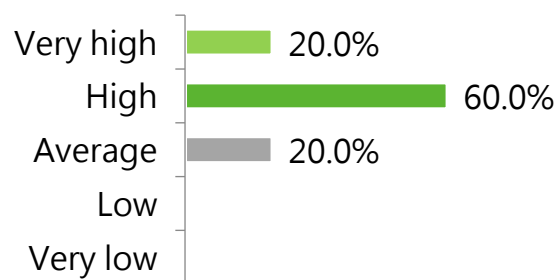
Taiwanese market, and its application therein is also widespread:

- | *In the domestic market, it has been promoted for years. Many people have extensively used all kinds of web services, so most of them are aware of the domain name of .tw.*

Some interviewees have pointed out that good awareness domestically does not necessarily mean it will also be the same internationally.

- | *Its international awareness is not better.*
- | *There is a minimum level of awareness for the country code of Taiwan in the Taiwanese market. The case is not necessarily the same in the international market.*

Market awareness

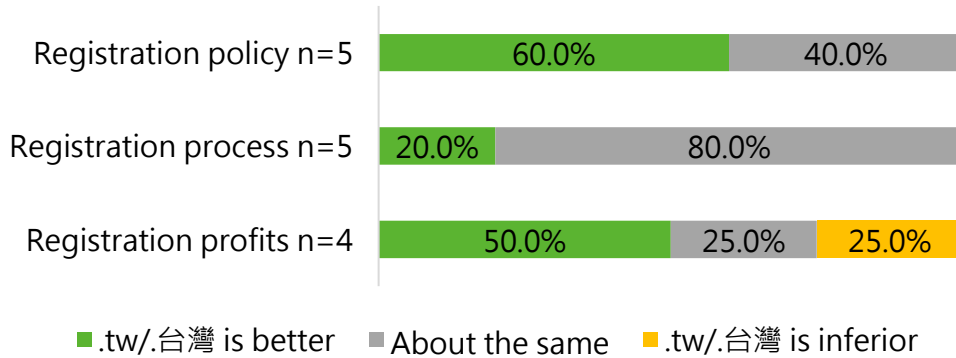


The interviewees think that the market awareness for [.tw/.台灣] can be enhanced by holding events and increasing public willingness to use it, as shown in the following comments:

- | *more events with registrars especially for small business*

Most people must have known the domain name of .tw. Therefore, by increasing their willingness to use it, its market visibility and awareness can be enhanced.

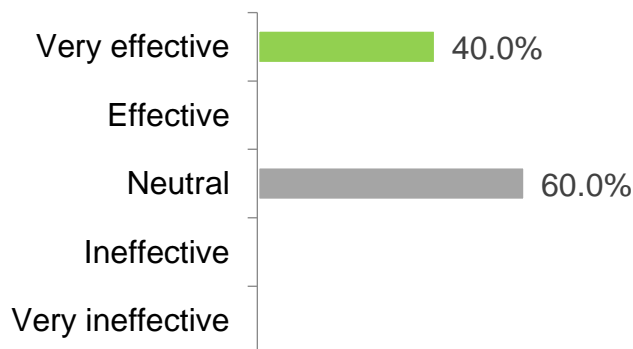
Difference in registration of top-level domain names



IX. Effectiveness of promotion in the market

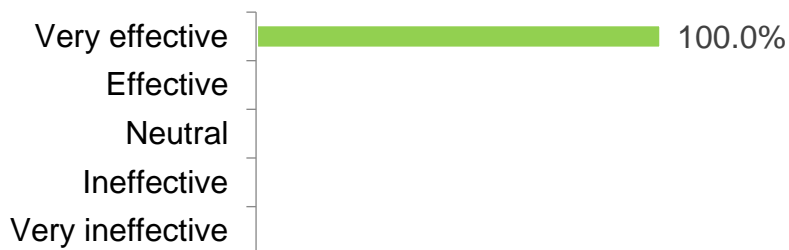
Two registrars consider that it is very effective to promote [.tw/.台灣] through the [price charged for management of domain name registrations]. Those domain name registrars that have provided cooperation for the [price plan for domain name sales in bulk] during the past year also consider the effectiveness of promoting [.tw/.台灣] through the [price charged for management of domain name registrations] to be very high.

Promotional effect of the price charged for management of domain name registrations n=5



40% of the registrars have engaged in cooperation with TWNIC during the past year for the [price plan for domain name sales in bulk].

Price plan for domain name sales in bulk n=2



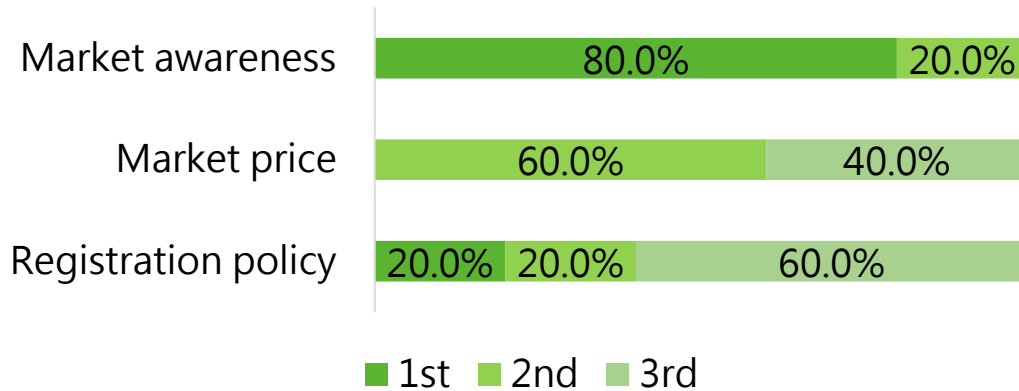
With respect to those interviewees that have not engaged in cooperation for the [price plan for domain name sales in bulk], the reasons for non-participation include restrictions for lowering the thresholds of specific methods for adjustment, as shown in the following comments:

- | *The requirements for the number of registrations are too high.*
- | *The threshold is too high, making it very difficult to sell URLs in a regular way.*

X. Expectations and recommendations

The domain name registrars consider the first priority for improvement of the country code top-level domain of Taiwan (.tw/.台灣) to be “market awareness” (80.0%).

Ranking of priorities for improvement to the country code top-level domains of Taiwan (.tw/.台灣)



A. Market awareness

It has been recommended that market awareness be enhanced through all forms of marketing or events.

- | *cosponsoring at events, conferences of any kind.*
- | *Increase visibility and participate in and sponsor industry-related events.*
- | *TWNIC can seek to increase the publicity of itself along with the country code domain.*

B. Market price

There are two kinds of recommendations for prices, namely creating high values and setting lower prices.

- | *For those who really want to use domains, price is not the most important factor for consideration. Instead, efforts should be focused on creating factors that make .tw needed and more suitable than any other type of domain.*
- | *There used to be a “com.tw” plan that provided subsidies as rewards. Such a model enables more flexible operation for registrars.*

C. Registration policies

The recommendations for registration policies are not consistent in their directions.

- | *The management of [.tw/.台灣] is currently at a low level and the threshold for registrants is also relatively low.*
- | *Registration policies that meet the demands of all parties concerned should be formulated.*
- | *The policies can be possibly made in line with the gTLD.*

XI. Section

The overall satisfaction of technical support is slightly lower than the satisfaction of service quality. In the future, we hope to pay more attention to the two-way communication with the domain name registrars, and timely update and notify of relevant information. And to achieve a better, more comprehensive domain name services. Stakeholders also made it clear that they hoped to increase technology and experience sharing in EPP Migration in the future. In general, domain name registrars not only affirm the existing services, but also expect TWNIC to provide more services while making continuous progress, and enhance its sense of trust in the organization.



Chapter IV.

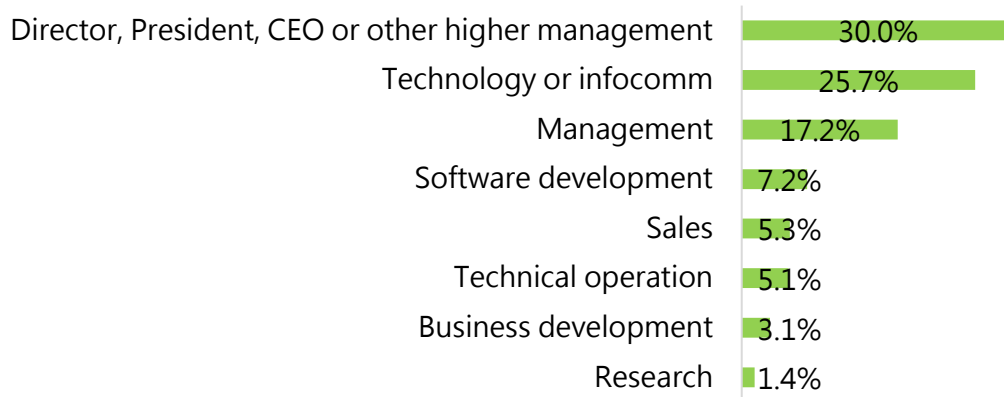
Domain Name
Registered
Registrant

Chapter IV. Domain Name Registered Registrant

I. Summary of implementation

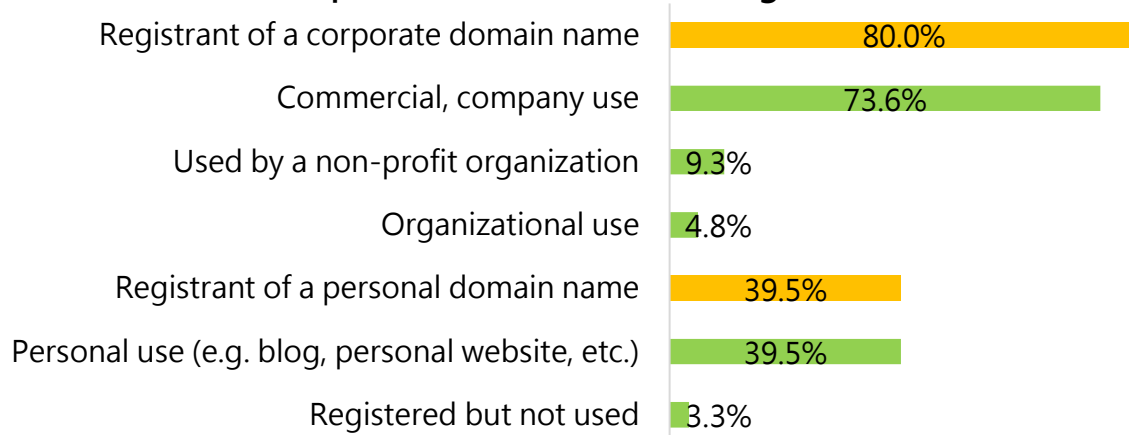
The majority of the domain name registered are for business, corporate and personal uses. The departments of the interviewees in this survey were specified by persons at or above the level of manager or members of the technical staff so that effective responses can be given to comments related to the use of services.

Departments



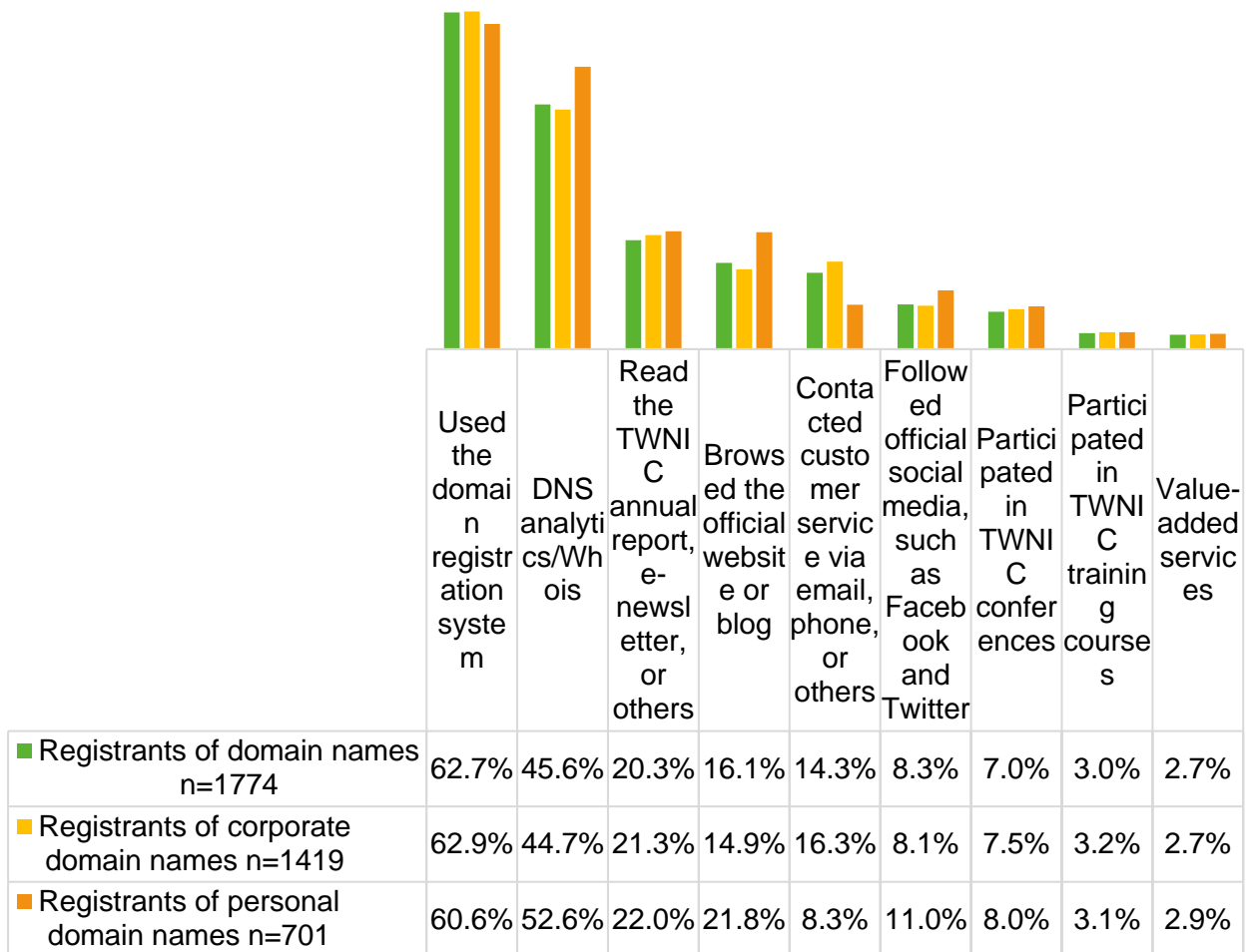
Among the interviewees in this survey, 74.1% are “main applicants or decision makers” and 21.3% are “participants in application or decision making” with 5% being neither. The survey is able to cover the contacts for interaction with respect to the understanding and rating of service usage.

Purposes of domain name registration



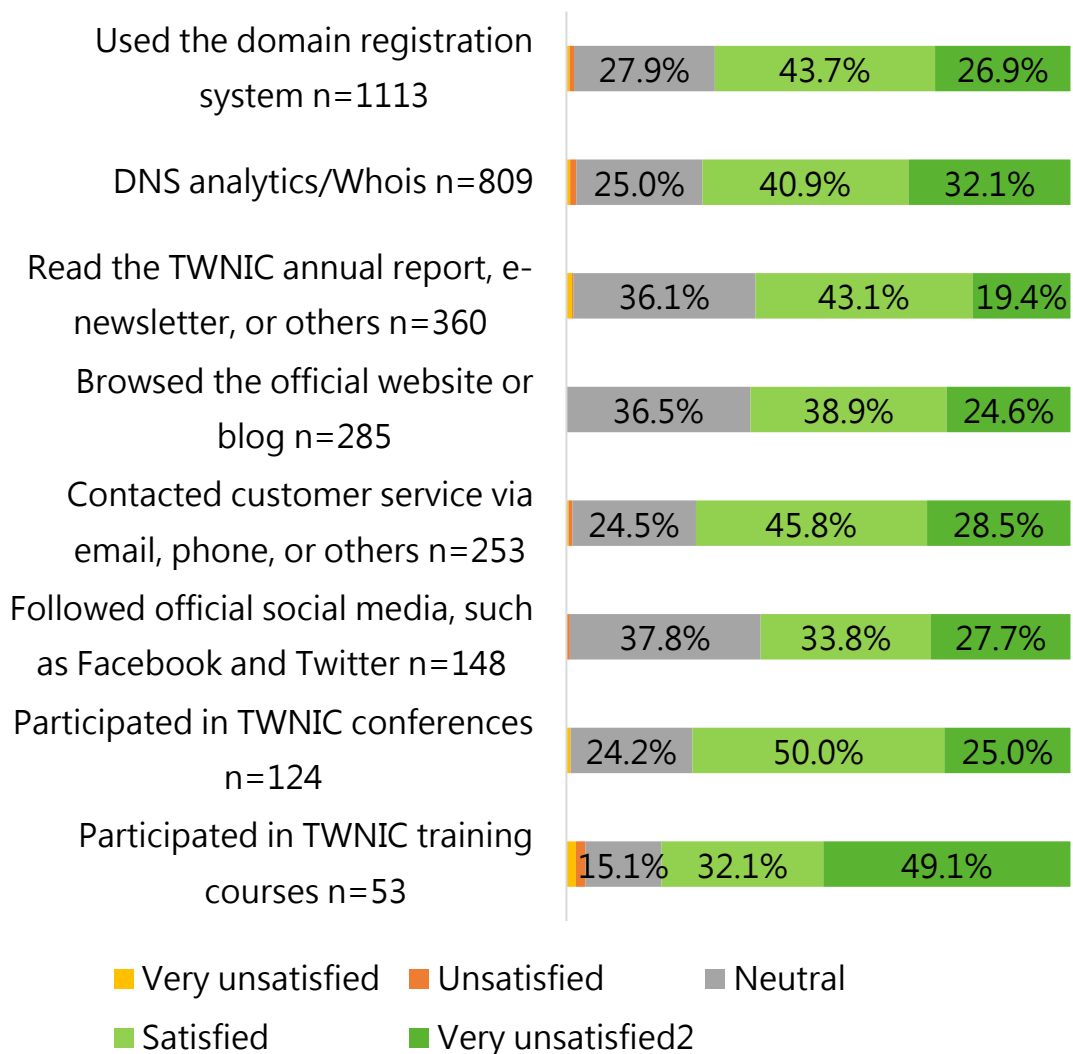
II. Service usage rate

The most frequently used service is the primary service “used the domain registration system” (62.7%), with no difference between the corporate and personal registrants. The service with the second highest usage rate is “DNS analytics/Whois” (45.6%) which has been used by a higher percentage of personal registrants. It is similar to the result of “browse the official website or blog” and both are services with a higher percentage of personal registrants. Conversely, “contacted customer service via email, phone, or others” has been used by a higher percentage of corporate registrants.



III. Satisfaction of the primary services

The satisfaction for “used the domain registration system” which has the highest usage rate, is 70.5%. This is a moderate result, i.e., the average value of satisfaction. 81.1% and 75% of the interviewees are satisfied with “participated in TWNIC training” and “participated in TWNIC conferences” respectively, which have the lowest and second lowest usage rates. Such results are in contrast to their usage rates. This shows that even though there are fewer participants, satisfaction with training courses and conferences is higher.



Reasons why the service you used is [great]	
Good customer service/Good service/Service is professional	18.8%
Stable/Fast speed/Smooth use	18.6%
Easy to operate	17.5%
Satisfactory/Good/Convenient	12.1%
Clear information/Fast information/Sufficient information	9.1%
Demands are met	2.0%
Inquiry is convenient/easy	1.4%
Other	5.4%
No problem/None	15.2%

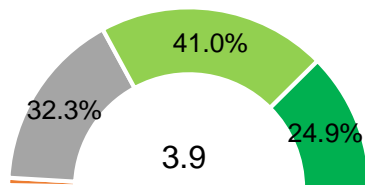
Reasons why the service you used is [not good]	
Interface is difficult to operate	30.2%
Service is not good	9.3%
Unaware of the service	9.3%
Process is complex	4.7%
Other	37.2%
None	9.3%

IV. Evaluation of the overall satisfaction and value perceptions

According to evaluation of the overall satisfaction of the domain name registrants toward TWNIC, both “service quality” and “technical support” are rated positively by over half of the registrars. 65.8% of the registrants are satisfied with the “service quality” provided by TWNIC, with an average score of 3.9. The satisfaction for “technical support” is 58.7%, with an average score of 3.8. According to evaluation of the satisfaction of the “corporate domain name registrants” and “personal domain name registrants”, the result is the same as that of the above-mentioned satisfaction for the services used,

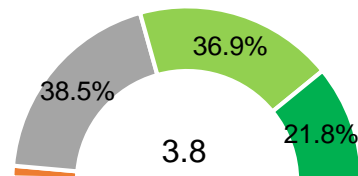
showing a better score for the satisfaction of the “corporate domain name registrants”. This indicates their satisfaction is higher than that of personal registrants.

Service quality



- Very unsatisfied
- Unsatisfied
- Neutral
- Satisfied
- Very satisfied

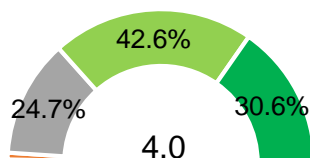
Technical support



- Very unsatisfied
- Unsatisfied
- Neutral
- Satisfied
- Very satisfied

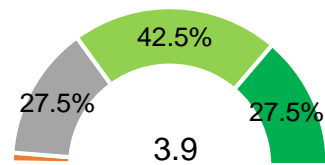
In addition to the overall satisfaction, the rating indicators for trust and value perceptions are included. 73.2% of the interviewees think “Trust to TWNIC”, and 70% of them consider that “Value of TWNIC service”. The average scores of both are 4.0 and 3.9 respectively, slightly higher than those of their satisfaction. The result of this indicator is the same as that of satisfaction, with the “corporate domain name registrants” showing better trust and value perceptions, while the percentage of “agree” is higher than that in the case of “personal domain name registrants”.

Trust to TWNIC



- Totally disagree
- Disagree
- Neutral
- Agree
- Totally agree

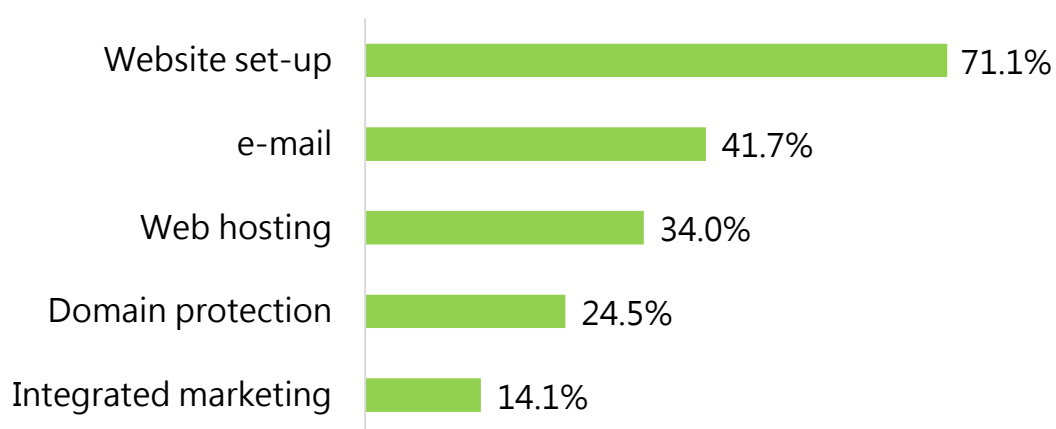
Value of TWNIC service



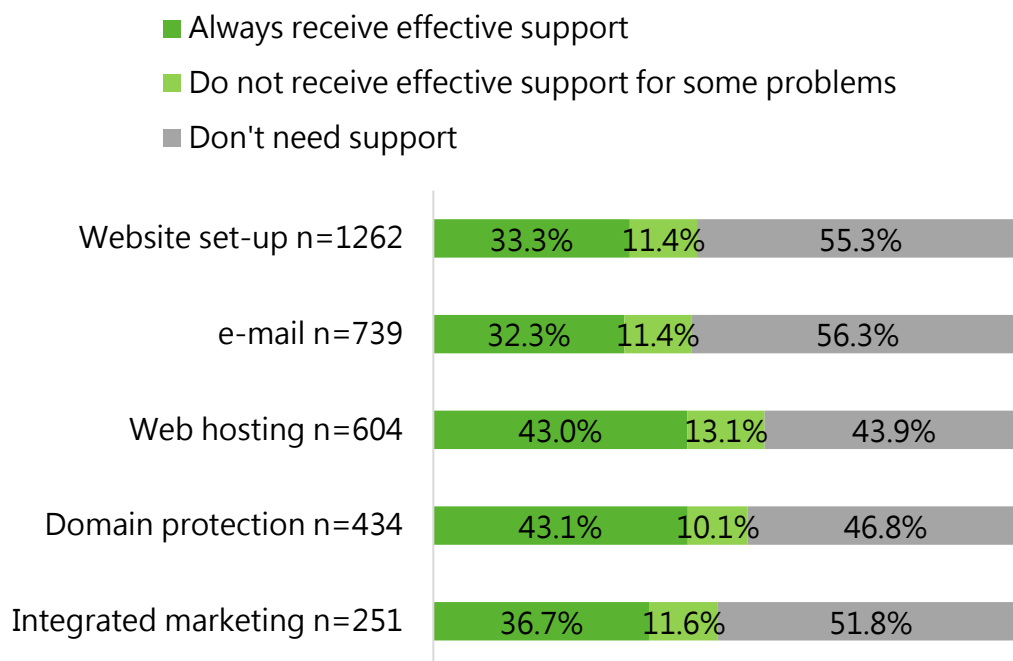
- Totally disagree
- Disagree
- Neutral
- Agree
- Totally agree

V. Business development needs and supports

With respect to the services using [.tw/.台灣 domain], the service “website set-up” has the highest usage rate of 71.1%, followed by “e-mail” (41.7%). The usage rate of each of the remaining services is lower than 40%. There is a slight difference between the services used by the “corporate domain name registrants” and “personal domain name registrants”. The percentage of the corporate registrants using either “e-mail” or “integrated marketing” is at least 5% higher than that of the personal registrants.



The registrants who have used services with [.tw/.台灣 domain] were then asked about the status of support. The lowest percentage of registrants in need of support appears in the services of “website set-up” and “e-mail”, which have the highest usage rates. The highest percentage of registrants in need of support appears in the case of “web hosting” whose percentage of “always receive effective support” (43.0%) is however higher than that of “do not receive effective support for some problems.” This indicates that whenever there is a need for support, assistance can always be received to completely manage it.



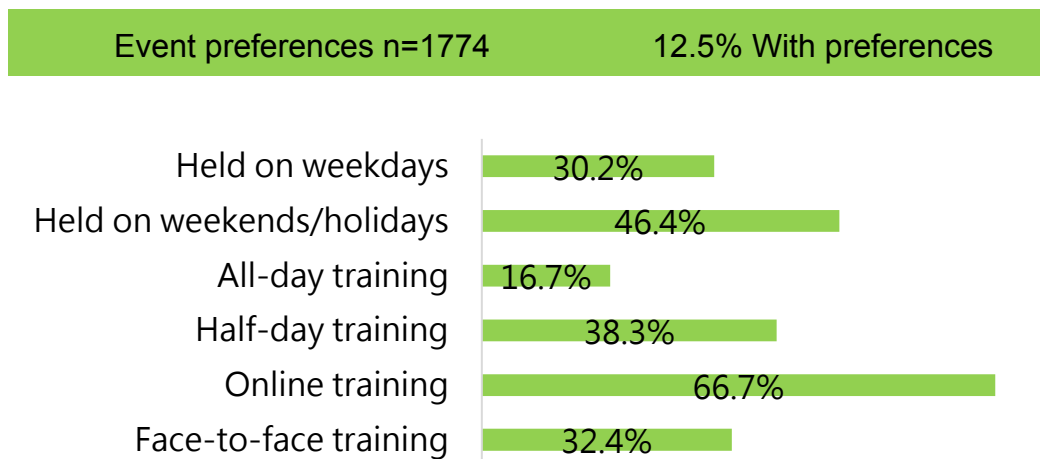
VI. Participation in events and expectations and preferences

The rates of participation of the domain name registrants in conferences and training courses are both lower than 5%, being 4.2% and 3.1%, respectively. There are no significant differences between the participation rates of corporate and personal registrants.

Participation rate n=1774	%
Conferences	4.2%
Training courses	3.1%
Reasons for non-participation n=1774	%
Didn't know about the event or course	53.6%
Didn't have time to participate	37.5%
Didn't receive invitation/Didn't know I could participate	37.3%
Wasn't interested in the topic	18.4%

Event expectations n=1774	%
Upload videos for future reference	63.5%
Downloadable conference or course content summaries	55.6%
Host Chinese speakers or provide instant translation	35.2%
Provide live-streaming	30.3%
Provide certificate of participation or completions for attending	25.9%
Host more international speakers	8.9%

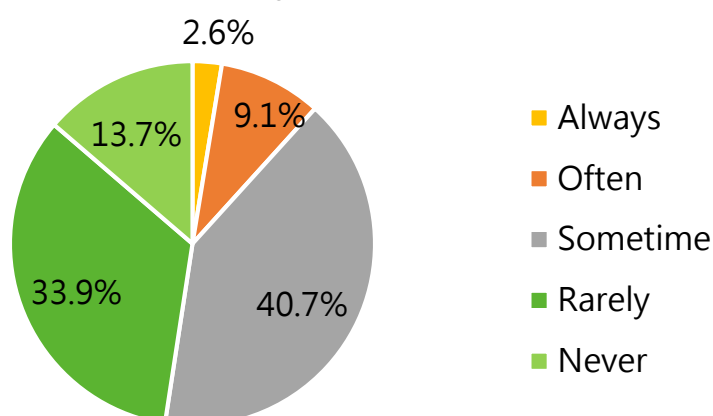
12.5% of the domain name registrants have indicated that they have preferred training courses and forms, including the organization of online training. The expectations for topics are primarily focused on cybersecurity.



VII. Information service

With respect to the frequency of attention from registrants to the Internet issues published by TWNIC, 40.7% of the registrants “sometimes” pay attention, and 33.9% of them “rarely” do so. The highest percentage of the reasons for attention appears in “to keep up with Internet news” (65.3%). Regarding the issues expected in the future, 51.6% of the interviewees think there should be “more varied perspectives” and “more active publicity or advocacy”. This shows that the registrants have expectations for information contents and marketing.

Frequency of attention



Reasons for attention

	n	%
To keep up with Internet news	999	65.3%
Work requirements	893	58.3%
Personal interest	562	36.7%

The interviewees wish to add the following issues or information:

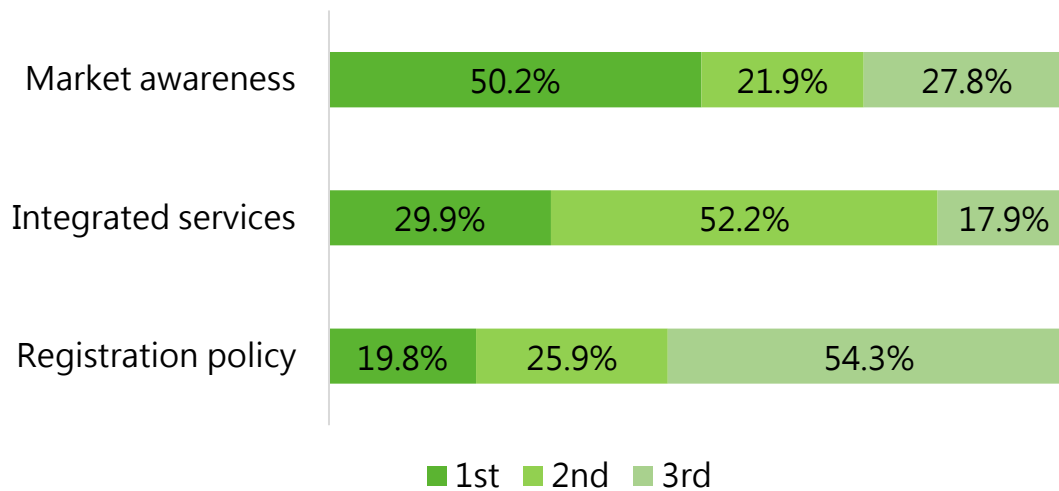
1. Cybersecurity - Hacking, network security, network defense
2. Internet news - Internet trends, industrial analysis
3. Domain names - New domain names, domain marketing, security of domain names, protection of domain names
4. Other - Integrated marketing, SEO

Issues expected		
	n	%
More varied perspectives	915	51.6%
More active publicity or advocacy	915	51.6%
A wider range of topics	892	50.3%
More topics I want to learn about	827	46.6%

VIII. Expectations and recommendations

Over half of the registrants consider the first priority for improvement of the country code top-level domain of Taiwan (.tw/.台灣) to be “market awareness” (50.2%), followed by “integrated services” (29.9%).

Ranking of priorities for improvement to the country code top-level domains of Taiwan (.tw/.台灣)



A. Market awareness

- Expand international awareness/Make the country code top-level domain (.tw/.台灣) known internationally
- Increase exposure/Organize more marketing events
- Promote advantages

B. Integrated services

- Comprehensive/Integrated services
- One-page website, simple interface, intuitive operation
- Availability of one-stop service

C. Registration policies

- Regulations of registration strategies
- Protection of registered personal information
- Optimization of the registration process

IX. Section

Regarding the slightly lower satisfaction of technical support compared to the satisfaction of service quality, it is possible that the reasons are unclear availability of existing services or fails to receive corresponding support, by speculating from the interviewees' responses of the questionnaire interview. For example, the required functions or data are incomplete, or the reverse resolution is not available. The design of websites and service interfaces should focus more on user experience. First of all, it is necessary to improve its ease of use and make webpage operations more intuitive. In the future, it is also advisable to strengthen the awareness and visibility of the promotion center in expanding various technical support services and provide more comprehensive technical support for stakeholders.



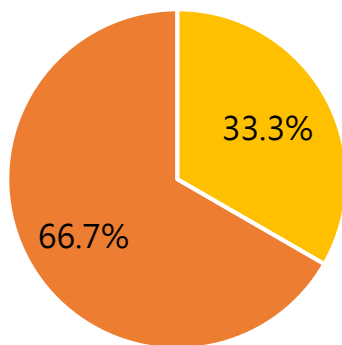
Chapter V. **IP Members**

Chapter V. IP members

I. Summary of implementation

The first question of the questionnaire asks the members about the purposes of application for IPs. The members are divided into “IP registrants (Non-IP registrars)” which “apply for IPs to be used by themselves” and “IP registrars” which “apply for IPs to be used by other companies/agencies.” The ratio between both categories is 7:3, and “IP registrants” account for the majority in this survey.

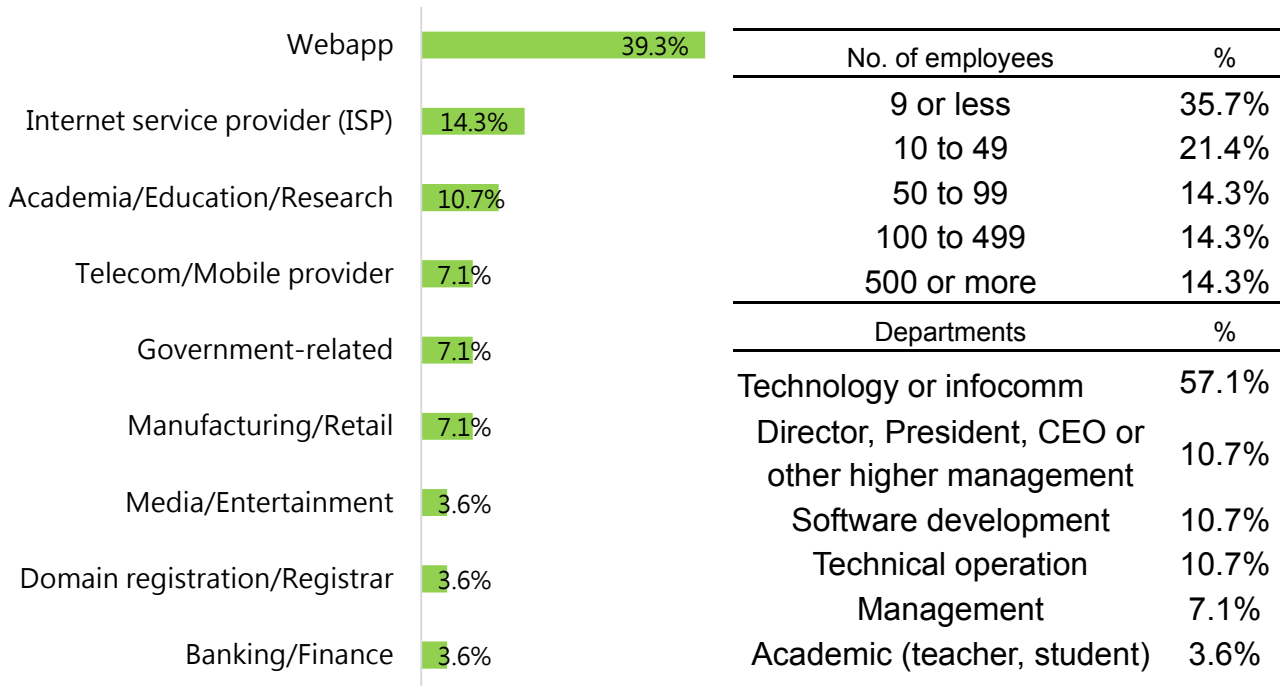
IP Registrar 30%



- have a dedicated IP registration department
- No

With an independent department		N = 4
Department	No. (of persons)	
Web administration	10	
Computer lab	2	
Engineering	3	
IP Dept	20	
With no independent department		N = 8
Department	No. (of persons)	
Web/Information Technology	2~5	
Engineering	1	
NOC/ MIS/ EBU	2	
	1~10	

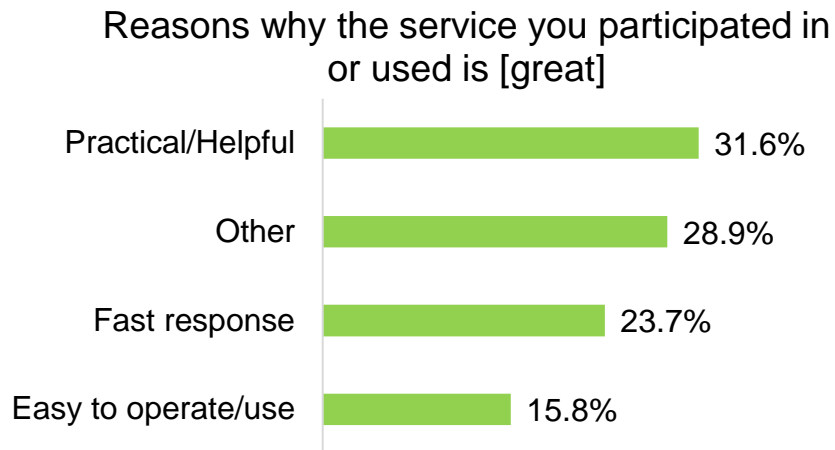
Non-IP Registrar 70%



With respect to the evaluation of satisfaction toward the relevant services used, all the services are largely rated positively. “read the TWNIC annual report, e-newsletter or others,” “followed official social media” and “Taiwan IPv6 global ranking website” all have 100% satisfaction.

	Usage rate			N =	Satisfaction	
	IP members	IP registrants	IP registrars		IP members	IP registrants
	N = 40	N = 28	N = 12		N = 40	N = 28
Contacted customer service via email, phone, or others	55.0%	57.1%	50.0%	22	45.5%	50.0%
IP membership registration/IP membership request website	50.0%	46.4%	58.3%	20	60.0%	35.0%
Read the TWNIC annual report, e-newsletter, ISP yearbook, or others	47.5%	50.0%	41.7%	19	52.6%	47.4%
IP address/ASN allocation, second opinion audit	40.0%	39.3%	41.7%	16	43.8%	50.0%
Global IP address and AS number statistics	37.5%	28.6%	58.3%	15	46.7%	46.7%
Used the RPKI management system/RPKI Validator website	37.5%	32.1%	50.0%	15	40.0%	40.0%
Attended TWNIC conferences	35.0%	25.0%	58.3%	14	50.0%	50.0%
Used the RMS resource management system	32.5%	25.0%	50.0%	13	38.5%	38.5%
Participated in TWNIC training courses	30.0%	25.0%	41.7%	12	50.0%	41.7%
Browsed the official website or blog	30.0%	35.7%	16.7%	12	50.0%	41.7%
Followed official social media	17.5%	17.9%	16.7%	7	57.1%	42.9%
Taiwan IPv6 Global Ranking website	12.5%	7.1%	25.0%	5	20.0%	80.0%

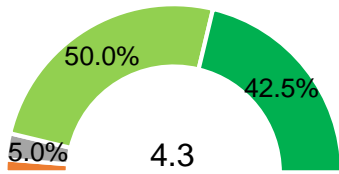
The reasons for good satisfaction with the services include the simplicity and high usability of websites, good perceptions toward the services, etc.



II. Evaluation of the overall satisfaction and value perceptions

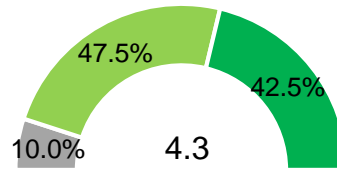
According to evaluation of the overall satisfaction of the IP members toward TWNIC, both “service quality” and “technical support” are rated positively by the IP members, with an average score of 4.3. A further analysis of the perceptions of the “IP registrants” and “IP registrars” toward the overall satisfaction shows that half of the “IP registrars” are 100% satisfied with “service quality” and “technical support” and that half of the “IP registrants” think they are good.

Service quality



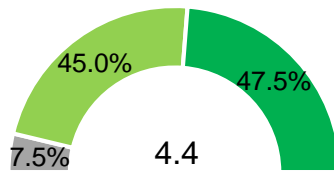
- Very unsatisfied
- Neutral
- Very satisfied
- Unsatisfied
- Satisfied

Technical support



- Very unsatisfied
- Neutral
- Very satisfied
- Unsatisfied
- Satisfied

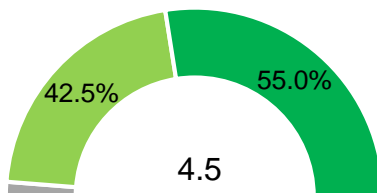
IP address allocation



- Very unsatisfied
- Neutral
- Very satisfied
- Unsatisfied
- Satisfied

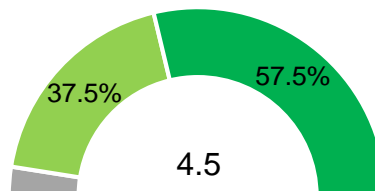
The primary service of “IP address allocation” has slightly higher satisfaction with an average score of 4.4. The satisfaction of the “IP registrants” is higher than that of the “IP registrars.” With regard to trust and value perceptions, more than 50% of the interviewees think they are “very good” while the “IP registrars” have better trust and value perceptions.

I trust TWNIC



- Totally disagree
- Neutral
- Totally agree
- Disagree
- Agree

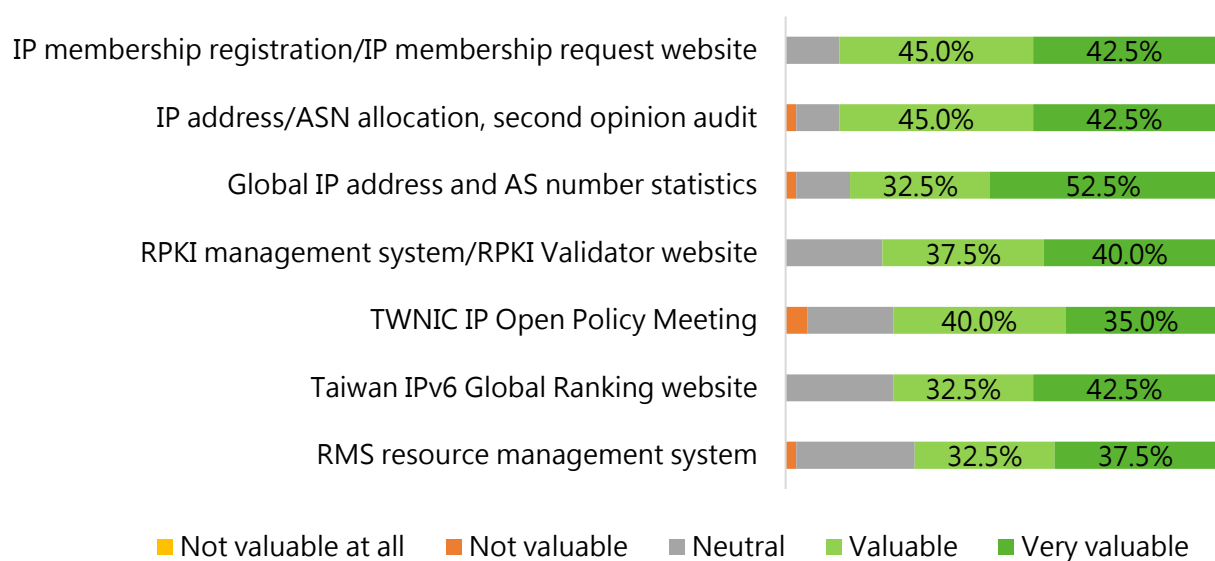
Value of TWNIC service



- Totally disagree
- Neutral
- Totally agree
- Disagree
- Agree

III. Evaluation of service value perceptions

According to the evaluation of the value perceptions of the IP members toward the registration services, the primary services of “IP member registration/IP membership request website” and “IP address/ASN allocation, second opinion audit” have the highest value perception, or 87.5%. The reasons for such positive perceptions include good services, flexible sales and diversified development.



Value	n	%
Effective IP management/integration	9	22.5%
More service aspects	7	17.5%
More customers/revenues	4	10.0%
Other	10	25.0%
None	10	25.0%
Total	40	100.0%

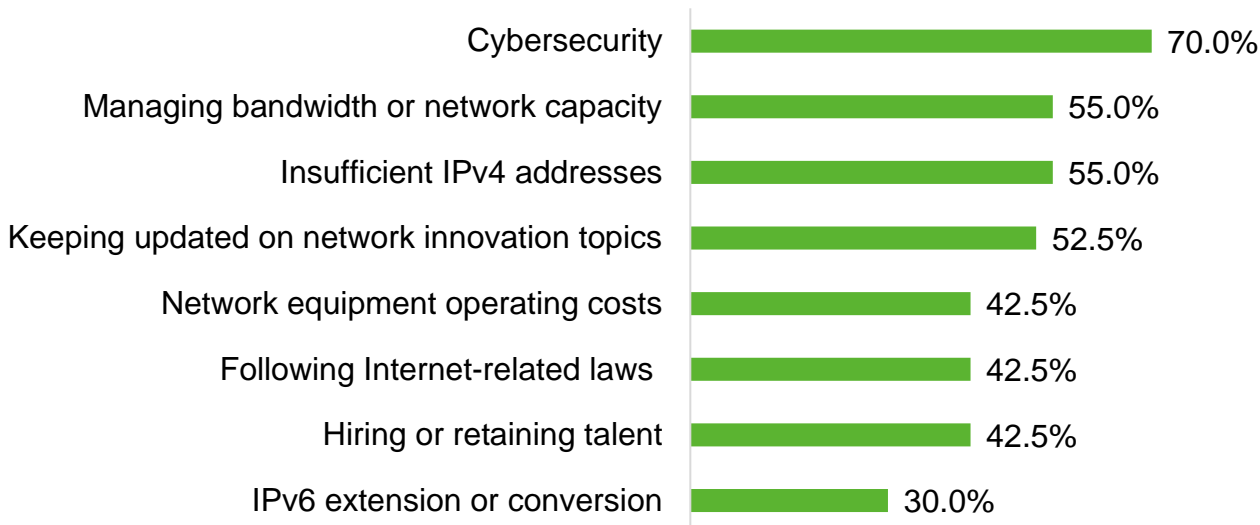
IV. Formulation of IP allocation policies and satisfaction

30% of the IP members or 12 interviewees have participated in the “formulation of IP allocation policies” including 7 from non-IP registrars and 5 representing IP registrars. Both are 100% satisfied with the formulation of such policies.

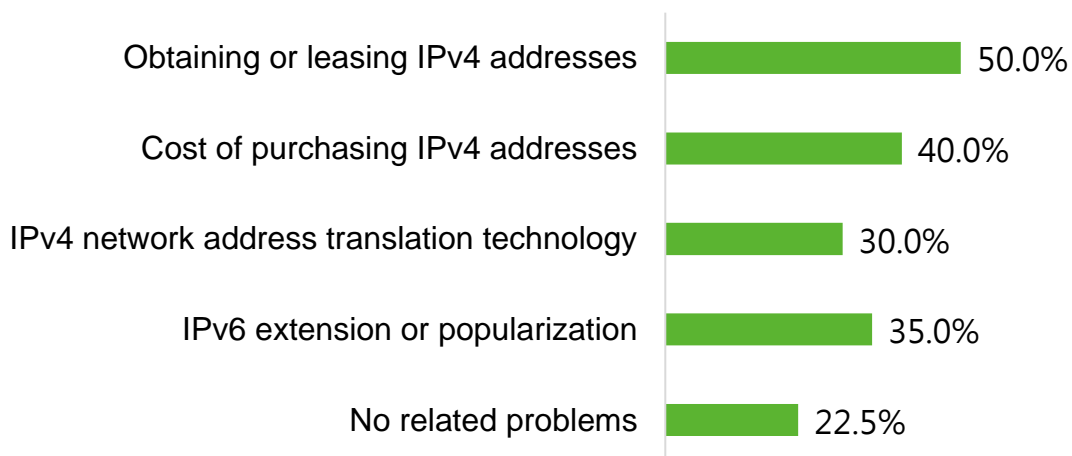
Stakeholder	Participation rate	Satisfaction
Non-IP Registrar	25%	100% 42.9% Satisfied, 57.1% Very satisfied
IP Registrar	41.7%	100% 60% Satisfied, 40% Very satisfied

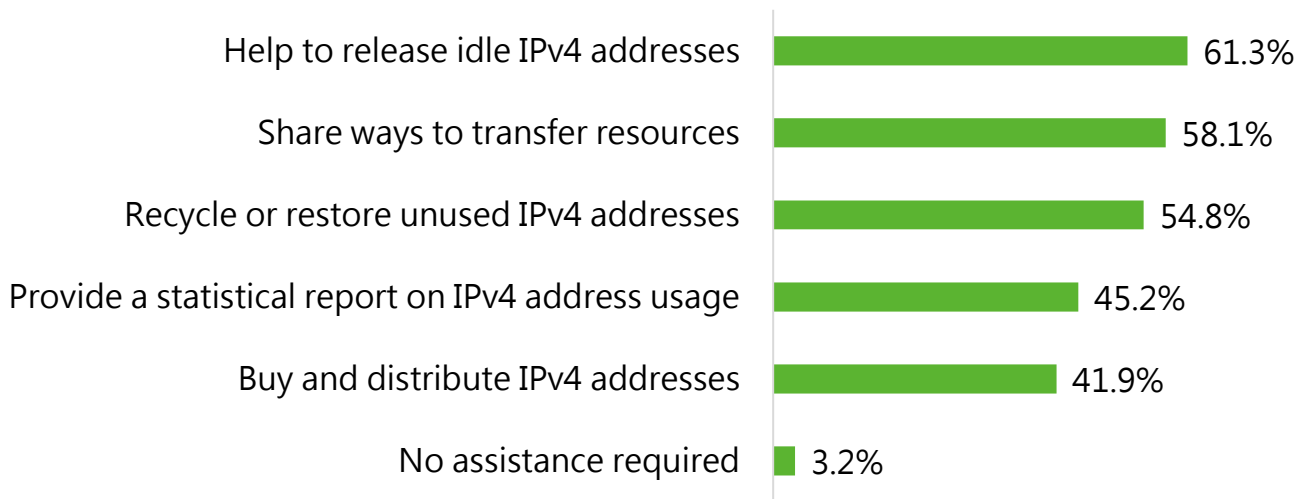
V. Service challenges and difficulties in IPv4 scarcity

70% of the IP members the challenge currently faced by the Internet services is “cybersecurity” (70%), followed by “managing bandwidth or network capacity” (55%) and “insufficient IPv4 addresses” (55%).



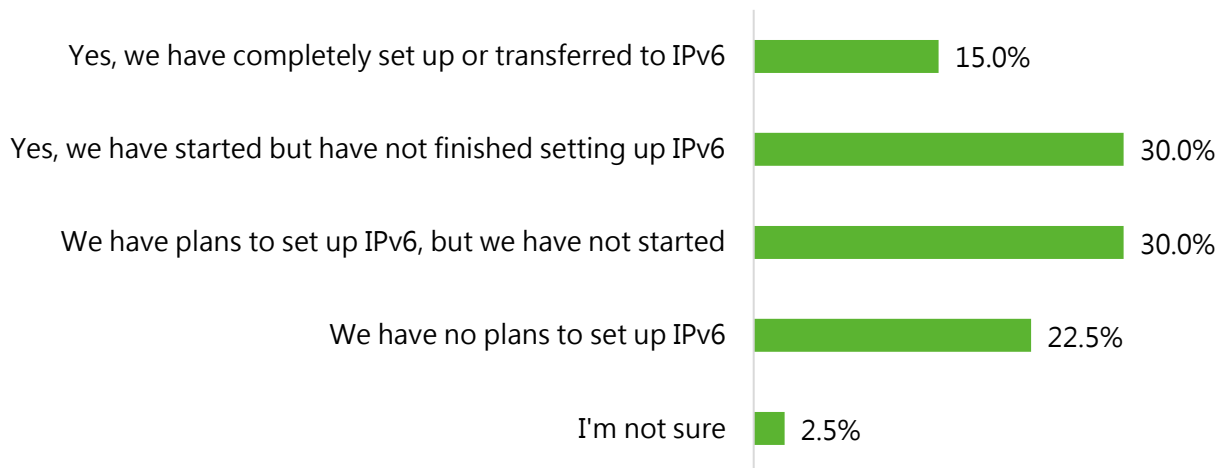
77.5% of the IP members have difficulties in IPv4 scarcity. Among the two categories of stakeholders with different IP usage and roles, just 71.4% of the “IP registrants” think there are difficulties, while up to 91.7% of the “IP registrars” think so. This shows that in the case of “IP registrars” the difficulties in IPv4 and challenges in IPv6 provisioning are both higher than those for the “IP registrants.”



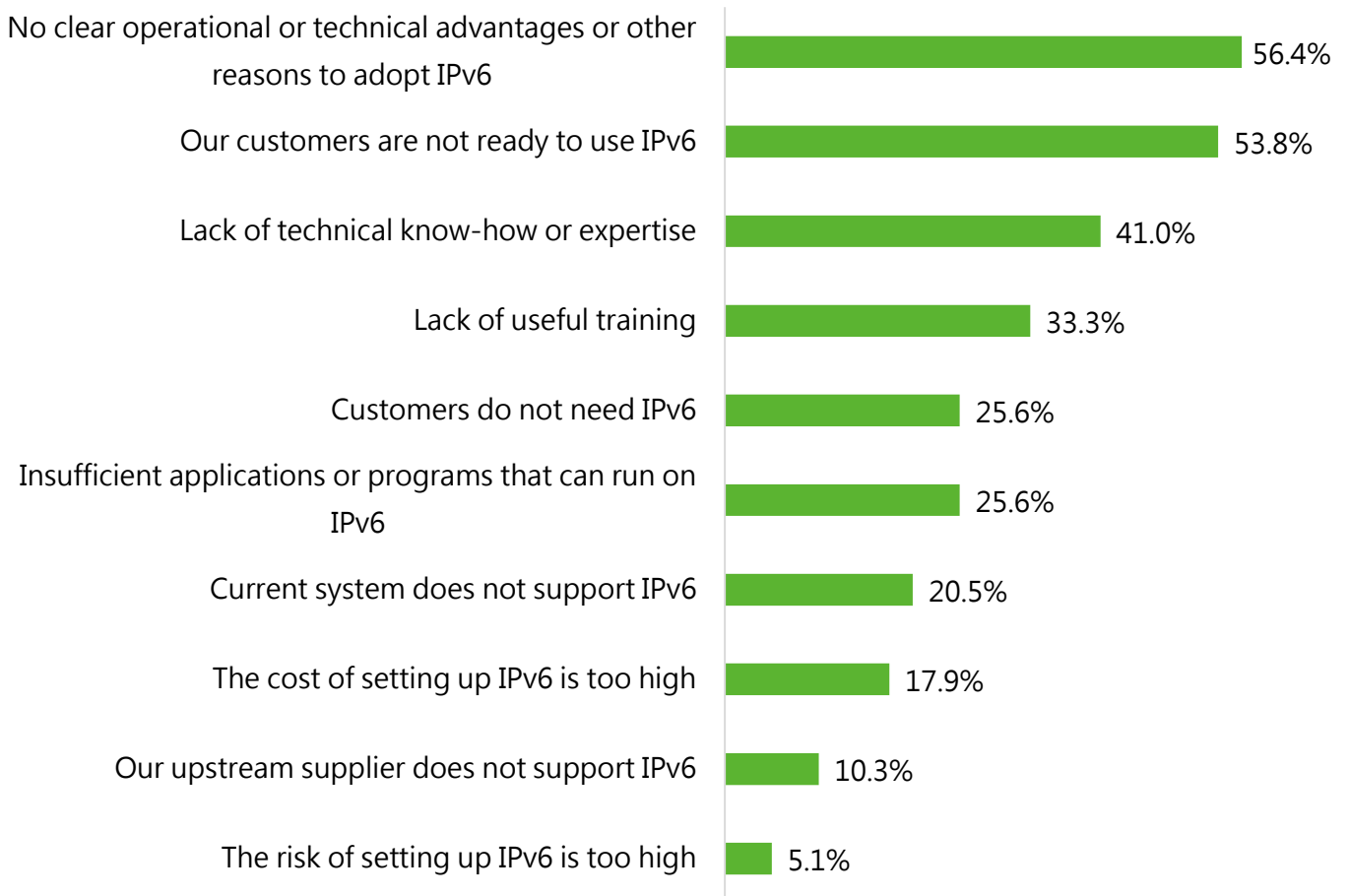


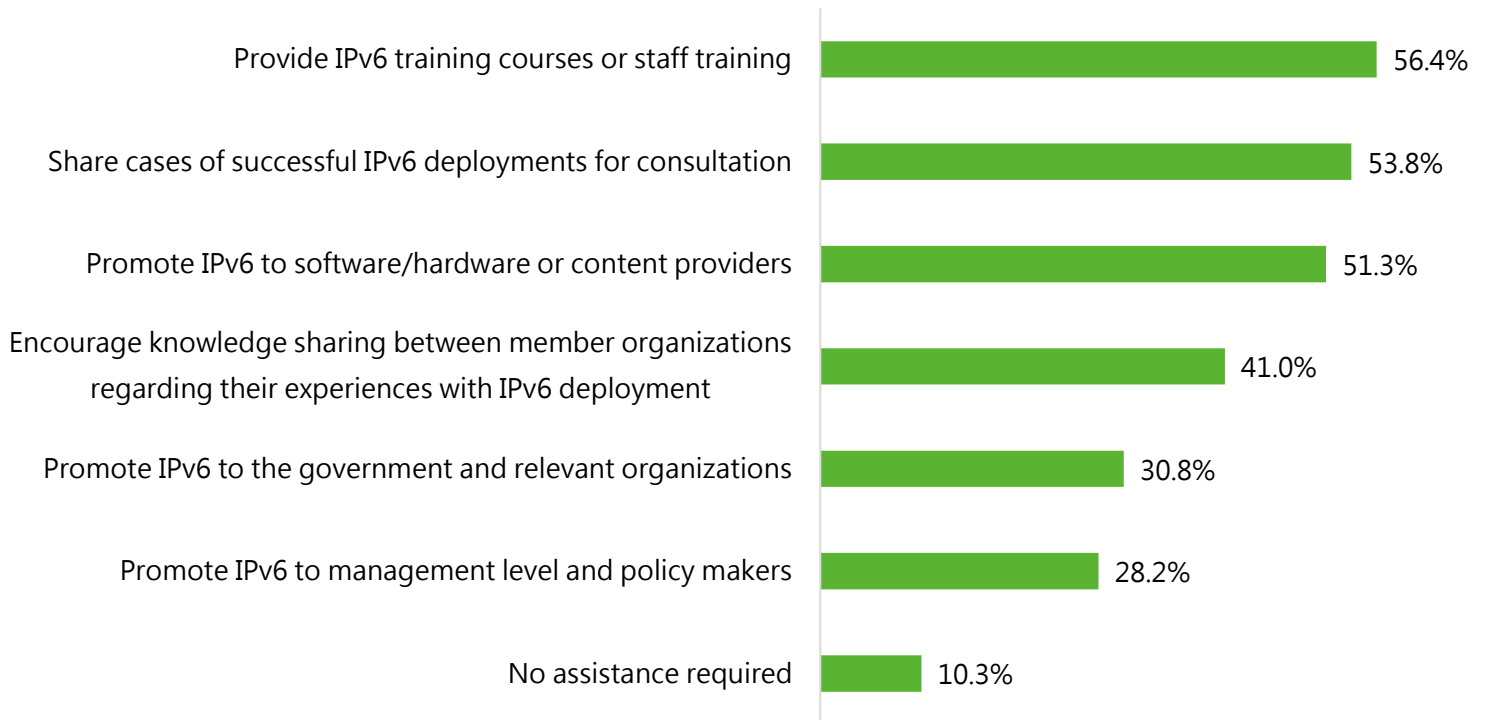
VI. IPv6 provisioning and preparation

45% of the IP members said they have begun to carry out their plans for provisioning of or transition to IPv6. Overall, only 15% of the IP members have completed provisioning or transition. 30% of them have yet to complete their plans, and 30% have not started to carry out their plans. In comparison, the rate of plan completion is higher in the case of “IP registrars.”



Among the difficulties in IPv6 provisioning, the lack of motivation is the one faced by the most IP members - “no clear operational or technical advantages or other reasons to adopt IPv6” (56.4%) and “Our customers are not ready to use IPv6” (53.8%), followed by the lack of technical knowledge - “lack of technical know-how or expertise” (41%) and “lack of useful training” (33.3%).





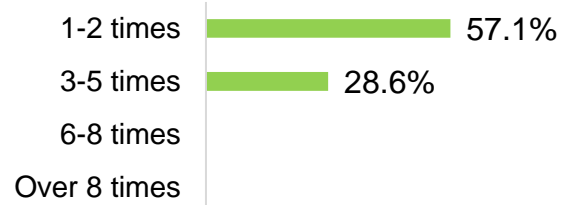
VII. Participation in events

The rate of participation of the IP registrars in the training courses co-organized by APNIC is over 50%, with the majority of them participating in such courses twice at most. The satisfaction is 100%. In comparison, the participation rate of the IP registrants is lower, and their satisfaction is also lower.

IP registrars

Participation rate
58.3%
(n=12)
Satisfaction
100%
(n=7)

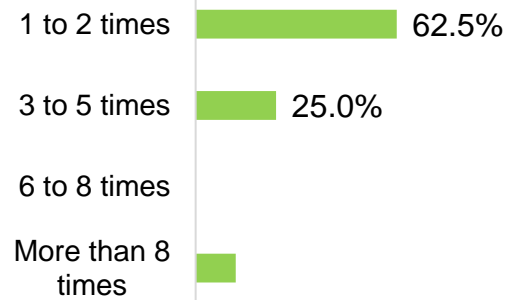
Frequency of participation n=7



IP registrants

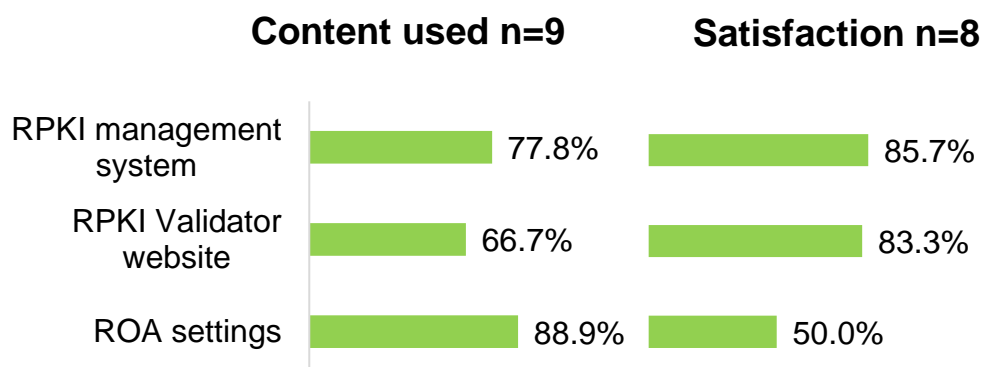
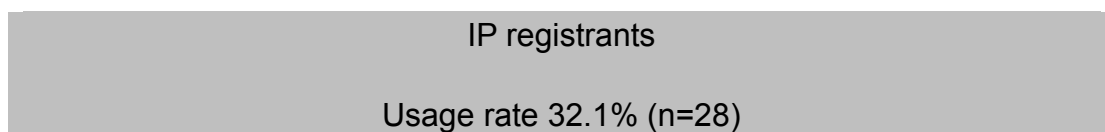
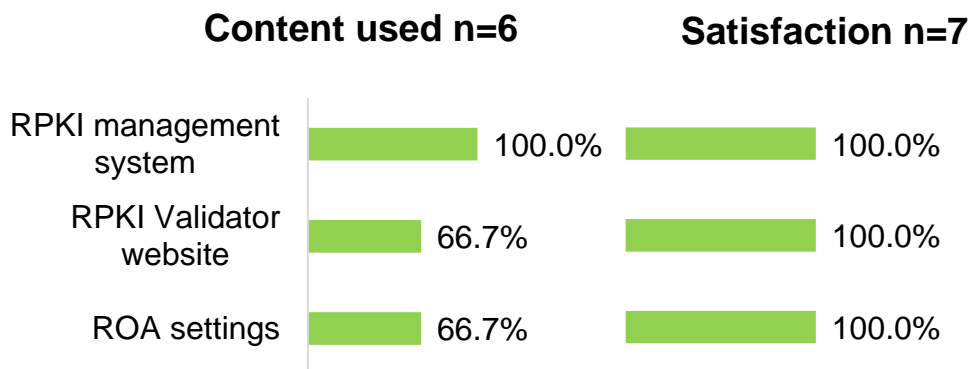
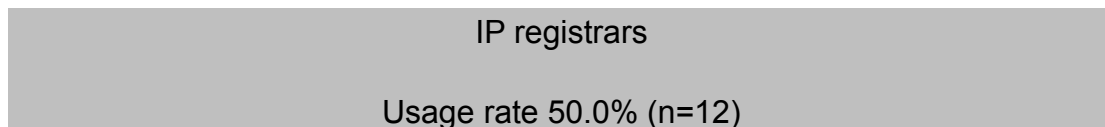
Participation rate
28.6%
(n=28)
Satisfaction
87.5%
(n=8)

Frequency of participation n=8



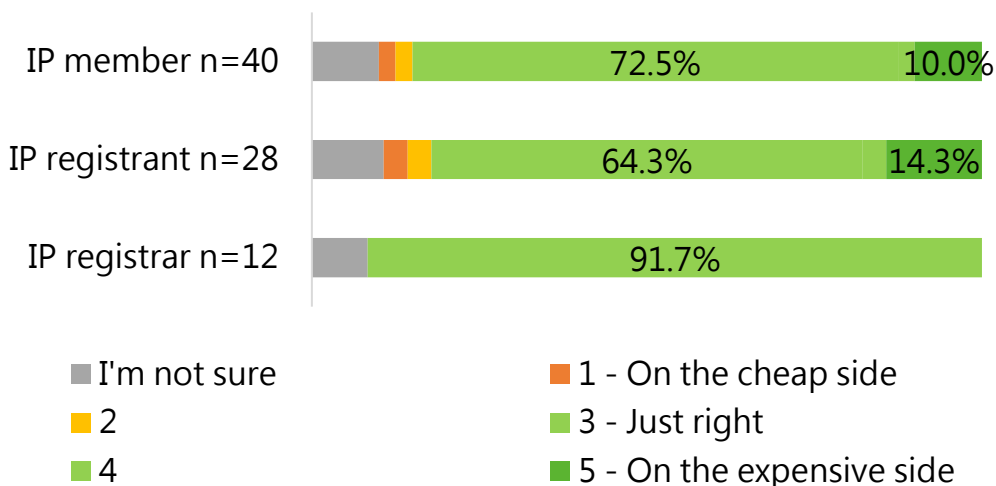
VIII. RPKI services

With respect to the use of the RPKI services provided by TWNIC, half of the IP registrars have used the services, while all of them have used the service of “RPKI management system”. The satisfaction for all the services is 100%. Around 30% of the IP registrants have used the services, and “ROA settings” has been used by the highest percentage of them. However their satisfaction is relatively lower.

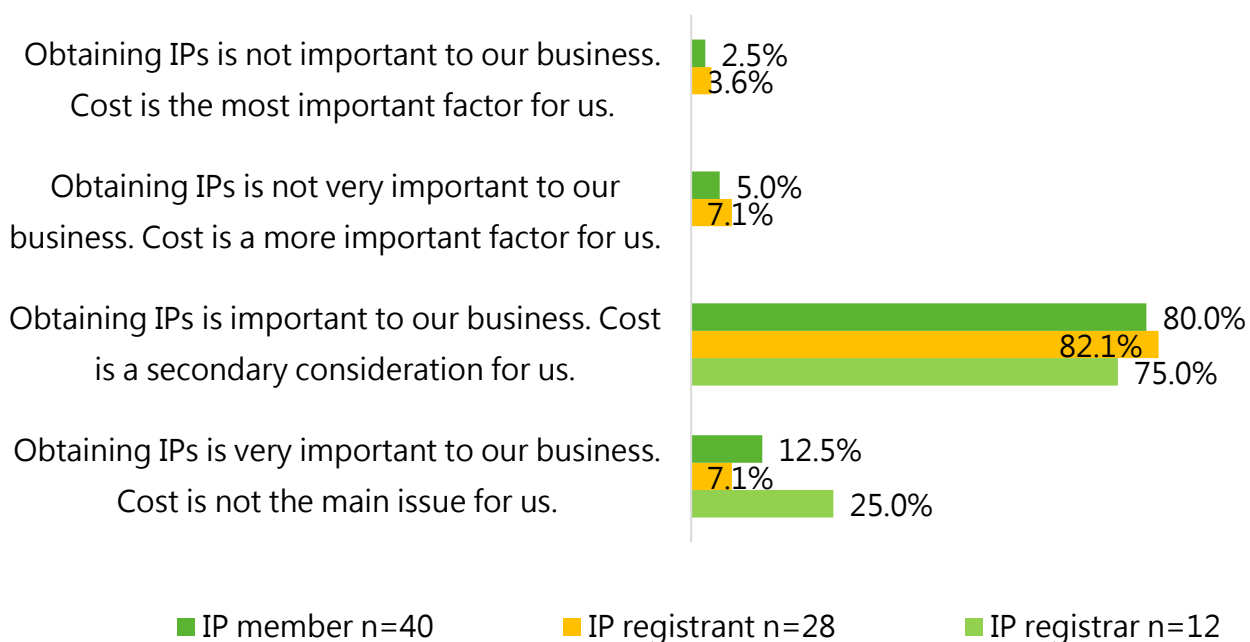


IX. Strategy for charges

Over 70% of the IP members consider the strategy of [charges for IP allocation] to be “just right”, while more than 90% of the “IP registrars” think that the charges are reasonable.



Most of the stakeholders consider the charges to be “just right” and they also show uniformity regarding the values of the services and charges. Around 80% of either the “IP registrants” or “IP registrars” consider that “obtaining IPs is important to our business, and cost is a secondary consideration for us.



X. Participation in events and expectations and preferences

The rates of participation of the IP members in conferences and training courses are 45% and 52.5% respectively. The rate of the “IP registrars” is nearly 10% higher than that of the “IP registrants”.

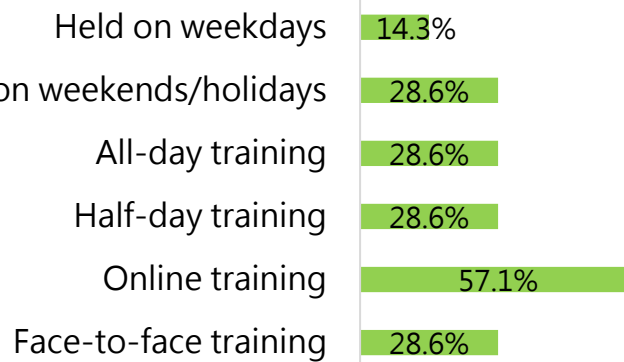
Participation rate n=40	%
conference organized	45%
training courses	52.5%
Reasons for non-participation n=40	%
Didn't have time to participate	65.0%
Wasn't interested in the topic	40.0%
Didn't receive invitation/Didn't know I could participate	20.0%
Didn't know about the event or course	20.0%

Event expectations n=40	%
Upload videos for future reference	72.5%
Downloadable conference or course content summaries	55.0%
Host Chinese speakers or provide instant translation	47.5%
Provide certificate of participation or completions for attending	30.0%
Host more international speakers	17.5%
Provide live-streaming	17.5%

Among the future expectations for events, “upload videos for future reference” (72.5%) is ranked first, followed by “downloadable conference or course content summaries” (55%). The expectations for both are over 50%, showing that compared to the addition of more features or values added, the preservability of contents is more important.

Event preferences n=40

12.5% With preferences



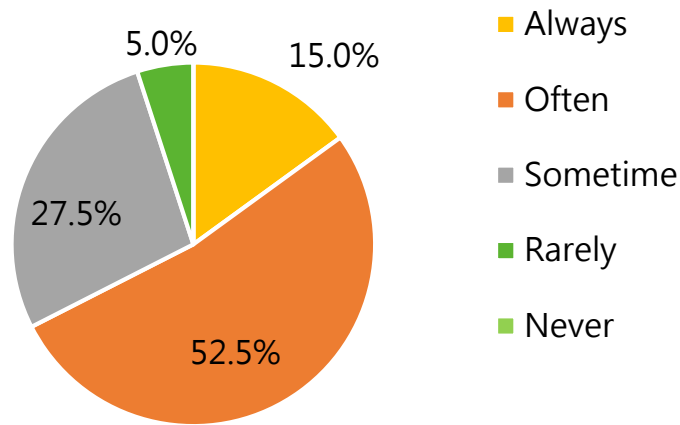
The interviewees wish to add the following issues or information:

- Technical application - Access to IPv6 information, CLOUD & SDN network application
- Sharing of real cases - Sharing of real cases about technical application
- Cybersecurity information - The status, difficulties and solutions regarding the defense against DDoS attacks in Taiwan; the use of allocated IPs with their own Cloud to build a network security mechanism

XI. Information service

With respect to the frequency of attention to the Internet issues published by TWNIC, 52.5% of the interviewees “often” pay attention, and 27.5% of them “sometimes” do so. The highest percentage of the reasons for attention appears in “to keep up with Internet news” (65.3%).

Frequency of attention



Reasons for attention

	n	%
To keep up with Internet news	33	82.5%
Work requirements	31	77.5%
Personal interest	18	45.0%

Regarding the issues expected in the future, 67.5% of the interviewees think there should be “a wider range of topics” and “more varies perspectives”. Their main expectations are for the diversity and coverage of the issue contents.

The interviewees wish to add the following issues or information:

1. Network/Information security
2. Technologies - Construction and application of high-speed networks in the future, how ISPs work with TWNIC in network deployment
3. Latest knowledge worldwide - Experience and practices in other countries regarding network maintenance and operation
4. Innovative application - IoT application, cloud development; topics related to 5G and AI

Issues expected		
	n	%
A wider range of topics	27	67.5%
More varied perspectives	26	65.0%
More topics I want to learn about	16	40.0%
More active publicity or advocacy	10	25.0%

XII. Section

IP distribution service has more outstanding satisfaction. According to the interviewees of the questionnaire interview, we can see that to improve service quality, we can develop online service, increase education and training, or provide online resources and technology exchange platforms. In terms of technical support, some interviewees raised technical requirements for anti-DDoS. Looking for upstream ISP/Hosting Providers that support Flow Spec, and Anycast Global Edge Hosts to process traffic in-place and with Flow Spec to achieve high-efficiency packet loss from upstream ISPs.

Besides, in the face of conversion from IPv4 to IPv6, it needs more technical support in deployment.

Although there is not much demand from IP members in terms of expectations and suggestions, however, 70% of IP members believe that network business is currently facing challenges of "Network Information Security." Thus, it shows that information security will be a service that can be provided.

Besides, more than 90% or nearly 90% of IPv4 scarcity and IPv6 deployments are considered to require TWNIC assistance. The assistance methods include "Assisting in releasing idle IPv4 addresses" (61.3%) and "Sharing related methods of resource transferring" (58.1%), as well as "Providing IPv6 education training or talent training" (56.4%), "Sharing the reference case for the successful deployment of IPv6" (53.8%). With case sharing, education, and training is also part of the business that TWNIC can start to build.

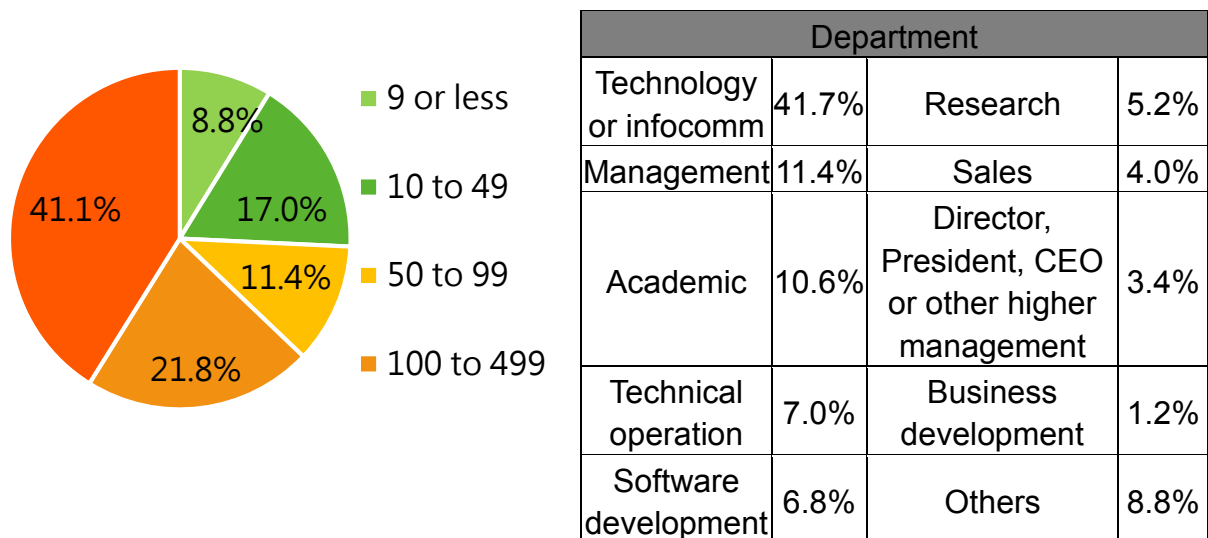
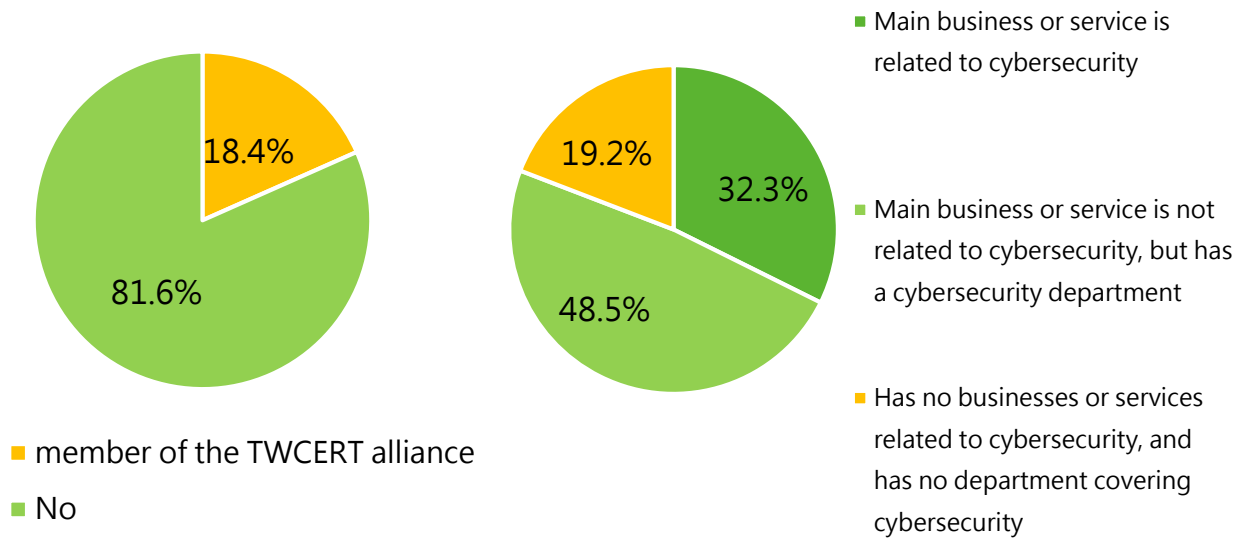


Chapter VI

Subscribers of
TWCERT/CC
E-Newsletter

Chapter VI. Subscribers of TWCERT/CC E-Newsletter

I. Summary of implementation



II. Service awareness and usage rate

The TWCERT/CC service with the highest awareness is “notices on cybersecurity vulnerabilities”. Among the members of TWCERT Alliance who

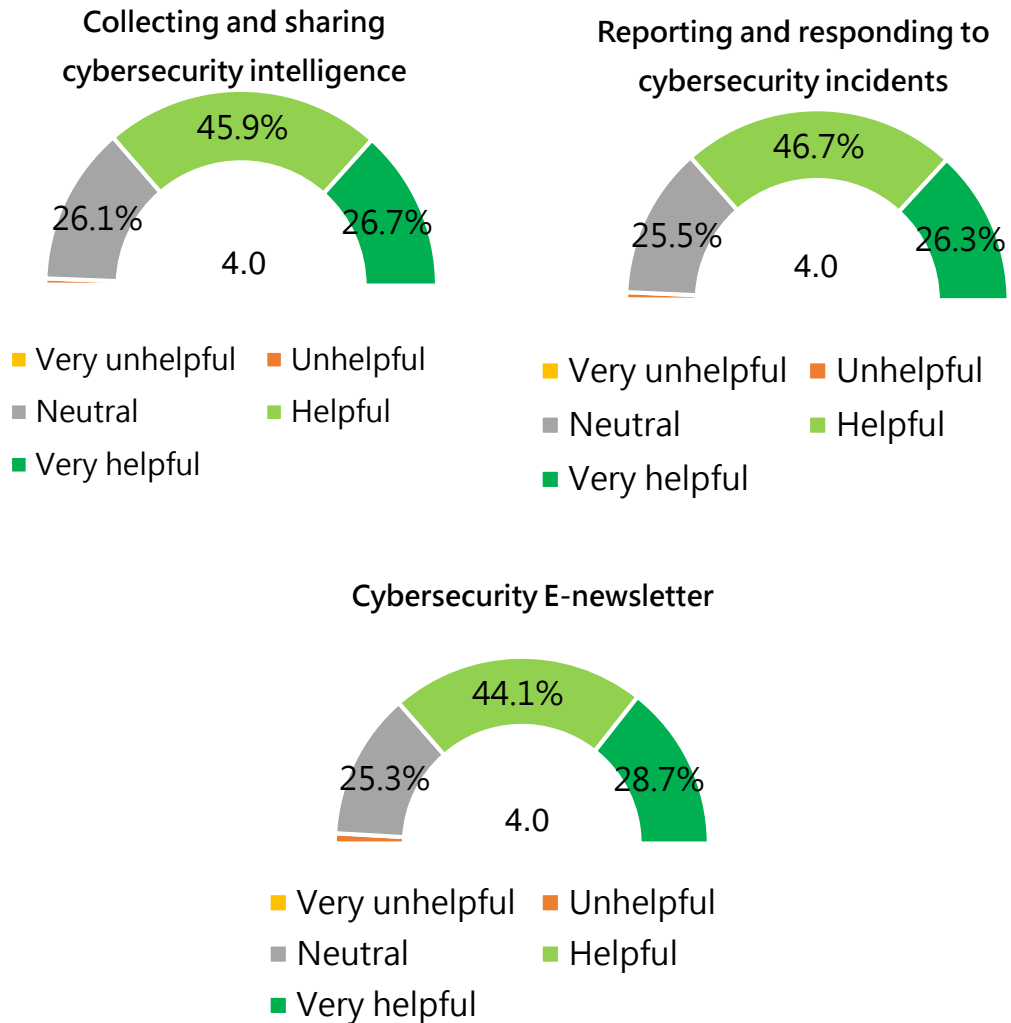
are e-newsletter subscribers, up to 94.3% are aware of the service of “notices on cybersecurity vulnerabilities”. 88.7% of the interviewees from cybersecurity-related departments are aware of it, so are 78.1% of those from departments not related to cybersecurity.

	Service awareness			Service usage rate			Service satisfaction		
	E-newsletter subscribers - TWCERT Alliance members	E-newsletter subscribers and cybersecurity depts.	E-newsletter subscribers and non-cybersecurity depts.	E-newsletter subscribers - TWCERT Alliance members	E-newsletter subscribers and cybersecurity depts.	E-newsletter subscribers and non-cybersecurity depts.			
n=	87	318	96	87	305	85	n	Satisfied	Very satisfied
Notices on cybersecurity vulnerabilities	94.3%	88.7%	78.1%	62.1%	52.1%	29.4%	238	52.1%	31.5%
Information sharing	90.8%	87.4%	77.1%	70.1%	49.8%	34.1%	242	56.2%	31.8%
Raise security awareness within society	82.8%	80.5%	68.8%	46.0%	41.6%	24.7%	188	50.5%	38.8%
None of the above	.0%	4.1%	11.5%	62.1%	52.1%	29.4%			

Reasons for non-notice	
No occurrence/No cybersecurity problems	42.8%
Unaware that I can send notice/how to handle it	10.4%
Not a cybersecurity specialist/No authority to handle it	9.0%
Unclear/Unaware	8.5%
Other	7.5%
I can handle it myself	6.5%
Inconvenient/No need	5.0%
No dedicated personnel/department	4.5%
There are other channels of notice	4.5%
No such a need	1.5%

III. Service helpfulness and reasons

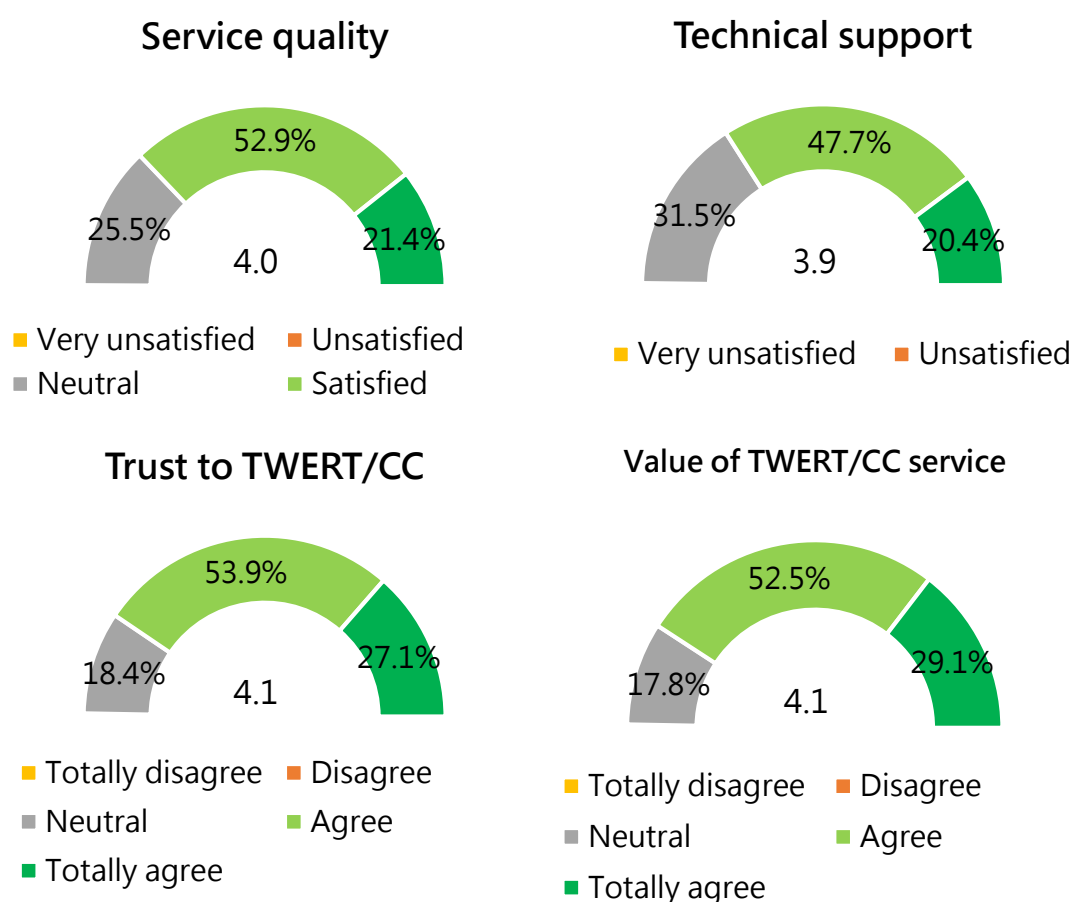
The average score for each of the three services is 4.



Reasons for helpfulness		n=401
Acquire new knowledge/Keep up with the latest issues		60.8%
Raise cybersecurity awareness		14.0%
Data is rich/complete		5.2%
Practical/Helpful		4.7%
Other		15.2%
Reasons for unhelpfulness		n=10
Have not received it/Unhelpful information/Other		

IV. Overall satisfaction and trust

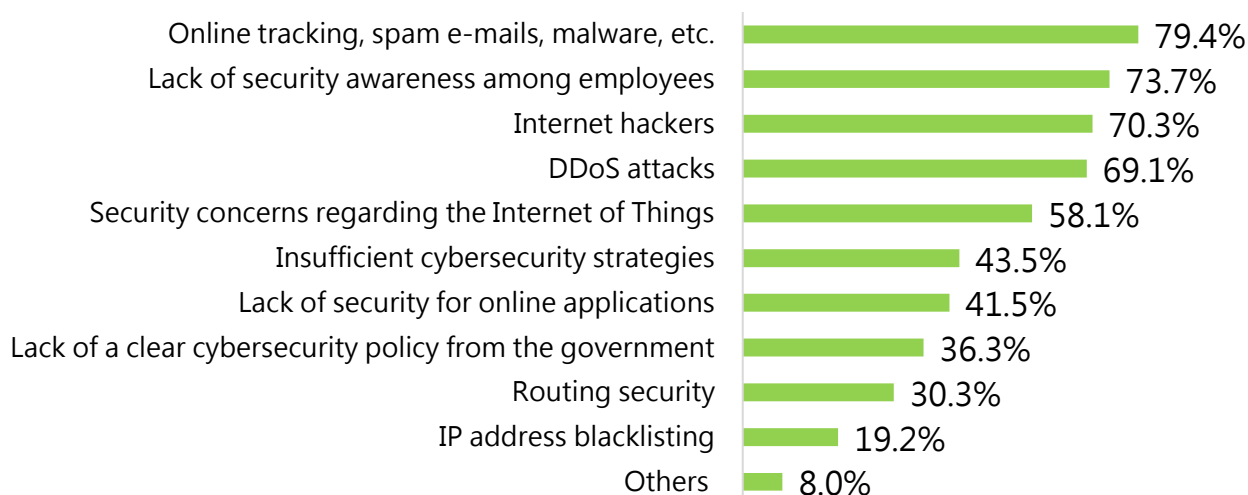
Regarding satisfaction of the interviewees toward the overall quality of the TWCERT/CC services, the average score is 4. Around 20% of the interviewees are “very satisfied” and over 50% of them are “satisfied” with the quality of the TWCERT/CC services. The overall score for satisfaction of technical support is 3.9. About 20% of the interviewees are “very satisfied” and 47.7% of them are “satisfied” with the service.



The score of trust in TWCERT/CC is 4.1. 27.1% of the interviewees “totally agree” that they trust TWCERT/CC, while over 50% of them “agree.” The score of service value is also 4.1. Nearly 30% of the interviewees “totally agree” that the services provided by TWCERT/CC are valuable, while over 50% of them “agree” with the value of the services.

V. Cybersecurity threats and problems in Taiwan

Among the cybersecurity threats in Taiwan, “online tracking, spam e-mails, malware, etc.” has the highest awareness (79.4%). The ones ranked next are “lack of security awareness among employees,” “Internet hackers” and “DDoS attacks” each with awareness of around 70% of the interviewees. Nearly 60% of them are aware of “security concerns regarding the Internet of Things.”



VI. Expectations and preferences for training courses

With respect to the conferences or training courses organized by TWCERT/CC, close to 80% of the interviewees expect “downloadable conference or course content summaries”, while around 60% of them expect “upload videos”. Approximately 50% of them hope for “host Chinese speakers or provide instant translation.”

Event expectations n=501	%
Downloadable conference or course content summaries	76.6%
Upload videos for future reference	63.3%
Host Chinese speakers or provide instant translation	48.7%
Provide certificate of participation or completions for attending	34.9%
Provide live-streaming	23.4%
Host more international speakers	14.8%

Nearly 20% of the interviewees have special preferences for training courses, and they were asked to further specify their preferences. Regarding the form of courses, 62.2% of the interviewees prefer “online training”, while 57.1% of them hope that “face-to-face training” is available. As to the time arrangements for the courses, a higher percentage of the interviewees prefer “all-day training” (48.0%), followed by those hoping for the training courses to be held on weekdays.

Event preferences n=501 19.6% With preferences



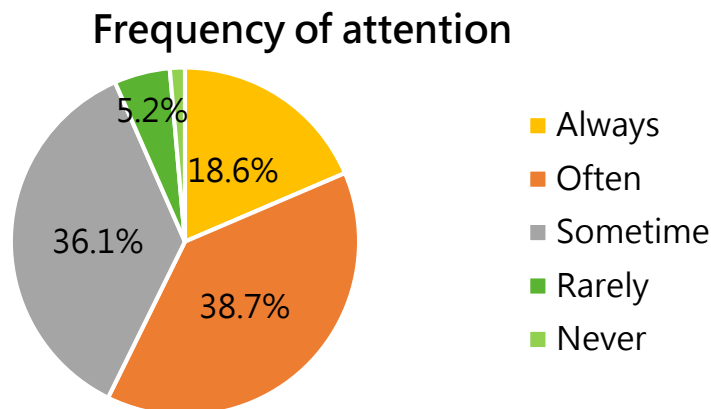
The interviewees wish to add the following issues or information:

- Cybersecurity technologies - Anti-hacker measures, defense against web penetration, digital identification
- Cybersecurity literacy - Promotion of cybersecurity awareness among employees, corporate defense planning

- Hands-on operation
- Innovative application - IoT

VII. Information service

The overall score for attention to the information published by TWCERT/CC is



4. 18.6% of the interviewees “always” pay attention, while close to 40% of them “often” do so. 36.1% of them pay attention “sometimes.”

The primary reason why the interviewees pay attention to the information published by TWCERT/CC is “to keep up with Internet news” (77.5%), followed by “work requirements” (about 70%) and “personal interest” (close to 60%).

Reasons for attention		
	n=	%
To keep up with Internet news	383	77.5%
Work requirements	343	69.4%
Personal interest	283	57.3%

Issues expected		
	n	%
More varied perspectives	355	70.9%
A wider range of topics	328	65.5%
More active publicity or advocacy	244	48.7%
More topics I want to learn about	201	40.1%

The interviewees wish to add the following issues or information:

1. Sharing of knowledge, information and intelligence
2. Cybersecurity issues: Hacker attacks, web attacks
3. Practice: Phishing, malware detection, account verification
4. New technologies: IoT, 5G, AI

VIII. Section

The reason for the slightly lower satisfaction score of technical support indicator may be related to the actual needs from the newsletter subscribers. This type of stakeholders mainly obtains Information Security-related report through the newsletter and can get the latest information to prevent disasters beforehand. Therefore, the survey results also show that they have a strong demand for information related to Information Security. Hence, the depth and breadth of the relevant information can be increased. When an actual Information Security incident occurs, further follow-up announcements can be made. The incident can be handled collaboratively, and if necessary, cooperate with foreign information security organizations to speed up the handling process.



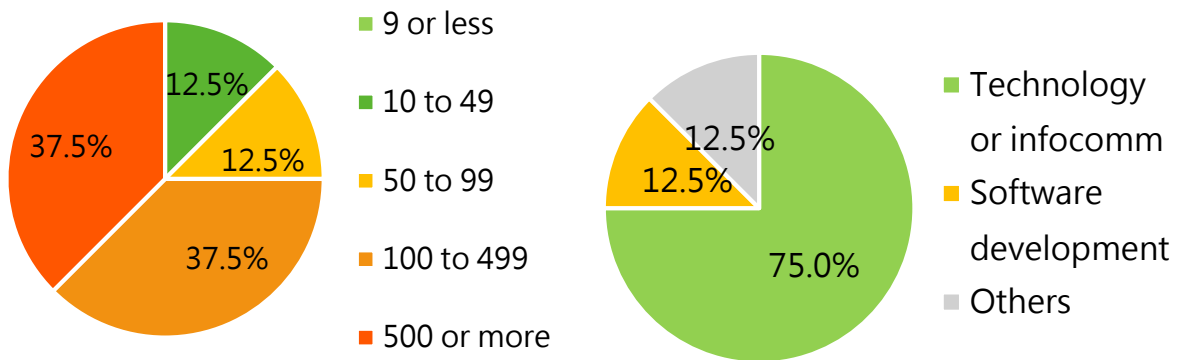
Chapter VII

Taiwan CERT/CSIRT Alliance

Chapter VII. Taiwan CERT/CSIRT Alliance

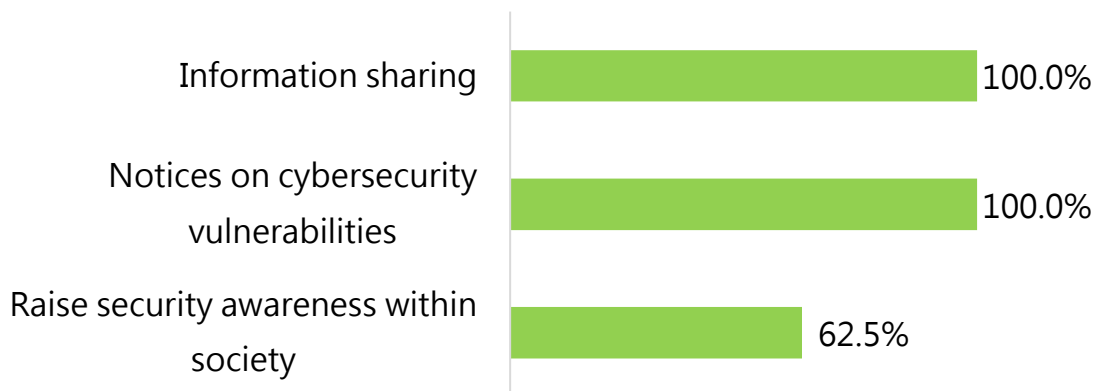
I. Summary of implementation

The number of employees in the companies where the interviewees from the Taiwan CERT/CSIRT Alliance work is either between 100 and 499 or at least 500. The highest percentage of interviewees are from departments related to the research of cybersecurity technologies.



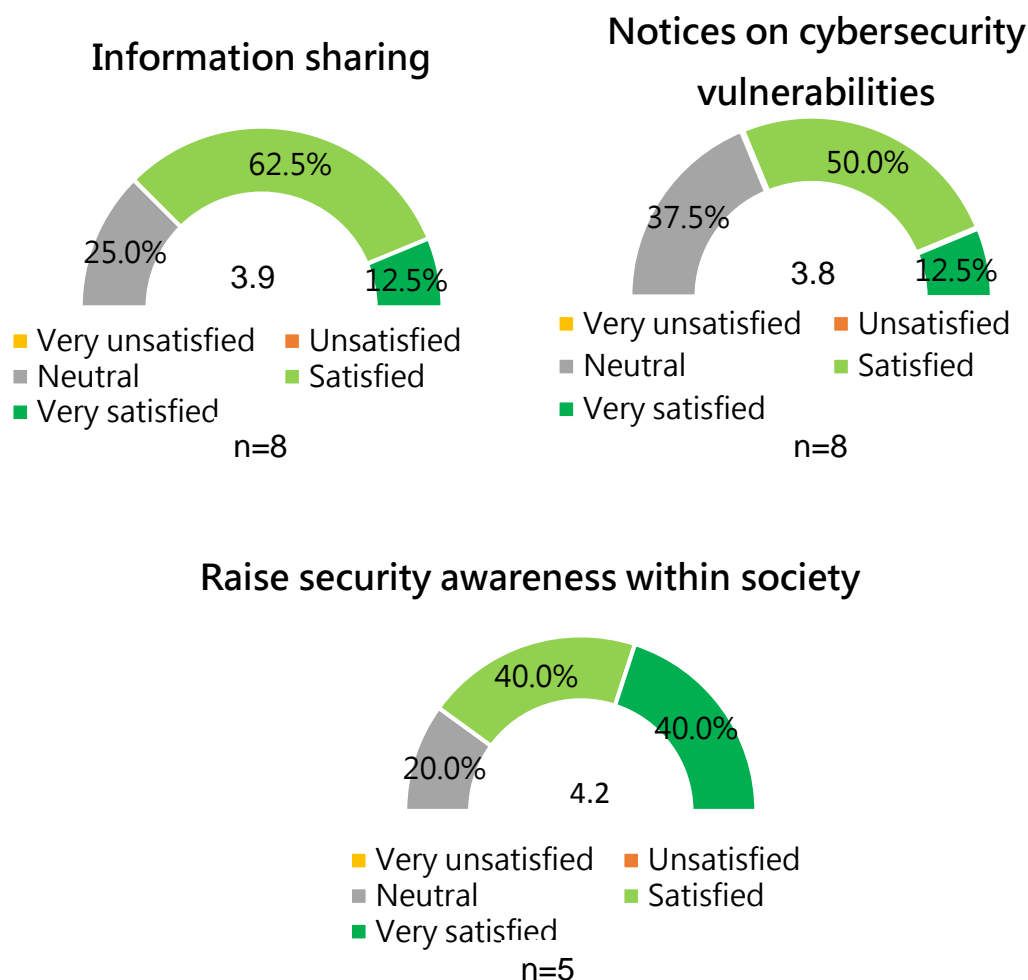
II. Status of the services used

Awareness is higher for the services of information sharing and notices on cybersecurity vulnerabilities provided by TWCERT/CC.



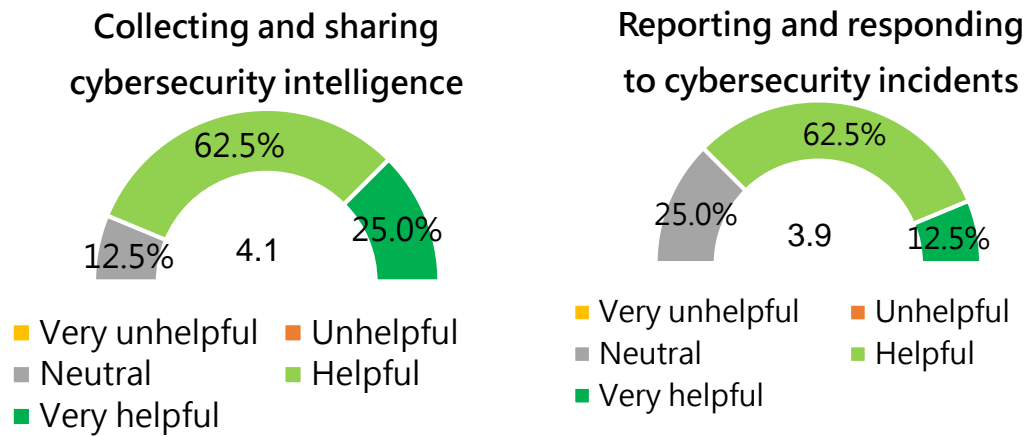
III. Evaluation of satisfaction and values for the services used

TWCERT/CC gets a higher score of 4.2 for satisfaction in “raising cybersecurity awareness among the public/companies/communities.” The second higher score of 3.9 appears for satisfaction in information sharing. In the case of notices on cybersecurity vulnerabilities, the score is 3.8.

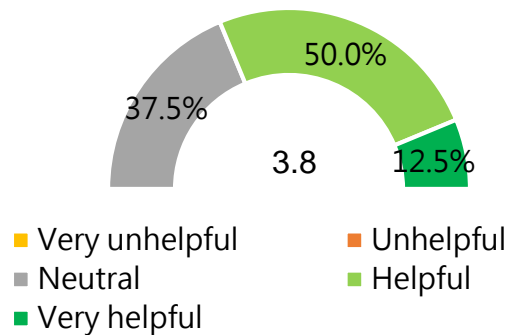


With respect to the helpfulness of the TWCERT/CC services, “collecting and sharing of cybersecurity intelligence” has the highest score of 4.1. The highest percentages of interviewees consider the service to be “helpful.” “Reporting and responding to cybersecurity incidents” receives a score of 3.9, with over 60% of interviewees considering the service to be “helpful.” In the case of

“cybersecurity e-newsletter,” the score is 3.8. Around 10% of interviewees consider the service to be “very helpful” while 50% of them think it’s “helpful”.



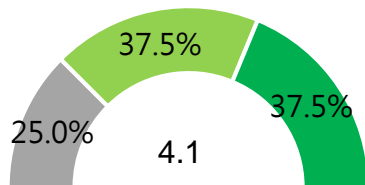
Cybersecurity E-newsletter



IV. Evaluation of trust and values

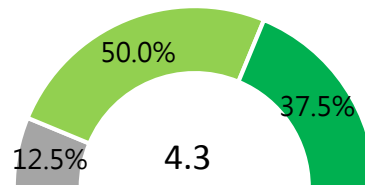
The score for those interviewees considering the services provided by TWCERT/CC to be valuable is 4.3, with close to 40% of them “totally agree.” The score for those interviewees saying they trust TWCERT/CC is 4.1, with 37.5% of them “totally agree.”

Trust to TWERT/CC



■ Totally disagree ■ Disagree
■ Neutral ■ Agree

Value of TWERT/CC service



■ Totally disagree ■ Disagree
■ Neutral ■ Agree
■ Totally agree

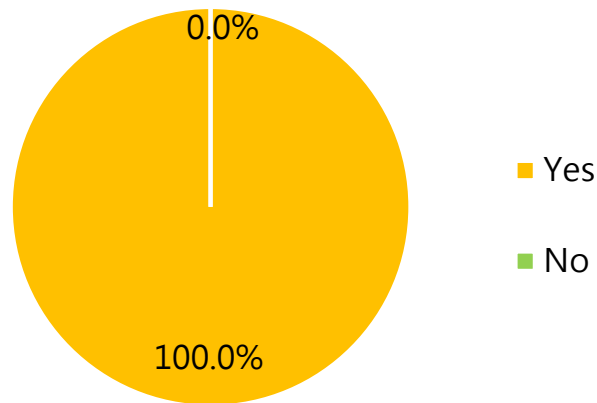
V. Cybersecurity threats and problems in Taiwan

According to the responses of the interviewees, the cybersecurity threat with the highest occurrence in Taiwan is system invasion, followed by e-mail social engineering attack and personal data leakage. With respect to the severity of cybersecurity threats perceived by the interviewees, personal data leakage ranks first, followed by e-mail social engineering attack and system invasion.

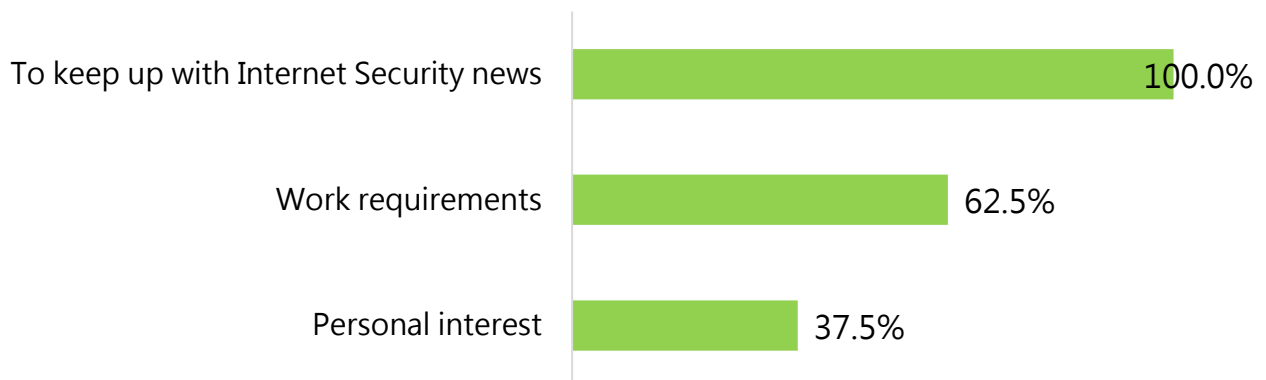
Ranking of occurrence		Ranking of severity	
1	System was invaded	1	Personal data leakage
2	Email social engineering attack	2	Email social engineering attack
3	Personal data leakage	3	System was invaded
4	Spam	4	DDoS attack
5	Command and Control, C&C	5	Command and Control, C&C
6	Spread malware	6	Spread malware
7	Phishing webpage	7	Spam
8	DDoS attack	8	Web page replacement
9	Zombie computer (Bot)	9	Phishing webpage
10	Web page replacement	10	Zombie computer (Bot)

V. Participation in training and reasons for attention

During the most recent year, the rate of participation in the conferences or events organized by TWCERT/CC was 100%.



The primary reason why the interviewees have paid attention is “to keep up with Internet security news” followed by “work requirements” and “personal interest.” The members of the Alliance hope that TWCERT/CC can develop business, organize events and use more diversified channels to communicate with or provide information to them. They further expect TWCERT/CC to integrate the information and provide product interfaces.



VI. Section

Such stakeholders also need to access information on Information Security from TWCERT/CC and are highly involved in activities, with 100% awareness of TWCERT/CC notifications of the Information Security incident. Still, their satisfaction is the lowest in relative ratings. Obviously, the pain points can be further explored in the notification of the Information Security incidents. The members of the alliance are also interested in the latest information on the application of Internet technology and the sharing of relevant use cases. There are also suggestions to improve the quality of public information security, which can be used as a reference for future interaction.



Chapter VIII.

Government
Agencies

Chapter VIII. Government Agencies

Among the stakeholders of the government agencies related to our business, we interviewed four business counterparts from the National Communications Commission, the Office of Cyber Security under the National Security Council and the Department of Cyber Security under the Executive Yuan. Due to the nature of the agencies and the contents of the business for cooperation, the interviews in this part mainly cover the organizational vision and expectations for TWCERT/CC. The interviews are presented through key excerpts and quotations, and information containing key words is properly hidden to avoid identification of the interviewees.

I. Collection and sharing of cybersecurity intelligence

Regarding organizational vision, the stakeholders expect TWCERT/CC to be a center for the collection of cybersecurity intelligence. TWCERT/CC acts as a bridge between the public and private sectors and is able to keep contact with other countries and receive the latest news about cybersecurity as a private organization. At the higher level, it can gather resources from the relevant agencies to promote the sharing of cybersecurity intelligence and update the latest information within and outside the country. At the lower level, it may receive demands from private businesses concerning cybersecurity incidents. Therefore, the stakeholders hope that TWCERT/CC can assume the tasks of the collection and sharing of cybersecurity intelligence.

| *One more thing TWCERT (TWCERT/CC) can do is to collect information about the latest cybersecurity incidents with some international analyses. Because technological development is very fast, the most up-to-date international information must be analyzed.*

| *Information provided by their members or through cooperation, such as threats, will be analyzed. Such an analysis focuses on the loopholes, characteristics and targets. If de-identification has been done, exchange can happen in many aspects.*

Besides being able to contain diversified information and get fast updates, cybersecurity intelligence is highly professional, so the task is not considered finished even if the information has been communicated. If an in-depth analysis of the relevant incident can be carried out, it is likely to create more benefits in subsequent reference. With proper information promotion, it will enhance the overall awareness of cybersecurity.

| *My first expectation is that there should be in-depth analysis of cybersecurity incidents, preferably with big data analysis. This may require more equipment and human resources. The analysis of cybersecurity incidents must be more thorough and in a timely manner.*

II. Strengthening the domestic roles

Since TWCERT/CC plays the role of a bridge between the public and private sectors, the stakeholders expect it to act as a reporting center for domestic businesses to demonstrate the importance of promoting “cybersecurity intelligence reporting.” First, awareness of the reporting channels must be raised to inform private businesses of the organization and its functions. The next step is to increase the trust of private businesses to ensure that they would not hesitate to report cybersecurity incidents to TWCERT/CC.

| *What we expect TWCERT (TWCERT/CC) to do is that it establish a channel to accept reports from the public and finds a way to solicit such reports. If anyone has encountered a cybersecurity incident, does he or she know that the incident can be reported to TWCERT (TWCERT/CC)? Does he or she know what to do to make such a report?*

| *Just like making a phone call, TWCERT/CC analyzes loopholes in cybersecurity and reports them to NCERT. The organization is like a call center for cybersecurity. It will search for resources to do its job in order to gain trust from businesses.*

Lastly, TWCERT/CC must be able to assist in handling cybersecurity

incidents, such as seeking cooperation with cybersecurity firms and providing support measures. It should then give further feedback to the relevant government business units so that they can work with other government agencies in establishing industry chains.

It's up to the organization to understand how it intends to proceed. It can also figure out for us what kind of cybersecurity protection is reasonable. If we think that the approach is feasible, we will go to the Ministry of Economic Affairs and ask it to help us develop the industry. This pattern is what cooperation should look like.

III. The force pushing for links with the global market

Internally, TWCERT/CC plays the role of a cybersecurity intelligence center. Externally, it extends the role to international interactions to establish links between Taiwan and other countries.

TWCERT (TWCERT/CC) acts as a bridge internationally. To build such a bridge, we have expectations about the number of countries for the bridge. For instance, in terms of KPI, how many countries are willing to interact and share information with TWCERT (TWCERT/CC)? The higher the number of such countries is, the better the exposure and international recognition of Taiwan will be.

The overall blueprint for implementation is similar to that used domestically. TWCERT/CC must increase awareness and build trust to eventually enable substantial intelligence sharing and interaction and the exchange of talents and technologies.

CERT links itself with private businesses, including not only those demanding cybersecurity but also those providing cybersecurity. It also links itself with the world. For example, we can introduce

whatever kind of cybersecurity a country needs to the country. Additionally, it is critical to have the ability to communicate with countries around the world. Their languages or technologies are not just used for information sharing, (but for) communication, exchange of technologies and information, and training needs. TWCERT (TWCERT/CC) is the contact point in Taiwan. There must be a certain level of trust in interactions with other countries to assure them about cooperation with you...Now that the task has been given to TWNIC, it can arrange meetings with all other organizations and sign memorandums. Once the first step is again taken, it would be more positive for the establishment of any international cooperative relationship.



Chapter IX.

International
Organization
Stakeholders

Chapter IX. International Organization Stakeholders

I. Past & Current collaboration

A. Collaboration overview

From the stakeholder's overview from the past to the present cooperation with TWNIC, they all expressed their affirmation of TWNIC's performance, including continuous and close relationships, continuous improvement in organizational performance, and proactive service improvement. It also mentions TWNIC's pragmatic and organized leadership, showing affirmation of management.

- | *Relationship going well. Feel after NCC control, the relationship is much more aligned and more collaboration. Moving from just doing what it needs to taking a proactive approach in doing more for the internet community*
- | *Strong leadership from TWNIC CEO and his style seems to be exciting, holistic and more outward focused.*

B. Partnership

TWNIC has been commended for its excellent and continuous relationship with international organizations. It also mentioned that TWNIC's cooperation plan for the promotion of various policies and the high level of cooperation in joint event meetings have made people expect more cooperation opportunities in the future.

- | *The feeling is there is strong admin, stable/steady team that is apolitical. Good partner in major initiatives.*
- | *Feel TWNIC is positioned closer to IDNIC (Indonesia), JPNIC (Japan) and have opportunities to build closer relationships.*
- | *Look forward to more progress and doing the same next year*

II. The Future

A. Areas of focus

In the expectation of cooperation progress, international organizations' stakeholders all have mentioned the direction of information sharing and multi-dimensional interaction, including TWNIC's technical resources to support education and training needs and to share Taiwan's experience and knowledge. It also mentions the development of more community interactions, covering a more extensive range of languages.

- | *TWNIC is perceived to be technically advanced and have great potential to help share some of the training demand.*
- | *Allow Taiwan knowledge to be shared with other countries.*
- | *Bringing more communities online. Specifically sharing it's knowledge in IDNs and enabling/working with non-English communities.*
- | *Growing communities and facilitating engagement across communities.*

B. Future expectations

In terms of the organizational positioning and future expectations of TWNIC, the two types of stakeholders mentioned separately, the promotion of international organizations' involvement level, and the role of localization counterparts of international policies. International organization involvement includes more in-depth partnerships with other NIC members.

- | *It is community/member based policy/decision making process it inline with Taiwan's interest. This also means the success of TWNIC and it's influence lies in building stronger and closer relationship with other key NIC members.*

The role of localization counterparts of international policies refers to examples such as GDPR, which have already begun globally. Various

countries have enacted laws and regulations in line with national conditions through different units. In Taiwan, TWNIC may be an organization suitable to assist with this work.

| *Look to TWNIC as a gateway to better understand policy direction and potentially influence policies in Taiwan.*



Chapter X. Study Recommendations

Chapter X. Recommendations

Mutual Trust and Confidence

- Current trust and reliability level evaluations are excellent, but in such an increasingly more complex environment, ensuring mutual trust and confidence requires greater cultivation and maintenance of such relations
- Mutual trust and confidence includes enhancing awareness and visibility, and establishing a secure and certain sense of trust

Education and Training

- Enhancing industry and information security literacy and understanding: investments in industry and public education to enhance internet related knowledge and threat or risk awareness
- Thereby ensuring the TWNIC service emphases are both commonly known and reflect what the market desires.

Competitiveness

- Appreciate industry requirements, to foster win-win or multi-win cooperative relations
- Proactively seek out cooperative partners facing shared challenges and issues, and as a priority, build partnerships with prospective entities aiming for long-term cooperation.

Marketplace

- Industry information and information security related intelligence is imperative for the existence and survival of the relevant industries, and if we can deploy continuous provision of industry information and outreach efforts, we will be able to enjoy excellent communication channels with the Taiwan marketplace

TWNIC focuses on core services, and its service targets are domain names and IP requesters. Therefore, building trust and awareness is a priority. However, TWCERT/CC can provide a wider range of services. From government units, enterprises to the public, there will be Information Security-related needs. Even though the task it is currently assigned is the notification window of private enterprises, there is an opportunity to get involved in the areas of information sharing and Information Security awareness enhancing in the future. Therefore, TWCERT/CC can focus on building interactions and increasing levels of involvement. In terms of practical actions, to foster trust and continue to educate the market, the actions that the both organizations can take are as follows.

I. Practical Actions Recommendations for TWNIC

Establishing Brand and Visibility, Maintain and Cultivate the trust

When planning demassification perception, it is best to adopt the Customer Relationship Management approach. Start with stakeholders to small and medium-sized enterprises, general cyber users, and even the public. Let most cyber users understand the existence and operational importance of domestic domain name registration and IP address distribution organizations while enhancing our country's top-level domain name visibility of ".tw/台灣." For the excellent trust and reliability level evaluations affirmed by stakeholders currently, keep to maintain and cultivate continuously. From consolidating the core services to understanding the service gap, and to make up for it for creating a good interactive and trust relationship.

II. Specific Action Recommendations for TWCERT/CC

A. Establish the Brand and Visibility of TWCERT/CC

In addition to the notification window of domestic enterprises, TWCERT/CC also provides useful services for general users, such as malicious file detection. Therefore, from the perspective of security, it has a better opportunity to build brand and visibility. Its practices include cooperating with industry for Information Security forums, events, conferences, or related publications. For example, we can publish industry white papers to relevant small and medium-sized enterprises, and operate membership mechanism through online education and training.

B. Constructing Successful Cases, In-Depth Analysis to Attract More Enterprise Memberships

From the survey, we found that users are in great need of international cases or examples, and all stakeholders also want to know about issues related to Information Security prevention and control. Therefore, we propose to increase the in-depth connection of stakeholders on the issues by sharing case experience and analyzing of the Information Security incident, so as to establish the general image of the Information Security Center. After having built up a sense of trust among enterprises, the notification rate of the incident can then be improved.

