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Inertia and change related to sustainability – An institutional approach

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ABSTRACT

Despite increased awareness of environmental crisis and social inequity the world is becoming more, not less, unsustainable. Obviously there is great inertia, a disinclination to enact change, in for instance environmentally detrimental practices. While there is much in the literature to explain inertia at the individual, organizational and societal level, there is a gap concerning approaches that focus upon the industrial level. This paper addresses this gap by developing an analytical approach based upon institutional theory brought together with the ontological principles of strong sustainability. Two interrelated case studies, concerning greenhouse gas reduction in the Swedish agrifield, are used to develop the approach. The empirical results show that greenhouse gas reduction is used in support for convergent changes within the industry, for instance to motivate increased efficiency and yields. Hence, the paper contributes to the sustainable development-literature by providing an analytical approach that can be utilized to increase the understanding of change processes at the industrial level. This approach is then discussed and further developed to accommodate for the case results.

1. Introduction

Despite increased awareness of environmental degradation and increased inequity, the world is becoming more, not less, unsustainable. One example of this unfortunate unfolding is the failure to decrease global greenhouse gas (GHG) emissions. The potential for fulfilling the needs, both of the poor and future generations, is being reduced as climate change introduces tremendous and unmanageable effects on ecosystems (Rosenzweig et al., 2008; IPCC, 2013). Today, scientific consensus maintains that climate change is occurring, and that it is attributed to anthropogenic emissions of GHGs (IPCC, 2013; Oreskes, 2004; Rosenzweig et al., 2008).

Subsequently, climate change exemplifies the increasing gap between existing unsustainable activities and the changes science tells us are necessary (UNEP, 2013; Allen et al., 2009; Meinshausen et al., 2009). Obviously there is great inertia, a disinclination to enact necessary change, in unsustainable activities (e.g., Wittneben et al., 2012). While there is much in the literature to explain inertia at the individual level (e.g., Kollmuss and Agyeman, 2002; Padel and Foster, 2005), at the organizational level (e.g., Pataki, 2009; Post and Altman, 1994) or at the societal level (Daly, 2013; Hopwood et al., 2005; Mol and Sonnenfeld, 2000), explanations that focus on the industrial level are lacking. For instance, some explanations of climate change inertia view it as a "tragedy of the commons" (Dietz et al., 2003; Pfeiffer and Nowak, 2006). Here, game theory has been used to model the outcomes of individual decision making aggregated into larger patterns (Perc and Szolnoki, 2010). However, this theoretical perspective is difficult to apply at the industry-level because the occurrence of multi-point interactions in industries drastically increases model complexity. The lack of approaches that can offer industry-level explanations is troublesome as there are patterns of industrial activities that have a large effect upon sustainability. For instance, life-stock farming (Deckers, 2010), air travel (Buhr, 2012) and energy production result in substantial GHG emissions and, if they were transformed, important reductions could be the result. Moreover, due to continuous setbacks in the UNFCCC process, it seems that global agreements alone cannot drive necessary change. Hence, as endogenous change is needed at the industrial level, it is essential to theorize the mechanisms that generate inertia, but also change, here.

Although there are many potential starting points for developing industry-level explanations, institutional theory could be particularly useful (Hoffman, 1999; Wittneben et al., 2012). This is

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because, unlike much business theory, it is not based upon neo-classical assumptions, that industrial producers are monolithic, economically rational actors, but include collectively held ideas, values and beliefs in the analysis (Wittneben et al., 2012). Hence, social structures within industries, ontologically different from the aggregation of individual behavior, are assumed. The social structures recognized by institutional theory are of particular importance given the role that value-laden debate and discursive struggle play regarding climate change (Levy and Scully, 2007; Wade-Benzoni et al., 2002). Subsequently, institutional theorists view production activities as not only widespread but also meaningful to the producers within an industry. Drawing on Lounsbury and Crumley (2007: 995) "activity patterns across actors that are infused with broader meaning" are defined as *practices*. Within its industry, practice is generally considered as legitimate although outsiders may question it (Maguire and Hardy, 2009).

However, as institutional theory's main strength lies in explaining the diffusion of organizational practices (e.g., Greenwood et al., 2002; Munir and Phillips, 2005) rather than change processes linked to sustainability, adaption of the theoretical concepts is needed to increase the understanding of industry-level inertia and change. Subsequently, the purpose with this paper is to develop an institutional approach to increase the understanding of industry inertia, as well as change, related to sustainability.

The paper develops this approach through combining elements from the sustainability literature with institutional theory, resulting in an analytical frame. This frame is then illustrated and further developed through two case studies. The cases consist of industry change initiatives, i.e. formal projects set up to suggest measures and strategies to translate some sustainability issue into industry action. Change initiatives were chosen as cases because they exemplify how sustainability is currently addressed within an industry. Empirical material relevant to explain inertia and change should be more noticeable within them than in processes that are unrelated to sustainability issues. The paper contributes to the Sustainable Development field in the following three ways: First, it develops and examines a conceptual approach suggesting theoretical mechanisms explaining sustainability-related inertia and change at the industry-level. This conceptual approach can be applied in other industries and with other issues. Second, it shows how the understanding of industrial inertia and change can be increased by the analysis of change initiatives. Third, it shows how the principles of strong sustainability can be combined with institutional theory in the analysis of change.

2. Theoretical framework

Since the popular introduction through the Brundtland-report (WCED, 1987), Sustainable Development and sustainability have become widely diffused concepts both in practice and research. Associated social science has formed itself into a field involving e.g., organizational scholars (e.g., Orsato and Clegg, 2005; Pataki, 2009; Welford, 2013) as well as other disciplines (e.g., Carvalho, 2001; York and Rosa, 2003). Given its nature as a compromise between interests of continued growth and reduced environmental degradation, sustainable development has generated many different ideas regarding what constitutes a sustainable society (Hopwood et al., 2005). A common demarcation line is that between paradigms of weak (WS) and strong sustainability (SS) (Devkota, 2005; Gladwin et al., 1995). Containing different ontological positions as well as normative inclinations, these paradigms imply very different versions of inertia and change (Heikkurinen and Bonnedahl, 2013).

2.1. Weak and strong sustainability

WS holds that sustainability is achievable within market economy and capitalism, through economic growth. Needed are reforms that de-couple growth from environmental consequences, e.g., eco-efficiency, eco-innovations and green consumerism (Kallio et al., 2007). New technologies, facilitated through entrepreneurship and investments, will decrease environmental impacts alternatively increase the resilience of societies, avoiding catastrophes. WS mainly trusts market actors to act on the business case for sustainability but is somewhat compatible with the idea of policy steering investments towards green growth. In relation to organizational strategy and practice, WS sees change through a win–win frame (Kolk and Pinkse, 2004), ignoring the mass of vested interests, e.g., big coal/oil/gas, that are locked into unsustainable business models (Levy and Egan, 2003). Rather than radical changes in industrial practices, e.g., abandoning GHG–intense production, WS implies reform, working with industry to increase eco-efficiency and facilitate "green" innovation. More radical change is seen as unrealistic (cf. Orsato and Clegg, 2005).

SS, in turn, argues that the current economic system is incompatible with finite ecological boundaries (York and Rosa, 2003; Næss and Høyer, 2009). The growth imperative, inherent to the capitalist system (Spangenberg, 2010; van Griethuysen, 2010), is viewed as continuously offsetting any relative improvements through rebound effects (Sanne, 2001). Capital freed through cost reducing eco-efficiency improvements is re-invested thereby accelerating resource exploitation and waste production. Moreover, countries put forth as role models of eco-modernization also carry the largest ecological footprint because of their consumption (WWF, 2012). Thus there is little empirical support for the claims of a dematerialization of growth (York and Rosa, 2003). SS instead advocates transformative changes, for instance the move to a steady state economy or reducing the scale of the economy (Daly, 2005; Devkota, 2005). At the core lies the rejection of the interchangeability between natural and man-made capital, which separates it from WS (e.g., Costanza and Daly, 1992; Kallio et al., 2007). This rejection means that depleting natural capital cannot be compensated by increased growth in man-made capital. Rejection could either be based upon eco-centrism, i.e., that nature has an inherent value (Naess, 1973), or the anthropocentric concern that humans cannot do without critical eco-system services (Ekins et al., 2003). Hence, SS assumes that natural and man-made capitals are complements. The loss of fish or trees cannot be replaced by more fishing nets or chain saws, and the eco-system services provided by natural capital, e.g., a non-toxic atmosphere, cannot be provided by man-made technology (Costanza and Daly, 1992). Moreover, Daly argues that in today's "full" economy; natural capital has become the limiting factor (2005). From this follows that putting a price on eco-system services and allocating them through markets cannot be the only solution, since natural capital must be kept at a certain level. Because the mere scale of economic activities, and their growth, is what causes decline in natural capital, this scale needs to be limited too (Costanza et al., 1997; Daly, 1990).

The two paradigms result in two different interpretations of inertia and change (see Table 1): WS prescribes change in the shape of reforms, whilst inertia e.g., consists of lack of appropriate technology, industry cost-structures, weak knowledge transfer or lack of investment funds that could support such efforts. However, WS's principle outlook is positive, believing that inertia can be overcome. Much focus is devoted towards describing and debating technological solutions and their benefits (Kallio et al., 2007; Hopwood et al., 2005). SS, on the other hand, sees reform as insufficient because fundamental principles of market economy, e.g., economic growth, counteract positive reforms (Spangenberg, 2010). At the

Table 1
Perspectives upon inertia and change.

	Weak sustainability	Strong sustainability
Guiding assumption	Natural and man-made capital are interchangeable; resilience within both eco- and social systems is strong.	Natural and man-made capital are complements; resilience within both eco- and social systems is weak (tipping points).
Causes for industrial inertia	Lack of technology, weak knowledge transfer, market incentives	Principles of the economic system strengthen vested interests.
Proposed industrial change	Reform: Eco-efficiency and eco-innovations, compatible with industry-level goals	Radical: Reduction of detrimental practices, radical eco-innovations, need for new industry-level goals

industry level such principles systematically reinforces detrimental practices (they are more profitable) and thereby strong vested interests are maintained with little to gain from radical changes. As reduction of economic activity is needed (Kallis, 2011), a good starting point is to abandon environmentally detrimental practices. Creative destruction through eco-innovations could bring about such abandonment, there are overlaps between the paradigms, but eco-innovation needs to be defined broader than within the WS-literature (e.g., Dean and McMullen, 2007).

This paper positions itself within the SS paradigm, by arguing, still based upon an anthropocentric ontology, that awareness of tipping points and the limits to technology, call for the preservation of critical ecosystem services (Ekins et al., 2003). Technology cannot replace climate regulation and tipping points will aggravate resilience, particularly for the world's poor. This positioning has the following implication for inertia and change related to industrial practice: First, mainstream market discourse and beliefs that permeate industry-level goal setting conflict with the principles of strong sustainability. This makes industry-level goals (e.g., growth and competitiveness) hard to combine with these principles, second, detrimental practices should be reduced or abandoned to reduce scale, and it is more effective to abandon practices that are GHG-intensive.

2.2. Institutional theory

Originally introduced as an alternative to theories assuming that organizations are independently rational actors (e.g., DiMaggio and Powell, 1983; Meyer and Rowan, 1977), institutional theory has become a well-established organizational theory, rich with concepts and models to explain the influence of institutions upon organizations (Greenwood et al., 2008). While the first wave of contributions aimed to establish and describe this effect of institutions, i.e. observed stabilities and similarities among organizations, later work has attempted to theorize institutional change (Dacin et al., 2002). Among the latter contributions, three concepts particularly central for the analysis in this paper, are found: *practice* (Lounsbury and Crumley, 2007), *institutional logics* (cf. P. Thornton and Ocasio, 2008) and *institutional entrepreneurship* (Garud et al., 2007).

2.2.1. Practice

Institutional theorists generally emphasize two aspects of practice: that it is meaningful to the concerned actors (Zilber, 2006) and that it is wide-spread (Lounsbury and Crumley, 2007). Moreover, practices are made up of activities e.g., pounding a nail, which denote smaller building blocks, devoid of meaning. When combined into practices, such as fertilizing, cattle feeding, grazing or cultivating fields, within a context, they become meaningful to producers and other actors. Subsequently there are shared arguments and terminology corroborating a particular practice. The more diffused a practice, and its meanings, are within a context, the more institutionalized that practice has become (Lawrence et al., 2002). A practice then has endurance, and is maintained even if the actors performing it change (Jepperson, 1991). For instance, practices are reproduced as new actors are socialized into an industry through education (Scott, 2003). Challenges to practice, e.g., introduced innovations, is generally met with different forms of social sanctions, e.g., ridicule or questioning (Aldrich and Fiol, 1994; Hargadon and Douglas, 2001). Moreover, if practice is questioned by actors outside an industry, e.g., because of its environmental effects, industrial actors will typically try to defend it (Maguire and Hardy, 2009). For instance, recent Swedish debate regarding the GHG emissions of life-stock farming has generated many counter-claims regarding its importance for preserving biodiversity, feeding the global population, health reasons etc.

Viewing practice as institutionalized has the analytical implication that the shared ideas and arguments corroborating practice, that “makes it robust”, are relevant to examine (Smets et al., 2012: 880). Given the importance of such ideas for preserving the endurance of practice, change can come through shifts radically altering the meaning of practice (Maguire and Hardy, 2009; Zilber, 2002, 2006). Many of the debates associated with sustainability imply, or attempt, at radical re-evaluations of the meaning of industrial practices. For instance, before wide-spread awareness of climate change and GHG emissions from ruminant cattle, life stock had quite a different meaning both to farmers and consumers.

2.2.2. Institutional logics

Institutional theory views arguments and ideas underpinning practices as derived from institutional logics prevailing in industry. The literature defines institutional logics in two broad ways revealing different opinions of analytical level (Thornton and Occasio, 2008; Greenwood et al., 2011). Friedland and Alford (1991) originally introduced institutional logics to define macro-structures, e.g., family, religion, the market economy, within society. However, later scholars have instead suggested that institutional logics are specific to organizational fields (Greenwood and Suddaby, 2006; Thornton and Ocasio, 1999, 2008). Logics include for instance prescriptions regarding what actors that belong to a particular profession (Greenwood et al., 2002) or to an industry (Greenwood and Suddaby, 2006). This paper positions itself closer to the latter camp, although institutional logics should not be seen as completely independent of broader societal influences and ideas. The sustainability agenda in many industries may for instance be influenced by ideas within the WS-paradigm: of eco-efficiency and eco-innovations (Bocken et al., 2014).

Following Battilana, Boxenbaum and Leca (2009: 69) institutional logics are defined as the shared belief among industry actors regarding “the goals to be pursued and how to pursue them”. This definition serves the analytical purposes of this paper by assuming that an important aspect of the meaning of practices is that they are framed as means to achieve shared goals. Typical industrial goals include increased competiveness, market growth and profitability, but in a specific industry such generic goals will have their particular discursive form.

Recent theoretical developments have concluded that industries often contain several, competing, institutional logics, although one

will typically dominate (Reay and Hinings, 2009). For instance, the agri-food industry, in Sweden and other developed countries, is characterized by the coexistence of conventional farmers and organic farmers, performing different practices and formulating different goals (Boström and Klintman, 2006; Klintman and Boström, 2004). Conventional farmers follow an industrial model: rely on chemical inputs, specialization, pursuit of efficiency and scale. Organic farmers, on the other hand, attempt to mimic nature's way of producing, rely on renewable or recycled inputs, small scale, integration and multi-functionality (Michelsen, 2009). In relation to the different logics, practice is prescribed different meaning. A conventional farmer may criticize the low output of organic production, while an organic farmer may view synthetic fertilizers and pesticides as environmentally detrimental.

According to institutional theory, prevailing institutional logics explain the stability and homogeneity that exist among producers in an industry (Battilana et al., 2009). However, new concerns, such as knowledge regarding sustainability issues, may problematize the ideas within the prevailing logic (Maguire and Hardy, 2009). New ideas and beliefs, spurred by a new issue, are here conceptualized as an *emerging logic*. Such logic is characterized by a new goal, here GHG-reduction, and ideas of more or less radical practice changes to address that goal (Stål, 2011).

2.2.3. Institutional entrepreneurship

Following the adopted positioning within the SS-paradigm, emerging practice changes need to be radical. According to institutional theory, this equals institutional entrepreneurship, the activities of mobilizing resources to promote divergent change (Battilana et al., 2009). Divergent change breaks with the prevailing logics, this is here operationalized as 1) establishing GHG-reduction as a prioritized industrial goal, recognized by industrial producers, and 2) promoting radical change in prevailing practices (Stål et al., 2014). Convergent change, instead, denote changes that are in-line with the prevailing goals. This, for instance includes striving for efficiency, resulting in specialization and use of chemical and synthetic inputs, to purse industrial growth and competiveness. Without new goals, that challenge and break with existing means, inertia is likely to prevail in this industry, as well as in others.

Since institutional entrepreneurs: actors that invest effort into pursuing divergent change (Battilana et al., 2009), are subject to the same prevailing institutional logics that constrain other actors in the industry, particular enabling conditions are needed to precipitate them to act (Greenwood and Suddaby, 2006; Seo and Creed, 2002). Institutionalists have just started to explore the conditions affecting actors that are central to industry networks and power structures. Influences across industry boundaries, for instance political pressure, could, by making central actors aware of, open and motivated to pursue divergent alternatives, constitute an enabling mechanism (Greenwood and Suddaby, 2006). Previous literature has instead explored fringe actors, such as social movements or entrepreneurs (Garud et al., 2007; Leblebici et al., 1991). The problem with fringe actors are that they have less influence within their industries and therefore a harder time affecting prevailing logics. Central actors, such as regulatory agencies or leading producers, have both normative and coercive influence and participate in channels for industry debate that shape prevailing beliefs and ideas (Greenwood and Suddaby, 2006; Stål et al., 2014).

2.3. Analytical frame

The review of the institutional concepts results in an analytical frame illustrated and developed through two case studies (see Fig. 1). The frame focuses on change initiatives, aiming towards a given sustainability goal. Initiatives are conceptualized as potential institutional entrepreneurship that may develop into an attempt at divergent change. When change initiatives gain influence they generate an emergent logic, i.e., ideas of new means and ends, that diffuse among organizations within industry (Jennings and Zandbergen, 1995). This emerging logic could challenge and replace prevailing logics, establishing practices and goals that are consistent with the principles of strong sustainability. For this to happen, the emergent logic must first aim toward divergent change, and second, succeed in establishing itself as an alternative to prevailing practices and goals. Subsequently, it must first be determined whether the change initiative is, in fact, an example of attempted divergent change. This content needs to be determined through analysis of change suggestions. Because change initiatives are embedded by prevailing logics, e.g., informing pre-determined goals or available frames (shown by curved arrow pointing left in Fig. 1), particular enabling conditions are needed to disconnect this constraint. Influences from other societal spheres, e.g., political or scientific pressure, could exemplify such conditions. Hence, a lack of divergent change initiatives depend on lack of enabling conditions, whereas a lack of success in establishing itself as an alternative to prevailing logics, depends upon a lack of influence.

3. Methods

Below the choices made, in terms of research setting and cases and methods for data collection and analysis, are presented. The particular purpose of this section is to provide transparency, an important quality criteria in qualitative research.

3.1. Research setting

Like many industries, agri-food has seen an increase in change initiatives addressing GHG emissions (Audsley and Wilkinson, 2014; Bonnedahl and Eriksson, 2011). However, most agri-food change initiatives strive to increase the intensity of production, fertilizer usage etcetera, particularly in Africa (www.gatesfoundation.org). However in ecologically modernized countries such as Sweden (Mol and Sonnenfeld, 2000), a different mix of change ideas, e.g., of organic, multi-functional or small scale production, exist alongside conventional approaches (Klintman and Boström, 2004; Milestad et al., 2008). Sweden is, for instance, within the global top when it comes to organic production (KRAV, 2013) and has come relatively far in linking EU CAP supports to environmental performance. This diversity of ideas and approaches makes Sweden a promising empirical setting for exploring change and inertia at the industrial level.

3.2. Case studies

This study utilizes a case study-methodology to illustrate and develop the proposed frame. Case studies are useful for such exploratory purposes, where the aim is to develop rather than to test a frame's validity (Eisenhardt and Graebner, 2007). The main criteria used to select cases was that they should be examples of industry change initiatives, i.e., a formal project set up to suggest measures and strategies to reduce GHG emissions within agri-food, thus exemplifying how GHG reduction was being explicitly addressed within industry. Arguably, empirical material relevant to explain inertia and change should be more noticeable within a change initiative, than in processes that are less explicitly related. Moreover, in order to be theoretically relevant, a change initiative had to constitute an example of potential institutional entrepreneurship, i.e., aim at divergent change and contain strategies for implementation (Battilana et al., 2009). Therefore change initiatives had to go beyond mapping out emission sources, (cf. Swedish

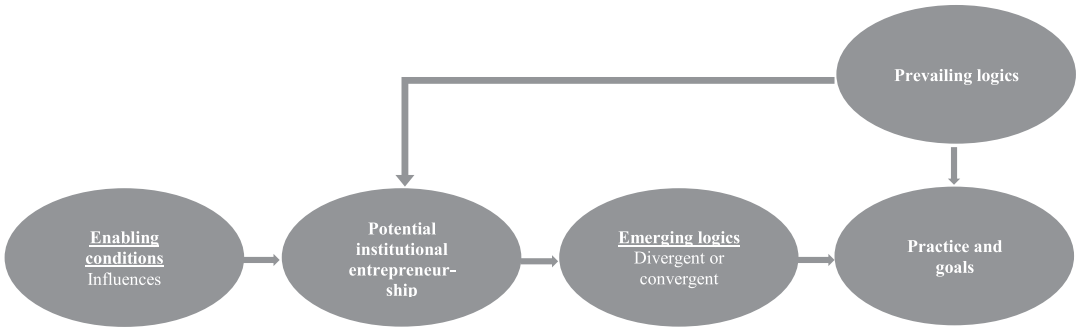

Fig. 1. Analytical approach.

Board of Agriculture (2008)) and arrive at some form of change suggestions that could potentially be divergent.

Through a review of industry media, and the web pages of central organizations, a list containing ongoing initiatives was created (nine in total). However, only two initiatives satisfied the criteria specified above, as many of them were less formal, consisted of general discussions and investigations, or were not mainly concerned with agricultural practice. The chosen two involved the regulating agency responsible for the agricultural sector – the Swedish Board of Agriculture (SBA). SBA is the designated expert authority on agriculture, it investigates and suggests policy concerning various agri-environmental issues. Such investigations are both carried out on request by the government and through SBA's own initiative. Hence, SBA appeared relevant to GHG reduction as it could be expected to respond to political pressure that accompanied the climate change-issue in the Swedish public debate, if politicians were looking to address GHG emissions, they would likely utilize SBA. Political pressure could, in turn, result in an orientation towards divergent change. In terms of possibilities of implementing suggestions, SBA influences agricultural policy, administers payments and controls, and its experts participate in the industry debate, interacting with other central actors. This broad influence constitutes a resource for disseminating and influencing producers, beyond the capability of less influential actors.

The first case consisted of an SBA-led project to create an Action Plan (AP): a policy suggestion regarding strategies to reduce emissions. Strategies were supposed to be implemented from 2011 to 2020, but the AP was also expected to constitute a tool for a long-term effort (Swedish Ministry of Agriculture, 2008). In comparison to SBA's earlier attempts to deal with GHGs (see Swedish Board of Agriculture (2008)), the project was the most comprehensive.

The second case indirectly concerned SBA, involving its co-owned agricultural extension service “Greppa Näringen” (GN). More specifically, the case consisted of the climate advice module within GN. GN is set up as a public-private partnership, shared between SBA and the Federation of Swedish Farmers (LRF). LRF is the dominant trade association for Swedish farmers, exerting a considerable political and economic influence by coordinating several cooperatives (Micheletti, 1990). Climate advice is provided through farm visits, during which a consultant spends two hours with a farmer, collecting data and discussing the GHG emissions of the farm. The visit is cost-free for the farmer as the consultant is paid by the state. Consultants have access to information material and training through GN's central staff.

While the AP project involved stakeholders such as agricultural researchers, agency officials, LRF representatives and NGOs, the second case involved agricultural advisors and farmers (see Table 2). Hence, the latter case exemplified additional possibilities to affect industrial practice, as producers were directly involved. The two cases were related as many of suggestions from the AP were included in the module's advice. This made it possible to explore the process of implementing suggested change ideas.

3.3. Data collection

Exploration of the ideas and goals providing meaning to industrial practice demanded qualitative methods, that could capture the reflections and decisions of the respondents (Alvesson and Sköldberg, 2009; Yin, 2014). Hence, semi-structured interviews were used as the primary tool for collecting data in both studies. All but three interviews were audio-taped and fully transcribed.

In addition, archival data, i.e., reports and memos produced within the AP project and GN, constituted a valuable source of revealing how the change initiatives evolved. For instance, in the AP project, minutes from a workshop with stakeholders displayed the available ideas at an early stage of the project. Moreover, to understand the political background relating to GHG reduction in general, and the political process that had preceded the request for the AP in particular, additional political reports were explored.

Case study 2 also included participant observations. The purpose was mainly to verify that consultants' descriptions of their activities, and their talk, corresponded to what occurred during the farm visits. Observations were made during five farm visits and one group meeting (between farmers and a consultants). The farm visits were audiotaped and fully transcribed, whereas field notes were taken during the group meeting. Moreover, observations enabled the observation of reactions from participating farmers. This showed that farmers varied in their interest and knowledge of climate change. Considering the interactive nature of the farm visit, farmers had many possibilities to influence the content of the activities.

Table 2
Case studies.

Case	Description	Organizational setting	Methods	Respondents	No respondents
#1	SBA led project aimed at creating an action plan to reduce GHG emissions	Swedish Board of Agriculture (state agency)	Interviews, document studies	SBA staff (10), policy makers (2), researchers (5), LRF-representative (1)	18(2)[a]
#2	Climate counseling directed toward farmers	GN - Public-private partnership project	Interviews, observations, document studies	GN-staff (3); climate consultants (19), farmers (6)	28 (4)[a]

[a] Number in parenthesis shows number of respondents interviewed twice.

3.4. Data analysis

The content of the two change initiatives were conceptualized as an emerging logic. The analysis focused on assessing the content, i.e., the change ideas part of the emerging logic (see Fig. 1). To this end the first analytic step meant grouping together interview quotes describing ideas of practice change e.g., concerning cultivation of organogenic soils, synthetic fertilization, grazing of cattle. The second step entailed an interpretation whether the different change ideas could meet a definition of divergent change utilizing two dimensions: type of change in farm practice and change in goals. An idea was interpreted as less radical if it affected only one or a few of the activities part of a practice. The idea's indication of whether it suggested a new goal was assessed through the estimations made by the SBA staff that quantified the GHG reductions a change would imply (see Table 3). This assessment was chosen since a small estimated reduction would indicate that a suggested change idea was unrelated to the goal of reducing GHG emissions, rather motivated by some other goal. Alternatively, a large reduction in GHG emissions coupled to a small change in practice would indicate a convergent change, albeit still valuable, i.e., a low-hanging fruit.

As the boundaries between the categories are not absolute (ideas are classified along a continuum), the assessment should be considered as an estimation. Through merging the classifications of ideas discussed in the change initiatives it could be assessed whether the emerging logic could meet the definition of divergent change.

4. Case findings

Below quotes from the two cases are displayed, exemplifying the most common ideas and arguments within the narratives accompanying the emergent logic.

4.1. The AP project

Empirically, the AP project consisted of SBA staff collecting, evaluating and writing up suggestions for GHG reduction. The project, that lasted two years, ended as these suggestions where presented to the Swedish government in a written report (Swedish Board of Agriculture (2010a)). A suggestion is here defined as a change idea coupled to an instrument for implementation. Some change ideas were collected through contacts with researchers as well as with producers in the industry, e.g., through a workshop. Other ideas were already part of existing policy or had been evaluated in relation to other policy goals. There were examples of producers trying to motivate SBA staff to investigate particular ideas in order to defend practice:

> There have been very large expectations upon the investigations that we have made, from the industry, because they really, really hope that these grasslands store a lot [of carbon]. They are working uphill as the animals are portrayed as climate villains (SBA staff #1).

Table 3
Data analysis.

Type of practice change / Change in goals	Reform	Radical
Small	Idea exemplifying convergent change	Idea exemplifying unrelated change
Large	Idea exemplifying valuable convergent change	Idea exemplifying divergent change

Table 4 shows the 12 different change ideas that were evaluated within the project, the last column shows what happened to the ideas, e.g., what was ultimately suggested. Some ideas, for instance to decrease output or advocate organic farming, were dismissed more or less right away while others were removed or reformulated later. For instance, an idea to reduce cultivation on organogenic soils, which was criticized both by the LRF representative and a researcher, was dismissed after some internal debate. An earlier report had concluded that these soils account for 25% of Swedish agricultural emissions and staff were hopeful at the beginning of the project:

> We have some winners if we can affect the organogenic soils (SBA staff #2).

Both scientific and economic arguments were used against the idea, but it was also clear that producers were worried about the discussions:

> They [farmers] do not want a ban regarding this production […] I questioned the scientific backing […] And the researchers agreed, so the current report does not include the idea to put 300 million SEK into something that is so uncertain (LRF representative).

The evaluation was a rather closed process, where a small set of agricultural researchers and other stakeholders who participated through an advisory board had a large influence. The members of the advisory board reviewed the preliminary reports, adding their comments and questions. Other stakeholders, not represented on the advisory board, made their comments in a late review round, just before the report was finalized. At this stage the leading domestic environmental organization, the Swedish Society for Nature Conservation group (SSNC), and the Swedish Ecological Farmers (SEF – the Organic farmers' association), both protested against the decision not to promote organic farming as a suggestion:

> The [Swedish] Society of Nature Conservation finds it extremely remarkable that the action plan chooses to disregard the possibilities to reduce GHG emissions by increasing organic production (Swedish Society for Nature Conservation, 2010:1).

> To ignore, in an action plan to reduce GHG emissions, the part of Swedish agriculture that does not e.g. use synthetic fertilizers is not correct. Since many of the discussions in the action plan deal with the possibilities within current policy, organic farming should be included whether it is viewed as separate practices changes or a package (Swedish Ecological Farmers, 2010:1).

The fifth column in Table 4 summarized the positions of the different involved agents regarding each change idea.

Columns two and three, in turn, display the interpretation within the second analytical step, regarding two dimensions of the change ideas. The resulting assessment is shown in column four. From this it can be discerned that only two out of five divergent ideas survived the evaluation, while five out of six convergent ideas survived. Surviving divergent ideas concerned bioenergy production, an eco-innovation which did not attract any criticism from the advisory board.

> Yes, we still need subsidies to increase and develop biogas production […] My impression is that those who work with

Table 4
Descriptions of ideas within the AP project (adapted from Stål et al., 2014).

Ideas for low carbon agriculture discussed	Radicalness of change	Effect on GHG emissions	Divergent/non-divergent	Involved agents' positions	Outcome of project process
A. Carbon storage in farm land • carbon storage in pasture land and other grass lands • carbon storage in cultivated soils • adding of bio coal	Carbon storage in land for grazing would require little to no change in cattle grazing. Increased carbon storage in cultivated soils would entail activity changes in e.g., tilling practices, choice of crops, fertilizing etcetera. Adding of bio coal would also require a number of changes.	Grazing lands store too little carbon to reduce GHG emissions. Reductions from carbon storage in cultivated soils or the adding of bio coal were never quantified.	Towards convergent change	SBA investigator & MA dismissive, cattle producers hopeful	No immediate action – further inquiries suggested. Adding of bio coal more or less dismissed.
B. Decreased output	Would imply large changes in terms of ceasing production or shifting towards less intense production practices, e.g. organic farming.	Effects never quantified but are likely to be the most reliable way to reduce emissions even if some background emissions would remain.	Towards divergent change	SBA project management & MA dismissive	Explicitly removed, early on, by delimiting the purpose of the project.
C. Organic farming	Includes several changes in major activities at the farm, e.g., type of inputs, certification, pesticide use, etcetera.	Effects never quantified in the project but shown in other reports (Swedish Board of Agriculture (2010b)).	Towards divergent change	SBA investigators & researchers dismissive; advocated by environmental organizations and organic farmers	Explicitly removed by framing organic farming as a "package" of practices rather than as one single idea.
D. Optimizing use of nitrogen	Implies some activity changes when it comes to how, when and where fertilizers are applied.	Effects positive but not quantified.	Towards convergent change	Promoted in MA's written request, SBA investigators & researchers uncertain concerning effects.	No additional suggestions besides changes already implemented through current agricultural policy.
E. Changes concerning organogenic soils • decreased intensity in cultivation • cultivation of energy crops • creation of wetlands	If implemented, a large change for certain farmers, who would switch from cash crops to fodder crops. Effects on prior investments made and overall operations, i.e., several major activities, at those farms.	Effects initially thought to be substantive – put forth as the "big scoop". Quantified in earlier project (Swedish Board of Agriculture (2008)).	Towards divergent change	SBA investigators positive, researchers & industry representative protesting	Suggestion of creating a particular financial support for practice change was removed from the final report
F. Replacing imported soy	Would imply some smaller activity changes among several actors, e.g., input purchasers, dairy farmers and crop cultivators.	Quantified but small effects.	In between convergent and divergent change (small GHG impact).	SBA investigators, researchers & industry representative positive	Suggestion to set aside funds to finance joint projects with industry actors.
G. Changes in production of meat and milk • increased yields • change feeding practices • food additives	Would imply some unspecified activity changes among cattle farmers.	Quantified but small effects.	Towards convergent change	Researcher forwarding ideas, SBA investigators positive	Suggestions to finance provision of advice directed towards dairy farmers.
H. Increased energy efficiency	Would require a combination of changes from smaller behavioral changes to investments and replacements of energy systems.	Quantified effects depend on type of change.	In between convergent and divergent change (differs according to the magnitude of the changes implemented).	SBA investigators positive	Suggestions to increase provision of advice directed towards farmers.
I. Production of renewable energy • crops for biogas • crops for liquid fuels • crops for solid fuels	Would require a change in what farmers cultivate e.g. having to learn about new types of crops, but also entering into other supply chains.	Quantified and substantial effects.	Towards divergent change	SBA investigators & researcher positive, indicated by MA strategies	Suggestions to increase and maintain different financial supports under new RDP.
J. Decaying of farm yard manure	Would require investments in biogas plants as well as entering into new supply chains. However would require small changes in agricultural practice.	Quantified and substantial effects.	Towards divergent change	SBA investigators positive, researcher positive, indicated by MA strategies	Suggestions to increase and maintain different financial supports when the current RDP expired.
K. Reduced tillage		Quantified but small effects.		SBA investigators positive	

	Would affect at least one major activity, i.e. pesticide use.		In between convergent and divergent change (small GHG impact)		Suggestions to include in advisory modules already offered to farmers.
L. Change in choice of synthetic fertilizers used	Would likely require minor activity change.	Quantified but small effects	Towards convergent change	SBA investigators positive, environmental organizations and organic farmers protesting against this as an alternative to organic farming.	Suggestion to include in advisory modules already offered to farmers; suggestion to finance projects together with industry actors to investigate possible certification/labeling.

> these sections are very thorough and that the writers involved are very keen on giving a good and fair presentation of the research material that exists. From that aspect the work contains high quality (Researcher #1).

Subsequently, the analysis shows that the emerging logic entailed mainly a convergent, rather than a divergent, content. This indicates that SBA's propensity to promote divergent change was slight.

4.2. Provision of climate advice

Some of the change ideas put forth in the AP report (D, E-H) also appeared in the climate advisory module being developed in parallel by GN. Provision of advice could therefore be understood as a policy instrument, aiming to disseminate the contents of the emerging logic to industrial producers. As a policy instrument it could be effective, alongside financial supports and regulation, by raising the capacity of farmers to comply with regulation (Taylor et al., 2012). Moreover, as a participatory and voluntary instrument, it could be radicalized by farmers, themselves threatened by climate change. Obviously, farming is heavily dependent upon a regulated and stable climate. Hence, the participatory approach might constitute an enabling mechanism influencing the convergent content of the emerging logic.

However, it would seem that the convergent content of the emerging logic was reproduced by the provision of advice. Moreover, the emphasis put upon efficiency was reinforced mainly because any radical changes to production were seen as impossible for the following three reasons: First, emissions were described as caused by natural biological processes, i.e., the way the digestions systems of animals behave or bacterial processes within soil:

> So we have to accept that there are emissions. It is unavoidable that we get these emissions. The task is to limit them; that we can produce with as little emissions as possible (climate consultant #1).

Second, production was understood as dictated by consumption, therefore change had to involve altered consumer preferences:

> Sure, emissions occur by you [the farmer] but one has to consider consumption, what can be done to reduce the climate impact of consumption. Because it is really guiding production (climate consultant #2).

> … and whether we should eat that many kilos of beef or drink that many liters of milk, which is not up to provision of advice and not really up to the farmer either, but in some way an issue for society at large (climate consultant #3).

Third, it was against the principles of extension to criticize the production at a visited farm:

> You cannot criticize the production in any way but rather [have to] see its possibilities (climate consultant #4).

The argumentation leads to the conclusion that increasing the efficiency at the farm is the only viable path ahead:

> So, the purpose is to some extent to get the farmer to pursue his production as efficiently as possible. That reduces the impact on climate (climate consultant #1).

Since efficiency already is a general concern for producers, consultants' narratives seem to support this element of the

prevailing logic. Moreover, efficiency is often used by proponents of conventional farming as an argument against organic farming, thus the claims quoted above also indirectly support conventional farming. Interestingly consultants' claims also provided a new meaning for prevailing practice as efficient farmers become labeled as being climate friendly:

> Swedish dairy production is really highly climate efficient since our production per cow is so high (climate consultant #5).

The purpose of provision of climate advice was not only to change practice per se, but also to change the way farmers presented and argued for their practice, e.g., in response to criticism from environmentalists:

> The purpose of provision of advice is] to increase knowledge and strengthen their [the farmer's] knowledge and possibilities of answering questions from their surroundings. It is about strengthening farmers and provide them with arguments regarding how they can think and reflect instead, and also point out that what they are doing, that [it] could be right[…] It is important to provide the right arguments (climate consultant #2).

Hence, the goals of the prevailing logic, i.e., to provide an efficient and competitive production, was merged with the goals of reducing GHG reduction. Rather than introducing a new goal that challenged existing goals, goals were described as being essentially the same. Thereby, the emergent logic came to increase, rather than to challenge, the legitimacy of the prevailing practices, reducing the perceived need for radical change.

5. Discussion

The purpose with this paper was to develop an institutional analytical approach to increase the understanding of industry inertia, as well as change, related to sustainability. Given the sustainability impacts of industrial activities, and the lack of such approaches, this is needed.

In the following section the analyses' results are reflected upon to develop the analytical approach. The results suggest the following: First, the approach can be used to increase the understanding of inertia and change by classifying change as either convergent or divergent. Hence, the ontology of strong and weak sustainability can be utilized to analyze change processes within industry. This is useful as paradigmatic differences result in mutually inconsistent definitions of inertia and change. According to strong sustainability, convergent change is problematic as it reproduces those practices and goals that generate GHG emissions. Hence, inertia cannot only be understood as non-change, but also as the pursuit of change in an unfruitful direction. The case studies show how this direction, towards efficiency, could be reinforced rather than challenged by change initiatives. Change initiatives simply become another possibility to repeat and translate the arguments within the prevailing institutional logic, incorporating terminology associated with a new issue.

Second, the case studies exemplify how industrial change processes can be evaluated. Therefore, the approach can be used to reach an understanding of the quality of the change processes occurring within a particular industry. This makes it possible to apply the principles of strong sustainability at the industrial level, as a basis for a discussion of what kind of practices and goals these principles would imply for a particular change process. Moreover, resulting inertia and change can be explained as an outcome of the quality of the change processes occurring within the analyzed industry. The analysis of quality, in terms of divergent/convergent content is particularly relevant when it focuses upon actors that possess resources that could be used for implementation of change (Greenwood and Suddaby, 2006). Given the relative power of these actors, we can, by diagnosing the change they are pursuing, better understand why there is inertia or change within a given industry (Stål et al., 2014).

Third, in particular the second case study shows how the same ideas and arguments that motivate convergent change also defend the legitimacy of prevailing practice. This is likely to reduce the perceived need, among industrial producers, to implement any changes. Subsequently, the dissemination of the emerging logic may make it more difficult to, further on, challenge GHG-intensive practice, e.g., life-stock farming. This implies that disseminated ideas and arguments facilitate industry resistance against, for instance, increased regulation (cf. Maguire and Hardy, 2009). Rather than viewing all change, regarding how small, as a step in the right direction, this would suggest that convergent changes are actually steps in the wrong direction.

Fourth, the case studies show that change initiatives could reduce the openness towards divergent change by dismissing specific divergent ideas, e.g., organic farming or reduced cultivation of organogenic soils. Because these alternative ideas already existed, disseminating them might constitute a quicker way to achieve divergent change. Their removal therefore contributes to industrial inertia.

The paper's institutional approach needs to be developed to facilitate a better understanding of industry level inertia, as well as change, related to sustainability. First, a more fine-grained conceptualization of different enabling mechanisms, both emanating from both inside and outside industry, is needed. Here, the institutional literature provides certain suggestions, e.g., Seo and Creed (2002) point to four different institutional contradictions: inefficiency, non-adaptability, interinstitutional incompabilities and misaligned interests, which can precipitate divergent change activities. Greenwood and Suddaby (2006) develop the idea of contradictions by linking them to resource asymmetries between regulatory agencies and firms and adverse performance in terms of firm profits. However, recent development in institutional theory recognizes the existence of contradictions and complexity as common, rather than an exception, within most industries (Greenwood et al., 2011). Others describe industries as a site for power struggle rather than stability (Hoffman, 1999; Levy and Scully, 2007). This also connotes the agri-food industry, with its tensions between organic and conventional logics. These complexities, in turn, are likely to interact within influences emanating from outside industrial boundaries, as politicians of different creeds adopt ideas and arguments from producers or NGOs to base their policy upon. The Swedish green party e.g., recently declared that it wants a 100% organic agriculture. Therefore enabling mechanisms need to be analyzed together, regardless of industrial boundaries (see Fig. 2). A better understanding of enabling mechanisms would enable propositions regarding within which industries divergent change is likely to emerge.

Second, the case study of GN indicates that if convergent ideas are disseminated, legitimizing practice, prevailing logics are strengthened as a bi-product. Thus, the analytical approach needs to take into consideration that there is a two-way relationship between practice and prevailing logics (see added arrow to the right within Fig. 2):

Third, while the approach can be used to understand single change processes, it cannot explain the totality of change within an industry as there are many both parallel and sequential initiatives occurring. Therefore the approach needs to consider these iterations, where each change initiative could be viewed as a node in an emerging change process.

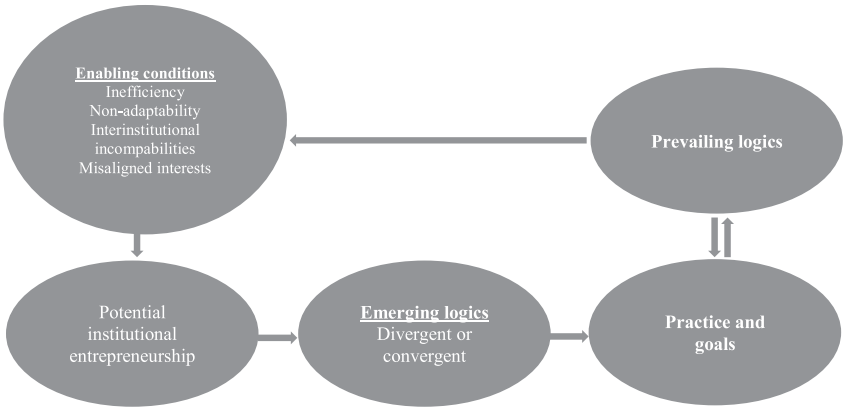

Fig. 2. Adapted analytical approach.

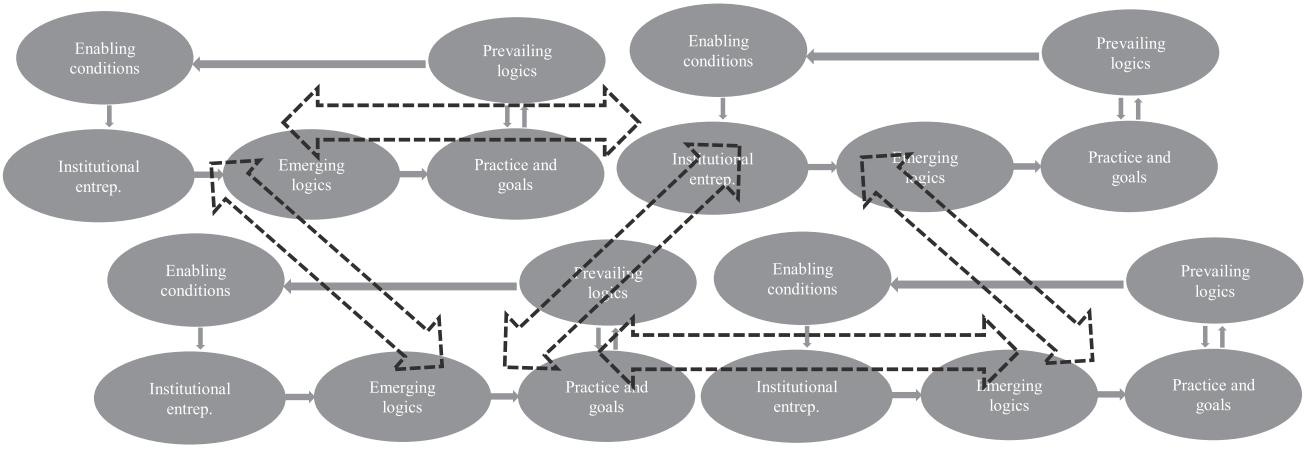

Fig. 3. Adapted analytical approach – industrial change process.

The adapted Fig. 3 displays potential links between change initiatives, reinforcing or challenging prevailing logics, which in turn affect the enabling conditions for further institutional entrepreneurship. As discussed above, when divergent ideas are discarded or efficiency-arguments are strengthened, this will create conditions that may constrain the scope of future change initiatives.

5.1. Limitations and future research

Overall, there are limitations to the generalizations that can be drawn from case studies, however the purpose has not been to provide statistical, but rather theoretical, generalization (Eisenhardt and Graebner, 2007). This means that an approach has been developed that can be then applied in other industries and with other sustainability issues, thereby determining its explanatory power. However, the explanatory power of institutional theory, upon which this approach expands, is not restricted to particular industries, rather institutional structures are assumed to exist throughout (DiMaggio and Powell, 1983). An important characteristic, which could determine whether the approach can be applied, consist of the particular configuration of institutional logics within an industry. The findings in this paper may be particularly relevant for industries were there are competing logics, e.g., conventional and organic production, rather than a situation where one dominates (e.g., Reay and Hinings, 2009).

Limitations also stem from data collection methods, the AP case study relied on interviews partly carried out in retrospect rendering it difficult to reconstruct the processes involved. Remedies included relying on different written material and cross-checking between respondents' accounts. The second case study could have benefitted from a broader sample of respondents, more farmers, but this was difficult to arrange. Here, participant observations were utilized instead to capture the reactions and influence from farmers during the provision of advice.

As implied above, to understand change processes in industries, case studies within more industries, that have different characteristics, e.g., with mature or emerging structure (Maguire et al., 2004), or different levels of institutional complexity (Greenwood et al., 2011), are needed. These type of studies, following the principle of theoretical sampling (Eisenhardt and Graebner, 2007), would facilitate the development of a more fine-grained theory, including better understanding of the links between theoretical elements and the workings of mechanisms. This could then be followed by the development of a series of testable propositions that could be used to determine how different patterns of inertia and change are associated with different types of enabling mechanisms or change initiatives.

6. Concluding remarks

In order to facilitate change towards sustainability, and address pressing global challenges, there is an urgent need for increased

understanding of inertia, and ongoing change processes, at many different analytical levels. The industrial level is particularly important, because various industrial practices are responsible for the bulk of environmental impacts. However there is a problematic lack of approaches that facilitate such understanding. Therefore, by building upon institutional theory, the papers offers a way to address this gap. Through the developed approach, concepts, such as practice, institutional entrepreneurship and institutional logics, can be used to analyze change in other industries, related to sustainability goals besides GHG reduction. If we knew better what caused inertia in various industries, and had access to a proper terminology regarding these issues, we could device more effective efforts, including policy, to overcome inertia. This is of utmost importance given the escalating challenges that we are facing. The scientific value of this approach lies in its potential for explaining what drives inertia and change, particularly related to the principles of strong sustainability. While strong sustainability identifies some important principles as a point of departure, we need to combine these with "mid-level theories", e.g., at the organizational or industrial level, to tease out implications, advice and understandings related to those settings where important decisions regarding what and how to produce are being made. In addition, the kind of theoretical terminology suggested here can hopefully foster a dialog between scientific areas, and engage more researches in the important quest for sustainability. Therefore this remark ends in a call for more research to develop the suggested institutional approach, e.g., to test both the reach of emerging theory in terms of issues and industries, and depth in term of strengths of suggested conceptual associations.

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