

Community empowerment is also considered a continuous action in accessing and controlling ICT resources and can utilize resources to increase their income. Those who run businesses, such as small and medium entrepreneurs (SME's) within the community, would have the opportunity to expand their products and services market through online mediums. However, the recent COVID-19 Pandemic showed limitations and weaknesses in internet penetration and the issues of Information and Communication Technology (ICT) access in Malaysia that affected significant crucial activities such as economics, education, communication, and online interactions [5]. Thus, the study examines Community Internet Centre (CIC) relationships toward community empowerment.

A. Background of Community Internet Centre

Community Internet Centre (CIC), also known as a telecentre, was introduced in Malaysia in the early year 2000 with multiple names such as Kedai.com, Medan Info Desa (MID), Pusat Internet Desa (PID), Rural Broadband Library, Bestari.Com and recently, CIC. Today, there are more than 800 centers, and the number of Internet Centres built around the entire nation is increasing, including in East Malaysia. The CIC are usually built-in rural areas and certain places in urban areas for the poor urban community. Usually, CIC is equipped with ICT facilities such as computers, internet access, printer, and so on, and appropriate workshops or classes for community empowerment. The CIC is a non-profit-based center developed for community engagement and involvement with many activities and programs organized [6]. Table 1 shows the evolution of telecentres in Malaysia from 2000 to 2021.

TABLE I
TELECENTRE'S EVOLUTION IN MALAYSIA

Year	Details	Telecentre
2000	Telecentres introduced in Malaysia [7]	Kedai.com, Medan Info Desa (MID), Pusat Internet Desa (PID), Rural Broadband Library, Universal Service Provision (USP), Bestari.Com di Terengganu and Universal Service Provider Communication Centre (UnivCompteCtr)
2001	Connection project of villagers with computer usage and telephone through the internet [8]	e-Bario
2003	Malacca state launched a cyber cafe scheme [9]	e-Melaka
2004	At Tumpat Kelantan, a cyber cafe developed in a fisherman's village [10]	<i>Siber Kafe</i>
2004	Selangor state received a grant from UNDP and donations from DRB-Hicom, MIMOS, and Hup Lee Coachbuilders Sdn. Bhd to schools [11]	Unit of Internet mobile

Year	Details	Telecentre
2005	Library of Selangor state introduced 'e-book' [11]	<i>Jejak-IT</i>
2006	1,945 telecentres	
2013	Transformation of telecentre [12]	<i>Pusat Internet 1Malaysia (PIIM)</i>
2018-2021	Rebranding telecentre [13]	<i>Pusat Internet/Pusat Internet Komuniti or Community Internet Centre (CIC)</i>
Nov 2021	Malaysian Family Digital Economy Centre [14]	<i>Pusat Ekonomi Digital Keluarga Malaysia (PEDi) or Centre for the Malaysian Family Digital Economy</i>

B. Community Empowerment in Rural Areas

The term 'community' has ample meanings based on fields in politics, finance, or sociology to understand the community in different ways. There are a few concepts of community. The first is the places or locality, which, as mentioned in this study, the community that lives in a rural area. The second is the diverse identities and different interests of groups [15]. Third, social interaction has formed unity among them. The last is similar necessities and concerns through equal action. Community Internet Centre can encourage community's Empowerment in terms of working approach, learning process, information dissemination, and others excluding the community's culture. A study on communities in Semarang, Central Java province, determined communities is the main actors in community empowerment [16]. Telecentre was used to improve the economic level in Western Cape, South Africa [17]

ICT facilities at the telecentre improve the rural community's quality of life [18]. Various activities are provided at community internet centers, such as computer skill classes, English language classes, online business management, cooking class, basic health check, and many appropriate activities. Regardless of age, gender, income level, and education level, the community enhances its knowledge and skills to empower itself.

The ICT facilities such as telecentres facilitate entrepreneurs to utilize CIC facilities to increase their income [19]. Rural communities can increase their income, knowledge, social networking and so on through online platforms to save time and money effortlessly. ICT can be one of the resolutions for the government to tackle the issue of imbalanced community development because of geographical areas, demographical diversity, or political factors. The CIC is located in rural community areas with ICT facilities and services such as internet connection, computers, ICT skills, and ICT knowledge. The location of CIC in rural areas makes CIC closer to rural community necessities. Telecentre contributes to empowering the Bario community in Malaysia [20]. The community in Malawi uses telecentres for job seeking, communication tools with friends, and improving working skills [21]. Income level plays a role in a community's ICT skills [22]. High-income level community tends to have better access to ICT facilities compared to low-income level community.

C. Community Empowerment Organizational Domain

Empowerment imprecisely defined in different arenas and different aspects, but most authors refer Empowerment as an

outcome or as a process [23], [24], [25] Empowerment also can be both an outcome and a process, but measuring Empowerment as a process would be possible to monitor relations between resources, skills, and capacities at the individual, organization, and community level of a program [26]. The process of an individual or collective controlling their lives in order to enhance their quality of life [27], the ability of people to take action to improve their life through controlling and understanding their social, economic, political, and personal domains [28], the process of communities and individual to gain efficacy, social justice and acquire greater control in improving their life and environment [28]–[32]. In enhancing the capability of communities, organizations, and individuals to understand as follows:

- a) Analyze their environment,
- b) Identify issues, problems, opportunities, and needs,
- c) Develop strategies to cater to the issues, problems, opportunities, and needs.
- d) Plan action
- e) Lesson learns from feedback [33].

TABLE II
ORGANIZATIONAL DOMAINS OF COMMUNITY EMPOWERMENT ELABORATED BY SELECTED AUTHORS

Goodman <i>et al.</i> [1998] [44]	Hawe <i>et al.</i> [2000] [41]	Bopp <i>et al.</i> [2004] [45]	Laverack and Labonte [2001] [15]	Gibbon <i>et al.</i> [2002] [46]	Bush <i>et al.</i> [2002] [42]
- Sense of community - Community participation - Resources - Skills - Leadership - Critical reflection - Networks - Understanding community history - Community values	- Building infrastructure to deliver health promotion programs - Building partnerships and organizational environment - Building problem-solving capabilities	- Sense of community - Participation - Resources - Skills and knowledge - Leadership - Communication - Ongoing learning	- Participation - Leadership - Problem assessment - Organizational structures - Resource mobilization - Links to others - 'Asking why' - Program management - The role of outside agents	- Representation - Leadership - Organization - Needs assessment - Resource availability - Implementation - Linkages - Management	- Network partnerships - Knowledge transfer - Problem-solving - Infrastructure development

Researchers have constructed different domains for Empowerment, but at the same time, they overlap [34]. However, there is no fixed outline for any occurrences [47]. Nine domains studied in Fidjin communities were leadership, participation, organizational structures, problem assessment, links to others, resource mobilization, program management, the role of outside agents, and 'asking why' [15]. As from ODCE concept from a few researchers, most domains reviewed were knowledge, skills, communication, sense of community, shared vision, resources, and participation [47]. Thus, in this study, three domains identified as appropriate to test for that rural community regarding community empowerment study consist of community participation, ownership, and information services, as shown in Figure 1. Community participation in Community Internet Centre (CIC) drives the community to use and apply knowledge, skills, and abilities from numerous executed activities and programs organized at CIC indirectly initiate community empowerment.

In terms of empowerment level, community empowerment, and social change are bridged from individual change [34]. Individual change is essential for social change and community empowerment as determined by organizers, politicians, employers, and more researchers [35], [36], [37], [38].

The study uses Organizational Domains of Community Empowerment (ODCE) to measure the role of the Community Internet Centre (CIC) in empowering rural communities. The ODCE measurement determines the required domains for the needed empowerment objective [39]. The ODCE model was analyzed, developed, discussed, and adapted in past studies from many researchers, making ODCE model applicable to applied [39]. The study at Rapla Estonia used ODCE in health improvement, showing community participation improvement [40]. Communities might have different interpretations of ODCE model since the context of nature in community empowerment varies, but the crucial part is defining appropriate domains engaging the community in the study [41], [42]. ODCE measures and describes empowerment as a straightforward process [43], [26]. Table 2 shows ODCE by selected authors [39].

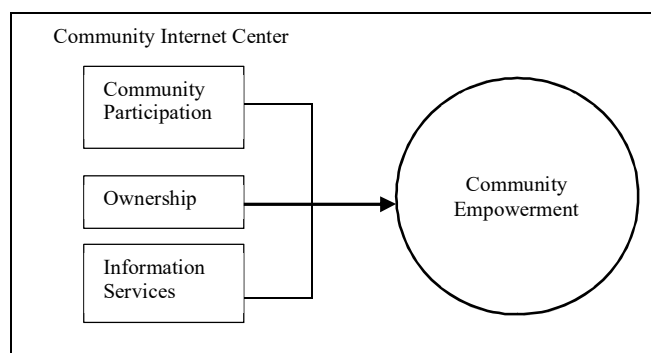


Fig. 1 Conceptual framework of Community Empowerment Via Community Internet Centre

Reciprocal community empowerment encourages the community to participate in the programs and shows the outcome of community participation [48]. As in a study by [49], there are three important dimensions of changes in Empowerment through CIC: social awareness, individual impact, and skills development. The process of community

empowerment through CIC might change the community's quality of life since Empowerment brings new dimensions about community income, social skills, and education.

Ownership towards technology also determines digital gaps between communities and differences within the community who 'have' and 'does not have' access to technology [50]. The environment of CIC such as user-friendly, easy-to-use, attractive programs and sufficient facilities, influences community's acceptance of the use of CIC services and facilities. Indirectly sense of ownership initiated among the community toward CIC to utilize services provided at CIC. Hence, the role of CIC is to empower rural communities to succeed. On top of that, information services are a crucial domain in examining community empowerment through CIC as the center is a place for the community to get information, knowledge transfer, and ongoing learning through various appropriate programs, classes, and activities. Besides, the internet will disseminate information and enhance rural community's economy and social development [2].

II. MATERIALS AND METHOD

In assessing community empowerment through CIC, asset mapping and surveys have been applied in a rural area of Kelantan. This study applied a quantitative approach through distributed questionnaires assisted by CIC managers. Asset mapping is one of the methods commonly used in assessing community development. Thus, this study focuses on asset mapping to support the survey findings. Asset mapping is a need assessment to identify community problems or issues [51]. As needed for the study, the asset mapping is the sampling analysis's geographical location, the Kelantan rural area. It is the mapping capacity that individuals and communities within the CIC would contribute to community well-being. These communities have the assets that are resources to the community institutions, including CIC.

A. Research Design and Sampling

The sample explored in this study was the Community Internet Centre (CIC) or *Pusat Internet Komuniti* of rural areas in Kelantan. Eight CICs involved in this study were Kampung Kemasin Internet Centre, Kampung Kandis Internet Centre, Kampung Melawi Internet Centre, Kampung Gong Kulim Internet Centre, Kampung Cherang Ruku Internet Centre, Kampung Terbok Internet Centre, Kampung Palekbang Internet Centre and Kampung Pengkalan Kubor Internet Centre located in the rural areas of Kelantan. All internet centers were chosen as they were strategic places that were not too remote for the community to participate, and there was high community participation at the internet centers from the majority of the community from the bottom 40% of households' income (B40). Furthermore, Kelantan state had the highest poverty rate in Peninsular Malaysia despite increasing use and internet access in Malaysia [52].

Purposive sampling was applied to obtain actual information and data from the CIC user's perspective. Distributed questionnaires would assist the researcher in getting feedback from CIC users in testing the reliability of instruments. The researcher analyzed the data obtained from distributed questionnaires through SPSS software version 26. 400 booklets of questionnaires were distributed to CIC's users, but only 315 questionnaires were submitted. The

researcher distributed questionnaires to all eight CICs users assisted by the manager of each CICs.

III. RESULTS AND DISCUSSION

This section presents findings from a quantitative study on users of CIC's perspectives toward Internet Centre and community empowerment. Internet Centre has significant value in enhancing the quality of life of rural communities through appropriate facilities and services provided. Rural communities increase their human capital by improving skills and ICT knowledge [53]. A few aspects influenced rural community transformation in their way of life through Internet Centre facilities. Results of the study show that the community participation, ownership, and information services of Internet centers indicate the roles of Internet centres in empowering the community. Internet centers enable the community to enhance their knowledge, skills, and capability in many ways, in terms of community's education, business, employment, social, health, or communication. Hence, the community empowered themselves to have a better life as they would increase their income, better social skills, new knowledge and skills, positive communities, cohesion, independence, and quality of life. Thus, a first-class mentality community would make a better nation to grow into a developed country.

Table 3 shows the relationship between community empowerment and internet center effectiveness. The correlation between community empowerment and internet center effectiveness is statistically positive and largely significant ($r=0.83$, $p<0.01$). It shows that CIC has a significant correlation with community empowerment. Programs, activities, and classes organized at CIC empowered rural communities. For example, CIC organized a 'community day' program with many activities to encourage community engagement with CIC. The center also organized a health awareness program in collaboration with clinics in the local area. In addition, CIC also facilitates blood pressure test machines for the community to use the facilities. Furthermore, there are many appropriate classes organized by CIC, such as computer classes, social media management, managing an online business, foreign language classes, and ample activities upon request from the community.

TABLE III
COMMUNITY EMPOWERMENT AND INTERNET CENTRE EFFECTIVENESS
(RELIABILITY, CORRELATION, MEAN AND STD. DEVIATION)

	Mean	Std. Deviation	Reliability	Correlation
Community empowerment effectiveness	51.27	7.11	0.94	0.83
of internet center	44.45	5.73	0.95	

Table 4 shows the effectiveness of CIC from community's perspectives. Most respondents agree that CIC positively effective for community's Empowerment. Community relies that CIC facilitate community, and it is crucial for the community to initiate their businesses, studies, communication, occupation, etc. CIC helps the community to be IT literate through programs or activities executed in the CIC in, which attracted the community to participate.

Community participation in CIC's programs and activities indicates the achievement of the program's objective. The sense of ownership of CIC motivates the community to participate and engage with CIC. Hence, community would empower themselves through skills, knowledge and ability acquire from CIC.

TABLE IV
LEVEL OF COMMUNITY EMPOWERMENT (MEAN AND STD. DEVIATION)

	Statements	Mean	SD
1.	Internet center make easier for me to access internet.	4.45	0.71
2.	Internet centre make my work/business/ study/ communicate easier.	4.48	0.66
3.	Internet centre is a crucial facility for community.	4.48	0.69
4.	Internet centre give positive impact to the community.	4.48	0.63
5.	Internet centre helps me to be IT literacy.	4.43	0.66
6.	Internet centre helps me to get new opportunity in employment/business/education/communication and so on.	4.37	0.79
7.	Programs execute by Internet centre were very interesting.	4.36	0.73
8.	I'm happy Internet centre exist in my community.	4.46	0.72
9.	Internet centre need to be implemented in other places as well.	4.49	0.68
10	Internet centre promote to community development.	4.45	0.70
11	Telecentre initiate towards a better life for community.	4.41	0.69

There are twelve questions have been asked to community rated from value one strongly disagrees to value five strongly agree regarding on community empowerment. The findings as Table 5 shows that majority of the respondents agree with Community Internet Centre (CIC) empowered the community.

TABLE V
LEVEL OF EFFECTIVENESS OF COMMUNITY INTERNET CENTRE (MEAN AND STD. DEVIATION)

	Statements	Mean	SD
1	Quality of life of my community increase with Internet Centre.	4.18	0.75
2	My self-esteem increased after introduced by Internet Centre.	4.25	0.73
3	I am confident to compete with other community in working/business/education/communication and so on.	4.24	0.73
4	Internet centre helps me improve productivity to work/business/education/communication and so on.	4.29	0.71
5	I am independent in enhancing myself in working/business/education/communication and so on.	4.30	0.74
6	Internet centre prepared many programs and activities with community.	4.25	0.76
7	I love participates in activities with community at Internet Centre.	4.17	0.82

	Statements	Mean	SD
8	Community enjoys with programs provided by Internet Centre.	4.23	0.78
9	Internet centre has good relationship with community.	4.31	0.73
10	Programs provided at Internet Centre give added value to the community.	4.28	0.74
11	Internet centre is a platform for the community to enhance their life in working/business/education/communication.	4.33	0.73
12	I am comfortable to get help from Internet centre to increase my working/business/education/communication and so on.	4.40	0.71

CIC assisted the community in enhancing and empowering themselves in their education, business, communication, employment, and so on. The programs and activities provided in CIC improved users productivity and self-esteem, indirectly enhancing the quality of life in the community. The users were comfortable to get help and used the facilities and services provided at Internet Centre. A sense of ownership among users toward Internet Centre encourages the participation of the community to utilize CIC, and indirectly, community empowerment achieved.

B. Discussion on Community Internet Centre for Rural Community Empowerment

Rural community empowerment is crucial for community development to ensure this vulnerable community can live in better circumstances and change its quality of life. Community empowerment enhances the quality of life, solves local problems, and encourages participation and community and individual control [16]. Community elevated their businesses, and social networking, enhanced skills and capability through Internet Centre's facilities, programs, and activities. Community participation, ownership, and information services determine the process of community empowerment. Community participation and links to another related to community empowerment [15]. The inability to access the internet affected an individual or community to gain knowledge, information, job opportunity, and other information [54]. Skills, knowledge, and resources are included variables that influence community empowerment [47].

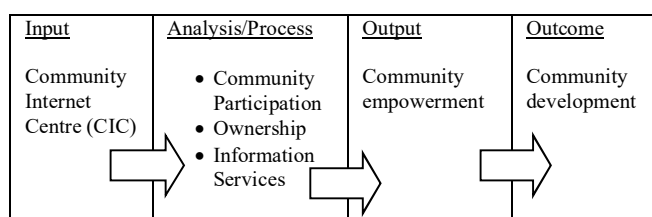


Fig. 2 Analysis result of rural community empowerment through Internet Centre

Figure 2 illustrates Community Internet Centre (CIC) as the input, the analysis are the community participation, ownership and information services. These will transform the output becomes community empowerment. The CIC empowered the community to increase their income level with online businesses, improve skills on ICT, enhance schooling experience through better online classes and improve healthy

lifestyles. As a result, the outcome of this provided programs at CIC leads them to community development. Users of telecentre get empowered through telecentre and eventually they empower other community members as well [55]. Community participation plays a vital role in technology solution despite CIC itself [56]. Community benefited with services provided in telecentre as in employment opportunities, improved communication, ICT skills development and access to information including government information [17]. Complete facilities provided and wide-ranging programs at CIC being meaningless without community participation. Thus, CIC has a crucial role to escalate rural community at par with urban community and resilience in this pandemic.

TABLE VI
COMMUNITY EMPOWERMENT PROCESS

Community empowerment process	
Community participation	<ul style="list-style-type: none"> ➤ Community participated in activities provided at Internet Centre. ➤ Internet Centre engaging their facilities with rural community through activities and awareness programs
Ownership	<ul style="list-style-type: none"> ➤ Rural community comfortable with existence of Internet Centre ➤ Internet Centre cooperates with high schools in rural areas to encourage community ownership towards Internet Centre.
Information services	<ul style="list-style-type: none"> ➤ Internet Centre provide entrepreneurship program via online platform with entrepreneurs. ➤ Rural community enhance their healthcare product, photography services, frozen foods and self-development with Internet Centre.

Table 6 shows community empowerment process through internet centre. Information services provided in internet center's programs and activities, for example, entrepreneurship programs would encourage users to become good entrepreneurs while for students they able to gain more knowledge and use facilities provided at internet center in their learning process such as internet access, computer and other services. The facilities and services at internet center would bring a sense of ownership among community as they comfortable with circumstances and those particular services and facilities. Internet centres were convenient for community to participate and utilize the services as it is easy access, nearby and effortless for community. Community would participate in programs and activities as they have a sense of ownership on the internet center since it is close to them and appropriate for the community to be part of it. Thus, the community can continuously empower themselves through enhanced skills, abilities and knowledge via services, programs and activities provided at internet center.

C. Community Participation

The study showed encouraging participation from community in activities and programs provided at Internet Centre as majority of respondents agree with question 'I love to participate in activities with community at Internet Centre'. For example, Internet Centre organized activities such as health awareness program called 'Healthy Community'

whereby Internet Centre cooperates with health agency. Community enjoyed doing light exercise, cooking demonstration of healthy food, free health examination and so on. Telecentre can be a solution instrument for technology obstacle, but it is difficult if the community itself not interested to participate on telecentre [56] Under this circumstance, both government and community may suffer losses. The community is left behind in contrast to other communities that used and participated in telecentre. The program is considered a failure and the budget spent on the project being wasteful or known as the 'white elephant' project if the community refused to participate.

Nonetheless, rural community participation in Internet Centre is still within medium range which the figure should be increasing since Internet Centers have been implemented in Malaysia for more than 10 years and it has been almost 20 years since telecentre were first introduced. It is difficult for community as an agent of change, to transform themselves if they refused to participate in any programs or activities provided by CIC.

Managers and staff of CIC played crucial roles in encouraging rural community to participate and engage with Internet Centre. Encourage community participation through awareness program is crucial in any programs involving community to urge their participation [48]. Once the community recognize benefits of the program, they will make efforts to participate in the program and subsequently enable community's Empowerment. The results showed there were encouraging response from the community toward programs and activities provided at CIC. The majority of respondents agree that 'Programs provided at Internet Centre always supported by community' and 'Internet Centre has good engagement with community'.

Community participation on CIC's activities is vital to encourage community utilize CIC facilities and services. Rural community usually is rather insecure and hesitant when it comes to new technology such as CIC that they need some introduction to persuade them to participate and engage with CIC. For example, CIC promoted and persuaded community to engage with CIC by doing activities such as 'open house' during festive seasons, Independence Day celebration, health awareness program and give rewards to the community as a token of appreciation. Community engagement with ICT throughout CIC can be one of the resolutions for government to tackle the issue of imbalanced community development because of geographical areas, demographical diversity or political factors.

D. Ownership

The community's ability to own and apply technology such as CIC within their rural areas influenced their quality of life since CIC is a medium for community empowerment. The study showed majority of respondents agree that CIC enhanced their quality of life in terms of their employment, education and communication as included in the questionnaire 'Quality of life of my community increase with Internet Centre' and 'I am confident to compete with other communities (employment, education, communication)'. Telecentre improves quality rural life of local community in Malaysia [57]. As an example, facilities such as internet access and computers at CIC solves community's inability to

have internet access to attend online classes particularly in the pandemic situation.

The sense of ownership encourages rural communities to get help from CIC since they are comfortable cooperating with the center. The data shows that the community is more confident in their employment, education, and communication undertaking through engagement with CIC as the statement 'My confidence level increased after participating with Internet Centre'. Skills and knowledge gained from workshops and programs at CIC indicate positive changes to the community businesses, career, schooling, and their way of life. For example, CIC users enhanced their photography business through the CIC by improving their services and skills in photo editing, making video and so on. Moreover, CIC invited competent tutors or trainers to any classes, programs, or activities organized at CIC.

The gap between CIC and rural communities becomes wider if the community is uncomfortable with services facilitated at CIC. Collective action between CIC and other organizations positively impacts rural communities. For example, CIC cooperates with nearby schools to develop a sense of ownership among students toward CIC. Students can utilize CIC as a place to do their homework and discuss and participate in programs organized at CIC.

E. Information Services

The Community Internet Centre (CIC) facilitated rural communities with internet access, classes, workshops, and various appropriate programs to enhance community's income, education, and communication and transform themselves for the betterment. Morales [58] believed the internet is a good platform to help shape the public by sharing information, news, businesses, and administration. Series of workshops regarding online businesses enable the community to utilize social media platforms or webpage. They learned how to publicize their products and services through online platforms effectively. The study shows that most respondents agree that CIC enhanced their skills and knowledge, as in the questionnaire 'I am being more proactive (employment, education, communication)'. The community gained knowledge and skills from provided programs at CIC to expand their businesses in healthcare products, photography services, frozen food, cookies, and so on.

IV. CONCLUSION

Empowering rural communities through CIC is an appropriate initiative in community development. As discussed in this paper, the rural community empowerment process indicates community participation, a sense of ownership, and information services of CIC. The capability of rural communities to use and manage technology as CIC generated community empowerment and reduced disparity between rural and urban communities. Community internet center has facilitated rural community to gain skills, capability, information, and knowledge to have a better quality of life. Rural communities should fully utilize CIC facilities and use CIC for betterment in moving the community forward in this convergence era. The current study suggests that evaluating CIC sustainability facilitates rural community resilience as CIC has scarce resources for only depending on government assistance. In this regard,

collective action from government agencies would solve CIC sustainability for better community development.

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