CAN CULTURE ACT AS AN ENABLER TO INNOVATION? EXPLORING THE GERMANY - ONTARIO EXPERIENCE REGARDING THE INTRODUCTION OF GREEN ENERGY

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ABSTRACT

This paper explores the role that societal culture may play in terms of acting as an inhibitor or enabler when creating conditions conducive to innovative enterprise. To further understanding of this concept, the paper's authors explore different cultural influences and traditions of the country of Germany and the Canadian province of Ontario against the backdrop of the introduction of a government green energy policy and how local business reacts to new opportunities forthcoming from this shift in policy direction.

The authors contend that the current Ontario psyche has contributed to an overall cultural drag on innovative activities. They demonstrate that in no place is this cultural impact more evident than the apparent lack of home-grown innovative activity surrounding green energy entrepreneurship; where, in spite of progressive and favourable provincial government policy, continued manufacturing growth is led by offshore companies

The Ontario experience is in sharp contrast to current and historical German activity, when it comes to local innovation and advances in green energy. While Germany officially enacted their green energy act at the turn of the last century, experts agree that the German tenure with going green is in fact 35 to 40 years in the making. Although it has been contended that unique historical conditions such as postwar reconstruction and the reunification of the former East and West Germany have been significant contributing factors to Germany's embracing of sustainable energy, the authors of this paper contend that cultural factors such as the German sense of *naturfreund*; an overwhelming sense of being a nature-lover, may also play a significant role. In their exploration the authors build upon Hofstede's cultural dimension theory unpacking specific cultural components, as they compare actions and responses made by German and Ontarian policy-makers and business decision-makers.

SOCIETAL CULTURE IMPACTS INNOVATION OUTCOMES

Society's cultural dimensions affect society's innovativeness

This paper explores the role that societal culture can play in terms of acting as an inhibitor or enabler when creating conditions conducive to innovative enterprise. In part, the inspiration of this review came from a recent article in the *Harvard Business Review*, entitled "The Capitalist's Dilemma" (Christensen & van Bever, 2014) where the concept of outcome of innovations within a larger societal context is explored. To further understanding of this concept, the authors of this paper explore different cultural influences and traditions of the country of Germany and the Canadian province of Ontario against the backdrop of the introduction of a government green energy policy and how local business and society reacts to new opportunities emulating from this shift in policy direction.

A recent report by The Institute for Competiveness and Prosperity (2013) stated that Ontario ranked 14th out of 16 peer groups in terms of North American GDP per capita, (p.13); attributing the poor showing to a dominant provincial attitude favouring complacency (p.17). Drawing from the report findings, it contends that attitude drives motivation, investment and structures. This paper proposes that the current Ontario psyche has contributed to an overall cultural drag on innovative activities. As the paper will demonstrate, it appears that in no place is this cultural impact more evident than the apparent lack of home-grown innovative activity surrounding green energy entrepreneurship; where, in spite of progressive and favourable provincial government policy (Green Energy Act, 2009), continued manufacturing growth is led by offshore companies (Toronto Star Business, October 2014).

Shane (1993) postulates that there is a measureable correlation between a nation's rate of technological advancement and native forces that "drive national rates of innovation" (p. 60). The advancement of this position has been documented in the literature for over 50 years (Moulin 1961; Shaper and Sokol 1982; Wallace 1970) where the nature of these native forces have been identified as cultural values; these values, it is suggested, can act as stimuli on local rates of innovation. As Shane (1993) advances, the challenge lies in how cultural values are measured (p. 65).

Our question: is a nation's culture an ubiquitous entity that permeates all aspects of its natives' activities including innovation and entrepreneurship; acting as either a catalyst of an anchor to future activity? Or should we take into account other factors as having equal, or greater, influence such as: organizational structure, corporate culture, legal systems, technology, wealth, and economic systems? Measurement of culture as an *Innovation-Entrepreneurial* (IE) influencer can be an elusive metric and the source of much debate regarding its

actual existence. At the level of the individual, Gannon (1994) found that national culture could account for between a quarter and half of behaviour. Challenges remain in defining this metric include agreeing upon indicators that are reliable, valid and can be applied in many countries (Hambrick and Brandon 1988).

Societal vs. Corporate Culture

Hofstede's (1984) theory on national culture is perhaps one of the best known frameworks used in defining and describing differences in global business practices. His original research identified four dimensions categorizing areas of cultural differences that have been used to explain disparities in international business practices and communication: individualism-collectivism; uncertainty avoidance; power distance (strength of social hierarchy) and masculinity-femininity (task orientation versus person-orientation). Later work of Hofstede (2010) added a fifth dimension, long-term orientation. We find this fifth dimension as the most intriguing cultural measure given the focus of this paper, given, we believe, it may have the most influence on IE activities relating to the issue of green energy. We will return to this dimension throughout our examination.

Distracters of culture as influencer identify several issues with this theory. Bakersville (2003) for example notes the following challenges with Hofstede's cultural measurements: "i) the assumption of equating nation with culture (ii) the difficulties of, and limitations on, a quantification of culture represented by cultural dimensions and matrices; and (iii) the status of the observer outside the culture. " (p. 1)

There remains many steadfast proponents of the important role culture plays as an IE driver or inhibitor:

> Institutional theory argues that social and economic action is governed, enabled and constrained by widely shared regulative, normative and cultural-cognitive conventions, creating stability and similarity (Scott, 2001). (van Dijk et al., 2011, 1486)

If one agrees that culture acts as a key ingredient to action, it then follows that the type and pace of action (in our case IE activity) that certain regions, areas, and/or nations take towards *new* solutions (i.e. green energy enterprise) becomes easier to comprehend, or if we may be so bold, predictable. Geertz's (1993) work suggested that culture has an almost visceral influence upon individuals creating "meanings embodied in symbols" (p. 89) and therefore deep symbolic understanding "towards attitudes of life" (ibid). On the surface, accepting Geertz's position may help to explain how cultural factors such as the German sense of *naturfreund*, an overwhelming sense of being a nature-lover, could act as a IE inducement when it comes to green-energy policy to drive related innovation.

Green Energy as Innovation Outcome

What role does culture play in the advancement of green energy policy in Germany? There are several competing ways we can unpack this question. Is it simply good business? That is to say in Germany's case, as a significant importer of fossil fuel, a green energy policy would provide greater economic and industrial stability - certainty in supply and pricing - in a region that is constantly at the vagrancies of the international energy market. In this way, green energy can be considered a constant in establishing national energy security.

Or, is the seeming acceptance of an aggressive approach toward a German green energy future recognition of an obvious environmental compatibility with its national cultural psyche? Gertz's theory would describe this policy acceptance as a visible outward manifestation of cultural compatibility. Hofestade's fifth cultural dimension, long-term orientation, can also be considered as a contributing factor in this consideration. In the mid-1980s, findings from a foundational review of Europe's energy future - the Brundtland Commission - became the central tenets of Germany's green energy policy, including the 1991 adoption of a feed-in tariff program and 2011 *Energiewende* (transition to renewables). Sustainable development is defined as any activity that "meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland Commission, 1987).

Midilli, Dincer, and Rosen (2006) in their review of the role and benefits of green energy argue that adoption of a green energy policy can be seen as a direct outcome of a sustainable development activity as "the cumulative impact on the environment of such activities (traditional carbon energy sources *[author's addition]*) often leads over time to a variety of health, ecological and other concerns," (p. 71). Further they argue that acceptance of a sustainability agenda leads policy-makers "to incorporate environmental considerations into energy planning." (ibid) What we are interested in is the degree to which societal and business acceptance of green energy policy is guided by cultural imperatives.

Hascis (2012) noted that "historically, Germany has used stringent environmental policy to encourage innovation and thereby significantly improve environmental quality while also advancing its economic objectives." (p.2) In terms of IE activities, he observes that this policy has been highly successful, in large measure given the ready acceptance of this position by business and society-at-large. Not only has this policy stance "turned out to be very effective in inducing innovation" (p. 2) we argue that it has positively resonated with the pre-existing German identity of *naturfreund*, transforming to become an outward identifiable characteristic of German culture.

Business & Policy Agreement on Need for Innovation

We suggest that a further explanation of the degree of German IE activity as it relates to green energy, lies in the intersection between the broader policy goals and sound business practise. Midilli et al, (2006) compiled an impressive list of economic benefits to business when adopting a green energy approach, including: increase fossil fuel source reserves, decrease dependence on imported energy, increase energy supply diversity, and improvement of the national balance of trade and increase security (p. 72). These are in addition to broader public policy outcomes, including: mitigating climate change and pollution, increasing employment, supporting remote and rural communities, and increasing security (ibid) (they argue that green energy sources are less prone to terrorist attacks than oil refineries or nuclear power plants).

van Dijk, Berends, Jelenek, Romme, and Weggeman (2011), in their study of cultural influences and innovation, advances the notion on the long-term consequences of business and policy agreement, stating that where agreement is high a set

of normative values then emerge "introduc(ing) a prescriptive, evaluative and obligatory dimension in social life." (p. 1487). This in turn they argue shape cultural-cognitive elements in both business and general societal behaviour creating "shared conceptions that constitute social reality and shape meanings." (ibid) This position is highly intriguing given our central question - the degree a culture's IE posture influences its position towards green energy activity.

A SOCIETAL CULTURAL COMPARISON

The Ontario experience appears to be in sharp contrast to current and historical German activity, when it comes to local innovation and advances in green energy. While Germany officially enacted their green energy act at the turn of the last century (Renewable Energy Act, 2000), experts agree that the current German policy in 'going green' is in fact 35 to 40 years in the making (Buehler et al., 2011; Bolgar, 2010). Although it has been contended that unique historical conditions (Buehler et al., 2011) such as postwar reconstruction and the reunification of the former East and West Germany have been significant contributing factors to Germany's embracing of sustainable energy, it does appear that cultural factors such as the German sense of *naturfreund*, an overwhelming sense of being a nature-lover, plays a significant role. But more importantly, other attributes of the German population as detailed in a thorough review of cultural characteristics conducted by Fischer et al. (2009) such as performance orientation and in-group collectivism may also play a role, and should be considered in order to achieve better insights into Germany's success as a green energy innovator. Vavakova and Wolfe (1999) in their research on the influence of regional identities (described as *extra-political/economic* influencers) states that these identities might indeed attract innovative entrepreneurs, "and thus enhance their competitive advantage." (p. 118)

Germany

We have offered a major impetus towards green energy in Germany as an integral part of its citizens' cultural psyche, a pan-German adherence to *naturfreund*. We have also outlined positive long-term economic benefits to such a policy, which also could have a cultural convocation, vis-a-vis Hofstede's fifth cultural dimension - long-term orientation. A third factor that should also be considered is the large "P" political environment of Germany, demonstrated in the ascension of the Green Party in the 1970s and 80s and its opposition to nuclear power especially given the impact of the Chernobyl accident in Ukraine that sent radioactive fallout over northern Europe in 1986 (Fairley, 2009, p. 41). Still we suggest that the rise and role of the German's Green Party in defining and directing public policy is, at least partly, itself a cultural phenomenon, and to date not easily replicated in other democratic-industrial economies.

Germany's leadership on policy-induced environmental innovation is well documented (Hascis, 2012). It completely aims to redesign its energy system within the next generation (Strunz, Gawel & Lehmann, 2014), phasing out nuclear power by 2022 and increasing its share of renewable energy in the overall energy supply by 80 per cent by 2050 (ibid, p. 244).

Ontario, Canada

The experience in the province of Ontario, Canada appears to be having been much different than Germany's in terms of a cultural connectedness with the environment and subsequent IE experiences that could be derived from that connectedness. Both Germany and Ontario share certain economic and demographic characteristics within their respective geographic context. Just as Germany has the largest population with Western Europe, so to Ontario has the largest population within Canada hosting over 40 per cent of that country's population. For decades both Ontario and Germany have been the industrial heartland of their respective geographic spheres; both have made significant public policy commitments to supporting post-secondary education; and both are net importers of traditional carbon fuel, off-setting that position with significant public sector investments in nuclear energy. Still in Ontario the provincial policy role in promoting innovation was a secondary concern until late in the 1990s (Vavakova & Wolfe, 1999, p. 120). Vavakova & Wolfe (1999) contend that Ontario experienced a 'golden era' post World War Two until the mid-1990s given its geographic position (close to U.S.) and access to markets (national and continental) that made need for innovation unnecessary (ibid).

It can be argued that given the relative ease for positive economic outcomes over such a lengthy economic period 'profit taking' became an engrained normative value for both Ontario's business community and society-at-large. As traditional energy prices increased in Ontario post 1990s, especially in the electricity market, alternative sources of supply became an increasing government policy imperative. With electricity supply framed as a cost problem, not an environmental concern, renewable resources did not offer a solution (Rowlands, 2007, p. 190). Focus in Ontario, from many interest groups, has been focused on finding the best solution that deliveries electricity at the lowest possible cost. In this case a *solution* was viewed "through (a) traditional economic lens not including, that is, many externalities" so that "businesses, many of them large users of electricity, could create jobs." (ibid)

By 2005 a new political party, a Liberal government replacing the previous Conservative government, assumed office in Ontario and began to frame the electricity issue as not just an economic issue (supply cost and productivity) but also as a health issue (pollutants and impact on long-term respiratory health) (Rowlands, 2015). In part it has been suggested (ibid, p. 191) polling previously conducted by the Ontario Medical Association showing that a majority of Ontario residents were prepared to pay more for electricity if coal-fired plants were closed could have been a significant influence on this new government policy direction, *as much as any other influencer* (authors' emphasis).

A policy directive of the new government stated the phase-out of coal fired electricity plants by 2015. The response of the business community (particularly the Association of Major Power Consumers of Ontario) was strikingly different than what appeared from their German counterparts. They "would not support such a move for fear of the consequences that it would have on electricity prices." (ibid, pp. 190-191). This immediate-term oriented behaviour also, authors contend, loses sight of the hidden remediation costs inherent in traditional *solutions* like nuclear.

Aside from the Ontario business community's objections to green energy as an additional input cost compared to alternative traditional carbon-based sources, resistance existed in segments of the population at large. Ontario's Green Energy Act is viewed as a 'top-down' policy that aims to meet renewable energy goals, and as such does not appear to enjoy citizen-wide (read *culturally-wide*) support. Christidis and Law (2012) in their review to the introduction of green energy in Ontario, primarily focused on the introduction and placement of wind turbines, observing that (ironically) opposition has been publically directed to the ill health effects of green energy generation (p. 81). A more in-depth review of their findings reveals that opposition has in fact centred on areas where opponents have raised concerns about potential negative impacts on personal property values, especially in higher land valued resort communities (cottage country and shore front properties).

Similarities and Differences Explained

In our exploration we build upon Hofstede's (1979) cultural dimension theory unpacking specific cultural components, comparing actions and responses made by German and Ontarian policy-makers and business decision-makers. These components include:

- Risk-taking vs. risk aversion
- Individual vs. community focus
- Short vs. long term orientation

We conclude that cultural values are shared and communicated (Blyznyuk, 2011) within and among members of a population, thereby serving as a reinforcer of accepted actions and activities – expressed in this case as an innovation attitude.

Van Everdingen and Waarts (2003) contend that the type of information sources used by people in low-context cultures seek for making innovation adoption decisions include reports, databases, information highways, and the Internet (p. 222). Both Ontario and Germany under Hofstede's classification are viewed as low-context cultures. Yet they reach very different IE positions relating to green energy innovation, precisely given that their information sources themselves are cultural constructs that present very different positions on the issue. Ontarian's, given their 'blessed' economic history, have developed a risk-aversion attitude opposed to German's risk-taking derived from a very different historical context. Ontario appears (at least a vocal minority) to favour individual economic factors, expressed as potential impact on property values when it comes to green energy production, rather than a German commitment to the principle of *naturfreund*. Ontario business appears to favour short-term electricity cost savings by embracing traditional carbon-based energy sources, rather than the more long-term green energy innovative approach currently adopted by the Germans whereby German citizens accept higher energy costs.

IMPLICATIONS OF THE COMPARISONS FOR INNOVATORS & POLICY-MAKERS

Policy-Maker Communication to Constituents

An interesting footnote to the introduction of green energy production in Ontario was the provincial government's approach designed as an appeal to market versus environmental forces. In their presentation to rural communities, provincial policy-makers framed the issue regarding the introduction of wind-power as a potentially lucrative 'cash crop' to Ontario farmers (Hulet, 2004), bringing to bear certain normative (and powerful) cultural images. In a major Ontario newspaper at the time (2004) the introduction of wind turbines in rural Ontario was argued as a quite positive source of revenue to farmers given ". . . Ontario farmers could spin profits from the wind, . . . Ontario farmers could earn billions in new revenue, helping them to stay on the land and do what they do best." (Rowlands, 2007, p. 201). No arguments regarding positive environmental rewards were made.

Incentivizing Businesspersons for Overcoming Societal Cultural Limitations

In its move for a universally accepted long-term approach to green energy sustainability, *Energiewende*, Germany set in place what Hascis (2012) describes as "a set of ambitious environmental and innovation targets." (p. 4) The 2002 Sustainable Development Strategy defines 35 measurable objectives, including: doubling green energy productivity (from 1990 to 2020 targets); reducing GHG emissions by 21% between 1990 and 2010 (25% reduction achieved in 2010) and by 40% by 2020, increasing the share of renewable energy sources on electricity consumption to 12.5% by 2010 (17% share achieved in 2010) (ibid). The Strategy also includes a set of investment and education goals, such as to increase the share of R&D spending (public and private) on GDP to 3% by 2010 (2.8% achieved in 2009), increase share of investment in GDP (without a specific target) and raise the share of university educated 25-year-olds to 20% by 2020 (attained 8.8% in 2008).

In contrast, Ontario took a very different policy approach in its Green Energy Act. Christidis and Law (2012) noted that the central policy instrument of the Ontario provincial government was to create feed-in-tariffs for renewable energy (p. 87). Such programs aimed to incentivize individuals to adopt and fund their own green energy initiatives. In conjunction with the price guarantee incentives tariffs offered, the provincial government passed legislation assuring that the Renewable Energy Approvals process was altered to streamline approvals so that wind energy projects were no longer subject to aspects of the Environmental Assessment Act or the Planning Act. These disjointed moves effectively removed any ability of local governments to regulate the placement or concentration of wind turbines that armed rural communities with arguments against such green energy solutions on aesthetic and property value grounds.

It appears that the German response to a green energy policy was to set goals to orient the country toward a new long-term energy model to encourage innovative generation of green energy, while the Ontario approach was to implement a regulatory environment based on a combination of direct short-term economic incentives and removing choice - the ability of non-participation by local communities. Such policy flaws failed to capture those individualistic and short-term aspects of Ontarian culture, nor identify any latent *naturfreund* that could have similarly repositioned Ontario to more readily adopt innovative practice.

Global Best Practice Societal Culture Adoption

Van Everdingen and Waarts (2003) conducted one of the first large-scale empirical study in a business setting (including a large set of countries) and investigating the role of national culture in explaining cross-country differences in innovation adoption rates. Their study based on Hofstede dimensions and the national cultural dimensions of Hall (low versus high-context cultures and monochronic versus polychronic cultures) concluded that national culture does influence innovation adoption rates. Their data was based on observation from 10 European countries, and found that Hofstede dimensions appeared to influence the adoption decision of both early and later adopters. They noted that higher levels of uncertainty avoidance, masculinity and power distance dimensions in a country negatively influenced innovation adoption, while higher levels of long-term orientation have a significant positively influence (p. 231). Recent work of a similar nature by Kramer, Diez, Marinelli and Iammarino (2010) supported Van Everdingen and Waarts findings. Krammer et al. conclude that;

> Intangible assets are increasingly seen as critical drivers in the productive application and exploitation of knowledge and physical capital, re-shaping the way economic processes are comprehended, measured and governed at the micro, meso and macro level. (p. 132)

Hascis (2012) describes Germany's successfully movement towards a sustainable green energy policy as a combination of two factors; the adoption of a long-term policy approach and a "strong innovative framework." (p. 13) We contend that both of these factors are inherently cultural in nature, and appear to be in alignment with general regional cultural characteristics. Germany, for instance, a country with a much larger implemented wind energy footprint than Canada, gives communities a voice in the development and planning of wind turbines. This practice does not hinder development, as seen by Germany's substantial wind energy capacity (Christidis & Law, 2012, p. 90).

The German approach is the opposite of Ontario`s policy practice. Again we contend that given the dominant cultural attitude of Ontarians, limiting citizen voice has been a policy necessity in order for a more rapid introduction of green energy production. As Christidis and Law (2012) noted in their review of this phenomenon, "Changing the planning process (giving voice to local communities) would likely change how wind farms are implemented and hinder the province's ability to meet renewable energy goals." (p. 90) We also contend that a top-down policy environment in not conducive to the creation of an *authentic* innovative environment; policy traction is required and obtained from those innovators that invent, adopt, and invest. In the absence of a culturally-recognized need for authentic innovation, such a process takes on a command and control nature driven by policy instruments, such as adoption of a feed-in-tariff to meet a renewable energy milestone. With less than half the number of years of experience with feed-in tariffs compared to Germany, the authors contend that Ontario's cultural disorientation from the long term and its impact on innovativeness in the Province resulting in specific policy choices was a necessary step in a grander evolution already taken by Germany. Resulting national cultural evolutionary implications therefore warrant further investigation. Moreover, the mitigating impact of corporate culture on innovation across the subject regions lends itself to examination. The traditional fear is that ending such tariffs will end the related investment activity (e.g. farm wind turbines) in innovation. Some fear may be justified in this regard, as tariff rates reduce seemingly annually, and calls for by organizations for greater energy capacity were made by German industry (Nicola, 2013). Monitoring the response and its impact, if any, on the trajectory of German green innovation is noteworthy yet Germany's national culture, the authors contend, is ingrained and deeply aligned with a propensity for green energy innovations.

FURTHER RESEARCH AT THE INTERSECTION OF SOCIETAL AND CULTURIAL INNOVATION

Other Societal Comparisons

We conclude that just as the economy is not independent of politics (Vavakova & Wolfe, 1999, p. 126); innovation is not independent of cultural influences. As noted by Krammer et al. (2010) regional intangible assets (culture) represents an advantage in innovation and ultimately competiveness. (p. 133). While we do not wish to make broad generalizations on the strength of the relationship between innovation and culture, clearly in this case, the relationship between green energy and degrees of innovation activities from two regions, a correlation is apparent. Culture does indeed appear to take a role. This early probe into the relationship between national culture and innovation justifies further examination to establish the degree to which such a correlation exists.

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