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The roles of technology and co-location in overcoming divergent logics in professional supply chains: the case of criminal justice

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Abstract

This paper reports on a novel system whereby justice specialists are brought together in one room, supported by technology, to handle cases through an interactive decision process. Based on initial data collection, i.e., insights from existing knowledge and fieldwork conducted in the Dutch justice system, and archival data, our first findings show how technology, co-location and a more interactive process combine to reconcile the diverging professional and other logics in a complex service delivery system.

Keywords: Technology, Professional service, Justice system

Introduction

We all rely on trustworthy justice systems for the safety and justice in and across nations. Such systems require various specialists, like the police, public prosecution officers, probation officers, lawyers, judges, each to perform their respective tasks in investigating,

assessing, prosecuting, and adjudicating a criminal case. The handling of common types of small criminal cases can be slow because of a lack of integration between stages in the process. This can lead to various problems, such as backlogs and the degradation of evidence due to the passage of time. The pressure to deliver high quality, timely justice services while containing costs has driven specialists to increasingly work together cross-organizationally to jointly fulfil their public purpose (cf. Noordegraaf, 2013). Accordingly, justice specialists seek new ways to manage their professional service processes and tasks (Lewis and Brown, 2012; Salet and Terpstra, 2020).

This paper reports on a novel system whereby specialists are brought together in one room, supported by technology, to handle cases through an interactive decision process. This is somewhat analogous to the use cellular approaches, which simplify flow for similar, relatively high-volume products and services. However, justice system processes also take place in a setting influenced by various institutional logics, which emphasize different and sometimes conflicting concerns – fairness, cost, speed, political pressures (e.g. McPherson & Sauder, 2013).

Although making trade-offs between performance objectives is not new to supply chains and operations in general, dealing with justice-related, political and economic objectives makes managing criminal justice supply chains and operations more complex (Callender, 2011). In healthcare, Bhakoo and Choi (2013) show that different stages in the supply chain are subject to different institutional pressures, which affects their adoption of information systems. Previous studies in the justice system suggest that technology, e.g. through integrative practices, might play an important role in dealing with logics at stake. Specifically, Seepma et al. (2021) argue that justice-specific tensions, stemming from goal-setting and multiple stakeholders, can be maintained as well as mitigated by the use of integration mechanisms. However, important questions are still unanswered. How does technology play a role in dealing with these logics? What happens when you literally have the technological artifact in the room as part of the justice practice? How far can technology go in supporting or even substituting for professional decision making? As such, this research examines how technology, co-location and a more interactive process combine to reconcile the diverging professional and other logics in a complex service delivery system.

Theoretical background

Institutional logics

Institutional logics “represent frames of reference that condition actors’ choices for sensemaking, the vocabulary they use to motivate action, and their sense of self and identity” and “shape how reasoning takes place and how rationality is perceived and experienced” (Thornton et al., 2012, p. 2). A number of basic institutional logics have been identified. Thornton et al. identify the following ideal types: family, religion, state, market, profession, corporation. Writing specifically about professions, Freidson (2001) focusses on three logics: unregulated markets, organizations (private firms and public organizations) and professions. In all cases, the authors point out that these are ideal types: actual settings will comprise elements of more than one logic, to different degrees.

Many organizational settings are characterized by institutional complexity, that is, subject to multiple institutional logics that are contradictory to a significant degree (Greenwood et al., 2011). A key question is how, under these circumstances, organizations respond to institutional complexity (Greenwood et al., 2011). In a range of empirical studies, various responses have been demonstrated. They include incorporating aspects of an emerging logic while maintaining and adapting the core logic (Carvalho, 2014), more systematically developing “hybrid professionals” who develop relational expertise that enables them to interact effectively with experts in other domains, (Blomgren and Waks, 2015), and “hijacking” other groups’ – or “non-home” - logics (McPherson and Sauder, 2013) to achieve particular outcomes.

Coordinating work sequentially and spatially

The coordination of work among multiple workers has been a central concern of operations management and organization design literatures over many decades. Van de Ven et al (1976) built on Thompson’s (1967) classic typology of coordination modes to propose four work flow modes: independent, sequential, reciprocal and team. As task uncertainty increases, more use is made of reciprocal and team modes. In new product development processes, cross-functional teams using simultaneous engineering approaches have long been advocated as way to cope with interdependencies and possible conflicts between different functions and specialisms, as compared to “over-the-wall”, sequential development processes (Wheelwright and Clark, 1992). As these ideas apply

to the kind of work that we examine here, Gkeredakis and Constantinides (2019) see these as based on an information processing perspective, and suggest other views. First, they suggest the group perspective, which emphasises the collective, often distributed cognitive processes used in complex, non-routine intellectual tasks (e.g. software development); the use of IT in such settings is often a concern in this literature. Second, they identify the practice perspective, which is less concerned with cognitive processes, and more concerned with the way particular coordination resources such as “plans and rules, roles, physical location and proximity...enable or disrupt the achievement of coordination in practice” (Gkeredakis and Constantinides 2019, p. 4).

Initial theoretical framework

We propose to draw on aspects of the above discussed theoretical perspectives to examine how coordination resources are used to achieve process outcomes in a context of institutional complexity. Our suggestion is that spatial proximity among the various actors and the real-time use of information systems and associated IT artefacts, in the context of a shift to a team mode of coordination, provide ways to reconcile or - at least accommodate - the diverging institutional logics of the protagonists.

Methodology

We apply a case study approach, focusing on regional settlements that process criminal cases, i.e., so-called “as soon, smart, selective, simple, collaborative and society-oriented as possible”-cases (in Dutch: “zo snel, slim, selectief, simpel, samen, en samenlevingsgericht mogelijk”, ZSM), referred to as ZSM-settlements. These are demarcated criminal justice systems, located at regional police stations, focussing on processing relatively simple and common criminal cases. Representatives include the police, public prosecution service, probation service, the Dutch council for child protection and victim support service. Representatives of the criminal justice organizations physically sit together to investigate, assess, prosecute, and adjudicate criminal cases. Instead of following the linear process of gathering information about the crime, the suspect, the victim, and other relevant information subsequently and involving related criminal justice organizations step-by-step, i.e., as is done in the ‘regular’ criminal justice system, ZSM-settlements involve the aforementioned criminal justice

organizations simultaneously to gather and share all the required information (see also Jacobs & Van Kampen, 2014).

We build upon insights from existing knowledge and fieldwork conducted in the Dutch justice system over 5 years and archival data such as evaluation reports and policy documents linked to the Dutch ZSM-settlements (Table 1). Future data collection will involve interviews with multiple representatives and observations.

Reference	Document topic	Document type	Year
D1	Improvement plans ZSM 2018-2020	Evaluation and strategy document	2018
D2	Information management manual	Policy document	2019
D3	Research project on ZSM and victim rights	Research document	2015
D4	Research project on ZSM and policing	Research document	2017
D5	Evaluation of ZSM settlements	Evaluation report	2016
D6	Digitalization criminal justice 2021	Project progress report	2021
D7	Evaluation digitalization criminal justice	Annual report	2020
D8	Improvement plan criminal justice chain	Strategic plan	2020
D9	Challenges in criminal justice chain	Evaluation report	2020

Table 1 – Overview of documents collected for analysis

Preliminary findings

The following preliminary findings show the logics that are inherent to the justice system as well as the particularities we find in the ZSM settlements on co-location and technology.

Initial emerging logics

Our initial analysis detected multiple logics underlying the process of bringing a criminal case to justice. We find that the design of the ZSM settlement is inherently based upon competing logics. Typical logics are represented by the different criminal justice organizations individually or collectively.

Logic of efficiency versus the logic of meaningful justice. The ZSM settlement is focused on bringing a criminal case to a verdict that is as good as possible and as just as possible, as quickly as possible. The focus is on speed, while also trying to find the best possible ‘intervention’ or ‘punishment’ for the suspect(s) in a criminal case. Mechanically following the law in getting to a verdict fitting the criminal act that was perpetrated by

the suspect, without emphasizing the motives, background, and circumstances of the suspect(s) is likely to lead to the most efficient decision-making process and lowest throughput times. Based on policy documents, we find that the focus on speed is established in the process by standardizing processes, setting strict deadlines, and setting specific requirements for the input provided by the criminal justice organizations. However, while speed is one pillar of the ZSM settlement, another pillar is to reduce the likelihood that the suspect commits another crime, preventing the suspect from re-entering the criminal justice system as a recidivist. To serve the second pillar, the criminal justice partners investigate the personal circumstances and the best fitting ‘intervention’ or ‘punishment’ for the suspect. *“ZSM considers the wishes of the victim and the circumstances of the suspect. The intervention is light where possible, heavy where necessary and should minimize the risk of recurrence. The interventions can be settled within and outside the field of criminal law” (D1)*. This process might involve more time, and be less efficient in the short term, but at the same time provides the opportunity of finding the best fitting and most just verdict to the crime as a responsive and preventive measure. At the same time, the process of settling a criminal case is partly determined by regulatory systems and laws. For example, the police must adhere to strict deadlines in assessing and reporting upon a case as law restricts the time a suspect can be held in custody, i.e., up to six hours after the arrest (D3) (see Phase 1, Figure 1). Overall, we find that timeliness and speed, as conforming to legal time restrictions, are perceived as complementing quality, i.e., completeness and accuracy, of the criminal case. At the same time, timeliness and quality are seen as partly conflicting: the more complete the criminal case, the more time it takes.

Logic of public accountability and transparency. To ensure accountability of all parties involved in the ZSM settlement as well as to facilitate further development and professionalization, accountability agreements are made on local, administrative, and national levels (D1). In addition to these formalities, we found objectives like public accountability, individual client accountability and public safety that are pursued by only one or two organizations in the justice system. *“ZSM wants to do justice to the interests and position of the victim and the suspect by acting transparently and in accordance with the law. In this context, specific attention to the legal aid of the suspect is important and a good connection with the judiciary for judicial interventions” (D1)*. We find that the criminal justice organizations need each other on both institutional and operational levels

to bring the criminal case to justice. At the same time, each organization has its own objectives, providing tensions in the collaboration and integration within and between the processes of detection, prosecution, and jurisdiction. For example, the probation service acts in the interest of the suspect but will be held responsible for their judgement by the public. To ensure public accountability, a meaningful and careful justice process is argued to be key, meaning coming to interventions that are *“recognizable, noticeable and visible to society. Taking into account the circumstances, context and interests of the suspects, victims and society. [...] having interventions with sufficient quality and a process surrounded by legal safeguards, in order to maintain and increase the confidence of the accused, the victim and society”* (D1).

The logic of independence versus the logic of timeliness. The probation service acts independently. Accordingly, the public prosecution service has to accept these parties' need to ensure an objective, professional position by acting independently. Still, the public prosecution service needs the probation service to achieve the required timeliness and will aim for alignment on that aspect. *“[The organizations part of the ZSM settlement] are working together and simultaneously on a criminal case. This way the public prosecutor can make a quick and well-considered decision on the most appropriate settlement of a criminal case, taking into account the advice of the criminal justice partners”* (D1).

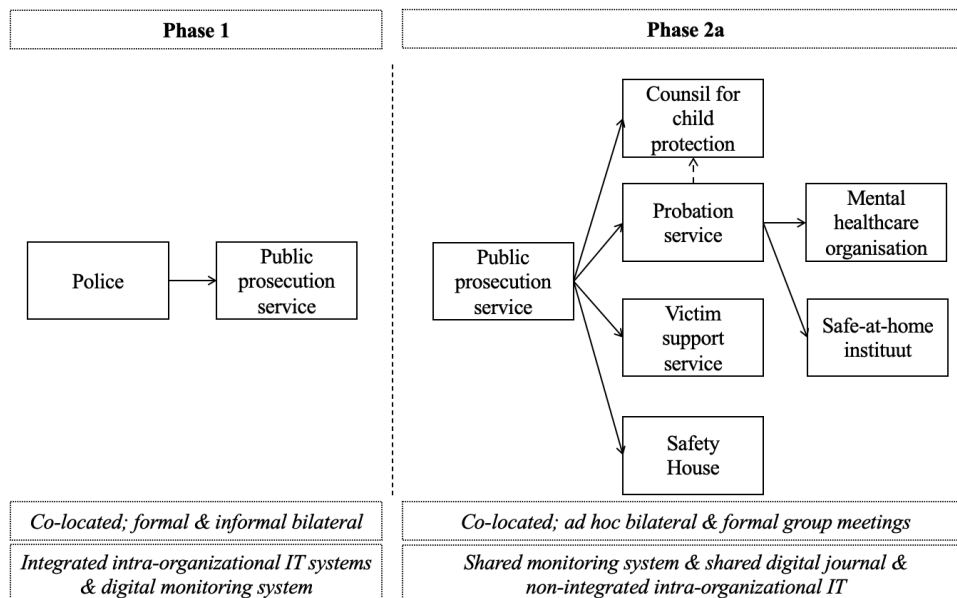
Criminal justice process under the circumstance of co-location

Traditionally, simple and common criminal cases were processed through the criminal justice organizations linearly where representatives of the criminal justice organizations were located at their own institutions. Criminal justice organizations were communicating through non-integrated and non-shared systems. This led to a multitude of challenges, including long throughput times (i.e., weeks), accumulating numbers of unsettled cases, suspects out of custody and vulnerable to further criminal activities, suspects or convicted re-entering the justice system and standardized verdicts with little consideration of the suspect's personal context.

To both deal with the above-mentioned challenges and realize the aforementioned values, i.e., timely, efficient, careful, and meaningful closure of criminal cases, criminal justice organizations 'joined forces' by being co-located in the so-called ZSM-settlement to focus on cooperation during the process of coming to an intervention or verdict for

simple and common criminal cases. This means that information is shared in early stages of the process, parallel processes are designed, and settling the criminal case in a timely (i.e., within a day to a week), efficient, careful, and meaningful fashion is a joint effort and responsibility.

The justice process is generally designed to be a linear process where criminal justice organizations work successively on the criminal case file to get to a verdict. Co-location of criminal justice organizations enables working in parallel on the criminal case (D1, D2). Based on settled procedures and agreements that are available for the ZSM process (D1, D2), several stages in the collaboration between criminal justice organizations can be identified as part of the ZSM process (Figure 1): (1) intake and selection of cases, i.e., making sure the criminal case that is filed is suitable for an ZSM procedure; (2a) inform and request information, i.e., share the available information to the involved criminal justice organizations and send a request for feedback and advice; (2b) feedback and advice; i.e., criminal justice organizations share their feedback and advice related to decision to make on the criminal case; (3) align and assess the case. The number of involved criminal justice organizations is dependent upon whether the suspect is adolescent or juvenile.



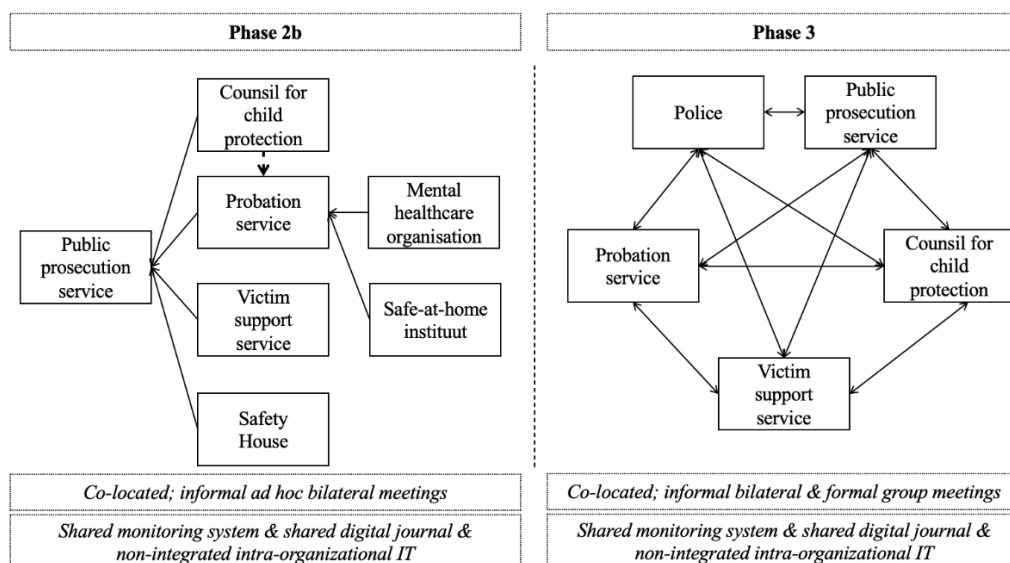


Figure 1: collaboration phases in ZSM settlements (adopted from D2)

Co-location, collaboration and technology

Simultaneous working requires whole new ways of information sharing as well as support from digital tools as compared to ‘traditional, non-co-located’ way of working in criminal justice. Different tools are used to work on and to share information; (i) intra-organizational case management systems; (ii) shared case monitoring system; (iii) shared digital criminal case journal.

Criminal justice organizations currently mainly use their own intra-organizational case management systems to work on a criminal case file. Regulations and procedures are in place to facilitate and restrict information sharing amongst criminal justice organizations in the ZSM settlement, taking into account e.g., privacy regulations and the code of criminal law (D2). This information is currently mainly shared on paper, yet, obstructing simultaneous access to the criminal case file to all organizations involved. Where the police and public prosecution service have case management systems that are linked and enable digital information sharing, the other organizations, e.g., probation service, do not have access to this information (D5). This is mainly hindered by laws and regulations as organizations are restricted in the information that they are allowed to share (D2). Current case management systems do not provide the option to only share parts of the criminal case file to other organizations. Plans are to develop a shared digital workspace to facilitate information sharing (i.e., data exchange, administrative actions, coordination and management) amongst criminal justice organizations in the ZSM settlement. This workspace should further support the roles that organizations have in the ZSM settlement

by having the necessary information in terms of content and process in an efficient and effective way (D6; D7).

To work with the current restrictions due to the lack of a shared digital information system, ZSM settlements have developed shared systems to share (parts of) the criminal case information simultaneously. A shared case monitoring system is available to share process information on a criminal case. This information is displayed on a digital board at the center of the ZSM office, accessible and visible to all parties involved in the ZSM settlement (D5). All ZSM cases that are dealt with at the time are displayed, including information on the type of crime, the suspect, victims involved as well as information related to the actions that should be completed, the owners of these actions, the remaining custody time, the remaining time to work on the case. The shared monitoring system has both an information sharing and work coordination role. The order in which criminal cases are supposed to be resolved by the justice organizations is determined by the shared monitoring system and likewise displayed, until decided otherwise by the public prosecutor (D3). Moreover, *“the digital board shows the remaining custody time in each registered case and provides the ZSM partner organization the needed information. Information such as: how many cases still need to be dealt with before the deadline has expired, who still has to provide information for the settlement of the case, and when the deadline expires.”* (D3). Led by the information from the shared system, different forms of meetings are organized, e.g., consultation meetings, process alignment meetings, criminal case closure meetings (D5). This might be on scheduled times as well as ad hoc, when needed for the case; it might be with all justice organizations involved or bilateral.

Some of the ZSM settlements make use of digital so-called ‘criminal case journals’. In these digital journals all parties, including police, public prosecution, probation service and victim support service summarize the most important information and advice that need to be shared in order to support the public prosecutor in making a meaningful and quick decision on the criminal case (D4). These digital journals are complemented by oral information as well as written statements and reports if deemed necessary or required by law.

Oral meetings are organized, sometimes steered by the digital monitoring system, sometimes not, to discuss pending cases with all organizations involved. These meetings serve smooth handovers between shifts, discussing most important information and tasks

to be executed for the ongoing cases, and discuss the prognoses for the settlement of the criminal case (D5).

Discussion

Competing logics

The institutional logics theory provides explanations for the decisions on adopting and not adopting specific operations management practices (Phillips, Lawrence, & Hardy, 2000; Reay & Hinings, 2007; Kauppi, 2013) used in the criminal justice network. We show that this network is subject to institutional complexity. However, different from what is generally argued on institutional complexity (see Oliver, 1991; Greenwood, Raynard, Kodeih, Micelotta, & Lounsbury, 2011; Besharov & Smith, 2014) we found that the criminal justice network does not resolve its institutional complexity by moving from multiple logics towards one logic, in line with the findings of Salet & Terpstra (2020) and Seepma et al. (2021). Besides efficiency, the criminal justice network aims for social welfare, e.g. equity and justice. Generally accepted strategies for handling institutional complexity are provided in Oliver's (1991) well-established typology: acquiescence, compromise, avoidance, defiance, and manipulation. Besharov and Smith (2014) relate strategies to the extent of conflict between logics and conceptually present four ways of resolving rivalry between logics within organizations. These four ways are based on the degree of centrality of the logics to the organization and the degree of compatibility of prescriptions for action, i.e., dominant logic, contested logics, aligned logics and estranged logics. These well-known typologies mainly aim to describe and suggest strategies that resolve institutional complexity. In contrast, the criminal justice network resolves its institutional complexity by continuously balancing the logics through coordination activities by the PPS and integration mechanisms adopted across the network. In doing so, the PPS weights timeliness of a criminal case with the quality, i.e., completeness and accuracy, of a criminal case, while considering accountability, safety and justice towards the public as well as towards individuals like the suspect, victim and witness. Additionally, PPS takes care to present evidence and advice from network organizations, e.g., probation service, to enable the court to make a final judgement on a case file, where all aspects and logics come together.

Even though previous literature focused mostly on (temporary) competing logics within a single organization or at a field level, ample research (Phillips et al., 2000; Beech & Huxham, 2003; Reay & Hinings, 2007) suggests that rivalry between logics may be managed through collaborative relationships. Still, managing such rivalry between logics in a network of organizations is not well understood. One suggestion to overcome the rivalry is that organizations should maintain independence while working together, to accomplish mutually desirable outcomes (Phillips et al., 2000; Beech & Huxham, 2003; Reay & Hinings, 2007). In this line, Pullman et al. (2018) conceptually explore the co-existence of social-welfare and commercial logics in semi-public SCs (Pullman et al., 2018) through decoupled, combinatory or coupled commercial and socio-welfare SC structures. This would suggest that (partly) competing logics, e.g., timeliness versus quality versus public accountability, safety and justice, do not have to be resolved in one network, but could co-exist in a network if coordinated and integrated in the right way. Even though the criminal justice network provides a good example of a network that has to deal with multiple, competing objectives, literature lacks empirical research regarding how and to what extent organizations coordinate their processes to manage permanent competing logics in networks, especially in situations of technology-enabled co-location.

Role of co-location and information technology

We have early indications that technology provides externalized ‘common ground’ that helps different criminal justice professionals to identify and resolve conflicts between logics. These professionals work by both the supposedly conflicting logics of efficiency and justice. However, in being co-located and supported by technology, representatives can make; 1) quick decisions on the criminal case based on real-time management information (e.g. progress of the criminal case, actions to be taken by the representatives, throughput times); and 2) just and fair decisions by having all the information (e.g. video material, evidence, suspect’s profile, witness statements) available to each of the representatives simultaneously, enabling the group to find the best-fitting judgement for the suspect in his/her circumstances.

However, information systems can be seen to “carry” certain institutional logics (Berente and Yoo, 2012) and, arguably, the ZSM shared information system emphasizes the efficiency logic, through its emphasis on process. Normally the public prosecutor is responsible (by law) for the coordination of the case in terms of coordinating the

completion of it and the timeliness (quality & efficiency), while being just. One could say that the monitoring system in the room (partly) takes over this part of coordination as it organizes the order of completion as well as timeliness. At the same time, co-location seems to embody both efficiency logic (short lines between representatives, simultaneous working) as well as justice logic (finding the most fitting intervention for the suspect through team-based working and dialogue). Further in-depth interviews and observations are required to address the empirical question of the respective roles of process redesign, co-location, and the technology itself in coordination as such, and in handling institutional complexity. We also aim to get an even more fine-grained understanding of how the different technologies used (i.e., (i) intra-organizational case management systems; (ii) shared case monitoring system; (iii) shared digital criminal case journal; (iv) to be developed shared digital space) carry particular institutional logics.

Conclusion

The present study provides insight into how technology, co-location and a more interactive process combine to reconcile the diverging professional and other logics in a complex service delivery system. Whereas Bhakoo & Choi (2013) show how inter-organizational information systems are adopted differently in different supply chain stages, we show how one common inter-organizational information system helps to overcome the divergence in logics that exist at different stages. This study contributes to professional service literature and the understanding of the use of technology in this context, as it reveals how professionals respond to technology and reconcile their different logics. Insights might further explain how emerging AI-based technologies augment the work of professionals (Raisch & Krakowski, 2021) and have implications for how other typical professional, public service systems like health care and community services use technology and design their work.

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