Inter-organisational trust in the context of micro-data exchange in the ESS

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Abstract
The exchange of identifiable micro-data is one of the key elements of the ongoing modernisation of European statistics as set out in the "ESS Vision 2020". Micro-data exchange is seen as an opportunity for the European Statistical System (ESS) to reap the benefits of enhanced quality, increased efficiency and reduced burden. In particular, it should allow properly addressing the measurement of cross-border phenomena, thus increasing the accuracy and relevance of European statistics on globalisation.

Identifiable micro-data enjoy strong protection in European and national law. At the same time European statistics law enables National Statistical Institutes to exchange micro-data for statistical purposes provided that data confidentiality is preserved. However, trust between different actors of the statistical data life cycle is a key precondition for the exchange of identifiable micro-data; at the same time, loss of trust is one of the main risks of such cooperation. While the risks entailed in the exchange of identifiable micro-data must not be neglected, they can and should be managed, i.e. analysed and mitigated.

The paper analyses the components, functions and factors of trust within an inter-organisational network and discusses them in the specific context of microdata exchange in the ESS. The authors draw elements from various concepts and models of trust across the spectrum of management research. On this basis, enablers and safeguards of trust within the ESS are considered and recommendations for possible actions and for further research formulated.

Keywords: trust, inter-organisational networks, ESS Vision 2020, microdata exchange

1. Introduction

Information sharing has become a lead strategy for governments to build up the capacity to respond to problems in a wide range of policy areas (Gil-Garcia et al., 2010). This strategy is

complex and may require significant changes in the organisational and technological processes. As demonstrated for example by Yang and Maxwell (2011) upon a summary of previous research, trust between the participating organisations is one of the key success factors of inter-organisational information sharing.

It is therefore relevant and important to thoroughly analyse inter-organisational trust within the European Statistical System (ESS) in the context of the possible exchange of micro-data on intra-EU trade in goods, which has been proposed as a way to respond to the challenges of globalised commerce, to reduce administrative burden on respondents and in particular to improve quality through addressing the asymmetries between statistics on the bilateral import and export flows within the EU.

Conceptually, the ESS can be treated as a network of peer public sector organisations—national statistical institutes (NSIs) representing their national statistical systems in the ESS Committee (ESSC)—and Eurostat as coordinator mandated by EU legislation (Regulation (EC) No 223/2009 on European statistics). Members of this network remain autonomous while they embark on information sharing (exchange of micro-data), which they hope to bring value added to their common and individual benefit.

There is a common understanding in the ESS that both enough trust and appropriate control mechanisms within the network must be ensured before information sharing can start. This is a similar situation to many strategic undertakings in the private and public sectors, where strategic alliances between companies and formalised collaborations among public authorities based on a combination of trust and control are established to address common strategic challenges.

This paper analyses inter-organisational trust in the ESS, a transnational network of public sector organisations which consider launching an information sharing initiative. Section 2 provides a literature review on the components, functions and factors of inter-organisational trust, ranging from general concepts to more specific contexts, such us trust within strategic alliances and in public sector information-sharing networks. In section 3 the components, functions and factors of trust are aggregated into a model of inter-organisational trust in the

ESS in the specific context of information sharing. The identified factors of trust in the ESS are assessed in more detail.

2. Understanding trust

2.1. Components of trust

Trust has been subject of extensive multidisciplinary research. Psychological, sociologic, economic, management, political and computer sciences all have disparate perspectives and research frameworks, thus they focus on different aspects of this phenomenon. In an attempt to make a bridge across the disciplines Rousseau et al. (1998) defined trust as "psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behaviour of another".

Inter-organisational trust, i.e. trust between organisations, both from the private and/or public sector, emerged as a research topic by applying to organisations the concept of interpersonal trust (trust between individuals). It is argued that inter-organisational trust includes two distinct but interrelated aspects: trust at institutional level (between organisations as a whole) and trust at personal level, in particular between individuals that critically influence external relations of their organisations, i.e. "boundary spanners" (Zaheer et al., 1998). The characteristics of both the institutions and the key persons involved decide about the overall level of inter-organisational trust. The essential part is played by the "boundary spanners" who either decide about collaboration when representing their organisations at the top level or they are the contact points for external partners at operational level and influence the perception of their organisations by the outside world, thus indirectly contributing to building up trust.

Interesting approaches to trust are offered by research on strategic alliances, a specific form of cooperation between companies. For example, Young-Ybarra and Wiersema (1999) describe trust by three components: dependability (expectation that the partner will act in the alliance's best interests), predictability (consistency of actions), and faith (partner will not act opportunistically). According to Aulakh et al. (1996), the main three aspects of trust are confidence, reliability and integrity.

Trust has also become particularly relevant in the context of IT revolution and the resulting use of electronic communication means. In her analysis of trust in business-to-business electronic commerce, Ratnasingam (2005) differentiated between four perspectives on trust: technological (IT security systems and confidentiality mechanisms), economic (cost-benefit analysis), behavioural (partner's competence, predictability and goodwill), and organisational (regular audits, top management commitment, high quality standards and risk management strategies).

Several authors argue that trust and distrust are not mutually exclusive; they may co-exist, as they have different antecedents and characteristics (e.g. Das and Teng, 1998). Consequently, trust and control mechanisms mitigating distrust co-exist in each relationship to a varying extent. Therefore, a right mix of trust and distrust (and control) is an essential element of good cooperation. Oomsels and Bouckaert (2014) explore how different levels of trust and distrust impact the relations in an inter-organisational cooperation and explain that both trust and distrust have some functional and dysfunctional characteristics implying that too much trust in a relationship might even make the cooperation counterproductive.

Moreover, there is a broad agreement in the literature that the dimensions of trust are interrelated, thus trust is a self-reinforcing, reciprocal phenomenon. Consequently, inter-organisational relationships have a high propensity to develop along virtuous cycles of trust and vicious cycles of distrust (Vlaar et al., 2007). Such reciprocal inter-relationships also exist between trust and some of its antecedents and consequences, e.g. cooperation, communication, performance (Seppänen et al., 2007).

2.2. Functions of trust

Trust has been identified by many authors as one of the most critical factors of successful alliances, as it facilitates and solidifies cooperation and enhances its performance (Edelenbos and Klijn, 2007). The benefits of trust can be observed both at the level of cooperation (benefits to the network or alliance as a whole) and for each participating organisation.

Trust was empirically proved to facilitate more open communication, enhance the willingness to share information and improve conflict management; it increases predictability, adaptability

and strategic flexibility; moreover, it reduces transaction (negotiation), governance and internalisation (acquisition) of costs; and paves the way for informal network collaboration (Seppänen et al., 2007). Furthermore, trust stimulates innovation, learning, goal-orientation and enhances organisational performance; it reduces the complexity (cost) of collaborative actions; and thus generates economic value (Oomsels and Bouckaert, 2014). Das and Teng (1998) also argue that in strategic alliances the level of trust facilitates the deployment of control mechanisms in a partnership "even though some of these very mechanisms may be suggestive of a lack of trust".

Several authors demonstrate that trust is the most critical factor affecting and encouraging knowledge sharing. As explained by Pardo et al. (2006), trust amplifies the perception of incentives and reduces the perception of risks, and so it results in a more effective progress in knowledge sharing. According to Gil-Garcia et al. (2010), trust strongly determines the effectiveness of inter-organisational networks and critically influences cross-boundary information sharing. Finally, Luna-Reyes et al. (2008) argue that exchange of information is both a trigger and outcome of trust, as some initial knowledge about the other partner is necessary to share more information—which makes their collaborative work more effective.

2.3. Factors of trust

Building trust is necessary among organisations that want or need to cooperate. As it is crucial to understand where trust comes from, a lot of research concentrated on factors which positively influence trust. Rousseau et al. (1998) discuss three forms of inter-organisational trust which are determined by different factors. They explain that at the beginning of a relationship institutional trust (based on reputation and control mechanisms) and calculus-based trust (based on a comparison of benefits and costs of cooperation, as well as gains and sanctions related with a breach of confidence) are more relevant, while as the relationship develops, the calculus-based trust is gradually replaced by relational trust (based on the information and experience regarding the counterpart gained within the relationship). Thus, in this model, reputation, positive cost-benefit calculation and positive experience in the cooperation are factors and enablers of trust between organisations.

Factors of trust are also indicated in the definition of trustworthiness formulated by Mayer et al. (1995). They define trustworthiness by trustor's expectations of the trustee's ability ("skills, competencies and characteristics that enable a party to have influence within some specific domain"), benevolence ("extent to which a trustee is believed to want to do good to the trustor, aside from an egocentric profit motive"), and integrity ("trustor's perception that the trustee adheres to a set of principles that the trustor finds acceptable").

A similar but more specific concept was applied in the context of inter-organisational electronic data exchange by Hart and Saunders (1997) who identified and described the following four dimensions of the expected characteristics and behaviour of the trustee: 1) competence; 2) openness to change and exchanging information; 3) concern (antithesis of opportunism); and 4) reliability (consistency between what one says and what one does).

Sources of trust have been subject of extensive research, based on transaction costs economics and/or social exchange theory, on the success factors of strategic alliances. For example, Young-Ybarra and Wiersema (1999) find out that the level and quality of communication between partner organisations and existence of shared values between them significantly influence trust. Other factors which they found relevant were: balanced investment of both parties in the alliance; and hostage (parallel) relationships between the partners which limit opportunistic behaviour. Aulakh et al. (1996) stress the importance of shared relational norms (expected continuity, flexibility and information exchange) and informal monitoring mechanisms (social control) in building inter-organisational trust. Das and Teng (1998) argue that the impact of social control mechanisms on trust in partnership is positive and similar to the effects of trust-building techniques (initial risk-taking, fair distribution of power, active communication, adaptation), while formal control mechanisms (e.g. codified rules, procedures, regulations) have an adverse effect on trust.

Several studies confirm the importance of positive prior knowledge, mutual cooperation experience, good communication and a clear governance structure. Gulati and Sytch (2008) analyse the antecedents of inter-organisational trust at two levels of interaction: between organisations and between the "boundary spanners". They prove empirically that the history of

interactions at both levels increases trust between organisations. However, it does so in a non-linear way: partners begin to convert the joint history in the stocks of trust only after the initial period of ambivalence. The similarity of partners is an enabling factor for overcoming that ambivalence. This initial period may also be necessary to accumulate minimum information about each other which enables trust needed to start the cooperation (Luna-Reyes et al., 2008). Those results confirm the argument of Rousseau et al. (1998) that inter-organisational trust is a dynamic phenomenon as its level and components change over time. Moreover, Gil and Garcia (2010) indicate that effective communication and mutual knowledge of participating organisations stemming from past experience of their interactions are key factors of trust in the context of government information sharing initiatives. Mutual knowledge and communication help create realistic expectations and develop trust by understanding the positions and interests of others and by providing a better picture about their capabilities.

As demonstrated by Gil-Garcia et al. (2010), early clarity of roles and responsibilities reduces the risk of opportunistic behaviour among autonomous partners. In the private sector this clarity can only be achieved through initial negotiations and more or less formalised agreement, while in the public sector specific legislation often creates a main governance frame in which partners operate—in addition to less formal agreements that can regulate more detailed aspects of cooperation. Moreover, Gil-Garcia et al. (2010) argue that, in order to build trust, authority needs to be delegated among the partners, their autonomy respected and participatory decision-making applied.

The importance of good governance was also confirmed by Pardo et al. (2006) in their detailed case-based analysis of knowledge-related inter-organisational collaboration. They find out that the main factors of trust were closely linked with the governance of information-sharing networks: clear division of roles, including a central role and authority to decide assigned to one of the partners and not abused, as well as a participatory way of cooperation. An important part is also played by the similarity of partners' mind-sets and interpersonal trust developed through equal, honest and open treatment of all partners by the central agency. Moreover, as demonstrated by Sanderson et al. (2015), the relational distance between officials in public sector networks exchanging information critically impacts trust and thus the success of

information sharing. They explain that it is easier to establish information exchange if a network of peers sharing the same professional interests and goals had already pre-existed and interpersonal relations had been established. Also the situation that some organisation can act as a neutral third-party data holder able to access and make data available to members, increases trust and enables information exchange.

3. Inter-organisational trust in the ESS

Table 1 presents a model of inter-organisational trust in the ESS in the context of the proposed information sharing. It describes the components (dimensions), factors (determinants, antecedents) and functions (consequences, outcomes) of trust. The model, based on the literature review presented in the previous section of this paper, was initially inspired by the components of trust as described by Rousseau et al. (1998) and then adapted to the specific situation of the ESS (notably its governance and the current developments regarding micro-data exchange). In particular, several relevant elements discussed in the literature were considered, e.g. conditions for knowledge sharing (Luna-Reyes et al., 2008), governance in public sector networks (Gil-Garcia et al., 2010), technological requirements for information sharing (Ratnasingam, 2005) and the interplay between relations at the inter-institutional and interpersonal level (Gulati and Sytch, 2008).

As a result, it is proposed to distinguish between three components of inter-organisational trust in the ESS (the middle column of **Table 1**): **institutional trust** based on fulfilment of legal, organisational and technological conditions of the partnership; **informational** trust built up on quantitative and qualitative information, which is available to ESS partners before starting information sharing to inform their decision in this regard; and **relational trust** influenced by various characteristics of the partners and their mutual interactions, both at the level of institutions and at the personal level of "boundary spanners" (NSIs' top management, international relations officers and key experts).

Table 1. Model of inter-organisational trust within the ESS.

Factors	Components	Functions
✓ institutional set-up, legislation ✓ formal control mechanisms (legal, contractual) ✓ clarity of roles and responsibilities ✓ central coordinating body ✓ balance of power between partners ✓ delegation of authority ✓ respect of autonomy ✓ shared corporate values / identity ✓ common strategies ✓ high quality standards ✓ IT security ✓ respect of data confidentiality ✓ neutral third-party data holder	INSTITUTIONAL: • legal • organisational • technological	➤ more solid cooperation ➤ less control needed ➤ higher flexibility ➤ conflict management ➤ information sharing ➤ innovation ➤ transfer of knowledge
✓ assessment of costs and benefits ✓ comparison of gains and sanctions related to a breach of trust ✓ balanced shares in the investments ✓ general (public) reputation ✓ ex-ante similarity between partners ✓ mutual knowledge about partners ✓ previous collaboration experience	INFORMATIONAL: • economic (quantitative) • reputational (qualitative)	➤ lower transaction costs ➤ higher performance ➤ better predictability ➤ risks and incentives to cooperate perceived better
✓ communication ✓ openness to change ✓ shared relational norms (e.g. equal, honest, open treatment of partners) ✓ social control ✓ participatory decision-making ✓ commitment to common goals ✓ predispositions and attitudes ✓ trustworthiness (competence, reliability, integrity) ✓ similarity of mind-sets ✓ relational distance (networking)	RELATIONAL: • inter-institutional (institutions as a whole) • interpersonal ("boundary spanners")	➤ better communication ➤ less formal relations ➤ multi-level networking ➤ learning

Drawing a parallel from Rousseau at al. (1998) it can be argued that institutional trust is a necessary condition for information sharing between ESS partners and it will remain highly relevant throughout the duration of the relationship, while informational trust and relational trust may vary and substitute each other. Informational trust normally plays an enabler role, since the decision to start information sharing must be well informed. Later on, relational trust between the institutions and between individuals at different levels in each of the partner organisations may gradually replace informational trust, as cooperation is progressing. Of course, a certain level of relational trust must have already pre-existed, but informational trust is more important at this stage. To sum up, the model proposes to decompose inter-organisational trust in the ESS in three elements: institutional trust as a frame, informational trust as an enabler and relational trust as a facilitator of information sharing.

It is however not enough to describe what trust means; it is more interesting and useful to understand how trust can be built and maintained in order to enable information sharing and progress on it. To this end, the left column of **Table 1** presents factors which influence the three identified components of trust within the ESS. Although the indicated determinants of trust are based on the research performed in various contexts as reviewed in section 2 of this paper, all of them are to a large extent relevant for the specific case of information sharing in the ESS and could be attributed to the three components of inter-organisational trust.

Regarding the necessary frame of **institutional trust** in the ESS, the institutional set-up and formal control mechanisms (governance, compliance checks) are well established; roles and responsibilities within the system are clear, including those of Eurostat as coordinating body, as defined in legislation; the ESS has shared values (e.g. European Statistics Code of Practice), high quality standards and a common strategy (ESS Vision 2020); the distribution of power and authority seems to be balanced and well understood by the actors and their autonomy is mutually respected; and core principles for the exchange of micro-data on businesses were agreed by the ESSC. Nevertheless, in the specific context of enabling information sharing, more needs to be done to ensure institutional trust. For example, the detailed legal provisions governing micro-data exchange must be agreed, adopted and implemented. Also the principal

technological aspects (IT security framework, data confidentiality rules, secure data storage and transmission), which have already been largely agreed, still need to be developed in more detail and implemented.

As regards **informational trust** as enabler of information sharing, within the SIMSTAT and REDESIGN projects implementing the ESS Vision 2020 the ESS partners have collected a lot of quantitative and qualitative information on different variants of modernising international trade in goods statistics (economic aspects). Moreover, over years of ESS cooperation, they have gathered extensive knowledge about each other and positive experience of collaborating in different domains and at different levels (reputational aspects).

Last but not least, **relational trust**, which should facilitate the collaboration on modernising international trade in goods statistics, has been gradually accumulated within the ESS. In particular, the very constructive relations between the "boundary spanners", e.g. within the ESSC, have contributed to establishing a high level of interpersonal trust which positively impacts trust between the institutions. That effect has been achieved over the last years through increasingly participatory decision-making, e.g. a series of dedicated strategic workshops, where the essential elements of the ESS Vision 2020 as well as details of the envisaged micro-data exchange, have been explained and agreed. Consequently, the ESSC members know each other better, understand each other's positions and particular situations, are committed to common goals and share relational norms. The key to this achievement was improved communication which is not only as a direct determinant of relational trust, but also an indirect facilitator for several determinants of institutional and informational trust. Since improved communication is also one of the functions (benefits) of trust, it creates a self-reinforcing mechanism and thus essentially contributes to building trust.

Finally, the right column of **Table 1** describes the functions of trust. All of them are positive, as the ESS partners benefit from building trust—both as a whole and each of them individually. It must be noted that the indicated benefits are not strictly attributable to specific components of trust (i.e. institutional, informational and relational trust), but are rather

products of trust in general. However, some effects can be logically linked with the related specific determinants.

4. Conclusions

Over the two past decades, the economic, political and social reality of an increasingly dependent and globalised world have resulted in a surge of research on trust and its role as a crucial factor for a successful inter-organisational collaboration. While the number of studies on understanding the antecedents of trust in strategic business alliances and cross-boundary knowledge and information sharing in private sector has been growing, the research on trust in the collaboration of governmental institutions has been rather scarce. Public administration scholars and political scientists appear to be interested in mainly two topics: social trust in the society as a whole and social trust in the government.

In this context this paper contributes to the existing research by providing a deeper insight into the major factors that explain trust as well as the way it is generated and evolves over time. We summarise various insightful views and perspectives on trust provided by researchers from diverse disciplines and consolidate those results in a proposal for an analytical framework (model) for the inter-organisational trust in the European Statistical System. The model presents the components, functions and factors of trust within the ESS in the specific context of micro-data exchange, thus providing both inspiration for further research and support to management professionals. While a great load of research has been performed on trust over the past decade, there is still a lot more to be done, for example on the role that international and cross-cultural dimensions play in building and maintaining trust, in the reciprocity in trust relationships, in the impact of digital transformation on trust forms. We believe that the presented model is a good starting point for future research in those and other areas. Furthermore, we are confident that the advancement of knowledge on trust provided by the paper, in particular the detailed analysis of the three elements of trust proposed in the model (institutional trust as a frame, informational trust as enabler and relational trust as facilitator) will inspire the managers in the ESS to undertake appropriate actions for building trust and solidifying the ESS collaboration and information sharing.

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