

# Does email communication increase participation in organizational decision making?

Democracy, side effects and the moderating role of national cultural differences

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## **Abstract**

One of the main issues crossing the fields of organization theory, communication theory, and information technology is whether email communication does increase participation in decision making. Common sense and some case studies suggest the so-called “democratization argument”: since email allows direct (non-filtered) communication between people and identity/status concealment, it enhances more freely and easy participation in decision making. This view is especially argued by technological imperative approaches to organizational communication and media studies, which more or less explicitly assume that, given certain technological potentialities, sooner or later users will full explore and exploit them. Whether this is true or not, the technical trait of keeping trace induced some authors to point at the risk of favouring control and surveillance over workers’ behaviour. In order to empirically investigate the democratization and the (dark) side effect of email communication, propensity and forms of email participation in organizational decision making have been studied confronting three types of communicators: those more oriented to use traditional media, computer-mediated (email and internet) media, and finally those who use a mix of both types of communication means. Based on 600 respondents to an online questionnaire supplied to the employees of a multinational corporation, the present research allows testing the democratization argument. Moreover, since respondents are distributed over three subsidiaries (I, NL, and UK), it is possible to understand whether nationality matters.

**Keywords:** business communication, email, face-to-face, media users, participation in organizational decision making.

**JEL code:** M150.

## **1. Introduction**

A significant part of the literature on the effects of computer-mediated communication (CMC) on organisational participation supports the “democratization argument”, which is based on the supposed increase of democracy in the relationships among superiors and subordinates as a consequence of CMC technologies’ adoption. Some author highlighted that, holding or not the democratization effect, CMC can have also the negative side effect of increasing control and surveillance each other and in particular from the superior on her subordinates.

After an early stage in which media and task (or job) characteristics where considered determinant or at least crucial in deciding media choice and effectiveness, other types of contextual factors acquired progressively major importance. This was due also to the many rejections that hypotheses based on media characteristics theories have encountered.

This paper attempts to test the democratization argument and the eventual side effect of increasing control and surveillance, and to investigate the moderating role played by national cultures. Data have been gathered from the employees of three European subsidiaries of a large American multinational corporation into the filed of business software. The idea is that, since the three user groups markedly differ in terms of their actual use of traditional and CMC media, an eventual significant difference in the perceived relevance of participation in decision making through email communication (ePDM) could be attributed just to the characteristics of email communication. The reference of the same organization across countries and its peculiarity of being

rather standardized in its organizational structures, roles and procedures allows to neutralize cross-country comparison from many other factors else than different national cultures. Moreover, the three parts of the sample corresponding to the three countries are well defined and controllable in terms of some other social aspects, like age, gender, and education level.

Since questions submitted to respondents do not distinguish between email or non-email forms of participation, they are all posed in terms of ePDM. Hence, the true focus of this study concerns if and how the three user types perceive the relative salience of ePDM, which has been distinguished in terms of: i) the subjects involved into decision making; ii) the aims and effects of the participation; and finally iii) the eventual fear that email participation, due to its inner technical characteristics of allowing keeping track of the communication, favours (or eventually reduces) some form of control.

The paper is structured as follows: after reviewing current literature, in next section three groups of research hypotheses are introduced and discussed. The third section describes dataset and methodology, and it is followed by the analysis of the main results and by the concluding remarks.

## **2. Literature review and research gaps**

According to several scholars (Sproull and Kiesler, 1986, 1991; Dubrovsky *et al.*, 1991; Hinds and Kiesler, 1995), the email narrow bandwidth causes a limited transmission of status indicators and this enhances the uninhibited participation of lower-level organisational actors in decision making processes. In an abstract comparison between F2F and CMC, the less richness of the former is compensated by the higher anonymity allowed by the latter, and this, under some circumstances, is an advantage. Moreover, CMC and some GDSS (group decision support systems) can be superior even in high complex interactions, like in negotiation settings, because, appropriately set-up, they can focus discussion issues better than F2F just due to the possibility of overlooking personal and irrelevant cues, and they can eventually put together more than two individuals and add some traits of social presence.

Among the many researches on CMC (Burke and Chidembaram, 1999; Markus and Robey, 1988; Treviño *et al.*, 2000) it is possible to distinguish three main streams having implications for PDM: media characteristics approaches, emergent approaches, and SIDE model. According to the former (Daft and Lengel, 1984, 1986, 1988; Daft and Macintosh, 1981; Daft *et al.*, 1987; Kiesler *et al.*, 1984), the objective features of email (asynchronicity, rapid transmission and reply, text based communication, dyadic and multiple connections) deterministically lead to an increase of organisational participation in the workplace. As a result, this approach assigns a small role to the social and organisational context in influencing the actual use of email for both vertical and horizontal participation. The Emergent Perspective refuses the idea that email features alone are sufficient to enable organisational participation (Contractor and Seibold, 1993; Orlikowski *et al.*, 1995; Yates *et al.*, 1999; Zack and McKenney, 1995). Adoption and use of email is rather a result of the interplay between email system appropriation and social interactions. In accordance with organisational theories on PDM (Black and Gregersen, 1997; Cotton *et al.*, 1988; Dachler and Wilpert, 1978; Leana *et al.*, 1990; Wagner and Gooding, 1987), the emergent perspective suggests that electronic participation depends on several contextual factors.

Both deterministic and emergent approaches share a common view: they identify social with interpersonal presence, that is the social space is equalled with the physical space, whatever the medium connecting people. This view is contrasted by the SIDE (social identity de-individuation effect) model (Rogers and Lea, 2005; Spears and Lea, 1994), which argues that social presence and its implications can hold even without any sort of physical interpersonal interaction. In other words, regardless of the medium connecting individuals, their social identity can be defined and maintained effectively and strongly depending only on the types of social norms and common values shared by the group. According to this model, it cannot be established any significant direct causal relationship between media characteristics and the various aspects of organizational behaviour.

One of the crucial rationales for emergent approaches is the technology acceptance model (Davies, 1989), which states that the actual use of a given technology depends on its perceived usefulness and attractiveness. Thus, its objective features can be significantly “misperceived” or “misunderstood” by real users. Walther (1992, 1995, 1996; Walther and Tidwell, 1995) argues that such gap between objective and perceived features is possible only in the short run, because over time people can fully explore and exploit the potentialities of technology. However, his objection did not lead to a definitive result. Conversely, following the same line of reasoning of the technology acceptance model, Straub (1994; Straub *et al.*, 1997) added also national cultural differences among those able to bring perceptions far from technological objective potentialities.

PDM is a multi-dimensional phenomenon (Cheney, 1995; Chisholm and Vansina 1993; Cotton *et al.*, 1988; ; Heller *et al.*, 1998; Magjuka and Bacharach, 1989), because it can be articulated in terms of: formal vs. informal, depending on considering formal or informal aspects of job and task characteristics and organizational procedures; direct vs. indirect, depending whether it is mediated by unions or other forms of representatives; individual vs. collective, depending whether concerns single workers or whole categories or groups; short vs. long run, depending whether it refers to spot meetings or repeated interactions. Moreover, it can concern horizontal relationships towards colleagues or vertical relationships superior-subordinate. Finally, there is a number of ways to define participation, depending on the degree and forms of actors’ involvement. Here PDM is broadly defined as joint decision making, and consequently e-PDM as joint decision making mediated by email. This definition is general enough to include: horizontal e-PDM occurring among workgroup members in the same hierarchical position; bottom-up (vertical) e-PDM referring to subordinates’ participation with supervisors; and top-down (vertical) e-PDM flowing in the opposite direction. It is made no any distinction between formal and informal, and it considers only direct individual and long run participation (see questions asked to respondents in Appendix 1).

In a previous paper Biggiero (2008) identified three media user types within a large share of employees of Isocorp (fantasy name), an American leading multinational corporation working into the business of software house, and operating in Europe with many subsidiaries. Through a cluster analysis the three types clearly emerged, and they are well distinct in terms of their media mix and the role played by computer-mediated and traditional communication means. One user type is compound by a mix of email, internet and fixed phone, with a prevalence of the former two means, and thus we can call it COMU (computer-mediated communication user type). The second one is constituted by a balanced mix of mobile phone, internet, sms, fax, and email, and therefore it represents MMU (multi-media user type). Finally, the third type is compound by face-to-face, fax, letter, and fixed phone, with a marked prevalence of the former, and therefore we can call it TMU (traditional-media users), because they do not use any type of computer-mediated communication.

These three types seem to be very distinguished in terms of face-to-face (F2F) and email, because COMU do not use F2F and TMU do not use email. In particular, F2F is present only among TMU, while email is used by both the other types, consistently with what could be expected in a business software company as Isocorp.

The democratization argument states that, being everybody potentially directly reachable through email, this means enhances communication especially with people in higher hierarchical positions, with whom F2F approach is hindered by one or more “filters”, like secretaries or non-public fixed and mobile phone numbers. Thus, though these people would in principle be reachable also via letter or fax, these means are evidently slower than email. Moreover, especially within the same office or department, colleagues and subordinates are easily approachable by F2F. Therefore, it is plausible to raise the following:

*Hypothesis 1: Email is perceived to be more useful when participation in decision making takes place with superior.*

Since CMCU and MMU, especially in a hi-tech computer-based company as the Isocorp, are supposed to be in lower hierarchical positions respect to TMU, the previous hypothesis should characterize more the former two rather than the latter user types. Hence, the following hypothesis can be suggested:

*Hypothesis 1a: CMCU and MMU perceive email to be more useful when participation in decision making takes place with superior respect to what is perceived by TMU.*

Many works (Varner, 2000) support Straub's (1994) idea that national cultures differences influence technology acceptance and use, but most of them concerns a number of different social, organizational, and technological aspects. Therefore, focusing specifically on PDM, Hofstede studies (1980, 1991) on power distance seem particularly appropriate. Measuring the degree of inequality among people in a specific community, in the countries characterized by high power distance individuals are more keen to accept authority and seniority values, and therefore superiors' role. And vice versa. Hence, especially if formal and informal values are aligned –that is, similarly salient- a poor communication means, that is a medium which conveys few social cues and ineffectively exchange information, should enhance more bottom-up communication. In fact, subordinates should feel less inhibited by superiors' authority and free to activate their decision-opinion-advice support. These arguments suggest the following:

*Hypothesis 2: The pattern of email use for vertical and horizontal communication will differ according to national differences.*

Since Italy scores values of power distance very different from those of NL and UK, it can be supposed that these differences are mirrored in ePDM. Hence, it can be advanced the following:

*Hypothesis 2a: The Italian pattern of email use for vertical and horizontal communication will be particularly different from that of the other two countries.*

Since the difficulty to reach superiors is accentuated in countries with high power distance, and since southern countries are supposed to have this trait, the positive effect of email in facilitating participation in decision making with superiors is expected to be emphasized in the Italian subsidiary. Consequently, it is reasonable to advance the following:

*Hypothesis 2b: Italian workers perceive email to be more useful when participation in decision making takes place with superior respect to what is perceived by British or Dutch workers.*

There is an objective technical possibility that email communication, being easily storable and espoused to the eventuality that others are put in Cc or even in Bcc with the consequent effect for the receivers to ignore who else access communication, is more or less explicitly used to control and monitor work activities and communication. However, being common to all the forms of CMC devices, it can be supposed that this effect is perceived to be more salient for people less habit to use these means than for the others. Thus, it can be advanced the following:

*Hypothesis 3: The feeling of being controlled will differ according to national differences*

*Hypothesis 3a: The fear to be controlled by using ePDM is higher for TMU than for CMCU.*

Since the fear to be controlled is accentuated in countries with high power distance, it could be raised the following:

*Hypothesis 3b: Italian workers perceive to be controlled by using ePDM more than British or Dutch workers.*

If CMC were inducing a different (likely higher) propensity to participate and a lower feeling to be controlled, then CMCU has to show a degree a similarity much lower than the other two groups. Hence, it is possible to raise the following:

*Hypothesis 3c: CMCU pattern of email use for vertical and horizontal communication and the feeling of being controlled will be particularly different from that of the other two countries.*

Country cultural differences and behavioural differences of user types coexist within large corporations, and both create difficulties in fine tuning the right media choice at managerial level and inter-country communication among individuals and groups within and between teams. Since Isocorp is a rather standardized company in terms of organizational structure, roles and procedures, it can be argued that:

*Hypothesis 3d: differences in terms of user types are more relevant than those in terms of country.*

### **3. Dataset and methodology**

Dataset was gathered within a European research project called COMMORG project (“Organizational consequences of e-mail introduction, adoption and diffusion”), which was designed just to answer some basic questions left open from previous researches through a systematic, multi-disciplinary, multi-level cross-country research<sup>1</sup>. Hence, the data used for this paper are only a small part of a much larger dataset related to an online survey of 36 questions, with a number of sub-questions.

Data refer to Isocorp, a large multinational corporation in the business of the production of software for individuals, organizations and public administrations (and its related consultancy)<sup>2</sup>. Its presence in many countries allowed to undertake a cross country comparison although ensuring, to a certain extent, control for organizational culture, and level of technological training, access and software. Isocorp is an American corporation with a history of 25 years, that prides itself in being one of the biggest software houses in the world, and therefore it is characterized by having a relatively high use of CMC means. This trait should be taken into account, because it is likely that in low-tech or more traditional companies the findings related to personnel age, gender balance, and education level could significantly change. The study was undertaken in four Isocorp subsidiaries located in the United Kingdom, Greece, The Netherlands and Italy, but due to statistical problems Greece data have not been included<sup>3</sup>.

The 590 respondents are distributed as follows: 271 of them were from the Netherlands, 206 from Italy, and 113 from the UK. However, total valid cases for the present analysis are only 421, because missing 29 in UK, 86 in The Netherlands, and 54 in Italy.

Remind that all questions refer to email use in reference to various forms of participation in decision making, with a 1 (lowest value) up to 7 Likert scale<sup>4</sup>. Consequently, email or non-email

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<sup>1</sup> The project lasted 30 months between 2000 and 2003, and involved six academic research groups distributed in Italy, Greece, The Netherlands and the United Kingdom. It was focused on understanding: (i) workers’ media mix and actual use; ii) the effects of email use on organizational identity and identification and trust relationships among colleagues; iii) email participation to decision-making among superior, subordinates and colleagues; and vi) genre repertoire in email communication.

<sup>2</sup> Within the same research project other quantitative and qualitative data have been collected at national and international level, but here only Isocorp data are used.

<sup>3</sup> These data are less than one third of those related to the other three countries, and moreover they are disturbed by a number of outliers.

<sup>4</sup> The text of each question and relative items is in Appendix.

types of participation have not been compared directly. Rather, the crucial difference has been shifted on that between user types of media mix, that is CMCU, MMU, and TMU. In other words, the focus is on the way in which ePDM is differently activated by these three user types, and differences are given by the values higher or lower the mean. Because the three groups distinguish computer-mediated from traditional media users, we can understand how the perception of the use of many types of ePDM and the perception being controlled are affected by (or correlated to) the perceived media usage in organizational communication. Since data are based on qualitative subjective perceptions, they concern how ePDM is perceived salient by different user types relatively to various forms of participation.

The most represented country is NL with 46%, followed by Italy (35%), and UK (19%). Employees are very young, because the mean age is 36-37 years old, but the three subsidiaries differ substantially in terms of gender composition, and power distance. Females are 22 and 28% respectively in NL and Italy, while they reach 40% in UK. In Italy power distance is almost 50% more than in the other two (Hofstede, 1991, 1993).

#### **4. Main results**

##### **4.1. Patterns of communication mix**

The first analysis concerns the country comparison of the media mix pattern (tab. 1). Three traditional media are minimally used: between 94 and 97% of respondents use sms, fax and letter less than 21%. This is a clear and firm sign of the decadence of these types of traditional media. This proportion is even accentuated in UK and NL, especially as concerning fax and letter. In those two countries there is almost nobody using these three media with a proportion superior to 40% of time spent in communication. Italy represents an exception, because there is a small share of users who spend more than 40% of time in communicating with those media, and in particular fax and sms are more intensively used. In this sense, the Italian subsidiary appears a little bit backward respect to the British and the Dutch ones.

Internet is also concentrated into the lowest class: 79% of respondents spend no more than 20% of time communicating with this medium, and again in this case Italian respondents show a more intensive use than their British and Dutch colleagues: 24% are in the class 21-40% of time spent. These data show a complex phenomenon, because, besides the partial Italian anomaly, the lowest use refers to three traditional and a new media. This supposedly configures an opposite trend, that is the three traditional media are declining while the new one is increasing. They were more or less in the same classes at the time of data gathering, but probably now the three traditional media would likely be in the same classes, while the new one would be found in the middle use classes. Of course, this hypothesis could be tested only by repeating the analysis nowadays, preferably in this same organization.

The Italian case is a little bit difficult to be interpreted, because it shows a certain backward use of communication media at work, still using fax and letter, beyond the well known irreducible passion of Italians for using mobile phone. They have the highest number of mobile per person, and it represents the richest European market for mobile business. Moreover, it is well known that in Italy many people accompany email expedition with a sms, and this likely could explain why there is such an anomalous use of sms. They do not replace email, but at least a large portion of sms adds to email.

Internet is also more intensively used than in the two other countries, and this indicates that, jointly with a large portion of workers still habited to communicate by very traditional media there are many others already accustomed with internet and the new media. Finally, the complexity of the Italian case is confirmed by the fact that it is the one in which it is hard to find well defined user types, even though it is characterized by a diffuse adoption of email communication. However, later in this section we will see that the traditional media users here found are not those using internet. Hence, these seem to be the very old fashion users' type.

Coming back to the whole dataset, more than 70% of respondents spend less than 40% of their communication time using F2F, fixed and mobile phone, while 65% of respondents use email between 20 and 60% of communication time. Thus, in 2002 email was already the most intensively and evenly distributed means. These general traits assume different forms at country level for some medium. In UK F2F is much more concentrated under the 41% of use, as well as fixed and mobile phone, so that British workers are less keen than others towards traditional media, and, remarkably, towards F2F.

This distance from the average of the whole dataset in using traditional media is common also to Dutch workers, but not concerning F2F. In other words, they seem to make a sharp distinction between traditional but poor media and F2F. Italy results to be much more balanced than the other two countries, because the use of traditional media and email is less concentrated into the lowest classes. As we have seen above, this balance concerns substantially all the types of media, even though for likely different reasons, in the sense that some of them are likely decreasing and others increasing its use.

Tab. 1 Distribution of media mix per classes of time spent in communication

United Kingdom						
	0 - 20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%	
% comm F2F	48.6	33.3	12.6	5.4		100
% comm email	10.6	20.4	40.7	23.9	4.4	100
% comm fixed line phone	33.0	47.3	16.1	3.6		100
% comm mobile phone	61.2	26.2	10.7	1.9		100
% comm SMS	93.1	6.9				100
% comm fax	96.8	3.2				100
% comm letter	98.9	1.1				100
% comm internet	88.7	5.2	4.1	1.0	1.0	100

  

The Netherlands						
	0 - 20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%	
% comm F2F	25.8	42.7	25.1	6.0	0.4	100
% comm email	13.4	44.2	27.9	12.6	1.9	100
% comm fixed line phone	42.5	39.5	14.9	2.3	0.8	100
% comm mobile phone	39.2	41.9	15.4	2.7	0.8	100
% comm SMS	99.5	0.5				100
% comm fax	99.0	0.5	0.5			100
% comm letter	96.2	2.9	1.0			100
% comm internet	84.0	11.4	4.1	0.5		100

  

Italy						
	0 - 20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%	
% comm F2F	33.8	36.3	19.9	7.0	3.0	100
% comm email	5.0	29.4	30.8	26.4	8.5	100
% comm fixed line phone	31.8	35.4	17.4	10.3	5.1	100
% comm mobile phone	24.5	32.0	23.0	16.0	4.5	100
% comm SMS	87.1	10.1	2.8			100
% comm fax	89.3	7.3	2.8	0.6		100
% comm letter	95.8	3.0	1.2			100
% comm internet	68.7	23.6	6.0	1.1	0.5	100

  

Whole dataset						
	0 - 20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%	
% comm F2F	33.0	38.7	20.9	6.2	1.2	100
% comm email	9.9	34.5	31.4	19.6	4.6	100
% comm fixed line phone	37.0	39.6	16.0	5.3	2.1	100
% comm mobile phone	38.0	35.5	17.2	7.3	2.0	100
% comm SMS	93.6	5.4	1.0			100
% comm fax	95.0	3.5	1.3	0.2		100
% comm letter	96.6	2.5	0.8			100
% comm internet	79.3	14.7	4.8	0.6	0.6	100

#### 4.2 User types at whole and country level

By examining country-level distribution of the typology built on the whole dataset (tab. 2), we find that, notwithstanding Isocorp is a high-tech multinational corporation in business software, TMU are still 53% of all users, while COMU are only 25%. These latter are more diffused in UK

(38%) and less in Italy (20%). These findings seem consistent with what we have found in previous analysis, because British workers use traditional media (and especially F2F) to a lower extent, while Italians have a more balanced use of traditional and new media. However, covering UK only 20% of population, in the following analysis it should be taken into account that its characteristics and those of its groups could be under-represented.

Tab. 2		Users typology by country			
User type		UK	NL	Italy	Total
CMCU	Abs. values	32	41	31	104
	% within user type	30.8%	39.4%	29.8%	100%
	% within country	38.1%	22.2%	20.4%	24.7%
MMU	Abs. values	10	26	59	95
	% within user type	10.5%	27.4%	62.1%	100%
	% within country	11.9%	14.1%	38.8%	22.6%
TMU	Abs. values	42	118	62	222
	% within user type	18.9%	53.2%	27.9%	100%
	% within country	50.0%	63.8%	40.8%	52.7%
Total	Abs. values	84	185	152	421
	% within population	20.0%	43.9%	36.1%	100%
	% within country	100%	100%	100%	100%

#### 4.3 Hypotheses testing

As concerning the first hypothesis, which suggests that email is perceived to be more useful when participation in decision making takes place with superior, tab. 3 shows that the sum of the mean of the various forms of bottom-up communication scores 18.92, horizontal 18.98, and top-down 10.98. Thus, this hypothesis is only partially confirmed, because ePDM with superior is double than that with subordinate, but equals that with colleagues. However, in both cases this type of participation could be intended as mostly “neutral”, that is the one which is based on information exchange instead of aims/interests share, which could be meant as the most engaging type of participation.

Incidentally, it is noticeable that out of 15 items concerning the various aspects of ePDM, only two are a little bit over the mean value and one coincides with the mean. This leads us to think that the large majority of aspects representing PDM contents and aims do not occur through email communication. However, it is not yet clear whether these low values assigned to ePDM depend on a scarce attitude to participate or on a still marked preference for using traditional media. In fact, though the employees of a world leader software house are supposed to be very familiar with email communication, which is confirmed by the fact that 55% of people spend more than 40% of time in email communication (tab. 1), 53% are TMU (tab. 2).

Tab. 3

Types of participation by country

Types of participation in terms of roles, content, aim, and types of feeling of being controlled

Types of participation in terms of roles, content, aim, and feeling of being controlled

	N	Mean	Std. dev.
email with colleague to exchange info	569	5.46	1.34
email with superior to exchange info	571	5.24	1.56
email with colleague to share aims/interests	564	4.02	1.72
email with colleague to support me	553	3.97	1.66
email with superior to support me	559	3.75	1.66
email with superior to share aims/interests	559	3.65	1.79
email with superior to manage me	560	3.53	1.74
email lets others keep track of me	563	3.13	1.91
email with subordinate to exchange info	530	2.99	2.86
email with colleague to manage them	547	2.90	1.73
email with superior to manage them	550	2.79	1.66
email with colleague to manage me	550	2.74	1.71
email increases control	562	2.72	1.75
email with subordinate to support me	525	2.21	2.34
email with subordinate to share aims/interests	526	2.08	2.34
email with subordinate to manage them	525	2.07	2.37
email reduces control	554	1.82	1.33
email with subordinate to manage me	525	1.58	2.09
I avoid email to avoid monitoring	554	1.01	0.58

UK

NL

Italy

	N	Mean	Std. dev.
email with colleague to exchange info	110	5.75	1.23
email with superior to exchange info	110	5.50	1.46
email with colleague to support me	106	4.15	1.65
email with superior to support me	108	3.97	1.63
email lets others keep track of me	109	3.85	1.81
email with superior to manage me	107	3.78	1.62
email with colleague to share aims/interests	106	3.74	1.75
email with superior to share aims/interests	108	3.39	1.83
email increases control	109	3.30	1.58
email with superior to manage them	106	3.13	1.81
email with colleague to manage them	106	3.04	1.80
email with colleague to manage me	105	2.77	1.65
email with subordinate to exchange info	105	2.73	2.95
email reduces control	109	2.45	1.42
email with subordinate to manage them	103	2.03	2.45
email with subordinate to support me	103	1.90	2.25
email with subordinate to share aims/interests	103	1.68	2.17
email with subordinate to manage me	104	1.26	1.83
i avoid email to avoid monitoring	108	1.21	0.55

email with colleague to exchange info	254	5.43	1.37
email with superior to exchange info	259	5.11	1.61
email with colleague to share aims/interests	254	3.76	1.65
email with colleague to support me	251	3.74	1.69
email with superior to support me	254	3.56	1.66
email with superior to share aims/interests	251	3.30	1.65
email increases control	252	3.10	1.91
email with superior to manage me	255	2.87	1.54
email with subordinate to exchange info	246	2.70	2.87
email with superior to manage them	249	2.50	1.56
email lets others keep track of me	254	2.32	1.70
email with colleague to manage them	243	2.20	1.42
email with colleague to manage me	245	1.91	1.21
email with subordinate to support me	243	1.80	2.17
email with subordinate to share aims/interests	243	1.61	2.01
email reduces control	250	1.42	1.08
email with subordinate to manage them	243	1.40	1.96
i avoid email to avoid monitoring	251	0.86	0.65
email with subordinate to manage me	243	0.85	1.45

email with colleague to exchange info	205	5.35	1.35
email with superior to exchange info	202	5.27	1.54
email with colleague to share aims/interests	204	4.49	1.69
email with superior to share aims/interests	200	4.24	1.79
email with superior to manage me	198	4.23	1.75
email with colleague to support me	196	4.16	1.59
email with superior to support me	197	3.89	1.66
email lets others keep track of me	200	3.76	1.83
email with colleague to manage me	200	3.74	1.72
email with colleague to manage them	198	3.68	1.69
email with subordinate to exchange info	179	3.54	2.71
email with subordinate to manage them	179	3.01	2.53
email with superior to manage them	195	2.96	1.64
email with subordinate to support me	179	2.94	2.44
email with subordinate to share aims/interests	180	2.94	2.60
email with subordinate to manage me	178	2.75	2.43
email reduces control	195	1.96	1.41
email increases control	201	1.93	1.28
i avoid email to avoid monitoring	195	1.09	0.46

Hypothesis 1.a articulates the previous question by distinguishing between media users types. It states that CMCU and MMU perceive email to be more useful when participation in decision making takes place with superior respect to what is perceived by TMU. By extracting these data from tables 5a, b, and c, tab. 4 confirms this hypothesis, though values are all quite close.

Tab. 4	Mean values of ePDM by user types		
	CMCU	MMU	TMU
vertical (top-down)	19.63	20.31	18.74
colleagues	19.15	21.09	18.77
vertical (bottom-up)	11.56	13.99	9.73

Tab. 5a

Types of participation of CMCU by country

Type of participation in terms of roles, content, and aim, and feeling of control

	N		Mean		N		Mean	
	whole		UK		NL		IT	
email with superior to exchange info	102	5.57	31	5.68	40	5.75	31	5.23
email with superior to manage me	100	3.58	30	4.00	39	2.67	31	4.32
email with superior to manage them	101	3.14	31	3.39	40	2.65	30	3.53
email with superior to support me	101	3.72	31	4.03	39	3.54	31	3.65
email with superior to share aims/interests	102	3.62	31	3.90	40	2.90	31	4.26
email with colleague to exchange info	102	5.53	31	5.94	40	5.40	31	5.29
email with colleague to manage me	99	2.76	30	2.97	38	1.79	31	3.74
email with colleague to manage them	99	2.99	30	3.20	38	2.13	31	3.84
email with colleague to support me	101	3.95	30	4.27	40	3.50	31	4.23
email with colleague to share aims/interests	101	3.92	30	3.73	40	3.50	31	4.65
email with subordinate to exchange info	98	3.15	31	3.48	38	2.47	29	3.69
email with subordinate to manage me	98	1.82	31	1.74	38	1.00	29	2.97
email with subordinate to manage them	98	2.42	31	2.52	38	1.66	29	3.31
email with subordinate to support me	98	2.21	31	2.42	38	1.58	29	2.83
email with subordinate to share aims/interests	98	1.96	31	1.81	38	1.26	29	3.03
email lets others keep track of me	102	3.65	31	4.35	40	2.55	31	4.35
email increases control	102	3.24	31	3.42	40	3.98	31	2.10
email reduces control	102	2.22	31	2.61	40	1.60	31	2.61
I avoid email to avoid monitoring	102	1.03	31	1.19	40	0.88	31	1.06

Tab. 5b

## Types of participation of MMU by country

Type of participation in terms of roles, content, and aim, and feeling of control

	whole		UK		NL		IT	
	N	Mean	N	Mean	N	Mean	N	Mean
email with superior to exchange info	95	5.32	10	5.70	26	4.88	59	5.44
email with superior to manage me	95	4.07	10	4.20	26	2.92	59	4.56
email with superior to manage them	94	2.89	10	3.30	26	2.12	58	3.17
email with superior to support me	95	4.04	10	4.70	26	3.23	59	4.29
email with superior to share aims/interests	94	3.99	10	2.90	26	3.15	58	4.55
email with colleague to exchange info	94	5.46	10	5.10	25	5.36	59	5.56
email with colleague to manage me	94	3.44	10	3.00	25	2.08	59	4.08
email with colleague to manage them	94	3.49	10	3.30	25	2.24	59	4.05
email with colleague to support me	93	4.23	9	4.22	25	3.48	59	4.54
email with colleague to share aims/interests	94	4.47	10	3.10	25	3.84	59	4.97
email with subordinate to exchange info	89	3.57	10	2.50	24	3.63	55	3.75
email with subordinate to manage me	90	2.34	10	1.50	24	0.88	56	3.13
email with subordinate to manage them	90	2.63	10	2.20	24	1.21	56	3.32
email with subordinate to support me	88	2.67	9	1.44	24	1.71	55	3.29
email with subordinate to share aims/interests	89	2.78	10	1.10	23	1.91	56	3.43
email lets others keep track of me	93	3.31	10	4.00	25	2.24	58	3.66
email increases control	94	2.27	10	4.20	25	2.52	59	1.83
email reduces control	92	1.90	10	2.70	24	1.54	58	1.91
I avoid email to avoid monitoring	93	0.98	10	1.00	25	0.88	58	1.02

Tab. 5c

## Types of participation of TMU by country

Type of participation in terms of roles, content, and aim, and feeling of control

	whole		UK		NL		IT	
	N	Mean	N	Mean	N	Mean	N	Mean
email with superior to exchange info	217	5.18	42	5.50	113	5.04	62	5.23
email with superior to manage me	216	3.42	42	3.98	113	2.80	61	4.18
email with superior to manage them	213	2.75	42	2.98	112	2.56	59	2.95
email with superior to support me	215	3.75	42	3.81	113	3.58	60	4.05
email with superior to share aims/interests	215	3.64	42	3.67	113	3.34	60	4.20
email with colleague to exchange info	216	5.40	42	5.81	112	5.44	62	5.05
email with colleague to manage me	213	2.64	41	2.90	112	2.00	60	3.65
email with colleague to manage them	213	2.79	41	3.15	112	2.27	60	3.52
email with colleague to support me	212	4.00	41	4.34	112	3.86	59	4.02
email with colleague to share aims/interests	216	3.94	42	4.05	112	3.79	62	4.13
email with subordinate to exchange info	204	2.73	40	2.63	111	2.75	53	2.75
email with subordinate to manage me	204	1.24	40	1.08	111	0.86	53	2.15
email with subordinate to manage them	204	1.87	40	2.05	111	1.52	53	2.45
email with subordinate to support me	204	2.06	40	2.03	111	1.87	53	2.47
email with subordinate to share aims/interests	202	1.83	40	1.90	110	1.60	52	2.27
email lets others keep track of me	212	2.90	41	3.59	111	2.23	60	3.65
email increases control	212	2.75	41	3.05	110	2.99	61	2.13
email reduces control	210	1.64	41	2.27	111	1.34	58	1.78
I avoid email to avoid monitoring	210	1.03	41	1.29	111	0.87	58	1.14

As concerning hypothesis 2, that suggests that the pattern of email use for vertical and horizontal communication will differ according to national differences, tab. 6 shows that actually countries differ substantially each other. Hence, this hypothesis is confirmed. As well holds for hypothesis 2a, which states that Italy presents the highest degree of dissimilarity respect to the whole dataset: 0.466 against 0.388 and 0.120. Moreover, the highest diversity (0.79) occurs between Italy and NL. This could be due also to the different composition of these two countries in

terms of user types (tab. 2): in Italy MMU accounts for 39% and in NL for 14%, while TMU respectively 41 and 64%.

Tab. 6	Degree of dissimilarity between countries of email participation and feeling of being controlled			
	WD	UK	NL	IT
WD	0.000	0.120	0.388	0.466
UK	0.120	0.000	0.534	0.320
NL	0.388	0.534	0.000	0.790
IT	0.466	0.320	0.790	0.000

Legend: dissimilarity is calculated in terms of Euclidean distance and normalized to 100%; wd means whole dataset.

Hypothesis 2b suggests that Italian workers perceive email to be more useful when participation in decision making takes place with superior respect to what is perceived by British or Dutch workers. This hypothesis is confirmed, because tab. 3 shows that the sum of mean values for the five items concerning relationships with superior is 21, 20 and 17 respectively for Italy, NK and UK.

As concerning the issue of surveillance and control, at the whole dataset level tab. 5 shows a complex pattern of answers. Though the feeling that email increases control is under the mean value, it is not at the lowest levels, and it is four positions over the opposite feeling –that email reduces control. Moreover, almost all workers are rather aware that email let’s others keep track of them (3.13 mean value), but the strategy of avoiding email communication in order to avoid monitoring is assigned the lowest value. If we consider jointly all these aspects, it seems that though employees do not perceive email communication as a serious menace to their own privacy, freedom or autonomy, they are aware of this danger. In particular, hypothesis 3 states that the fear to be controlled by using ePDM is higher for TMU than for CMCU. This hypothesis should be rejected, because CMCU scores the highest level (the sum of mean values is 6.89) of fear to be controlled, respect to TMU (5.58) and MMU (5.65).

When distinguishing per country, UK scores the highest level (7.15), Italy the middle (5.96), and NL the intermediate (5.42). Thus, even the hypothesis 3a, which suggests that Italian workers perceive to be controlled by using ePDM more than British or Dutch workers, should be rejected. This result is indeed consistent with the previous one, because in UK there is the highest share of CMCU. Due to the lack of recent, detailed and conclusive empirical research on power distance, it is rather difficult to interpret these results, because two opposite explanations are evenly allowed. If it were true that Italy is a country with a high power distance, then they could be so habit to external control that they do not perceive any significant increase with email. Conversely, they could feel that email does not produce its bad side effects just because power distance is not high, and so they would be respected in any case.

Hypothesis 3b suggests that CMCU pattern of email use for vertical and horizontal communication and the feeling of being controlled will be particularly different from that of the other two countries. This hypothesis is confirmed, because tables 7a, b and c show the following values of dissimilarity: CMCU 6.08, MMU 5.216, and TMU 3.96.

Tab. 7a	Dissimilarity matrix of CMCU among countries			
	WD	UK	NL	IT
WD	0.000	0.220	0.510	0.430
UK	0.220	0.000	0.730	0.210
NL	0.510	0.730	0.000	0.940
IT	0.430	0.210	0.940	0.000

Tab. 7b	Dissimilarity matrix of MMU among countries			
	WD	UK	NL	IT
WD	0.000	0.120	0.611	0.178
UK	0.120	0.000	0.400	0.389
NL	0.611	0.400	0.000	0.910
IT	0.178	0.389	0.910	0.000

Tab. 7c	Dissimilarity matrix of TMU among countries			
	WD	UK	NL	IT
WD	0.000	0.240	0.250	0.330
UK	0.240	0.000	0.490	0.090
NL	0.250	0.490	0.000	0.580
IT	0.330	0.090	0.580	0.000

Legend: dissimilarity is calculated in terms of Euclidean distance and normalized to 100%; wd means whole dataset.

Finally, hypothesis 3c suggests that differences in terms of user types are more relevant than those in terms of country. This hypothesis should be rejected, because tables 8a, b and c shows that UK dissimilarity among media users is 0.96, NL is 0.4, and Italy is 1.84.

Tab. 8a	Dissimilarity matrix of UK among user types		
	CMCU	MMU	TMU
CMCU	0.000	0.230	0.240
MMU	0.230	0.000	0.010
TMU	0.240	0.010	0.000

Tab. 8b	Dissimilarity matrix of NL among user types		
	CMCU	MMU	TMU
CMCU	0.000	0.030	0.120
MMU	0.030	0.000	0.050
TMU	0.120	0.050	0.000

Tab. 8c	Dissimilarity matrix of Italy among user types		
	CMCU	MMU	TMU
CMCU	0.000	0.100	0.360
MMU	0.100	0.000	0.460
TMU	0.360	0.460	0.000

Legend: dissimilarity is calculated in terms of Euclidean distance and normalized to 100%; wd means whole dataset.

## 5. Discussion and conclusion

This study contributes many ways to current debate on organizational communication and participation in decision making, and specifically on the issue of the effects of CMC. The first set of interest is a methodological one. In fact, this work allows comparing different national cultures while keeping significantly constant the organizational context. This way the disturbing action played by contingent variables, as business and technological characteristics, organizational structures, roles and procedures, is considerably reduced. Secondly, dataset is quite large and complemented by a number of other documentation and interview data. Finally, being based on field research it allows avoiding the typical defects of laboratory cases, which usually are composed by few young individuals: generally inexperienced and unskilled people, because students.

Moreover, they interact just one shot or very few times, eliminating any role of memory, learning, and path dependence effects.

The second set of scientific gains is made by having tested a number of hypotheses by looking at individuals' actual use and not at preferences of email communication, even if it has not been directly recorded, but instead collected through individuals' perceptions. Moreover, hypotheses have concerned also national differences, user types, and its combinations. In sum, the main results show that:

- email communication enhances bottom-up and horizontal participation in decision making, and that this effect is particularly accentuated for user types oriented towards computer-mediated communication;
- national differences matter substantially, and in particular Italian workers perceive email to be more useful when participation in decision making takes place with superior respect to what is perceived by British or Dutch workers;
- though employees do not perceive email communication as a serious menace to their own privacy, freedom or autonomy, they are aware of this danger;
- the feeling of being controlled is not correlated to the eventual users' extensive use of computer-mediated communication, though user types differ significantly;
- country differences, which have been controlled by user types, gender composition and power distance, count more than user types differences.

All in all, these results do not support media characteristics approaches, because emphasize the role played by cultural and social differences over technological and organizational ones. However, in order to understand the causal relationships among these and other social-technological-organizational variables and to compare the explanation effectiveness of emergent approaches and SIDE model, these results are not enough. In fact, the main limitation of this study is that only (perceived) actual use has been considered, and consequently only media characteristics can be properly tested. In fact, in order to rigorously test emergent approaches and SIDE model individuals' preferences and perceptions of media usefulness (and indeed also of power distance) would be necessary. By assigning a primer on technological and structural aspects, the test of media characteristics approaches transcends the consideration of variables else than those related to actual use. Moreover, also data on forms of non-email participation would be very useful. A further limitation is that these data are static and a little bit old, because referred to 2002.

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## Appendix 1

Here follows the four questions and its relative items about which participation in decision making has been investigated.

1) My email contact with my (immediate) supervisor is mainly devoted to...

	Not at all						Very much
...exchanging information necessary for work	1	2	3	4	5	6	7
...helping him/her to manage what I do	1	2	3	4	5	6	7
...helping me to manage what s/he does	1	2	3	4	5	6	7
...providing support for me and my work	1	2	3	4	5	6	7
...our shared aims and interests	1	2	3	4	5	6	7

2) Most of my email contact with colleagues with a similar position to me is devoted to...

	Not at all						Very much
...exchanging information necessary for work	1	2	3	4	5	6	7
...helping them to manage what I do	1	2	3	4	5	6	7
...helping me to manage what they do	1	2	3	4	5	6	7
...providing support for me and my work	1	2	3	4	5	6	7
...our shared aims and interests	1	2	3	4	5	6	7

3) Most of my email contact with colleagues responsible to me is devoted to...

	Not at all						Very much
...exchanging information necessary for work	1	2	3	4	5	6	7
...helping them to manage what I do	1	2	3	4	5	6	7
...helping me to manage what they do	1	2	3	4	5	6	7
...providing support for me and my work	1	2	3	4	5	6	7
...our shared aims and interests	1	2	3	4	5	6	7

4) Please indicate to what extent [or how much] the following are true of your experience with email:

	Not at all						Very much
I feel that e-mail allows others to keep track of what I do.	1	2	3	4	5	6	7
E-mail enhances my feeling of being controlled in my work.	1	2	3	4	5	6	7
E-mail reduces my feeling of being controlled in my work.	1	2	3	4	5	6	7
I avoid e-mail to avoid being monitored	1	2	3	4	5	6	7