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# Input-friendliness: motivating knowledge sharing across intranets\*

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## Abstract.

The value of an intranet for knowledge management (KM) is largely dependent on the calibre of the content and tools that it provides to its users and its ultimate application in business operations. For many organisations, there is a particular dilemma regarding the development of internally produced intranet resources for KM applications. Employees will not feel encouraged to provide content until they believe that what they provide will be used and they will not use an intranet if it does not provide useful content.

This paper considers strategies for making intranets 'input-friendly': how can organisations extract the content needed to add to the body of internally produced resources from their employees? The discussion explores factors that encourage intranet contributions. These include enabling conditions such as the provision of appropriate tools, the development of organisational KM culture and reward systems. The paper makes reference to studies drawn from the academic literature in business studies, information systems, organisational science and sociology, as well as to practice in case study organisations.

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## 1. Introduction

The sharing of information is important to efforts in knowledge management (KM). It is argued, for example, that with straightforward access to common resources, employees can:

- (1) execute routine tasks quickly;
- (2) aggregate previously disconnected pieces of information to facilitate innovation in working practices, product design or service delivery; and
- (3) be liberated from the fear of losing important intellectual assets if valued colleagues leave the firm.

Computer hardware and software vendors promote a variety of products as tools for KM. These include browsers, data warehouses, filters, intranets, process handbooks, software agents and yield-management software. Of these, intranets are regarded as key platforms for knowledge sharing and as tools for formalising distributed cognition. They can provide basic facilities such as common resources for the support of personal work practices, e.g. time sheets, travel bookings and social club information. They permit the integration of key business applications and tools. More advanced intranets provide the resources that encourage knowledge creation, including internal meeting 'places' for discussion groups and shared databases. Sales staff may also be able to 'shop window' activity generated on the intranet, through online discussions with customers over an extranet [1].

The potential benefits of intranet implementation are well known and discussed widely in the literature of business and computing, as well as in associated domains such as information science (e.g. [2]). It needs to be emphasised, however, that an intranet is merely a technical infrastructure and, as such, its business value is contingent on the content that it holds in terms of information resources and applications. To say that the installation of an intranet will surely deliver business value is akin to declaring as 'high' the educational

merit of a television set permanently tuned to MTV. Resources and facilities mounted on an intranet, such as web documents and discussion-group archives, need to be capable of driving business benefit, e.g. in acting as surrogates for expertise. While some of these, such as conferencing software or access to commercial online services, can be bought off the shelf, the unique internally produced resources must be sought from individual employees and teams within the firm. The success of knowledge initiatives based on the development of shared intranet resources is therefore dependent on the willingness of employees to participate in the creation of the common knowledge base. Earlier studies have proved that this is a complex issue: Newell *et al.* described how inadequate incentives led to poor intranet use at a European bank [3]; Orlikowski's study revealed a failed Lotus Notes implementation where no provision was made for the use of the novel technology [4].

The question of eliciting participation in initiatives as outlined above is of interest to academics conducting research in the area of KM. In particular, the factors that motivate people to codify and share knowledge for the benefit of others have been identified as a priority area for knowledge research [5, p. 277]. It has been argued that, to date, too much emphasis in KM research has been placed on tacit knowledge and the *individual*, as opposed to *teams of individuals* working together [6, p. 115]. This paper considers what makes an intranet 'input-friendly', with a particular emphasis on organisational incentives as determinants of participation in knowledge-sharing activity. It refers to studies drawn from the academic literature in business studies, information systems, organisational science and sociology, as well as to practice in case study organisations.

## 2. Motivating knowledge sharing: intranet interfaces and critical mass

In general, individuals are motivated to act when:

- it is easy to do so; and
- the usefulness of acting is obvious [7, p. 10].

This is not a new research finding. These factors of convenience and perceived potential benefit are by no means unique to participation in KM activity on an intranet platform, but applicable in much of everyday human activity. Examples to illustrate these factors are outlined below.

Whether it is easy (or not) to add content to an intranet will depend on the interface it presents to potential contributors. Textbooks on human-computer

interfaces and systems design provide standard advice that can be adapted to the intranet environment. For example, if intranet content is to be gathered from a variety of contributors by a dedicated inputter, a single mailbox account on the same system as that used by the contributors could be used for channelling new content to the system. The only extra piece of information with which the contributors need to become familiar is an additional e-mail address. Facilities that allow input to shared information systems that replicate patterns of speech might be expected to attract greater participation than those that require users to spend time on reformatting ideas before submitting them to an electronic knowledge base. This is because 'individuals are generally better speakers than they are writers' [8, p. 78]. Compare these suggestions with a proposal that staff should all become proficient in hypertext mark-up language (HTML) in order to present their material in a ready-prepared format for general consumption online. It is not difficult to predict which method will be the least successful in encouraging participation.

Brown and Duguid took further the broad theme of ease of use when they argued that tools for knowledge sharing should be integrated into communities to match the levels of formality operated in the work groups that they serve. They are critical of new technology that is supposedly meant to help KM efforts when, in fact, it simply 'attends primarily to individuals and the explicit information that passes between them' [9, p. 105]. If this advice is not heeded in systems design, contributions to the knowledge base held on the intranet will lose the opportunity to provide information derived from socially embedded, and often the more valuable and unique, know-how of colleagues. This problem is compounded if the organisation seeks to 'control' the use of electronic media. Such interventions, suggested Brown and Duguid, are the electronic equivalent of monitoring chat at the water cooler or coffee pot [9, p. 106].

For many organisations at the initial stages of encouraging employees to participate in intranet development, there is a particular dilemma. Just as people generally only buy into a new technology when it is marketed in terms that the potential purchaser understands, employees will not feel encouraged to provide content until they believe that it will be used. Nor will they use an intranet if it does not provide useful content. This can explain why some companies find that there is great initial interest in the development of an intranet, which then declines steeply [10].

It can be argued then that 'output-friendliness' is important in determining 'input-friendliness' of an

intranet. If employees can be convinced of the usefulness of the end product, they will feel more motivated to use it and help it to develop. Once tempted online, individuals and teams can start to participate in the growth of the critical mass required to sustain the intranet. Straightforward public relations (PR) is important here: promotion of the services available by e-mail shots, cross-linking and good indexing of resources, so that they are picked up by search services, can contribute to awareness and uptake.

Another way of convincing employees of the usefulness of an intranet is to use it as the *sole* platform for certain applications: 'The unique applications motivate intranet development end use' [11], since there is no alternative way of accessing them. Some companies have discovered that they need to introduce the new system more slowly. At the Chevron Corporation, for example, a partial intranet solution was created for sharing information on good practices. This was instigated after the failure of a scheme where people were expected to record their experience online. It was felt that really important and useful information for improvement is actually too complex to put online, so the solution was to provide a pointer database that would allow users to identify potentially helpful individuals named on the system and encourage follow-up off-line [12, p. 164]. It should also be noted that purveyors of high-impact information and stories, both 'good' and 'bad', prefer to relay news face-to-face in order to witness the pleasure or shock of reaction of the audience in real time. Some people deliberately hold back from providing information online for this reason.

A report based on research carried out by Cap Gemini and Cranfield University demonstrates how this issue of critical mass is important to the business value of the intranet:

This critical mass has to appear in three key areas – **users** (success can only come from people *using* the intranet), **content** (there has to be ever-more useful and relevant material available) and **utilisation** (the extent to which potential users are connected *per day*) . . . a minimum of around 40% of potential users need to connect to the intranet for real value generation to begin [13, p. 6].

### 3. Motivating knowledge sharing: enabling conditions

While it is possible to provide examples of how to make an intranet input-friendly in terms of its interface and the means to generate critical mass to sustain it, much of the literature reviewed for this paper would indicate

that there are several broader issues of relevance to this question. A number of studies refer to the creation of enabling conditions for encouraging knowledge sharing, with particular emphasis on strategies to change people's behaviour, e.g. [10, 14]. Certain environments are believed to be more conducive to aggregating desirable behaviour, i.e. those that:

- make knowledge sharing a key responsibility of staff;
- promote communities for knowledge sharing; and
- encourage experimentation.

These environments are discussed in greater detail below.

#### 3.1. Environments that make knowledge sharing a key responsibility of staff

It has been argued that knowledge sharing is more likely to be encouraged in employees who know that this is a requirement of their jobs and it is an entirely legitimate activity [12, p. 157; 15; 16, p. 207]. Encouragement and formalisation of information-sharing activity can be generated through various activities:

- proactive training and project debriefings [17, p. 145];
- leading by example [18, p. 101] (which may comprise visible commitment, with the berating of those who do not follow);
- mentoring and assisting [6, p. 123].

There should be two main responsibilities for the individual:

- to acquire expertise; and
- to disseminate it [17, p. 144].

Citibank demonstrated that assigning *specific* responsibilities to particular individuals is more likely to encourage knowledge sharing than simply expecting people to make contributions as part of a general team effort. It was not until the company assigned employees the responsibility of entering content on a particular database that the knowledge base began to grow [12, p. 164].

#### 3.2. Environments that promote communities for knowledge sharing

A number of authors, e.g. [19], discuss the significance of the 'community of practice' as an organisational form that is driven in part by interested and passionate participants in their desire to share expertise [20]. When individuals are encouraged to share knowledge in communities, the barriers to knowledge transfer witnessed in cultures that value *personal* technical

expertise and knowledge creation (as described by O'Dell and Jackson Grayson [12, p. 157], Von Krogh [17, p. 136] and Snowden [7, p. 143]) are weakened. Strong ties [21; 22; 23, p. 14] and social capital (such as shared norms, obligations, trust and identity) within groups provide the important environmental conditions for knowledge exchange [24].

Shared identity is particularly important [25, p. 352; 26]. Identity derives from individuals or teams having a common purpose, so that they choose to commit themselves to the aspirations of the knowledge-based community and become an invaluable resource for the group [27, p. 82].

The incentives to share knowledge in communities then are identified as the 'carrot' of the continued vitality of the community and relationships between partners and the 'stick' of obligation to other group members. Participants understand that the viability of their community depends on their commitment to it. If no contributions are made, the results are drastic: the community will not live. However, each time that someone contributes to knowledge sharing, the outcome not only increases common knowledge based on the contribution, but also the trust among community members increases. As trust increases, more participants become willing to share and so further contributions will be made. Dyer and Nobeoka [25] noted that this sets up relationships characterised by mutual causality which applies equally to group identity, 'both a cause, and a consequence, of collective learning processes' [25, p. 352]. Thus, a further incentive to contribute in a community is the expectation of stronger relationships with partners and access to higher-quality knowledge in the future.

If an intranet for knowledge sharing can generate a feeling of community, it may draw on the benefits discussed in this section, most specifically those to encourage intranet input. This can be achieved through various methods, from the local branding of web pages to the degree of willingness of discussion groups to accept lurkers into their domain [35].

### *3.3. Environments that promote experimentation for knowledge sharing*

Risk taking is very important to organisations hoping to create new knowledge, since 'distinctly new knowledge comes from experimenting' [28, p. 272]. Often, organisations are constrained by established standardised approaches to collecting and structuring data and to transferring information. This results in an emphasis on simply refining and sharpening what is already known

[28, p. 272]. Employees retreat into purely analytical modes of operating with 'such strong preferences for analysis over intuition that no one dares offer an idea without "hard facts" to back it up' [6, p. 126]. Permission to experiment at the local level is therefore important. Autonomy must be provided for and people should be able to step out of their designated roles as they wish in the pursuit of new knowledge [27, p. 86]. Success stories related to business results of knowledge sharing will embolden people [29, p. 28]. It is suggested, then, that to encourage intranet input, it should be emphasised that employees are allowed to experiment. Anonymity can encourage people to put forward ideas [30]. The medium of an intranet is much better suited to this than other forms of organisational communication. It should also be noted that decisions on the 'shape' of the intranet itself (as well as content contributions to it) are subject to arguments of experimentation: should the intranet's structure be predetermined or allowed to evolve?

A further inhibitor of knowledge sharing is undue regard to status. It is demonstrated how detrimental this can be in medicine, where: 'Nurses often hesitate to suggest patient treatments to physicians not only because doctors have higher status, but because nurses base their diagnoses on different knowledge bases . . . the nurses' intuition about a situation draws on very different tacit knowledge, and they have neither the laboratory data to back up hunches, nor the status to insist on the validity of their perspective' [6, p. 124]. If an intranet can be promoted as a platform for contributions from all who have something useful to contribute, regardless of their status within the organisation, then it is more likely that contributions will flow. Hargadon wrote about staff developing an 'attitude of wisdom' to make this work:

People who have an attitude of wisdom are cooperative because they are neither too arrogant nor too insecure to ask others for help. By actively seeking knowledge, people demonstrate they are humble enough to recognize the value of knowledge held by others yet are confident enough to seek it out, especially when this requires tacit admission of their own ignorance [31, p. 225].

## **4. Motivating knowledge sharing: rewards**

Willingness to share anything usually depends on reciprocity. Nowak and Sigmund [32] identified two types of reciprocity:

- (1) *direct*: two individuals associate long enough for each to play roles of receiver and giver of favours; and

(2) *indirect*: third parties donate favours without the expectation of a return from the receiver.

Third-party donors, while not anticipating immediate 'compensation' for favours granted, tend to anticipate repayment at a later date, in the form of a favour from another third party. There must be an exchange at some point; otherwise, donors will withdraw their participation: they will not support 'free riders' [25, p. 349]. Since 'knowledge can only be volunteered . . . [and] cannot be conscripted' [7, p. 9], individuals and teams decide whether any reward that is offered matches the value of knowledge sharing: 'people's time and energy are limited and they will choose to do what they believe will give them a worthwhile return on those scarce resources' [14, p. 31]. It is argued that organisations should explicitly offer to repay individuals who engage in knowledge-sharing activity [29, p. 27; 33, p. 50]. The reward might be in the form of a 'hard' tangible benefit, such as enhanced pay, stock options or a bonus. Alternatively, employees can win 'reward' in more subtle ways, e.g. in enjoying the personal satisfaction of holding membership of a thriving knowledge-sharing community. The next section discusses the rewarding of knowledge sharing in general. It then considers how what is known about encouraging knowledge sharing by rewards can inform the creation of input-friendly intranets.

#### 4.1. Explicit rewards

##### 4.1.1. Economic rewards

Perhaps the most obvious explicit reward systems are those that involve economic incentives, such as increased pay, or bonuses in the forms of cash or stock options. Beer and Nohria [34], for example, demonstrated how straightforward economic incentives offered to individuals worked as an incentive for organisational change at Scott Paper in the 1990s. Similarly, suppliers to the motor manufacturer Toyota are initially encouraged to join a collaborative knowledge-sharing network sponsored by their common customer, because Toyota helps each new network member firm without any immediate expectations. Any cost savings or additional profits that the new member makes in the short term do not have to be passed on to Toyota [25, p. 359]. Systems for giving economic rewards for knowledge sharing are not necessarily tied to financial indicators such as increased revenue or stock values. Beer and Nohria [34] highlighted companies that work on commitment-based contracts with their employees. Such incentives might include a

skills-based pay system and shared rewards in order to pull all workers into a shared community of purpose. The idea is that individuals are motivated through commitment and that pay is used as a fair exchange.

##### 4.1.2. Access to information and knowledge as reward

Another tangible reward for participating in knowledge-sharing ventures is access to the information and knowledge shared by the other contributors: 'the expectation being that one will get valuable knowledge in return for giving it . . . you need to contribute knowledge to become part of the knowledge networks on which your success depends' [14, p. 31]. This is illustrated well in the case study of the motor part manufacturers discussed above, where 'any production-related knowledge that Toyota or a supplier possesses (cost, quality, inventory management, etc.) is viewed as accessible to virtually any member of the network (with *perhaps* the exception of a direct competitor) because it is, in effect, the property of the network' [25, p. 358] and 'suppliers are motivated to participate because they quickly learn that participating in the collective learning processes is vastly superior to trying to isolate their proprietary knowledge' [25, p. 351]. The deemed price paid is a limited ability to protect proprietary production knowledge, since 'intellectual property rights reside at the network, rather than the firm, level' [25, p. 358]. 'Free riding' is prevented through established rules that forbid suppliers access to Toyota's knowledge until they explicitly agree to share their knowledge [25, p. 351]. In less formal networks, such as news groups and mailing lists, the anticipation of help in the future, in the form of someone else's shared knowledge, encourages individuals to respond to pleas for help.

##### 4.1.3. Career advancement/security as reward

Career advancement can be tied to various factors, including the extent to which individuals hoard or share their expertise. With specific reference to the building of online knowledge tools, it has been suggested that, in some circumstances, workers might actually sabotage systems over fears of job security. When discussing the building of knowledge bases of customer support information, it is noted that: 'Support analysts may question the wisdom of furnishing their knowledge for a system if they believe that the system may someday replace their own jobs' [16, p. 206].

Von Krogh [17] described another scenario:

When organizational members' futures with the company are dependent on the expertise they demonstrate, and not on the

extent to which they actually help others, individuals will attempt to build up and defend their own hegemonies of knowledge . . . In this competitive context, sharing more knowledge than necessary will lead to reduced power and influence. The individual will not be motivated to make his knowledge explicit or shareable unless there are clear transactions that would make this favorable. He will judge the knowledge sharing as a transaction; knowledge shared being based on expected returns [17, p. 140].

It is argued, therefore, that career advancement should become an explicit reward for knowledge sharing. In providing this incentive to staff, firms reward an individual's performance, as well as the act of helping other colleagues to perform well. This is already the case in a number of firms. For example, at McKinsey and Andersen Consulting, partnerships are awarded on the basis of votes cast to individuals by their colleagues, which in turn are dependent more on the degree to which individuals have cooperated in the workplace than on their ability to compete [31, p. 225]. At an organisational level, the guarantee of future work also motivates people to operate in particular ways. For example, some members of the Toyota network joined 'primarily to demonstrate . . . commitment to Toyota in the hopes that Toyota would reward them with more business' [25, p. 363].

## 4.2. Soft rewards

### 4.2.1. Enhanced reputation as reward

A human obsession with reputation and status lies behind an important 'soft' reward for knowledge sharing – acknowledgement from peers: 'we feel cheated when our good deeds go unnoticed, and refrain from bad deeds lest they become known' [32, p. 819]. Hargadon [31] quotes an engineer at IDEO, who describes the benefits of spreading about knowledge and skills as higher visibility and winning the reputation of being an attractive work colleague. Similarly, at Unilever, flattery worked when pulling staff together for project work: 'the compliment of being invited to participate in . . . workshops, and after that being involved in global strategic projects [on the basis of an established reputation], was perceived as immensely rewarding' [17, p. 147]. The achievement of enhanced reputation is not restricted to individual ambitions. For example, effective newsgroups can promote the group as well as individual members.

Reputation building can be perceived as a long-term project. Individuals who recognise this are more likely

to be knowledge sharers from the outset. This is illustrated in online discussion groups, where individual participants are aware that it is possible that they might come across another group member, perhaps in a different capacity in the 'real' world, in the future. For this reason, they have an obligation to demonstrate – in the present – the qualities of a helpful member of the online community.

### 4.2.2. Personal satisfaction as reward

It has to be acknowledged that some people simply gain pleasure as a result of demonstrating their own altruistic and pro-social behaviour, and often also enjoy seeing the positive results of their efforts. For example:

At McKinsey, the Rapid Response Team emerged to satisfy the need to maintain interactive problem solving by promising to link anyone facing a problem with others who might have useful, related knowledge – within 24 hours. They accomplished this feat by maintaining the human connection, and the individuals involved took pride in knowing who knew what in the organization and in their ability to find the right people to solve each problem [31, p. 222].

This is reward in itself.

## 4.3. Rewards and intranets

An intranet can be made more input-friendly through the consideration of reward as a factor of motivation to contribute. For example, ease of access to resources (which has already been highlighted as a determinant of creation mass) is important to participants who expect to trade their own input for that of others. When career progression and reputation building are seen as potential rewards for intranet contribution, the system needs to make obvious resource ownership, protection and management in terms of the control, location and branding of content. (This reflects the use that can be made of local branding of web pages to help in reinforcing ideas of community identity discussed above.) If conditions do not protect individual contributions, e.g. when injustices such as idea stealing are tolerated, people are more likely to 'establish their hegemonies of knowledge and protect their turf' [17, p. 142] and knowledge-sharing activity will diminish. Creating an environment where personal satisfaction resulting from the provision of intranet input is reward enough is a more difficult task. The employment of intrinsically motivated colleagues might be seen as an issue of recruitment and selection or one that can be addressed through training.

## 5. Conclusion

Unless intranets are input-friendly, their value cannot be realised, particularly when company ambitions identify the intranet as something more than a repository of corporate data. Input-friendliness is not limited to 'obvious' issues of interface design. 'Output' friendliness is also important, especially to create critical mass. The relative merits of the various incentives that encourage employees to make intranet contributions are difficult to assess. The determination of these may evolve through the future publication of research results.

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- [35] The debate in the literature as to how far a community should extend is pertinent to the question of vitality. In the case of online communities, it is argued that there must be controls on membership so that expertise is not diluted by those of marginal use to the community as a whole [7, p. 13]. However, those at the margins, such as lurkers on a listserv, can later become integrated into the main group, bringing fresh ideas: ‘People learn by taking a position on the periphery of skilled practice and being allowed . . . move slowly into the community and the practice involved’ [9, p. 107].