Analysis of grassroots burden reduction based on grid management technology in the information age

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Abstract. This study examines how grid as technology and information technology deployed in grid management have reproduced the dilemma of burden reductions on community-level officials. Based on empirical materials, the article attempts to elaborate on the connection between grid generalization and burden reductions at the grassroots level. Then, by briefing existing research, this paper finds its niche in analyzing specific technologies. After illustrating a clear manifestation of grid generalization, three factors are considered to be the molding force in the status quo: the transparent ranking mechanism, system failures, and the grid itself as a technology.

Keywords: Grid management; grassroots load shedding; information technology.

1. Introduction

When the grid, as an emerging international technology, was introduced into Chinese communities, it inevitably underwent its own localized transformation. Thus, our discussion on the grid and its application must first fall back on the Chinese social context and the specific historical practice of past urban grassroots governance. As the discussion unfolds, we will find that the community is the petri dish of the grid. Only by taking the community as a meta-context can we better understand the current situation and problems of grid-based management. Therefore, I will develop the discussion along the above lines.

China's urban grassroots social management system has largely undergone a transformation from unit-based and street-based systems to community-based systems. According to the analysis of He Haibing[1], the unit system, characterized by administrative, closed, and unitary nature, was a dominant special organizational form established at the early stage of the founding of People's Republic of China to adapt to the highly centralized political and economic system. While highlighting the functions of political mobilization, economic development, and social control, the unitary system also inadvertently created a totalitarian society and a dependent personality. Parallel to the unit system of social management is the Street ranking system, supplemented by grassroots district management. With the gradual reform and opening up of China, the unitary system has collapsed due to changes in the ownership structure, the development of the market economy, and the intensification of social mobility. Born in 1950, the Neighborhood System differs from the Unit System in its overall management of societyfocusing on the management of grassroots areas. The work is mainly carried out by two administratively established organizations, the street office, and the residents' committee. In China's transition period, it faces the same challenges of functional overload, limited authority, and awkward roles. In 2000, the General Office of the State Council forwarded the opinion of the Ministry of Civil Affairs on promoting the construction of urban communities nationwide, and the construction of communities began like a spring. The main reasons why it is said to be a kind of transcendence to the unit system and the neighborhood system are the management concept from control to service; the management subject from single to multiple; the management form from administrative control to residents' participation[2].

As a new institutional design to respond to the diversification of interests and the pursuit of comprehensive human development in social transformation, the community system cannot operate in a "one-size-fits-all" manner, but needs to be constantly tested by practice and the context of the times. When Castell successfully predicted the rise of the network society, the nodalization of the individual and the informatization of society became important symptoms. Today, the technology

about information rather than the information about the technology is the focus. How to use the new technology to recreate the atomized individual in the vision of mass society is an epochal proposition to which both the East and the West need to respond. The answer from the West is "seamless government," which requires a full range of departments, levels and functions to be connected. In 2013, the Decision of the Third Plenary Session of the 18th Central Committee on Several Major Issues of Comprehensively Deepening Reform formally proposed grid-based management and social services as the direction of social governance improvement. The so-called grid-based management is to focuses on reorganizing and integrating the basic elements and functions of urban communities based on the original organizational structure; It is not to change the nature and purpose of urban community management, but to deepen and extend urban community management[3].

The grid can indeed help break down the original barriers, open up the "last mile" to serve community residents, and stimulate more institutional potential. But in a silent system, the problems are screaming. When a small grid is given the expectation to solve all problems, "grid swelling" becomes an unintended consequence of organizational design techniques. Some scholars have summarized this as grid generalization, which not only blurs the boundaries between multiple governance actors, but also brings some public service and social governance functions into the government sphere that the market and society could perform. It has led the grassroots government to make itself a "multi-faceted" and "jack-of-all-trades" in social governance[4]. What are the feelings of the key actors in the grid? In the pre-survey, the grid workers all mentioned in a highly tacit manner the "detail, multiplicity, and complexity" of their work and the unconventional nature of the assessment indicators. Paradoxically, one side of the story is that people at the grassroots are so busy that they are "wailing", while the other side is that the Central Committee of the Communist Party of China has designated 2019 as the year to reduce the burden of the grassroots and will further improve the regular mechanism of reducing the burden of the grassroots. The huge contrast between the two makes people ponder whether grassroots people actually share the benefits of reducing the burden. Or is the so-called burden reduction at the grass-roots level getting worse? Is grid management accompanied by information technology to reduce the burden of synergistic efficiency, or reverse to do the work? Deeper, is the material consequence of meditation holding the policy hostage from the beginning, making the two irreconcilable contradictions? What needs to be observed is how technology is present and the situation of human existence within it. Through rigorous argumentation, we need to look at what can be done to reduce the burden at the grassroots level.

2. Current studies

The theory of mediatization, which was born in the "information society" as defined by Castell, refers to the tendency of the media to act independently as an institutional element in social and cultural change, to intermingle with it, and become ever more deeply involved in various fields of change[5]. According to Hjarvard, one of the leading European scholars of mediatization[6], because the media have become a structural condition of social and cultural practices, mediatization should be seen as a late modern process as important as globalization, urbanization and individuation, and even to some extent as a vital reason for the 'modernity' of the society in which we live today. Mediatization theory is concerned with how the self-regulation of the media (i.e., media logic) plays a crucial role in the growing otherness of each field. Therefore, it inspired me to examine how the logic of technology exerts its autonomy in the fields of grassroots governance and what material consequences it brings about.

To answer this question, it is necessary to consider both the characteristics of technology itself and to pay attention to the relationship between technology and organization. Relevant scholars have already worked on this aspect. Qiu Zeqi[7] takes manufacturing enterprises as an example and finds that the relationship between organization and technology is a process of mutual construction between the two, where the mutual construction is reflected in the fact that information technology carries an organizational structure both from the rigid structure of the technology and from the elastic structure

of the organization; Similarly, the structure formed by the organization's use of technology includes both the rigid structure of the organization and the elastic structure on both sides of the technology. Huang, Xiaochun[8], taking the example of a one-door e-government service center in the street in Shanghai, also observes that technology as a structural aspect "defines" the new standards of "best" and "appropriate" in daily work. " In the same way, it also constrains people's choices accordingly and ultimately becomes an integral part of the institutional environment. According to W. Wu[9] and others, the scope and domain of IT applications are closely linked to performance goals. As performance goals and tasks become increasingly complex, expanding administrative control chains and overwhelming grassroots pressure constrain not only the government's own governance effectiveness, but also compress the space for autonomous activities of grassroots mass self-governance organizations. From a larger concern, Zhu Qianwei[10] focuses on the irrationalization of public management caused by government reengineering centered on highly digital management and emphasizes the return to human-centered management.

Most existing research findings examine plural, holistic technologies and lack attention to how singular, and specific technologies are embedded in organizations. While this approach avoids the limitation of "seeing the trees but not the forest," it risks simplifying the differences between technologies. This difference depends on the contextualization of a specific field and specific identity of actors. Therefore, my research will start with specific technologies, focusing on how technology becomes an institutional presence at the grassroots level, thus bringing about the problem of grid swelling.

3. The dilemma under grid management

The study unfolded around a case study and participant observation approach. Based on the pre-survey, this article finally selected the LH community as the research object, considering the subjective factors of personal interest and the influence of objective factors such as the accessibility of the site, the role the participant is likely to fill, and whether that role provides more in-depth access to the object to be studied.

The LH community began grid management in 2014, initially with six grid members. Currently, there are ten grid members in the community, including a grid leader. Each grid member is responsible for an average population of about three hundred households. According to the secretary, "the grid in Shanghai is doing well, the district leaders went on a study tour and drew lessons from it."

WeChat chat transcripts and recorded conversations became an essential source of collated information on the day. Given that the central concern of this study is how technology orients grid swelling, I will first analyze the phenomenon of grid swelling and then follow along with the reasons behind it.

3.1 A closer look at grid swelling

1. Working Across Boundaries

The term "specialization" refers not only to people but also to organizations. It is because of the professional division of labor between organizations - you are in charge of production, I am in charge of sales - that the whole society is in a more balanced and stable state. However, the reality of grassroots work highlights the perversion of the norm - there are no boundaries here. Any department can call on grassroots workers to come and go, and they often have no right to refuse, because these can still be accommodated by the words "work with."

"At the end of November, the URA arranged a task for our grassroots to do a housing census, saying that our grid workers know more about the situation, marking houses on the satellite map, you say we are not professional ... (this work) to be done at the end of December." (Grid team leader Xiao)

In addition, the anti-fraud app promotion activities this police station's share of the work, but somehow, the grassroots workers are also forced to "share the pie" - each person needs to complete the promotion work of 200 people. The final ranking will reflect the outcome of individual work. The

key dilemma is that most of the elderly in the community use dumbphones which don't even have an app store to complete the download. It would be unreasonable to ask the elderly to grab a smartphone just for the anti-fraud app. However, the task assigned didn't take such a situation into account. All it wanted was that number was reached.

"That alone is not enough yet. People from the police station told us that whenever phone fraud occurs in the district, the community will be informed and criticized...although it is said that we have not yet received an official red-headed document from the street" (community secretary morning)

It is clear that other departments can not only dump the "pot" to the community, but also use it to have the right to comment. The so-called cooperation has more of an ironic meaning: "you do my work for me and let me check it afterward".

2. Kidnapped by a performance review

In this case, the vaccination work is very illustrative. The story began when Meilan District first ranked the streets regarding vaccinations, and People's Street came in at the bottom. From there, People's Street then began ranking communities. Of the seven communities, Community L ranked in the middle of the pack, but had its own objective difficulties. Thus, numerical violence emerged: structural difficulties were hidden by erasing specific contexts and treating all "the same" - "Some communities have more elderly people," he said.

"Some communities have a lot of elderly people, and we can't force people to fight... we can't really do anything about it." (Grid Team Leader Xiao)

The quantification of vaccination status has set off a wave of rankings. According to Chen, the secretary of the community, now every job involves the ranking of city, district and street, so that in the end, all the work falls on the community's shoulders. The community struggles to cope due to various objective factors such as population and lack of professionalism. Here, grid swelling has moved from "outsourced work" to "impersonal performance". The former is brought about by the "intervention" of others, so its unreasonableness is easier to detect, and we have more justification for intervening and adjusting it. In the latter case, since both the exerters and the recipients are within the organization, and are sheltered by the management discourse of the system, there is nothing the grassroots can do about it.

Next, my analysis of technology will refer to the idea of mediatisation, focusing on the internal logic of the medium in a given field and how the actors act within it. The game behind it is actually a game of self-regulation and other-regulation of the media, which I hope will indicate its relationship with the swelling of the grid. Specifically, I will start with the grid as a whole and then wrap up with the specific technologies applied within the organization.

3.2 Negative externalities of the Grid as a technology

The negative externality of sovereignty, as mentioned by Tiejun Wen[12], it means that the sovereignty retained by the colonized developing countries in the past is the high-cost political sovereignty left over after negotiating and exchanging resource sovereignty with the original colonizers, which is only suitable for the colonizers' national conditions. In short, the existing superstructure of the formerly colonized developing countries is costly and unsustainable because it is not adapted to their economic structure. With this in mind, the negative externalities of technology can be manifested either as a macro-level asynchronous dilemma. In other words, with the iterations of technological innovation and application accelerating, the rules governing technological innovation and application are relatively slow, creating a speed difference between technological development and governance development. It in turn leads to the failure of technologized social governance due to the asynchronous dilemma[13]. Or in the micro-level grid, when the technological requirements of technology are applied ahead of time when the material base is not fully realized, resulting in cost shifting, i.e., costs that should be used to improve the existing material base are converted into intangible human costs.

In other words, what we apply is never a mere technology, but a set that includes a material base, value bias, etc. When the grid is used as a technology, its application requires the full penetration of

functions and departments to point to a seamless operation. However, as we mentioned earlier, when district government leaders are impressed by Shanghai's grid management model, and hastily copy a set with little regard for the material requirements of grid management, a negative externality of the technology grows. In other words, the organization applies the technology and uses it to avoid the substantive problem - dismantling barriers between departments.

Before the XX department asked for the information on the water pipe investigation, it sent a form to (let us) fill it in, and another department came to ask for it. The two departments want the same things, but because they do not share it, so we have to deal with these repeatedly, and the work is already enough." (Community Secretary Chen)

The task of dismantling the high walls between departments is transferred to the repetitive and tedious work of grassroots workers, and the dilemma of reducing the burden of the grassroots is reproduced as a grid of technology with inevitability. Some scholars have also pointed out that the administrative departments are not motivated to build a more global institutional arrangement, but tend to bypass the reform of the governance structure with the logic of "matter-basedism" and solve the problem in a project-oriented way. This logic balances the flexibility of problem-solving with the increasing difficulty of horizontal synergy within the governance system. The result is more and more projects and ad hoc set-ups, but the system's overall optimization becomes more complex [14]. The logic behind their behavior points to a fractured department and grid-based management that can be exploited.

3.3 Transparency and system vulnerability

Due to the convenience of cell phones, grid clerks mostly use them to carry out their work. Dan's November appraisal results are shown in Figure 1. At present, there are three leading mobile apps used by grid officers, namely, 12345 Micro Linkage ("Micro Linkage"), developed in 2018, Haikou Social Service Linkage, and Haikou City Management Linkage, developed in 2014. Microlinkage can be viewed on the extranet and is currently used mainly for performance evaluation, while Social Service and City Management, which are used for daily work, require intranet login.

1. Black box rules and transparency

The appraisal result at the end of the year is supposed to be private for the individual. Dan told me that it was actually visible to other grid workers. This kind of technical setup brings about two things. On the one hand, the transparent public rankings and scoring rules do motivate hard work. However, on the other hand, visibility also insinuates public scrutiny and comparison. Huang Xiaochun[11] also points out that while new technologies have facilitated significant performance improvements, their relatively transparent recording has also made job performance a matter of clear horizontal comparison, thus highlighting the institutional flaw of unequal pay for equal work. Concerning whether grid workers shoulder more jobs for a decent ranking, Dan replied, "That's for sure!"

And what does technology have to do with grid swelling here? An open and transparent technology set-up first "empowers" the grid workers: encouragement can be one kind of empowerment, but another kind of empowerment is taming them in comparison and in figuring out the rules of the score, making them think that they are not doing enough and that they can do more. The score without a ceiling is like the modern society's view of development without an end, stimulating the mentality of "rush and be done with it" and silently telling the fact that work boundaries have long been crossed. Thus, the false consciousness cultivated by technology prepares the minds of grid workers to voluntarily take on the generalization of the grid. Therefore, regarding the consent of grid generalization, most of them are not quite so sure.

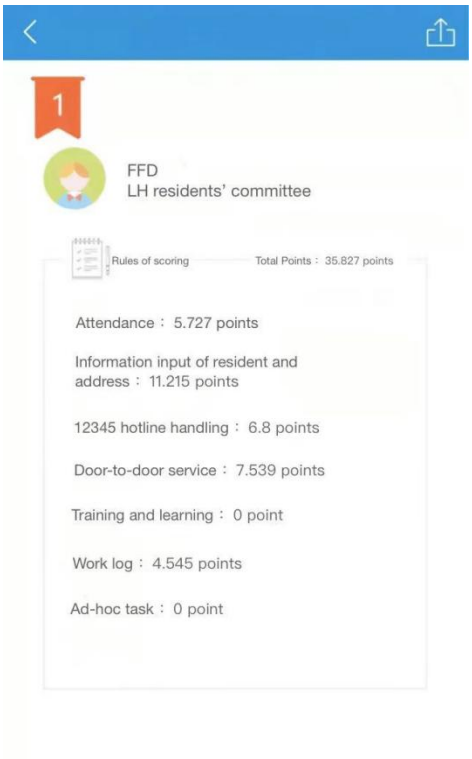

Figure 1 Dan's November appraisal results

Figure 2 Issuance of social security cards in door-side services

"If you're talking about a lot of work, a lot of clutter, a lot of detail, then yes, indeed. But it's also a job that's still part of the job. How much you do, your ranking reflects that." (Gridman Dan)

Interestingly, on the one hand, the grid workers repeatedly mentioned in the interviews that their work was many, detailed, and complicated; But at the same time, when it came to ranking, they masturbated with "the work within the division" and used it as a footnote for their "over-complicated" work situation. The ranking technology constructs another world: here, it keeps the actors trapped in a series of numbers by exploiting the comparison and competition of human nature. The result is that actors have to take on virtual rankings even though they may be aware that they have been taking on work that crosses boundaries.

2. System failures

Bugs are mostly found on the intranet. The grid worker, Shuang, showed me two types of failures. One was when the software got stuck while updating, making the update process load from scratch; the other is shown in the picture below. At that time, Shuang logged into the intranet and opened up Social Service Link, ready to check the issuance of social security cards in her door-to-door service. Issuance of social security cards in door-side services is shown in Figure 2. When she clicked in, the page would show specific information such as the name of the specific person who had not claimed it, ID number, and contact information. But further click on the specific name, and the reason for not claiming it will appear.

Click on one of them, and a prompt will pop up, reminding this customer that he already has a social security card. Paradoxically, his name still appeared in the unclaimed list, shown in figure 3. Shuang told me this kind of system error is very common. Because of the insensibility of the system to its own mistakes, no channel is provided to report such system failures.

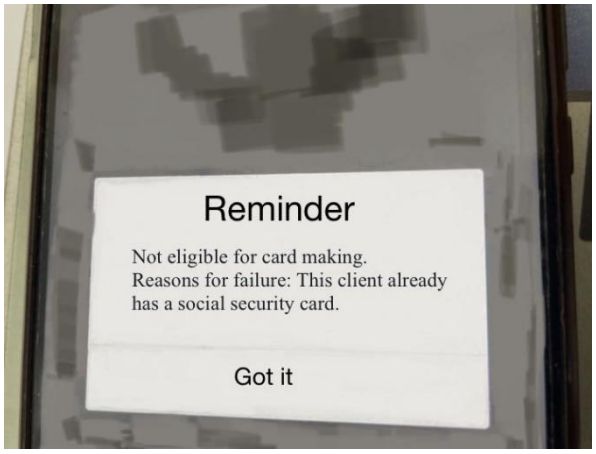

Figure 3 One kind of common system failure

"If a bug occurs, we have to write it down to the grid leader first, and then he will report it to the technology uniformly." (Gridman cool)

Here, the relationship between technology and grid swelling is manifested in the fact that the grid workers need to pay separately for the omissions of technology, and there are more unnecessary "hiccups" on top of the original near-full workload. Moreover, compared to the relaxed vigilance on workload under the technical arrangement of the public above ranking, the bugs stung the nerves of the grassroots staff in an alternative way, making them fully feel the workload increase instead of decrease. Once, I went to the LH community to observe as usual. Mao, who was working in the lobby, complained that the system (on the computer) could not be logged in again, and that the data update was delayed, making it impossible to do the next step. I took this opportunity to talk to her, and Mao said.

Although the BUG makes work boundaries more visible in the consciousness of the grassroots staff, back down to reality, they still have to deal with these technically crippled tasks. Cognitive dissonance is thus created. Daily gripes and complaints then become a meaningful way to rebuild their internal balance.

4. Conclusion

There is nothing new under the sun, and the swelling of the grid is just a new skin for the community's woes, behind which there must be many factors unrelated to technology. In addition to the technical difficulties, grassroots workers have long blurred their duties and identities to drag the grid to swelling. It is still only one of the factors. How much of these factors is technology's influence? How does the logic of the grid interact with the logic of the organization itself in the field of grassroots work? All these questions rely on more detailed and in-depth exploration. Two months of observation is definitely not enough to support my answers. Second, I am both making and invariably refuting arguments. The first-hand information supporting my thinking about the logic of technology is "one-way", in which only the grassroots voices can be heard. But technology, after all, is constructed by people and carries human values and purposes with it. Therefore, from this perspective, if we want to dig deeper into technical logic in the future, we must have the presence of technical designers, technical introducers, and so on. Grassroots people alone do not tell the whole story. In addition, grid-based management rooted in community contexts is far beyond my daily experience. Therefore, how to bridge the two worlds and exchange understanding through participatory observation by bridging my experience and theirs is something I need to keep exploring and pursuing in my practice.

Looking back at the existing grid discussions in the academy, the grid man was symbolically annihilated. What is in front of me is just a grid structure, with few actors. The existing discourse about the grid's social and economic benefits is not consistent with what I saw in fieldwork. It was just one overworked soul. My research is trying to rediscover this specific group and stand in the

perspective of communication to tell the story of their encounters at work, and their story with technology.

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