

Creating sustainable relationships using the strengths, opportunities, aspirations and results framework, trust, and environmentalism: a research-based case study

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New forms of organization development are moving from a classical diagnostic perspective to a dialogic perspective. This move includes a focus on exploring positive states of organizing, shared aspirations, and the design of preferred futures as key outcomes of a strategic change process. Training and development that applies the elements of the strengths, opportunities, aspirations and results (SOAR) framework allows for stakeholders to engage in a dialogue that represents the whole system, and builds trust and environmental management systems that can positively impact supplier performance. In this study, we examined the interrelationship between the SOAR framework, trust, environmental management systems, and supplier performance in respect of 71 program managers and customers from the Hass TCM Group, the largest chemical management services provider in North America.

Hypothesis testing was carried out using correlation analysis, multiple linear regression, correlation analysis and Sobel's test for mediation. Our results support a combined framework in which the SOAR framework can be used to build trust and pro-environmental behaviors to train suppliers to develop collaborative relationships with customers.

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Introduction

'Corporations, because they are the dominant institution on the planet, must squarely address the social and environmental problems that afflict humankind' (Hawken, 1993, p. xiii). Hart (1997) addressed the economic and environmental impact of sustainable development: 'Whereas yesterday's businesses were often oblivious to their negative impact on the environment, and today's responsible businesses strive for zero impact, tomorrow's businesses must learn to make a positive impact' (p. 68). The World Business Council for Sustainable Development (WBCSD, 2008) defines sustainable development as 'forms of progress that meet the needs of the present without compromising the ability of future generations to meet their needs' (p. 1). The WBCSD calls for an organization development (OD) framework that supports a collaborative approach to sustainable development, uniting individuals, organizations, ideas and assets to benefit the earth from its ecosystem to the needs of its diverse population (Business as an Agent of World Benefit, 2005). One business model that integrates this OD framework is the Chemical Management Services (CMS) model shown in Figure 1. The CMS model has resulted in both improved business economics and sustainable development.

The traditional chemical supply chain relationship involves conflicting incentives between the supplier, who wants to increase chemical sales, and the customer, who wants to decrease chemical costs. The CMS model shifts the traditional customer-supplier relationship from chemical-as-substance to that of chemical-as-service management (Atkinson, 2004). This new chemical management model can contribute to significant cost reductions, decreased usage or substitution of chemicals harmful to the environment, less required labor, and more efficient chemical waste management. For example, General Motors (GM) saves approximately 30 percent on average at each facility that implements the program (Atkinson, 2004). The program improved the corporation's environmental performance, reduced costs and contributed to improved shareholder earnings.

After nearly a decade of successful CMS implementation within GM, the Pew Charitable Trust recognized CMS as an OD framework that puts environmental and social concerns on equal footing with profitability. According to research by Graham and Bertels (2008), 'while there is increasing agreement that business needs to embrace sustainability, research on sustainable development in the management field still provides only limited guidance for how this should be done' (p. 58). This study proposes a framework on how sustainability can be accomplished by building trust and increasing environmental performance to address the question – *How can a CMS program better*

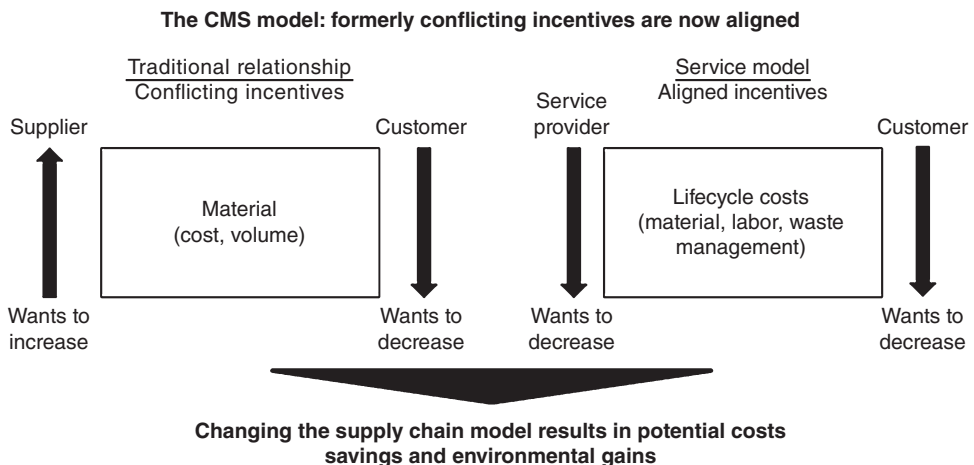


Figure 1: The chemical management services (CMS) model (from Kauffman Johnson, 2007).

manage implementation activities to achieve high levels of CMS supplier performance as measured by perceptions of program manager and customer supplier performance?

Literature review

Significant barriers have been found to interfere with the implementation of an OD framework based on supplier performance, including a lack of trust between the supplier and the customer (Fawcett & Magnan, 2004; Handfield & Bechtel, 2002; Mont *et al.*, 2006) and increased regulations for environmentalism (Bierma & Waterstraat, 2000; Darnall *et al.*, 2008; Srivastara, 2007). Furthermore, an effective CMS program requires the need to understand and negotiate diverse interests, real and otherwise, of its stakeholders to implement the best CMS improvement initiatives. This literature review highlights the independent variables of the strengths, opportunities, aspirations and results (SOAR) framework, trust and environmental management systems (EMS), and their effect on the dependent variable, supplier performance.

The SOAR framework defined

Figure 2 displays an illustration of the SOAR framework to utilize in CMS implementation (Stavros & Saint, 2009; Stavros *et al.*, 2007). SOAR is a profoundly positive framework for strategic thinking, dialoguing and analyzing. The framework allows a person, team, or organization to create a strategy and/or strategic plan to construct its future through collaboration, shared understanding, and a commitment to action research. Organizations, such as Interface, Inc., 3M, Green Mountain Coffee Roasters, Trillium Asset Management, John Deere, Calvert Group, and many others, are concluding that creating sustainable business value emerges when organizations embrace a whole system perspective. This multiple stakeholder perspective engages a business model or

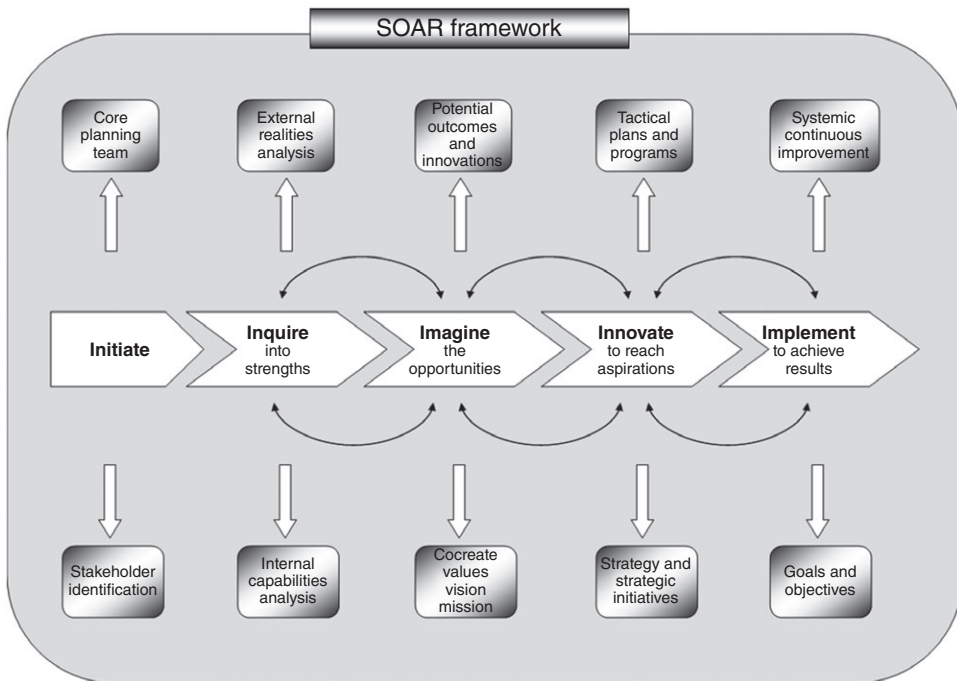


Figure 2: The strengths, opportunities, aspirations and results (SOAR) framework and the 5-I approach (from Stavros & Saint, 2009).

process that can increase performance while satisfying multiple stakeholders (Amodeo, 2005; Cox, 2005; Ludema & Cox, 2007; Schrader, 1995).

SOAR is an emergent framework used to improve the end goal of implementing sustainable development initiatives from a strengths-based whole system perspective. In this study, the perceived application of SOAR decreases customer costs and improves supplier revenues while leading to a positive reduction in harmful environmental impacts. The SOAR definition we used is 'An innovative, strengths-based approach to strategic planning that invites the whole system (stakeholders) into the process' (Stavros *et al.*, 2007, p. 377).

Trust defined

Five key behaviors are necessary for organizations that want to develop a culture of trust: (1) meeting day-to-day promises; (2) openly sharing information; (3) communicating team building and collaboration among active parties; (4) establishing personal relationships that bridge organizational boundaries; and (5) maintaining relationships that are mutually fair and beneficial (Fawcett *et al.*, 2004). In research on collaboration, Fawcett and Magnan (2004) found that managers of leading supply chain companies felt that the people in their organizations possessed the knowledge and insight to solve their competitive dilemmas, but that 'getting people to share their best ideas remains a challenge, exacerbated by a lack of trust and loyalty' (p. 73). Similarly, Bierma and Waterstraat (2000) emphasized relationships built on trust as an important element in the implementation of a CMS program. Taken together, these key behaviors that define trust also describe an effective CMS program.

EMS defined

As defined by the International Organization for Standardization (ISO), officially launched in 1996, EMS refers to organizations that (1) identify and control the environmental impact of their activities; (2) develop products or services to continually improve environmental performance; and (3) implement and evaluate a systematic approach to setting environmental objectives and targets (Boiral & Sala, 1998; ISO, 2008). These aspects of EMS have a strong similarity with elements of the CMS model, such as environmental impact and waste management. This suggests a potential benefit and positive impact for an organization that incorporates the CMS model as a subset of its EMS program.

Supplier performance defined

Prahinski and Benton (2003) define supplier performance as 'an operational measure of key competitive success factors, namely product quality, delivery performance, price, responsiveness to change requests, service support, and overall performance' (p. 43). They found that the buying firm uses supplier performance as a critical criterion that influences their decision to do business with the supplier. Trust research by Fawcett *et al.* (2004) builds on this definition of supplier performance by asking if the supplier: (1) reliably provides high-quality products, (2) offers competitive prices, (3) provides a low total cost, (4) offers industry-leading new product development time, (5) supports production sequences, (6) consistently meets promised due dates, (7) easily changes order volumes, (8) uses superior technical capabilities to help the customer compete, (9) shares key technical information, (10) willingly works with the customer to design new products or redesign existing items, (11) frequently provides suggestions/identify opportunities to improve customer operations, (12) willingly expedites rush orders to help meet unexpected challenges, and (13) willingly helps when their customer gets in a bind or has a competitive challenge.

The effect of SOAR on trust, EMS and supplier performance

As the OD field evolves, practitioners are serving organizations using emergent theories, methods, and tools to positively affect organizational learning and performance.

Recent advances in the field of OD include Appreciative Inquiry (AI), positive organizational scholarship (POS), whole system change, sustainability issues, and strengths-based perspectives (Amodeo & Hartzfeld, 2008; Cameron *et al.*, 2003; Cooperrider & Srivastva, 1987; Holman *et al.*, 2007). The SOAR framework integrates AI, POS, whole system and strengths-based perspectives to create a strategic transformation process with a focus on creating sustainable value to achieve desired results. These advances are part 'of today's leading OD and change philosophies and approaches used to create high performing organizations' (Rothwell *et al.*, 2010, p. 378).

SOAR provides a framework to guide strategic thinking and planning by leveraging strengths, embracing opportunities, and achieving aspirations (Stavros *et al.*, 2003, 2007). As a whole system approach, the SOAR framework links the internal strengths and external opportunities of the organization to its vision and mission. SOAR creates strategic initiatives, strategy, tactical plans and measurable results to increase organizational performance (Stavros & Hinrichs, 2009; Stavros & Saint, 2009; Stavros & Sprangel, 2008, 2009). In a 3-year case study, a senior management team and its divisional employees decided to use the SOAR framework to build on the practice's financial and operational successes. The leadership team moved from a top-down approach to a strengths-based whole system strategic planning approach that developed a learning network focusing on the search and strategic dialogues for strengths, innovations, opportunities, and results between the employees and its clients. At this office, quarterly meetings were designed around the SOAR framework to inquire into the past 3 months' most powerful innovations and service deliveries. These meetings demonstrated the effectiveness of SOAR in action. Some of the results are shown in Table 1.

As the results suggest, this form of strengths-based whole system learning and development builds momentum and magnifies the reason for the clients to place confidence and trust in this financial management practice's people. This work resulted in this management practice office being awarded Office of the Year, the firm's highest award, in both 2006 and 2007.

The SOAR approach to OD and strategy formulation involves five phases: initiate, inquiry, imagine, innovation, and implementation (see Figure 2). The *initiate phase* is where the decision is made to agree to use the SOAR framework and how to use it. The *inquiry phase* starts with an inquiry into strengths and opportunities; inquiry is orchestrated through appreciative dialogue (Bushe, 1999; Cooperrider & Srivastva, 1987). Effective inquiry for strategic planning includes explicit consideration of the purpose of the organization – its mission, the customers it serves and the stakeholders it affects. Next is the *imagine phase*, where dialogue between stakeholders explores and identifies new and existing strengths and opportunities to set long-term goals and create strategies. The *innovation phase* calls for aspirations in order to co-construct the most preferred future. Finally, measurable results achieved during the *implementation phase* inspire employees through authentic recognition, ample resources and a reward system to act on shared plans.

In the context of a CMS model, application of SOAR would be expected to involve the following: (1) the management team conducts a regular internal analysis of the CMS program strengths; (2) the management team conducts a regular external analysis of the CMS program proposed and implemented opportunities; (3) the management team and the customer cocreate a CMS vision for supplier and customer sites; (4) the management team and customers cocreate a CMS set of operating values for supplier

Table 1: Change in relative position (from Stavros & Saint, 2009)

Results	Initial	Year 1	Year 2	Year 3
Client satisfaction	8th	8th	6th	1st
Revenue	8th	5th	4th	1st
Income	12th	6th	2nd	1st

and customer sites; and (5) the management team defines a strategy and desired CMS outcomes on a regular basis.

When trust is fostered, supply chain collaboration may occur, including the need to understand mutual benefits, rewards and risks for those who decide to work together (Barratt, 2004). This move toward supply chain collaboration is a shift from the focus some operations previously held. Similarly, the EMS approach aligns the incentives of both the supplier and the customer to expand environmental concerns beyond their own internal operations to that of the entire supply chain (Darnall *et al.*, 2008), and encourages compliance with environmental regulations. These practices form the essence of environmentalism, defined as a strategic management approach in which an organization addresses its impact on the natural environment, including product design, material sourcing and selection, manufacturing processes, delivery of the final product to the consumers, and end-of-life management of the product after its useful life (Srivastara, 2007). EMS will help a firm uncover ways to reduce environmental costs, increase productivity, and create organizational effectiveness and efficiency through coordinated environmental activities (Bansal & Bogner, 2002).

Research on organizations that have adopted the SOAR framework to OD has shown that appreciative strategy to develop partnerships increased dialogue between and among stakeholders (Holman *et al.*, 2007; Stavros & Saint, 2009; Sutherland & Stavros, 2003). SOAR applications have also been found to improve the design of tactical plans that address such complex issues as governmental regulations, environmental efficiency, and the use of sustainable manufacturing solutions (Hinrichs, 2007; Stavros & Hinrichs, 2007; Stavros & Sprangel, 2009). Taken together, we anticipated that perceptions of supplier performance would be high if CMS program managers and customers apply the elements of SOAR. We also anticipated that perceptions of trust and EMS would be high if CMS program managers and customers endorsed SOAR.

Hypothesis 1 (a–c): CMS manager use of the SOAR framework will predict increased perceptions of (a) supplier performance, (b) trust, and (c) EMS by program managers and customers.

The effect of trust and EMS on supplier performance

When supply chain members work with a collaborative approach to address unexpected issues and overcome risks, mutual benefits and rewards occur (Barratt, 2004; Johnston *et al.*, 2004). When the level of trust between supplier and customer is high, collaborative planning occurs, leading to increased supply chain performance (Petersen *et al.*, 2005). Supply chain performance increases when environmental concerns of the entire supply chain are established beyond internal operations (Darnall *et al.*, 2008). In the context of a CMS model, research has shown that supply chain organizations implement pro-environmental policies and programs. For example, organizations that implement EMS gain a competitive advantage by showing improved performance in cost reductions, manufacturing quality, lead times, waste reduction and environmental improvement (Bansal & Bogner, 2002; Gaughran *et al.*, 2007; Jorgensen *et al.*, 2006; MacDonald, 2005; Melnyk *et al.*, 2003; Roy & Vezina, 2001). Taken together, we anticipated that perceptions of supplier performance would be high if CMS program managers and customers endorsed trust and EMS. Given the stated role of trust and EMS in the CMS model, we also anticipated that these factors would be interrelated.

Hypothesis 2 (a, b): CMS manager perceptions of (a) trust and (b) EMS will predict increased perceptions of supplier performance by program managers and customers.

Hypothesis 3: Trust and EMS are positively related.

The mediating effects of trust and EMS

The impact of SOAR on supplier performance cannot be fully understood unless it is evaluated in the context of other associated factors, particularly trust and EMS. One role

that these associated factors can play is to mediate the mechanism through which SOAR elements influence supplier performance (Baron & Kenny, 1986). As mediational factors, trust and EMS would be hypothesized to improve the relationship between SOAR and supplier performance. Furthermore, evaluation of mediational effects is critical for providing information on training components (Frazier *et al.*, 2004). Thus, it was anticipated that trust and EMS mediate the relationship between SOAR and supplier performance.

Hypothesis 4 (a, b): Increased perceptions of supplier performance by CMS program managers and customers that use SOAR will be mediated by (a) trust and (b) EMS.

Method

While the most common approach to analyse case studies is the use of qualitative data, analysis can also be conducted using quantitative data (Duhl & Hak, 2008; Eisenhardt, 1989; Yin, 1981, 1984, 2009). Case studies focus on the dynamics of a single setting, such as the setting for this research – a single supplier in a small industry, like that of the Haas TCM Group in the CMS industry. When quantitative data are used in evaluating case studies, the researcher is provided with a methodology to help understand relationships between factors (Eisenhardt, 1989).

Research method

In this study, we present results of a research-based quantitative case study conducted at the Haas TCM Group, the largest CMS provider in North America. We predicted that supplier performance at the Haas TCM Group would be positively affected by utilization of the SOAR framework, trust and EMS. We also predicted that the effect of SOAR on supplier performance is likely to be moderated by trust and EMS. We discuss the potential for how the SOAR framework can predict improved CMS implementation. The research was approved by the Institutional Review Board at Lawrence Technological University.

Figure 3 presents our proposed model in which the hypothesized relations among the variables of SOAR, trust and EMS are presented. Subsequently, we hypothesize that by applying the elements of the SOAR framework in such a manner to engage a whole system dialogue, trust and EMS develop to positively affect supplier performance.

In this paper, we present the results of quantitative survey research exploring the role of SOAR, trust and EMS on supplier performance in a CMS program. Accordingly, we had respondents provide perceptions of supplier performance from the context of a SOAR framework that adopts sustainable development practices and reduces costs by building trusting relationships and decreasing negative environmental impact.

Research design

The present research used a survey consisting of 8 demographic items and 128 Likert-scale items scored on a 5-point scale (see Appendix). Likert-scale items measured four variables/constructs: *supplier performance*, *SOAR*, *trust*, and *EMS*. The survey was derived from two existing survey instruments: *Managing Trust in Supply Chain Relationships*, developed by Fawcett in 2007 (personal communication, 16 September 2008), and *Environmental Policy Tools and Firm-Level Management and Practices: An International Survey* (Darnall *et al.*, 2008). Whereas the former contributed items assessing supply chain trust, the latter provided items to assess EMS. Additionally, 16 original items were created to assess the inquiry, imagine, innovation and inspire phases of SOAR. The operational definition for each factor is as follows.

SOAR (16 survey items)

The SOAR elements include: (1) an internal capability is analysed; (2) an external capability assessment is conducted; (3) values, vision and mission are created; (4)

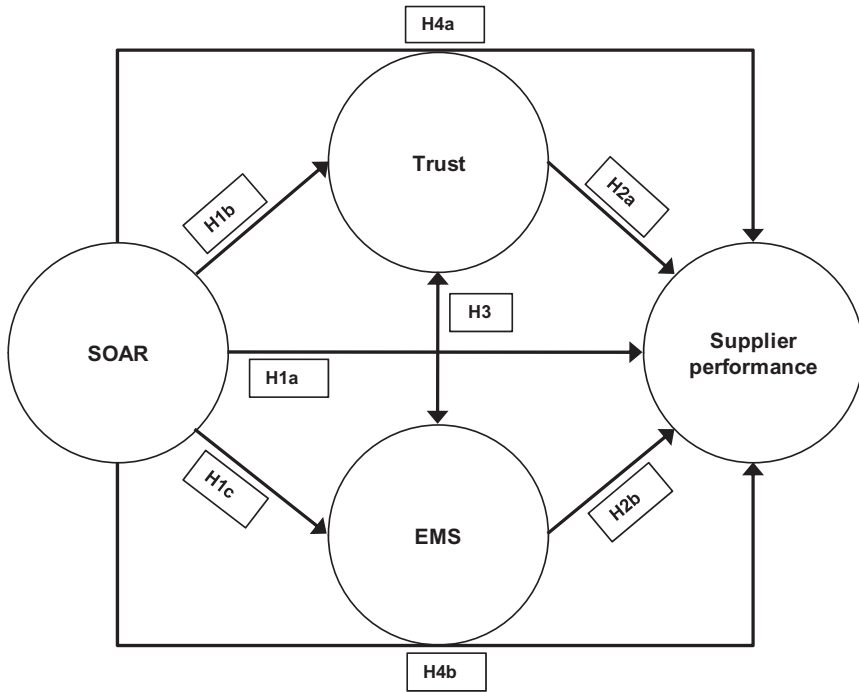


Figure 3: Hypothesized model.

innovations and potential outcomes are developed; (5) strategies and strategic initiatives are outlined; (6) tactical/functional plans and integrated programs are planned; (7) goals and objectives are established; and (8) the implementation and continuous improvement initiatives are implemented. The SOAR items were reviewed by the originator of the framework, who recommended no changes to the SOAR items (J. Stavros, personal communication, 6 November 2008). These items were also shared with two other scholars who have worked with the SOAR framework (D. Saint and K. Cox, personal communication, 16 February 2008).

Trust (83 survey items)

The factor of Trust was built from five dimensions of trust and an additional category referred to as Trust Begins at Home (Fawcett *et al.*, 2004): (1) Personal Dimension (14 survey items) – trust built between supplier and customer based on confidence that leads to a collaborative relationship; (2) Performance Dimension (19 survey items) – supply chain performances based on mutual dependence, congruent goals and shared knowledge of competencies; (3) Information-Sharing Dimension (17 survey items) – open communication of all information that affects the relationship’s competitiveness to include new product, market entry, technology plans, problems solving and bidirectional feedback; (4) Behavioral Dimension (16 survey items) – true sharing of risks and rewards between supplier and customer with investment in each other’s capabilities as valued team members; (5) Two-Worlds Dimension (11 survey items) – the impact of channel position and power on the relationship; and the additional category; and (6) Trust Begins at Home (6 survey items) – where firms embed trust attitudes in their everyday internal activities.

EMS activity (16 survey items)

According to research by Darnall *et al.* (2008), EMS activity is designed to: (1) help to prevent or control pollution; (2) improve efforts to achieve regulatory compliance;

Table 2: Reliability analysis (Cronbach's alpha) for survey variables

Participant group	SOAR	Trust	EMS	Supplier performance
# of items	16	83	16	13
All	0.918	0.909	0.898	0.752
Program managers	0.925	0.925	0.899	0.742
Customers	0.907	0.885	0.877	0.703

EMS = environmental management systems, SOAR = strengths, opportunities, aspirations and results.

(3) reduce the applicability of some regulations; (4) better identify future environmental liabilities; (5) improve relations with regulatory authorities; (6) lead to regulators' incentives becoming attractive; (7) allow for differentiation of customer products; (8) improve the facility profile/image; (9) create cost savings in terms of use of inputs; (10) create cost savings in terms of waste management; (11) improve information about facility operations; and (12) find that other facilities like this facility are adopting EMS. These survey items were pretested and validated by the OECD Environment Directorate and academic researchers (Darnall *et al.*, 2008).

Supplier performance (13 survey items)

According to research by Fawcett *et al.* (2004), supplier performance is measured by the supplier being able to: (1) reliably provide the customer with high-quality products; (2) offer the customer competitive prices on its products; (3) provide a low total cost on the products provided; (4) offer the customer industry-leading new product development time; (5) deliver products to support customer production sequences; (6) consistently deliver on promised due dates; (7) easily change order volumes; (8) use superior technical capabilities to help the customer compete; (9) share key technical information; (10) willingly work with the customer to design new products or redesign existing items; (11) frequently provide suggestions/identify opportunities to improve customer operations; (12) willingly expedite a rush order to help the customer meet unexpected challenges; and (13) willingly help the customer when the customer gets in a bind or has a competitive challenge.

Table 2 presents the results of reliability testing via Cronbach's Alpha test of internal consistency for the four study variables.

Alpha values for the four factors exceeded 0.75 across all participants, and exceeded 0.74 and 0.70 for program managers and customers, respectively. As Charter (2003) notes that alpha values are impacted by sample size, the relatively small sample for this study was considered. Taken together, reliability for the four factors was acceptable.

Sample

The study was drawn from participants who were program managers and customers in the Haas TCM Group, an organization with over 300 customer locations around the globe. Program managers at the Haas TCM Group are responsible for managing, implementing and improving their respective CMS programs at assigned customer locations. The program manager represents the CMS provider in a majority of the transactions occurring between the customer and the CMS provider.

A total of 71 participants voluntarily completed the survey and served as the sample for this study. The sample was randomly selected from among 46 program managers and 62 customers ($N = 108$) in the United States and Canada who were not specifically trained on the elements of SOAR but had a general understanding of its elements. The sample comprised 41 Haas TCM Group program managers (58

percent) and 30 customers (42 percent). Over 80 percent of the program managers and more than half of the customers were males. The mean age (SD) of the total sample was 43.5 (9.8), and was 41.2 (10.3) and 46.6 (8.4) for program managers and customers, respectively.

Data collection

This quantitative study used a self-report format with Internet software to collect the data, and SPSS software to analyse the data. Survey data were collected during the period of 18 February 2009 to 30 April 2009. Program managers and customers were provided with the same survey instrument, with only slight modification of wording to meet the respondent perspective. For example, item 11b for the program manager was worded 'We are willing to share all our information that might help our customer make better decisions', and item 11b for the customer was worded 'They willingly share all of their information that might help us make better decisions'. As defined by the Hass TCM Group, each primary customer contact for the program manager at each customer location was asked to complete the survey instrument.

Study participants were assured that their responses would remain anonymous and would only be seen by the authors of the study. The survey instrument contained an address response to pair customers with program managers. However, participant names were not tied to survey responses. The participants were a purposeful sample where all available program managers and their associated customers were selected to better understand the phenomenon of CMS program manager–customer relationships in the United States and Canada.

Analytic procedures

Hypothesis testing was carried out using correlation analysis, multiple linear regression, Pearson product–moment correlation and Sobel's test for mediation. For the Sobel test, confidence intervals were derived from 5000 bootstraps (Preacher & Hayes, 2008). The statistical analysis was carried out using the SPSS statistical computer package, Version 16, and a macro developed for SPSS (Hayes, 2008) was used for simple and multiple mediator analysis. The macro implemented the normal theory and bootstrap approaches for testing conditional indirect effects.

Data were analysed for two sample groups: CMS program managers ($n = 41$) and customers ($n = 30$). Descriptive statistics and reliability analysis utilized the combined population ($N = 71$) of these two groups in order to characterize the model among CMS stakeholders. Next, analyses used data from these two groups to provide specific information on the model among CMS managers and customers.

Results

A series of linear regressions were conducted to investigate Hypotheses 1a–c and 2a–b. As shown in Table 3, these hypotheses were supported by the corresponding linear regression. Specifically, perceptions of supplier performance by CMS program managers and customers are predicted by trust and EMS.

The correlation between the four study variables is presented in Table 4. This correlation matrix supports Hypothesis 3 – trust and EMS/CMS are positively related.

Hypothesis 4 is tested in the mediation analysis shown in Table 5. The path through which SOAR exerts a mediational effect on supplier performance, through trust, is significant, thereby supporting Hypothesis 4a. Similarly, the path through which SOAR exerts a mediational effect on supplier performance through EMS/CMS is also significant, thereby supporting Hypothesis 4b. Taken together, these results suggest that the mechanism through which SOAR influences supplier performance involves mediation by trust and EMS/CMS.

Table 3: Tests of Hypotheses 1a–c and 2a–b in all participants using linear regression

Hypothesis	Dependent variable	Independent variable	B	Std error	t	p
1a	Supplier performance	SOAR	0.261	0.083	3.13	0.003**
1b	Trust	SOAR	0.340	0.050	6.80	0.000**
1c	EMS/CMS	SOAR	0.432	0.097	4.44	0.000**
2a	Supplier performance	Trust	0.600	0.149	4.02	0.000**
2b	Supplier performance	EMS/CMS	0.350	0.087	4.01	0.000**

** Regression coefficient significant at $P < 0.01$ level.

CMS, chemical management services, EMS = environmental management systems, SOAR = strengths, opportunities, aspirations and results.

Table 4: Intercorrelation of study variables in all participants

Measure	Mean	SD	1	2	3	4
SOAR	3.59	0.58	–			
Trust	3.50	0.31	0.633**	–		
EMS/CMS	3.56	0.53	0.471**	0.312**	–	
SupPerf	4.01	0.43	0.353**	0.436**	0.435**	–

** Pearson product–moment correlation significant at $p < 0.01$.

CMS, chemical management services, EMS = environmental management systems, SOAR = strengths, opportunities, aspirations and results.

Table 5: Results of mediation analysis in all participants

Mediator	DV	IV	Effect	p	CI lower	CI upper
Trust	SupPerf	SOAR	0.166	0.016	0.046	0.316
EMS	SupPerf	SOAR	0.142	0.039	0.010	0.349

Note: Number of bootstrap resamples = 5000.

CI = 95% confidence interval, SupPerf = Supplier Performance, EMS = environmental management systems, SOAR = strengths, opportunities, aspirations and results.

Discussion

The primary goal of this study was to explore what a CMS program needs to better manage implementation activities to achieve high levels of CMS supplier performance as measured by perceptions of program manager and customer supplier performance. Two main findings prevailed. First, the results found that supplier performance was positively improved by the use of the SOAR framework. Second, the effect of SOAR on supplier performance was mediated by the dimensions of trust and EMS. Figure 3 demonstrated that our proposed model and the hypothesized relations among the variables SOAR, trust, and EMS positively affected supplier performance.

In testing Hypothesis 1a, results of the linear regression found a positive effect of supplier performance regressed on SOAR. Thus, the use of the SOAR framework by CMS managers predicts increased perceptions of supplier performance by program managers and customers. Hypothesis 1b was tested by regressing trust on SOAR. Results found that the use of the SOAR framework by CMS managers predicted increased perceptions of trust by both CMS managers and customers. Hypothesis 1c was supported by results of the linear regression of EMS regressed on SOAR. There-

fore, the use of the SOAR framework by CMS managers is predicted to increase the perception of EMS by both CMS managers and customers. Hypothesis 2a was supported because of the positive effect of supplier performance regressed on trust. Therefore, the endorsement of trust by CMS managers is predicted to increase perceptions of supplier performance by both CMS managers and customers. Hypothesis 2b was also supported because results of the linear regression result found a positive effect of supplier performance regressed on EMS. Thus, endorsement of EMS by CMS managers is predicted to increase perceptions of supplier performance by both CMS managers and customers. Additionally, the correlation between trust and EMS was significant ($r = 0.312$), supporting Hypothesis 3 and suggesting that these two variables are predicted to increase in concert with one another.

Results of mediation analysis help to address the mechanism by which SOAR can impact supplier performance. Specifically, Hypothesis 4 demonstrates that trust and EMS function as mediators through which SOAR has a positive effect on supplier performance. The role of trust as a mediator is further supported by the positive correlation between SOAR and trust ($r = 0.633$) and between trust and supplier performance ($r = 0.436$). Similarly, the positive correlation between SOAR and EMS ($r = 0.471$) and between EMS and supplier performance ($r = 0.435$) supports the role of EMS as a mediator.

The results of Pearson product-moment correlation and multiple linear regression, with bootstrap confidence intervals, found that SOAR has a positive effect on trust, EMS, and supplier performance; the effect of SOAR on supplier performance is mediated by trust and EMS. These results suggest that the use of SOAR, trust and EMS in a combined framework can be used to train suppliers to develop collaborative relationships through a shared dialogue with customers. Such training has the potential to lead to improved CMS supplier performance. This study validated the role of the SOAR framework, trust and EMS on the desired outcome of improved supplier performance for a CMS program.

This study supports the *revisioning* formulation of OD where the field is elevating from *diagnostic* practices to also include more dialogical frameworks and practices. The diagnostic practices might include classic OD action research, survey feedback, task-oriented training, and strengths, weaknesses, opportunities, and threats (SWOT) analysis. Others could include *dialogic* practices and patterns given the shifts and trends with new business models and expectations that integrate sustainability and whole system and strengths-based principles (Bushe & Marshak, 2009; Worley & Feyerherm, 2003). One of the OD practices that build from the traditional OD action research is AI (Cooperrider & Srivastva, 1987). AI is best defined as a philosophy and approach to organizational change that builds on strengths of a system (Cooperrider & Srivastva, 1987). AI has been called a more 'fluid' version of OD owing to its less rigid, nonmechanical approach to organizational change (Reed, 2007, p. 34). AI is foundational to the development of the SOAR framework.

SWOT analysis is traditionally employed at the senior management level as a diagnostic tool. In this study, SOAR can be applied to help the suppliers and customers create the best strategy that has the customer's needs in mind as well as the supplier from a dialogical approach. SOAR and SWOT have a both/and relationship because SOAR leverages the strengths and opportunities from SWOT as a foundation and then adds inspiration and results. 'Weaknesses and threats are not ignored in the SOAR framework. Instead, these elements are reframed and given the appropriate focus within the opportunities and results dialogue. Ultimately, it becomes a question of balance' (Stavros & Hinrichs, 2009, p. 13). Why not spend time in a conversation of what the supplier does best for the customer and how they can extend and elevate a service? How might the supplier and the customer create a world-class CMS chain?

SOAR is an example of a newer OD practice that builds on the premise that through shared dialogue on a system's strengths and opportunities can be used to shape a preferred future that allows for positive changes in strategies, structures, business models, systems, and so on. A dialogic OD process such as SOAR includes conversa-

tions on 'common aspirations and shared visions, making engagement in a change process more appealing' from multiple stakeholders and not a one-sided conversation (Bushe & Marshak, 2009, p. 7). Working from the SOAR framework allows the suppliers and customers to ask questions that focus our attention toward creating meaningful and hospitable conditions that invite two-sided conversations of what is best for the customer and how the supplier can deliver (Axelrod *et al.*, 2010).

The newer dialogic strengths-based OD models supports an environment of engaging conversations that 'challenge the guiding assumptions of culture, . . . raise fundamental questions, . . . foster reconsideration of that which is taken for granted and thereby furnishes new alternatives for social action' (Gergen, 1978, p. 1346). This supports the move from the traditional CMS model to the aligned service CMS model so that people can and will take action that puts environmental and social concerns on equal footing with profitability. This creates an alliance where the chemical supplier and the customer have the potential to effectively achieve sustainable value. In summary, dialogic OD frameworks and approaches allow for productive conversations, trust and collaboration, meaning making of a system, containers and processes to produce innovative ideas, and is concerned with 'developing more effective groups, organizations, and broader systems' (Bushe & Marshak, 2009, p. 12).

Potential limitations

First, participants for this study came from one organization, the Haas TCM Group, and future research would need to investigate if these results generalize to other CMS providers in the United States and Canada. A second limitation concerns the questionnaire and assessment of the tool's psychometric properties. We developed the items that assessed SOAR, and future research should investigate the reliability of the questionnaire in multiple samples from multiple industry segments where CMS is provided. Future research could also look at an explanatory mixed-method design that adds a qualitative phase using either ethnographic or narrative research to further explain the quantitative results of the self-report data. The third concerns the regressions that were conducted, which analysed the impact of SOAR on trust, SOAR on EMS, and SOAR on supplier performance, where trust, EMS, and supplier performance were regressed on SOAR. Additional constructs and regressions may generate additional insight on the impact of these variables on supplier performance.

Future research direction

While this model predicted a positive impact on supplier performance through the mediational effects of trust and EMS, future research should investigate whether there are bidirectional relationships between these variables (e.g. SOAR regressed on trust). Finally, this study was cross-sectional in nature, looking at participants' responses from one moment in time. Future research could investigate the longitudinal effects of SOAR, trust, and EMS on supplier performance at the Haas TCM Group and other CMS providers to provide explanatory mechanisms for behavior change over time.

Conclusion

As seen from these results, the proposed model shown in Figure 3 of this study presents what appears to be a viable dialogical OD approach with a strengths-based whole system framework for organizations looking to better manage strategic, tactical and implementation activities to achieve high levels of supplier performance. An issue of concern with this study is that these results are based on perceptions of manager and customer behavior rather than actual behavior. The reported relationships would need to be investigated in a subsequent study using measures of program managers' and customers' actual behavior through the application of the SOAR framework.

Nevertheless, the results predict improved trust and EMS when SOAR is adopted by CMS managers and customers, and improved supplier performance when SOAR, trust, and EMS are endorsed by CMS managers.

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Appendix

The Role of Trust, EMS/CMS, and SOAR in Chemical Management Services Supplier Performance – Customer Version

1. Your primary site classification (place an 'x' in appropriate response):
 a. Automotive b. Automotive supplier c. Heavy equipment
 d. Aerospace e. Electronics f. Air transport g. Energy/Utilities
 h. Steel manufacturer i. Other Manufacturing j. Food/Beverage
 k. Research/Laboratory l. Government m. Other (specify)

2. The size (# of employees) for your total company (place an 'x' in appropriate response):
 a. 0–50 b. 51–100 c. 101–500 d. 501–1,000 e. 1,001–10,000
 f. More than 10,000
3. The size (# of employees) at your company location (place an 'x' in appropriate response):
 a. 0–50 b. 51–100 c. 101–500 d. 501–1,000 e. 1,001–10,000
 f. More than 10,000
4. How many full years have you had your current onsite CMS manager? _____
5. How many full years has your site had a formal CMS program? _____
6. What is your age in years? _____
7. What is your gender? a. Male b. Female
8. Your company site is located in the country of (place an 'x' in appropriate response):
 a. United States b. Canada c. Mexico d. Argentina e. Brazil
 f. Ireland g. UK h. France i. Netherlands j. Poland
 k. Romania l. Israel m. China n. Other (specify)

For the remainder of the survey, rate each item on a 5-point scale, from 1 (strongly disagree) to 5 (strongly agree): 1 = strong disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

9. How would you characterize supplier performance for the CMS program at your company location? (enter a number from 1–5 before each item)
- __ a. They reliably provide us with high-quality products
 - __ b. They offer competitive prices for their products
 - __ c. They provide total low cost on the products supplied to our customer site where 'total low cost' means that our company receives the lowest cost when you consider inventory, delivery, price of product, etc.
 - __ d. They offer industry-leading new products
 - __ e. They are able to test industry-leading new products at our company site
 - __ f. They consistently deliver on promised due dates
 - __ g. They are able to easily change order volumes
 - __ h. They use superior technical capabilities to help them compete
 - __ i. They are willing to share key technical information
 - __ j. They are willing to work with us to design new products/ processes or redesign existing ones
 - __ k. They frequently provide suggestions/identify opportunities to improve our operations
 - __ l. They are willing and able to expedite a rush order to help us meet unexpected demand
 - __ m. They are willing to help us when we get in a bind or have a competitive challenge
10. Indicate your level of agreement with these statements regarding your CMS supplier strategy: (enter a number from 1–5 before each item)
- __ a. Leverage (power) is critical to us to obtain the lowest possible prices on products from our CMS supplier
 - __ b. Leverage (power) is critical to us to obtain the lowest possible prices on services from our CMS supplier
 - __ c. When possible, we use a position of power to obtain favorable terms and conditions
 - __ d. We believe that trust-based supplier relationships lead to our improved competitive performance
 - __ e. Our buying power allows us to delay CMS supplier payment to improve our cash flow
 - __ f. Our market strength allows us to dictate the nature of our relationship
 - __ g. We see trust as that which is right for the health of our long-term CMS supplier relationship
 - __ h. We see trust-based relationships leading to higher levels of collaboration
 - __ i. We trust our CMS supplier to do what is right for the health of our long-term relationship
 - __ j. Establishing trust with our CMS supplier is an important part of our competitive strategy
 - __ k. Our power allows us to demand year-to-year CMS supplier performance improvements
 - __ l. We aggressively employ reverse auctions to obtain lower CMS product prices
 - __ m. We aggressively employ reverse auctions to obtain lower CMS service prices
11. Indicate your level of agreement with the following statements regarding Haas TCM Group CMS supplier philosophy: (enter a number from 1–5 before each item)
- __ a. They always deliver on promises made to our site (e.g., on-time delivery, order quantities)
 - __ b. They willing share all their information that might help us make better decisions
 - __ c. In negotiations, they only make promises they are prepared and intend to keep
 - __ d. They always share profits gained through collaborative efforts with us
 - __ e. They change onsite managers frequently to keep them from developing close customer relationships
 - __ f. They willingly share detailed cost information with us
 - __ g. Their culture encourages onsite managers to treat us with fairness and success
 - __ h. We willing provide them long-term production forecasts
 - __ i. We require our CMS supplier to make initial investments alone on risky ventures
 - __ j. They proactively work with us in planning and problem solving
 - __ k. They follow through on all commitments to our us
 - __ l. Their onsite manager *training* emphasizes treating us fairly (e.g. provides them tools to do so)
 - __ m. We are asked to provide frequent feedback on their onsite manager behavior
 - __ n. When possible, they shift risk to us (e.g. inventory)
 - __ o. They proactively share their future technology and market entry plans with us
 - __ p. When making decisions, they explicitly

evaluate the impact on our well being __ q. They do not make demands they feel will adversely impact us __ r. Sometimes the information they give us can be misleading __ s. Fairness and integrity accurately characterizes their dealings with us __ t. Out of concern for our welfare, they occasionally agree to provide products at a lower price __ u. Out of concern for our welfare, they occasionally agree to provide services at a lower price __ v. Their success depends directly on the success and financial health of us __ w. They are always perfectly honest and truthful with us __ x. They do not use any of our proprietary information to our disadvantage __ y. They offer technical training/education to us to help improve our performance __ z. They integrate our personnel into new product and other value-added teams __ aa. They actively share their resources with us to help improve our capabilities

12. Indicate your level of agreement with the following statements regarding your organization: (enter a number from 1–5 before each item)
- __ a. We follow through on all commitments we make to our CMS supplier
 - __ b. We willingly share detailed cost information with our CMS supplier
 - __ c. We willingly bear the majority of risk in any new ventures related to our CMS supplier
 - __ d. We trust our CMS provider
 - __ e. We are capable of meeting the CMS supplier needs now and in the foreseeable future
 - __ f. We willingly share all information that might help our CMS supplier make better decisions
 - __ g. We willingly shares long-term forecasts with our CMS supplier
 - __ h. We consistently perform to our CMS supplier's specifications
 - __ i. If the CMS supplier relationship was terminated with us it would not hurt us financially
 - __ j. We proactively share our technology and market entry plans with our CMS supplier
 - __ k. Out of concern for our CMS supplier's welfare, we occasionally agree to pay higher prices for products
 - __ l. Out of concern for our CMS supplier's welfare, we occasionally agree to pay higher prices for services
 - __ m. We do not make demands that will adversely impact our CMS supplier
 - __ n. Replacing our CMS supplier services would require a lot of effort for us
 - __ o. We know we can count on our CMS supplier to make decisions that will benefit us
 - __ p. We treat our CMS supplier company personnel with respect
 - __ q. We do not have a good alternative to replace our CMS supplier
 - __ r. To encourage close relationships we do not rotate our CMS program personnel
 - __ s. We regard CMS success as directly dependant on our CMS supplier's success
 - __ t. We pass along cost savings gained through collaboration with our CMS provider
 - __ u. We could easily find another CMS supplier if they stopped supplying services to us
13. Indicate your agreement with these statements regarding your CMS supplier's relationship with you: (enter a number from 1–5 before each item)
- __ a. It would be relatively easy for us to find another CMS supplier
 - __ b. We proactively work with our CMS supplier in planning and problem solving
 - __ c. We share resources with our CMS supplier in planning and problem solving
 - __ d. Fairness and integrity accurately characterizes our dealings with our CMS supplier
 - __ e. Our CMS supplier would not use proprietary information to our disadvantage
 - __ f. If our CMS supplier's relationship with us was terminated, it would hurt them financially
 - __ g. We are always perfectly honest and truthful with our CMS supplier
 - __ h. Sometimes the information we give our CMS supplier can be misleading
 - __ i. We would not have a good alternative CMS supplier
 - __ j. Our customer has integrated us into product and other value-added teams
 - __ k. We rarely give our CMS supplier suggestions for improvement
 - __ l. We invest equally in our relationship with our CMS supplier
 - __ m. Establishing trust with us is important to our CMS supplier
 - __ n. Our CMS supplier can count on us to make decisions that will benefit them

- __ o. Our CMS supplier trusts us __ p. Our CMS supplier is asked to provide frequent feedback on our personnel performance with the CMS supplier
 __ q. Our CMS supplier actively works with us to share risk equally
14. Please assess the importance of the following motivations for you implementing CMS at your site: (enter a number from 1–5 before each item)
 __ a. It may help to prevent or control pollution __ b. It may improve efforts to achieve regulatory compliance __ c. It may reduce the applicability of some regulations __ d. It may better identify future environmental liabilities __ e. It may improve relations with regulatory authorities __ f. Regulators' incentives made it attractive __ g. It may allow for differentiation of your products __ h. It may improve the facility profile/image __ i. It may create cost savings in terms of use of inputs __ j. It may create cost savings in terms of waste management __ k. It may improve information about facility operations __ l. Other facilities like this facility in your company are adopting CMS __ m. Other facilities like this facility in your competitor organizations are adopting CMS
15. Your facility experienced a positive change (reduction) in the environmental impacts per unit of output of its products or production processes since the implementation of CMS with respect to the following: (enter a number from 1–5 before each item)
 __ a. Use of natural resources (e.g. energy, water, etc.) __ b. Solid waste generation __ c. Wastewater effluent __ d. Local or regional air pollution __ e. Global pollutants (e.g. greenhouse gases) __ f. Aesthetic effects (e.g. noise, smell, etc.) __ g. Soil contamination __ h. Risk of severe accidents
16. Please assess the approach used to implement CMS at your site: (enter a number from 1–5 before each item)
 __ a. An ongoing CMS team is established that includes representatives of areas impacted by CMS program to manage improvement activities (e.g. accounting, CMS provider, engineering, EH&S, facilities, finance, manufacturing, materials, purchasing, and waste management) __ b. A CMS program vision was co-created by the CMS team to define what the program should be __ c. A set of values were co-created by the CMS team for them to live by __ d. A CMS mission was co-created to determine what the team would work toward __ e. The CMS team conducts at least an annual internal assessment of the CMS program strengths __ f. The CMS team conducts at least a quarterly review of the CMS program strengths __ g. The CMS team conducts at least an annual external analysis of opportunities outside the CMS supplier/customer to improve the CMS program __ h. The CMS team conducts at least a quarterly review of the external analysis results __ i. The CMS team has developed long-term objectives __ j. The CMS team has developed strategic alternatives and recommendations for improving the CMS program __ k. The CMS team has developed short-term objectives for the CMS program __ l. The CMS team has developed tactical/functional plans for the CMS program __ m. The customer has CMS cost metrics in place that effectively track cost reduction improvements __ n. The customer has CMS performance metrics in place that effectively track environmental impact reduction improvements __ o. The CMS team proactively plans and implements cost reduction initiatives __ p. The CMS team proactively plans and implements environmental impact reduction initiatives