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STOP MANAGING, START INNOVATING! HOW INNOVATION MANAGEMENT KILLS CREATIVITY

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ABSTRACT

The paper presents the Innovation Management Paradox and poses a viable solution; Stop managing and start innovating. The concept of innovation is described by using the notion of creativity and curiosity. The 5-P model describes the effect of passion on the inventor and is introduced in order to get a view on our drive to innovate. In order to find a foundation for the statement 'stop managing, start innovating: how innovation management kills creativity', 45 innovation projects within the Innovation Test Center (ITC) were analyzed statistically. This analysis concerned the relation between innovativeness and company size, innovativeness and company nature and the fit within the mobility policy of the Dutch Ministry of Transport, Public Works and Water Management. The hypothesis that small businesses are more innovative than large companies due to the lack of management could not be proven in our analysis. Moreover, the Innovation Indicator is not significantly related to company size. Although the Innovation Management Paradox is not supported by the ITC data, it did prove the ITC to be a successful concept: offering a stimulating climate best sparks innovation.

KEYWORDS

Innovation management, creativity, curiosity, statistical case analysis

1. INTRODUCTION

The title of this paper calls for a changing approach towards the management of innovations. Instead of managing innovation, we will argue that successful innovations flourish in an environment in which creativity and motivation are stimulated. We will present the "Innovation Management Paradox" and we will explain its role in the policy followed by the Innovation Test Center (ITC). In order to understand this paradox, we will elaborate on the nature of innovation and describe it using the phenomena 'curiosity' and 'creativity'.

In order to understand various types of innovations, we will introduce the "5-p model" (van Dijk, 2003). This model describes and explains the relation between different types of creativity and profit on the one hand and types of creativity and personal involvement (or passion) on the other hand.

The research project, described in this paper presents the findings of a study into supporting evidence for the existence of the Innovation Management Paradox and the underlying reasoning model. The research project also aimed at evaluating the effectiveness of ITC's policy within the scope of the Road and Hydraulic Engineering Institute. In the research project, we performed a statistical analysis of the 45 innovation cases submitted to the ITC in the last years.

1.1. The Ministry of Transport, Public Works and Water Management

In the Netherlands, The Ministry of Transport, Public Works and Water Management is responsible for mobility policy and for protection against floods or falling water tables. One of the larger departments of the Ministry is the department of Rijkswaterstaat (RWS). RWS sets up conditions for the safety, econ-

omy and access of the Netherlands. Sixteen million people live, work and recreate in a delta of which more than 50% is situated below sea level. Without the 2500 km of dams two thirds of the Netherlands would be flooded.

Strategic situated at the North Sea, and the estuaries of the Rhine, Meuse and Scheldt, the Netherlands are made for distribution of goods. The goods are shipped to the European hinterland via numerous Dutch highways and waterways. Besides the passenger traffic, yearly 550 million-ton goods is transported through 3268 km highway, 250 million ton on 6825 km waterway. This heavy traffic asks for a well-maintained and well-managed road and waterway system.

The largest challenge for RWS nowadays is to cope with the effects of growing volumes of traffic on a limited infrastructure. Environmental measures, safety, reliability and limited hindrance during traffic works ask for ongoing improvement and innovative solutions, both from government NGO's and industry.

1.2. The innovation test center

Within RWS, the Road and Hydraulic Engineering Institute (DWW) is the advisor for technique and environment on road and hydraulic engineering. The (ITC), a department of DWW is responsible for the validation of new ideas from third parties within the areas of earth, hydraulic and road engineering. Within the ITC everyone with a good and realizable idea within the scope of RWS, is invited to validate that idea. The ITC aims at increasing the innovative potential in industry by realizing a stimulating innovation climate. By assessing the surplus value of the innovation, the ITC enables the entrepreneur to gain a clear insight in the possible value (possible profit, ROI, market share, etc) of the innovation. This assessment is performed in cooperation with the entrepreneur. The benefit to RWS is that the risk of implementing the innovation is investigated. With this approach, the ITC found a unique way to stimulate cooperation with third parties and attract new and innovative ideas. From 2001 to 2005, the ITC has analyzed and guided over 45 submitted cases.

2. THE INNOVATION MANAGEMENT PARADOX AND THE NATURE OF INNOVATION

In the early days inventions were realized both through serendipity and dedicated research. In those days inventions were a giant leap forward, with a big impact on every day life; fire, tools, the wheel, exploration of the world, the discovery of electricity,

Nowadays, you have to be creative. Just do the job is not enough. Innovation is a vital concept in our contemporary world, it is essential for businesses to keep their market share and respond to ever faster changing demands. So, as we have to educate ourselves to be innovative, innovation is becoming a growing discipline.

Innovation requires freedom to experiment and investigate. On the other hand, management systems, force results by rigid procedures and schemes. If we define innovation management as the application of tools like brainstorming, mind mapping or creativity sessions, in order to force innovations, we see the "paradox of innovation management"; the spiritual freedom essential for spontaneous inventions does not relate well to the forced creativity of innovation management. In order to understand this paradox, we will first explain the nature of innovation using the notion of "curiosity" and "creativity".

2.1. Curiosity

According to the Oxford dictionary, innovation is defined as "the action or process of innovating", or "a new method, idea, product, etc". It is clear that to discover something new, curiosity is a necessity. According to the same dictionary, curiosity is defined as "a strong desire to know or learn something" and "an unusual or interesting object or fact".

Curiosity can also be seen as the response to a stimulus, expressed as the desire for knowledge or the need to explain (Edelman, 1997). We know curious people don't take no for an answer, they don't stop when something seems impossible. Curious people try to figure out why it is not possible or when it will be possible.

Curiosity, the need to know or learn, is based on the biological drive of self-preservation and even greed. This makes curiosity an important aspect of everyday life. The ability to understand our surroundings and respond to changes is something we have in common with animals (Taflinger, 1996). We explore and investigate our environment in order to detect changes in an early stage. Only if we detect changes in the first place, we will be able to respond to them. In the animal world this can prevent falling prey to another animal. So there's a distinct reward for the curious. By exploring the world we, humans, dis-

covered new resources, new land, new (production) techniques and we even found new ways of getting more and traveling faster.

But just being curious is not enough. If you let your curiosity lead the way in your investigations, you might go too far and end up with non-realizable products. Or worse, end up dead, like Icarus or the cat in the proverb 'curiosity killed the cat'.

Curiosity has to be 'processed'; it has to be judged without premature limiting options. So, besides being curious you have to have evaluation skills. Perhaps here comes in another paradox; you want to keep your options open and, at the same time, rule out impossibilities. Being naïve and intelligent comes in handy. If naivety is defined as absolute freedom to fantasize, intelligence is ability to be reasonable. In short, curiosity stimulates us to investigate, naivety keeps your eyes skinned and intelligence helps us select the feasible options.

2.2. Creativity

In the Oxford Dictionary, creativity is defined as 'involving the use of imagination or original ideas in order to create something'. In short, the ability to create. Even the definition of the term creativity has developed through the years. The development is also driven by the agricultural, industrial and knowledge revolution. Before 1900 inventions and developments were in the field of skills and techniques, after 1900 human development was mainly on an emotional level. Later that century, increased understanding of psychoanalyses enabled the study into the theory on creativity. Psychologists consider creativity as in between normal and neurotic or pathologic behavior; creativity as a human exhaust for unconscious passion, or characteristic feature. Humanists look upon creativity as the highest achievable ideal, cleared of disturbing influences of defense mechanisms. They say, creativity is the combination of intelligence and problem solving capabilities, so, everyone is creative.

'Drive' or 'passion' is another aspect of creative to take into account. This can be illustrated by two examples; Leonardo Da Vinci is regarded as a highly creative person. He was a painter, writer, musician, philosopher, engineer, he wrote mirror wise with both hands. Einstein said, "I have no special talents, I'm only passionately curious". Both for Da Vinci and Einstein, the drive to investigate was the investigation itself. So, curiosity comes with a drive.

From literature we know how Amabile (1998) came up with the three-component model of creativity: expertise, creative skills and intrinsic motivation increase creativity.

According to the investment theory of Lubart & Stenberg (in Wissink, 1996) creativity requires six components to go together: intellectual skills, knowledge, way of thinking, personality, motivation and environment. This underlines our analysis so far.

From this analysis of the nature of innovation, we now can conclude that creativity incorporates curiosity and creativity manifests when several components are present, among which 'drive' or 'passion'.

2.3. The 5P-model

The observation that we can see significant variations in the level of 'drive' or 'passion' within the population of creative people, led to the definition of the '5-P model' (van Dijk, 2003). This observation is combined with an interpretation of 'profit'; a financial dimension depicting the financial yield of innovation processes.

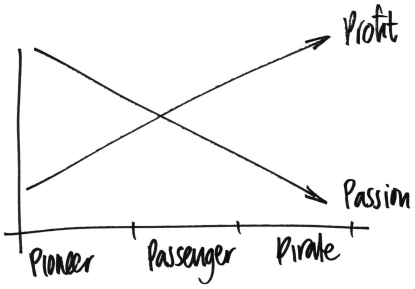

Figure 1 A graphical representation of the 5-P model (van Dijk, 2003)

The motivation, drive or passion versus the reward or profit divides the creative people into three groups: pioneers, passengers and pirates as can be seen in the next graphical representation. For the artists and inventors the search and curiosity are the drive, the final result is not important; they are defined as 'Pioneers'. They possess real passion but lack commercial sense. This is the other way round with the pirates, whereas with the passengers it is like a 'break-even' point.

The first P stands for pioneer. Pioneers are inventors and artists. They are distinguished by a contin-

uous flow of curiosity. To investigate is their drive; the search is their adventure, passion their engine. A well-known example of a pioneer is Gaudi. His most famous building is the Sagrada Familia in Barcelona; its construction started in 1882 and is yet to be finished. In search for the ideal curve in the construction, Gaudi used little chains, hung upside down and therefore designed the church upside down (see Figure 2).

Figure 2 The Sagrada Familia (photo M.H. van Dijk)

Another example of a pioneer is Leonardo Da Vinci. Inspired by the classical story of Icarus, he searched for a suitable way to fly. His passionate curiosity brought him to the invention of the parachute, 300 years before the first successful parachute jump in 1797! Needless to say, although he invented the parachute, he never realized nor introduced this novelty. So, according to the definition of the term innovation mentioned earlier, Da Vinci was a pioneer, but no innovator, as he never realized his invention.

The second P in the model stands for ”passenger”. Pioneers or concepts inspire passengers; they elaborate or improve the ideas into products. Vitruvius, a Roman architect in the first Century before Christ, wrote on the human proportions which had to be reflected in temples. As proof of the harmony and perfection of the human body, he described how a well-built man with spread out arms and legs, perfectly fits within the perfect mathematical figures: a circle and a square. Leonardo Da Vinci supplied the figures for the book written by a friend on human proportional theory with a description of Vitruvius' theory. Piranesi (Figure 3) inspired M.C. Escher (Figure 4), famous for his fancy drawings playing with the perspective.

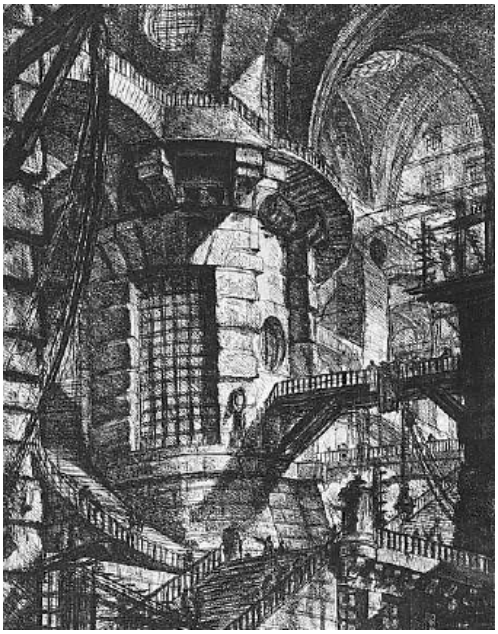

Figure 3 Etching from the Carceri series (1745)

The third P in the model stands for ”pirate”. In contrast to pioneers and passengers, pirates steal ideas and concepts, just to exploit them. Their drive is making profit.

2.4. Expanding the 5-P model; art vs. business

In the 5P model the pioneers possess curiosity, they are least influenced by making profit. Therefore, artists are often considered the ultimate pioneers. If passion and curiosity is best incorporated within the artist, let's focus on them. In the history of art we see the same development as in the development of the human species, where art developed parallel to the development of industry. The first wave, also known

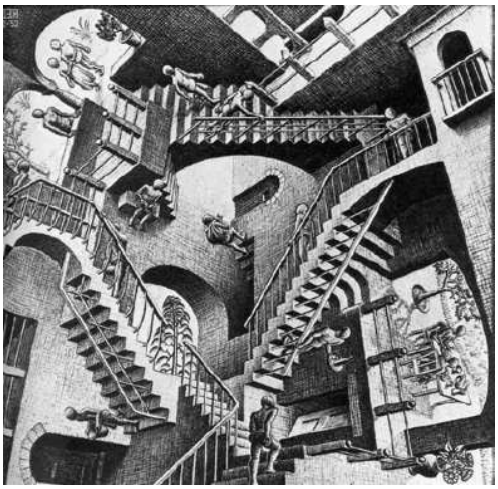

Figure 4 Relativity by M.C. Escher, 1953

as the agricultural or demographic revolution was the invention of agriculture. This forced human to depend on climate and surroundings and settlements appear. The second wave or the industrial revolution comprises the rise of mass production and consumption. Rethinking and reformulation the mental legacy enabled human emotional development. The third wave is the knowledge revolution; the introduction of computers which made complex calculations in design possible, which enabled fine-tuning of existing theories.

Art history shows a similar development; first technical with the discovery of perspective and color, later psychological with the question of whom and why we are. We already stated that in the early days of art, the renewal came from discoveries in perspective and color theory, whereas the latest renewal in art comes from technological improvement such as computers. For example, computers allow complex calculation of curves, which introduced so-called 'blob'-architecture, and digital processing of pictures, words and video allow a different translation of ideas to art works. Nowadays, renewal is mostly the translation of old concepts into the contemporary state-of-the-art. And, although renewal can be seen, it does not call for a new movement.

If creativity can be seen as a function of passion, curiosity and freedom, we can make yet another division between art, business and science (see Figure 5). Whereas 'going beyond limits' is the main activity in art, in science 'proving a theory' or 'finding new knowledge' is the goal. Moreover, within business and science, creativity is associated with a hobby and predestined to extraordinary people. So, no bounds within art, all bounds within business.

Figure 5 A graphical representation of Creativity in art, science and business. (van Dijk, 2003)

The 5-P model helped us in understanding the nature of innovation and gave us more insight into the innovation paradox. We concluded creativity incorporates curiosity and is best displayed with passion; it is even an essential component of creativity. The expansion of the 5-P model taught us that business and science kill creativity by the nature of their game.

3. LESSONS FROM THE INNOVATION TEST CENTRE

The ITC now has a history of four years validating innovative concepts, in which it gained experience in guiding new ideas and concepts of passionate entrepreneurs into implemented products, processes, materials and working procedures. In these four years the ITC assessed over 45 proposals on criteria as originality, performance improvement and problem solving capabilities. Pioneers and passengers presented these proposals in different stages of development, from concept to prototype. The proposals have been documented well and formed a starting point for the database analyzed and presented in this paper (see appendix 1).

3.1. Analysis of innovation projects

In order to find evidence for the existence of an 'Innovation Management Paradox' and the underlying reasoning model, we analyzed 45 innovation projects. The initial research question was: "Is there a relation between the amount of innovation management applied and the innovation level achieved

with innovation projects in general?" Giving the data available, we rephrased this research question into; "Is there a significant relation between company size and the innovation level achieved with innovation projects". We implicitly assumed a direct proportional relation between 'amount of innovation management' and 'company size'.

Each entry or project is categorized by the size of the company submitting the project (column A in appendix 1.) and nature of the company (column B). The data for company size are acquired by means of interviewing the companies involved. The definition of the nature of the company (consultant, designer/inventor, supplier and contractor) is based upon a subjective assessment by the authors.

The authors assigned scores to six project parameters.; The three first parameters consist of an interpretation of the three main policy items of the Dutch Diplomatic Note on Mobility (in Dutch: Nota Mobiliteit) by the Dutch Ministry of Transport, Public Works and Water Management (2005); accessibility, livability and safety. The scores vary from '0', the minimum score, to '5' as maximum score. The average of the scores for these three first parameters will be referred to as 'requirement indicator'. It provides an indication of the way the project fits into the goals of RWS. The parameters are;

- Accessibility: improvement of traffic flow on roads (column C in appendix 1); does the innovation have a positive influence on increasing the average speed realized?
- Livability: environmental impact (D); does the innovation realize a reduction of the environmental impact of traffic systems in the Netherlands?
- Safety: accident reduction (E); does the innovation have a positive effect on the reduction of accidents related to the traffic system in the Netherlands?

The second set of parameters indicates the innovation potential of the projects, as used also in the IDNL innovation competition. The score for these parameters is obtained through a subjective assessment by the authors. The average of the values for novelty, originality and impact factor will be referred to as the 'innovation indicator'. This indicator ranges from 0-5, where '0' is not innovative at all and '5' is highly innovative. The parameters are;

- novelty (column F in appendix 1); is the innovation new, i.e. has it been used in this context before?
- originality (column G); is the innovation original, i.e. has it been invented earlier?
- societal impact (column H); how large is the impact of the innovation on the Dutch society?

The limited information available within the ITC on the entrepreneur's business economics, determined the innovation parameters. Based on the available information it was not possible to discriminate parameters as innovation budget-turnover ratio or percentage innovators.

3.2. Data processing and results

We used SPSS software to analyze the data and plot various graphs. The results of the analysis are divided over:

- the relation between company size and Innovation Indicator
- the relation between the companies nature and Innovation Indicator item the relation between the Requirement Indicator and Innovation Indicator

Next to the correlation, we tried to find out if there is a significant difference between the mean values for Innovation Indicator related to company size.

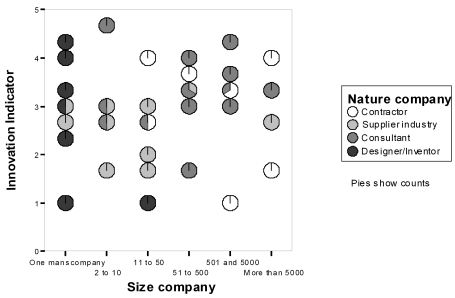

Figure 6 Company size vs. Innovation Indicator

The resulting data show the overall Innovation Indicator ranges from 1,0 to 4,7. Entries with an Innovation Indicator of 1,0 concern four proposals rejected by the ITC, this is consistent with the ITC's policy to validate innovative proposals only. Project nr. 38 concerns a new product on a new market and scores highest on Innovation Indicator (4,7).

If the size of the company is plotted against the Innovation Indicator it shows that all companies are rather innovative, as the indicator scores between 2,4 and 3,3. See the next graph.

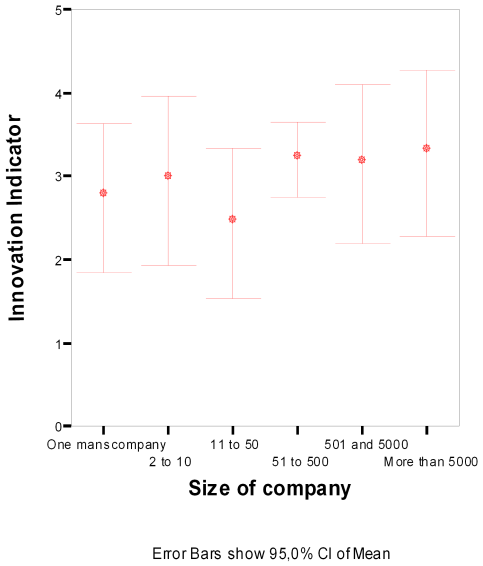

Figure 7 Size of Company vs. Innovation Indicator (Error bars show 95 % of mean value)

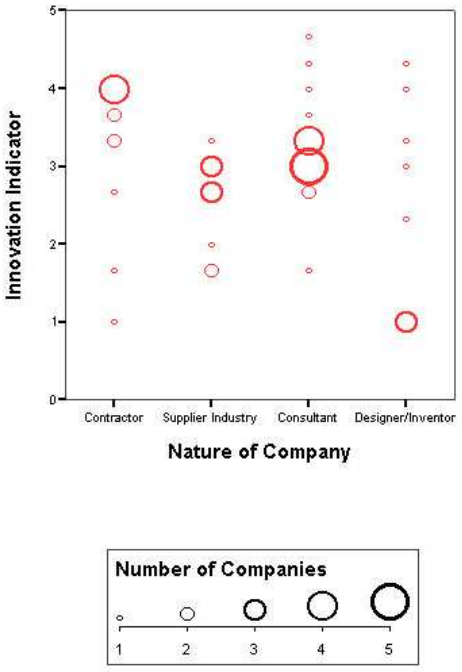

Figure 8 Size of Company vs. Innovation Indicator

If small businesses are defined as companies with less than 50 employees, the data show an average Innovation Indicator of 2,7 versus 3,1 for large businesses (50 to $>$ 5000 employees). For a better understanding of the data to support our hypothesis, a more structured analysis using the T-test was performed. The results of the T-test show no significant differences in mean values for the Innovation Indicator. So from our data we cannot find evidence supporting our initial hypothesis on the role of innovation management in small and large companies.

Furthermore, statistical analysis within the sub-set of small businesses (1 to 50 employees) shows no significant difference in innovation indicator between the inventors/artists (1 employee) and the companies with 2-10 employees. Full data can be found in Appendix 2.

The second relation investigated is the relation between the company's nature and the Innovation Indicator. The graph (see graph 8) shows there is no significant difference in innovation potential in our data set.

Next, we investigated the relation between Innovation Indicator and Requirement Indicator. The higher the Requirement Indicator, the better it fits within the policy of RWS. However, the graph shows a non-correlated, of even slightly negative correlated graph. This means there is no significant relation between the Innovation Indicator and the Requirement Indicator.

4. DISCUSSION

We started out with the question: should we start motivating instead of managing and therefore innovate faster en better? This question is still relevant for the ITC given its role in RWS. But can a governmental organization spark innovation? Governments are no manufacturers, but they control and set up requirements. Governments have a need filled in by the industry. So innovation must come from the industry. But, innovation implies investment and investments by the industry are only then worthwhile if it is likely costs can be recovered. Considering innovations cannot be pushed and 'to inspire' is not an action (but a condition), the Innovation Test Centre (ITC) found a way to stimulate innovation without managing. Just assessing the surplus value of an idea, provides the necessary innovative climate an entrepreneur needs.

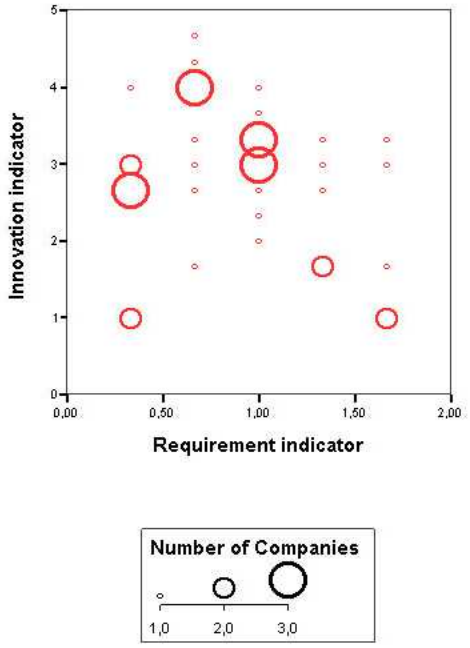

Figure 9 Innovation Indicator vs. Requirement Indicator. Bullet size indicates the number of companies at each data point

Csikszentmihalyi (1996) studied what makes people really happy. He noticed that if we think consciously, we tend to reason linearly. He introduced the term 'flow'; the state of optimal experience in which everything goes smoothly and inspiration brings the best in us, like a flowing creative stream. This implies 'to inspire' is not an action, but a condition.

If creativity and therefore innovation is to be stimulated, motivation is the key feature to tackle. Motivation, as in drive or passion, is displayed as flow. Drive or passion cannot be controlled, whereas a condition as flow can be provided! Management systems act contrary to the necessary freedom, they kill the drive to investigate and experiment. Earlier we stated passion and environment are essential components of creativity. Motivation is a condition, a climate in which we are allowed to investigate and experiment. Just hyping the term 'innovation' is useless without motivation. If employees feel free and are allowed to experiment, creativity is a fact. Everyone is creative; it depends on the incorporated passion and motivation. So stop innovation management, but stimulate motivation.

Like Amabile (1998) said, "if you want to spark innovation, rethink how to motivate, reward and assign work to people".

5. CONCLUSION

Our hypothesis that small businesses are more innovative than large companies due to the lack of management could not be proven in our analysis. Moreover, according the analysis of the ITC data, the Innovation Indicator is not significantly related to company size. So, there is no evidence supporting the existence of the Innovation Management Paradox within our data. We have not found a correlation between the supposed company's nature and the Innovation Indicator. Designers/ inventors do not appear to be significantly more innovative than other groups, like suppliers or contractors. Surprisingly, this does not correspond with the general view of designers and inventors as very innovative professionals who have innovation as their daily business!

The hypothesis that small companies are more innovative than large companies is not supported by the data. However, it should be mentioned that the ITC database is limited (only 45 entries) and all entries concern innovative proposals. Based on the available ITC information it was not possible to discriminate parameters as innovation budget-turnover ratio or percentage innovators. In conclusion, based on our analysis we cannot state that you're better of without management in order to achieve a highly innovative environment.

Study by the AWT, however, (Segers et al., 2004) shows that size does matter. General innovation parameters as percentage innovators, realized innovations, new or improved products or processes, increase with the size of the company. This relation did show a dip for companies with 20 to 50 employees. In the AWT study it is explained that within companies with 20 to 50 employees, disproportionate attention is given to a management system, which limits the innovation freedom. This management structure is more proportional within larger companies. On the other hand, small companies (< 20) are more flexible, dynamic and better able to jump onto niches.

So, there is foundation for the Innovation Management Paradox!

DWW internal evaluation did prove the ITC to be a

successful concept. Increasing the innovation potential can be realized without a complex management tool. Just by being an expert interlocutor and sharing the passion for creativity, an entrepreneur is stimulated to develop his idea to a successful product. For us it shows that innovation cannot be pushed, offering a stimulating climate should stimulate it.

Lesson learned? Staying curious and creative stimulates innovation. So stop managing and start innovating!

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APPENDIX 1

nr	a	b	c	d	e	f	g	h
1	7771	c	0	5	1	4	3	3
2	25	c	0	5	1	4	1	3
3	45	s	3	0	3	2	2	4
4	16600	c	5	3	1	2	2	4
5	26800	c	3	0	1	4	2	3
6	1	d/i	3	3	3	4	1	5
7	135	co	1	3	1	4	4	4
8	1	d/i	1	3	1	1	1	1
9	2	d/i	1	1	5	2	2	1
10	3500	c	3	1	1	4	2	3
11	143	co	1	1	5	4	3	5
12	2600	c	3	1	5	4	1	4
13	2	co	1	1	1	2	3	4
14	25	s	1	1	1	1	1	1
15	10000	co	3	1	1	4	4	4
16	270	co	1	5	1	4	4	5
17	50	s	3	1	3	2	2	4
18	1341	c	1	3	3	4	3	3
19	10000	s	1	5	0	4	2	3
20	1	d/i	0	3	0	1	1	1
21	1	d/i	0	1	5	4	4	4
22	1	d/i	0	3	5	3	4	4
23	26800	c	1	5	1	4	4	4
24	500	co	3	3	0	1	4	4
25	250	c	1	5	1	2	2	3
26	1556	co	1	1	1	1	1	3
27	3500	co	3	1	1	1	1	4
28	2048	co	3	1	1	2	4	3
29	1	d/i	3	1	3	5	5	3
30	35	c	3	1	3	1	4	5
31	2	s	3	1	1	4	3	4
32	6	s	1	1	1	2	1	2
33	500	co	3	3	1	1	4	4
34	50	co	3	1	3	4	2	4
35	3	s	3	1	3	1	4	5
36	1	s	3	1	3	4	3	3
37	1	s	1	1	3	2	2	4
38	10	s	3	5	1	5	5	4
39	100	co	3	1	3	4	4	4
40	1	d/i	1	3	1	1	4	4
41	380	c	3	1	1	2	2	4
42	10	co	5	1	1	1	1	3
43	450	co	5	1	5	1	1	1
44	6	co	3	1	1	4	4	3
45	450	co	1	5	1	2	4	4

Legend

a: company size in number of employees
b: company nature
  c = contractor,
  s = supplier,
  co = consultant,
  d/i = designer/inventor

Parameter scores ‘requirement indicator’
c: accessibility: effect on circulation
d: livability: environmental impact
e: safety: accident reduction

Parameter scores ‘Innovation Indicator’
f: novelty
g: originality
h: societal impact

APPENDIX 2

T-Test 1

Group Statistics

		N	Mean	Std. Deviation	Std. Error Mean
Innovation Indicator	Small Companies	22	2,70	1,028	,219
	Large Companies	23	3,20	,814	,170

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Innovation Indicator	Equal variances assumed	,998	,323	-1,831	43	,074	-,505	,276	-1,061	,051
	Equal variances not assumed			-1,821	40,011	,076	-,505	,277	-1,065	,055

T-Test 2

Group Statistics

		N	Mean	Std. Deviation	Std. Error Mean
Innovation Indicator	One mans Company	9	2,74	1,163	,388
	2 to 10 Employees	6	2,95	,976	,398

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Innovation Indicator	Equal variances assumed	,534	,478	-,358	13	,726	-,207	,577	-1,453	1,040
	Equal variances not assumed			-,372	12,150	,716	-,207	,556	-1,416	1,003