Using *i** to reason about Employee Behavior on Public Social Media

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Abstract. The use of social media by employees can be both beneficial and detrimental for their employer. Favorable posts by employees can bolster an organization's respectability while criticism can undermine its reputation. Many employers adopt policies to influence social media activities of their employees. Such policies encourage behavior that is favorable to the organization and discourage conduct that is damaging. Employees must make tradeoffs between their professional objectives and personal aspirations while using social media because the two sets of goals may conflict. This paper demonstrates the application of *i** modeling to develop an understanding of employee behavior on public social media. A hypothetical industrial scenario drawn from scholarly literature and professional press is used to explain this approach. *i** modeling can be used to support employers in formulating effective policies for influencing employee behaviors on public social media. It can also be used to promote a shared understanding that can help to guide employee participation on public social media in a manner that balances their professional and personal objectives.

Keywords: Social Media, Visualization, Information Representation, Visual Modeling, User Behavior.

1 Introduction

The use of public social media (SM), including Facebook, Twitter and LinkedIn, is commonplace in organizational settings [1,2]. Public SM offers organizations with channels of focused and targeted communication for interacting with their external stakeholders (e.g., customers, partners, suppliers, vendors) [3]. Organizations leverage public SM in many functional areas including marketing, sales, customer service, and recruitment. Organizations permit their employees to act on the employer's behalf for posting content that is relevant for external stakeholders. Moreover, many employees also share their opinions and commentary about their employers through their personal accounts on public SM.

While the use of public SM by employees can be beneficial for an organization – it can also expose their employers to risks and uncertainties [4,5]. This is because an employee may intentionally or inadvertently post content on public SM that may be damaging to their employer. When an organization is negatively impacted because of such deleterious behavior by its own employee then it is likely to take punitive measures. This paper demonstrates the application of *i** modeling to support the comprehension of employee behavior on public SM. A hypothetical industrial scenario drawn from scholarly literature and professional press is used to explain this approach. This approach can be helpful for the employee and the employer to understand each other's motivations.

2 Case Example: Social Media Participation by Employees

The role of employees in many departments, including Marketing, Customer Service, and Recruitment, entails interacting with external stakeholders such as vendors, customers, and job applicants. In the context of their job, an employee may expect public SM participation to lead to career progression. Outside of work, many people also use their personal SM accounts to

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share their opinions on public fora. In the context of personal use, a user may intend for their participation on public SM to support the establishment of their reputation for independence.

In many cases the aims associated with job-related use and personal SM use may not be compatible and may even conflict with one another. The behavior of an employee on public SM reflects their choices to accommodate such tradeoffs which are inherent in their objectives. The trade-offs in an employee's objectives emerge due to their relationships with other actors as well as the relationships among those actors. Each actor pursues its own interests and the interests of an actor may not be compatible with the interests of other actors. For example, if an employee openly lambastes their employer on SM then those posts may be accessed by the competitors of their employer. Rivals monitor public SM to mine competitive intelligence (CI) [4-8] that is useful for furthering their own interests at the expense of the employer (e.g., by poaching its customers).

An employer may tie the SM behavior of employees with their performance appraisals to prevent damaging outcomes such as loss of customers. That employer might use a carrots-and-sticks policy to influence the behavior of its employees on SM. Such policies encourage employees to post favorable content about their employers on SM services and discourages them from posting damaging content. Posting of favorable content might be rewarded with an increase in the performance rating of an employee while posting of damaging content might be penalized with reduction in the performance rating. However, the employer must be careful because, while rewards will increase employee goodwill, penalties will decrease it. Reduced employee goodwill may result in additional damaging content from disgruntled employees which may repel other stakeholders such as customers, vendors, and job applicants.

Employee behavior on SM will also impact their own professional and personal goals. If an employee engages in frank SM behavior and posts content that is critical of their employer then that employee may succeed in establishing their reputation for independence. However, that employee will then forego the opportunity for career advancement as their performance rating will be reduced by their employer since they posted damaging content about that employer. Conversely, if an employee engages in restrained SM behavior and refrains from posting any content about their employer or only posts uncritical content then that employee may succeed in advancing their career. However, this will impede that employee from establishing a reputation for independence as they will be regarded as being evasive towards controversial topics related to their employer or unceasingly sycophantic towards that employer.

As shown by this example, employee participation on public SM can have beneficial and deleterious effects for employers and employees. Both parties face nontrivial choices that are characterized by complicated tradeoffs relating to employee participation on public SM. Therefore, employees and employers can benefit from a methodical approach for understanding each other's intentions. Such an approach can help employees to predict the consequences of their SM behaviors. It can also support employers to formulate an effective policy that links performance appraisal with employee SM behaviors.

A shared understanding on the part of employers and employees can help to promote the interests of both parties while also accounting for the objectives of other stakeholders with whom they have relationships. Employee participation on public SM in an ad hoc or unmethodical manner may neglect or underemphasize important aspects of relationships that employers have with their external stakeholders. It might also yield a performance appraisal policy that omits or overlooks crucial tradeoffs made by employees when they use public SM. Such mistakes and errors are likely to impair or block the achievement of the objectives of employers and employees. The next section applies a structured and systematic approach to support a shared understanding of employee behavior on public SM for the employer and the employee.

3 Using *i** to reason about Employee Behavior on Public Social Media

A crucial requirement for understanding employee behavior on public SM is the ability to articulate and analyze relationships among various stakeholders such as employee, employer, social media service, etc. In this paper, we use *i** to represent this phenomenon because *i** treats *actors* and *goals* as first class entities [9]. Fig. 1 presents an *i** SD (Strategic Dependency) diagram of the case example in section 2. To streamline description of the model in the following text, instances and classes of *i** entities are written as: instance (*class*).

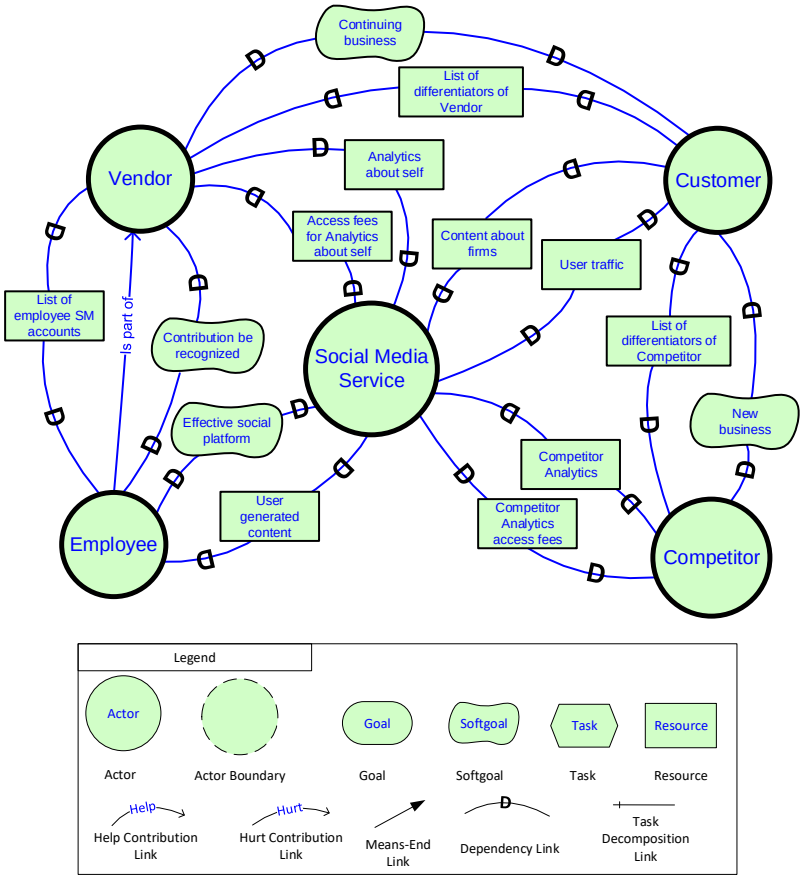

Fig. 1. *i** SD diagram showing relationships pertaining to employee SM participation

This diagram depicts five *actors*, namely Employee, Vendor, Social Media Service, Customer, and Competitor. The Employee (*actor*) depends on the Social Media Service (*actor*) for an "effective social platform" (*softgoal*) while the Social Media Service depends on the Employee for "user generated content" (*resource*). Similarly, the Employee (*actor*) depends on their employer, (i.e, Vendor (*actor*)), for SM participation to be acknowledged ("contribution be recognized" (*softgoal*)) while the Vendor (*actor*) depends on the Employee (*actor*) for a "list of employee SM accounts" (*resource*). This is necessary for the Vendor (*actor*) to attribute contributions by SM posts of that Employee (*actor*).

Fig. 2 presents an *i** SR (Strategic Rationale) diagram of the case example. The Employee (*actor*) intends to interact with stakeholders of their employer and, in this diagram, this is depicted as "stakeholders be engaged" (*goal*) within Employee (*actor*). To satisfy "stakeholders be engaged" (*goal*) an Employee (*actor*) may perform "reach out to stakeholders via social media" (*task*). To complete "reach out to stakeholders via social media" (*task*) an Employee (*actor*) will need to satisfy "professional opinions be expressed" (sub-*goal*). This is because customers may be interested solely in the professional opinions of their business contacts and not in their personal opinions (e.g., related to sports, politics, or religion).

An Employee (*actor*) can choose among two options for satisfying this requirement which include either selecting "share employer-related topics" (*task*) or "avoid employer-related topics" (*task*). "Share employer- related topics" (*task*) is comprised of "stance be chosen" (sub-*goal*) which refers to selection of a public voice by the Employee (*actor*) vis-à-vis their posts on SM about their employer. An Employee (*actor*) can choose among two options for meeting this requirement which include either selecting "include criticism" (*task*) or "exclude criticism" (*task*). That Employee (*actor*) can compare these options by assessing the impact of each option on their quality criteria (i.e., *softgoals*).

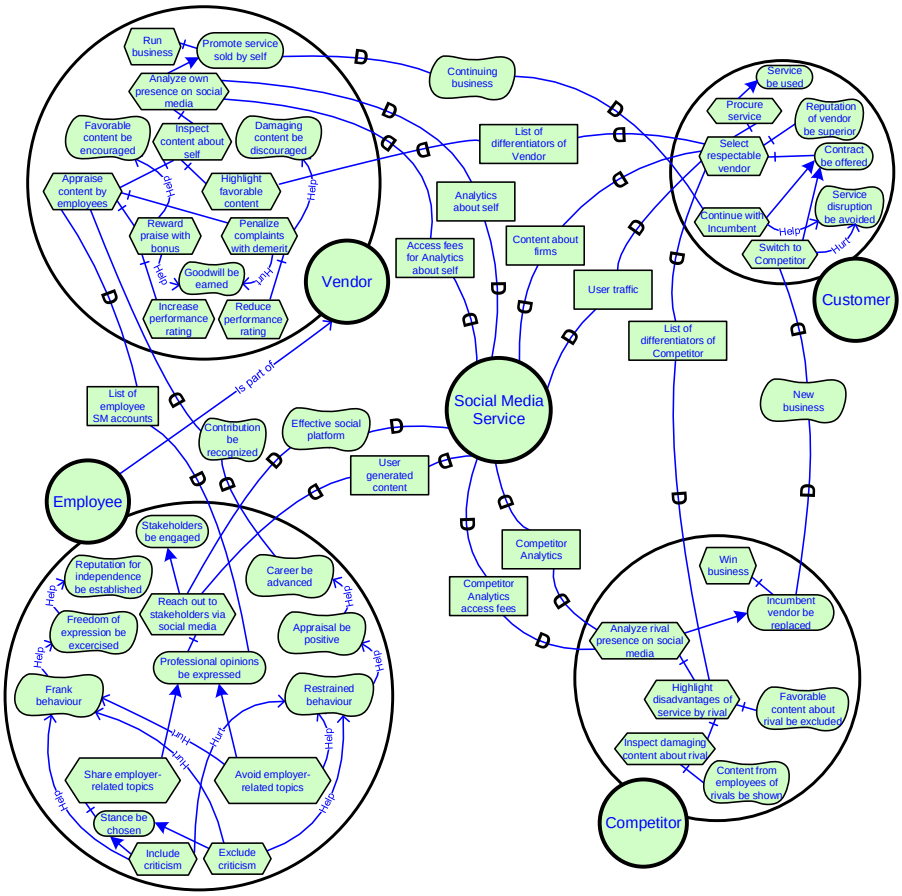

Fig. 2. *i** SR diagram showing distributed intentionality about employee SM participation

An Employee (*actor*) may "avoid employer-related topics" (*task*) which may help that Employee to exhibit "restrained behavior" (*softgoal*) rather than "frank behavior" (*softgoal*). Conversely, that Employee may "share employer-related topics" (*task*) which may help that Employee (*actor*) to demonstrate "frank behavior" (*softgoal*) as opposed to "restrained behavior" (*softgoal*). By themselves these quality criteria may not provide a substantial basis for choosing among options but their hierarchies can be used to discriminate between alternatives.

"Restrained behavior" (*softgoal*) is likely to result in an Employee's (*actor*) SM performance "appraisal be positive" (*softgoal*) which is likely to support that Employee's (*actor*) professional growth ("career be advanced" (*softgoal*)). Similarly, "frank behavior" (*softgoal*) is likely to support that Employee's (*actor*) "freedom of expression be exercised" (*softgoal*) which is likely to bolster that Employee's (*actor*) "reputation for independence be established" (*softgoal*). The prospect of career advancement and reputation building, reflected by higher level quality criteria, are sufficient for comparing options.

The decision by an Employee (*actor*) to pursue either of these courses of action impacts and is impacted by the decisions of their Employer (i.e., Vendor (*actor*)). The Vendor (*actor*) has an existing relationship with its customers (i.e., Customer (*actor*)) that depend on it for "continuing business" (*softgoal*). To satisfy this dependency from Customer (*actor*) to itself the Vendor (*actor*) must "run business" (*task*). While performing this activity the Vendor (*actor*) will need to "promote service sold by self" (sub-*goal*) to retain existing Customer (*actor*).

This can be fulfilled by "analyzing own presence on social media" (*task*) because self-awareness about social media content can help to stave off incursions into the customer base by rivals (i.e., Competitor (*actor*)). Analysis of own SM presence requires a Vendor (*actor*) to access a report on "analytics about self" (*resource*) from Social Media Service (*actor*). As payment for this report the Vendor (*actor*) pays "access fees for analytics about self" (*resource*) to the Social Media Service (*actor*). "Analyzing own presence on social media" (*task*)

will require the Vendor (*actor*) to "inspect content about self" (sub-*task*) which includes examining sentiment and tonality of SM content about oneself.

This will require the performance of "highlight favorable content" (sub-*task*) and "appraise content by employees" (sub-*task*). The former is necessary for providing a "list of differentiators of vendor" (*resource*) to Customer (*actor*) so that Customer (*actor*) decides to maintain business relationship ("continuing business" (*softgoal*)) with the Vendor (*actor*). The latter is essential for ensuring that "favorable content be encouraged" (*softgoal*) and "damaging content be discouraged" (*softgoal*) are satisficed. "Reward praise with bonus" (sub-*task*) and "penalize complaints with demerit" (sub-*task*) make positive contributions to these quality criteria. "Reward praise with bonus" (sub-*task*) is further refined into "increase performance rating" (sub-*task*) while "penalize complaints with demerit" (sub-*task*) is further refined into "reduce performance rating" (sub-*task*).

However, the Employer (*actor*) also has quality criteria related to the goodwill of its employees (("goodwill be earned" (*softgoal*)). Therefore, it must be careful because, while "reward praise with bonus" (*task*) will help "goodwill be earned" (*softgoal*), "penalize complaints with demerit" (*task*) will hurt it. This may result in additional damaging content on SM from disgruntled employees, greater employee dissatisfaction leading to attrition, and avoidance of employer from various stakeholders including customers, vendors, and job applicants. These outcomes are not shown in the model as they are tangential to this case example.

The Vendor (*actor*) rewards or penalizes favorable or damaging SM posts by Employee (*actor*) because SM content by Employee (*actor*) impacts Vendor's (*actor*) relationships with its existing Customer (*actor*). Existing Customer (*actor*) must "procure service" (*task*) to meet some requirements (i.e., "service be used" (*goal*)). To do so the Customer (*actor*) must "select respectable vendor" (*task*) which is defined as "reputation of vendor be superior" (*softgoal*) among available vendors. The Customer (*actor*) performs due diligence and obtains inputs from multiple sources to determine the respectability of available vendors. It examines "content about firms" (*resource*) directly on Social Media Service (*actor*) by itself and in the process generates "user traffic" (*resource*) for those SM services. The Customer (*actor*) also instructs the incumbent Vendor (*actor*) to supply a "list of differentiators of Vendor" (*resource*) and solicits a "list of differentiators of Competitor" (*resource*) from Competitor (*actor*).

Procuring a service from the incumbent Vendor (*actor*) or any Competitor (*actor*) requires "contract be offered" (*goal*) to the relevant *actor*. The options for this that are available to the Customer (*actor*) include "continue with incumbent" (*task*) or "switch to competitor" (*task*). A Customer (*actor*) factors into this decision its intention for "service disruption be avoided" (*softgoal*) which is helped by "continue with incumbent" (*task*) and hurt by "switch to competitor" (*actor*). However, this intention is subordinate to the higher-level intention of "reputation of vendor be superior" (*softgoal*) or otherwise the Customer (*actor*) would always "continue with incumbent" (*task*) and not consider "switch to competitor" (*task*) as a viable option.

The opportunity to poach the Customer (*actor*) of an incumbent Vendor (*actor*) serves as motivation for Competitor (*actor*) to remain vigilant on SM. A Competitor (*actor*) can "win business" (*actor*) by enabling an "incumbent vendor be replaced" (sub-*goal*) by scanning SM ("analyze rival presence on social media" (*task*)). Analysis of competitive intelligence on SM requires a Competitor (*actor*) to access a "competitor analytics" (*resource*) report on Social Media Service (*actor*) and as payment for this report the Competitor pays "competitor analytics access fees" (*resource*) to the Social Media Service (*actor*). This report is useful for responding to Customer (*actor*) solicitation of "list of differentiators of Competitor" (*resource*). Based on this report the Competitor (*actor*) can "highlight disadvantages of service by rival" (sub-*task*). In doing so the Competitor (*actor*) uses the criteria of "favorable content about rival be excluded" (*softgoal*). Moreover, the Competitor (*actor*) can "inspect damaging content about rival" (sub-*task*) to prioritize "content from employees of rivals be shown" (*softgoal*). This can serve to highlight weaknesses of the incumbent Vendor (*actor*) directly from an authoritative source that knows the Vendor (*actor*) – which is complaints and criticisms by its Employee (*actor*).

4 Related Work

The research presented in this paper is related to a rich body of academic literature that pertains to the modeling of business strategy. In [10-12] we show models of strategic pivoting by startups and large enterprises. In [13, 14] we outline the requirements for modeling and analyzing strategic coopetition (i.e., simultaneous cooperation and competition) among organizations.

In [15-17] we show the design and analysis of a win-win strategy in a multi-actor setting using a combination of *i** strategic actor modeling with game-theoretic techniques. In [18] we show the expression and evaluation of strategies, based on the notion of value, by combining *i** and e3Value modeling. The application of *i** modeling to focus on employee behavior, as a specific consideration in formulation of business strategy, are novel contributions of this paper.

5 Discussion and Conclusion

This paper demonstrated the application of *i** modeling to develop an understanding of employee behavior on public social media. We showed that *i** is conducive for representing and reasoning about strategic relationships among stakeholders in the context of employee participation on public SM. Employers and employees can refer to the models presented in this paper to construct analyses that are specific to their own contexts. Employers can use those artefacts to design performance appraisal policies that factor in employee SM behavior. Employees can use those artefacts to guide their decision-making vis-à-vis their participation on public SM. We faced some limitations of *i** in the process of developing models of this example. These include the lack of support in *i** for: temporal reasoning, depiction of conditionality, and expression of negative dependencies. These subjects are the focus on ongoing scholarship by researchers of *i** modeling including ourselves and will be addressed in our future work.

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