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Abstract

The innovation pressure for the German economy increases with globalization. Yet, is this also reflected in an increased innovation activity and creativity? The article at hand presents an opposing perspective: based on some statistical analyses that indeed show a decline of innovation in Germany and other developed countries during the past years, several lines of argument are presented to explain that development. Risks arising from globalization for the creativity and innovation potential of companies are identified in economic, business and psychological areas, and their possible impact on creativity and innovation is explained in detail. Furthermore, possible countermeasures are summarized.

Keywords: Globalization, innovation, innovation management, creativity, medium-sized businesses, economic structure

1. Introduction

With globalization, competition and hence innovation pressure increases for the German economy. This statement has been made to such an extent over the last years that it now seems trivial. An automatism of "the more, the better", however, would contradict basic knowledge of behavioral psychology, according to which pressure from a certain intensity level is counterproductive. Is it possible to transfer this insight onto the context between competition and innovation? Looking at the facts, it is at least not to be dismissed:

- In the international creativity index, Germany is ranked below average, e.g. behind Australia, New Zealand or Norway, whose business activities are far less internationally interwoven (Florida et al., 2011).
- While German exports have increased by more than 300% since 1992, the innovation intensity has been declining during this period (Rammer, 2011: 7).
- The share of "real innovators" among small and medium-sized companies in Germany halved from 8 to 4% between 2000 and 2010 (KfW, 2011: 4).

- The so-called Torrance test, used to monitor the development of creativity in a country, shows that e.g. in the U.S. creativity has continuously declined since the 1990s (Kim, 2011).

Positive effects of globalization come to mind spontaneously and intuitively, and there are certainly a number of positive effects of globalization on creativity and innovation management, such as the facilitated access to international know-how, cross-fertilization of intercultural teams or better perspectives for the commercialization of new products and services. But can also an opposing view be derived from these findings, namely that globalization could be harmful for creativity? The objective of this article is to demonstrate that globalization indeed entails certain dangers for the development of creativity and innovation activity in an economy, especially for small and medium-sized enterprises (SMEs), which have significantly partaken in the innovation performance thus far (see OECD, 2010). The following text therefore focuses on five lines of argument:

- Globalization strengthens tendencies for information overload of individuals and thereby reduces their abilities for creative thinking.
- Globalization fosters more and more the manufacturing of internationally standardized products and enhances imitation instead of innovation.
- A negative impact can be expected on team communication as a central prerequisite for organizational and individual creativity.
- Globalization entails organizational requirements that hamper the innovation capacity of companies, especially for SMEs.
- Ultimately, globalization increases time pressures for the individual, which clearly go to the detriment of creativity.

2. Risk elements of globalization for creativity and innovation

2.1 Information overload

The problem of information overload was already an issue in research in the early 1960's (e.g. Miller, 1960; Gross, 1964). Since then, the amount of information has continued to increase exponentially: in 1980 already, people absorbed three times as much information as in 1960 (Ritchell, 2010). Klausegger et al. state that in the 1990s alone, the growth of knowledge was greater than in the previous 2,500 years (Klausegger et al., 2007: 692). Since then, the Internet has moved into the business world through which the available amount of information has again drastically grown. At the same time, it can be observed that the productivity of available sources of information is continuously decreasing – just as outlined by economists in the law of diminishing marginal returns. An example for this is the internet blog "smart-forum", set up by consumers to discuss all aspects of their favorite auto brand *smart*. A detailed analysis showed that only about 1% of the generated information is of relevance for innovation activities, whereas the rest of the information posted is highly repetitive or at least offers no creative input (Henkel, Sander, 2006: 85).

There are numerous studies about tangible and intangible damages caused by information overload. A study by Basex (Spira, Burk, 2009) concluded that the costs incurred through this in the United States amounted to an estimated $900 billion in 2008 mainly due to interruptions at work. Overall there is a number of ways that information overload can negatively impact creativity and innovation processes:

- The more information an individual should process, the more the cognitive system becomes limited to the left brain hemisphere. The complementary part on the right side is suppressed, which hampers the ability of creative thinking.
- Also associated with information overload is mental stress (i.e. Klausegger et al., 2007; Moser et al., 2002), which typically leads to the ignorance of important information, inaccurate processing and procrastination and thereby hampers work performance (Rachfall, 2010).
- Depending on personality, information overload can lead to contrasting behaviors regarding infor-

mation search: Due to the feeling of never fully being informed, some people invest more and more time in collecting information and do not leave enough mental reserves to actually exploit the gathered information in a creative process. Other individuals tend to accelerate the process of information retrieval too much. E.g. for 87% of all Google searches only the first page of results is consulted (Mavriqi, 2008). By means of eye tracking and heat maps it could be noted that even within this already very limited range of information irrational selection mechanisms take place, as many people only include less than a quarter of the page in the information intake (Priebe, 2014). In this case the creativity consequently refers back to an inadequate information base, which may ultimately lead to useless considerations.

Globalization contributes – so we argue – significantly to exacerbating the problem of information overload. Firms can no longer rely upon traditional business patterns and feel compelled to compete in a completely new business environment (Therborn, 2000: 151). In particular, two trends explained below play an important role.

The expansion of foreign business intensifies information needs

As a result of increased global competition and hence more demanding efficiency requirements many firms are facing a number of challenges such as developing new foreign markets, expanding exports, outsourcing parts of the value chain abroad, or developing new cooperation structures in cross-border trade exchanges. For all of these tasks a systematic and comprehensive collection of information is necessary – letting a feeling of information overload easily arise for employees of a company which so far has been operating in a much simpler environment.

Already when choosing new target markets, companies are faced with a variety of destinations that need to be examined systematically. To enter foreign markets more quickly, companies often feel compelled to conquer several foreign markets simultaneously. To cope with accompanying capacity requirements, external sales partners, located in the target markets, are involved more frequently. This again leads to new information requirements, as the selection and contracting process with these partners needs to be accompanied by significant information processing.

Since the personal customer contact is lost as a source of inspiration when cooperating with local distributors, companies are more dependent on written information. This change in the information processing also encompasses negative cognitive effects on the development of creativity. In addition, the exchange of information with foreign partners very often is subject to culturally related distortions, which can lead to considerable uncertainties of the recipient (Azar, Drogendijk, 2014).

Further burdens in terms of information processing result from the increasing range of regulation in cross-border traffic of goods

Since World War II, more and more countries have entered into agreements for facilitated multinational trade. Over time, large free trade areas such as the European Community or the NAFTA have emerged. The transnational trade of goods and services generally has been greatly simplified within these free trade zones. At the same time, the new institutions fixed new rules, which on the one hand pursued the goal of preventing non-participating states from market penetration, yet on the other hand also set new boundaries for participating members in terms of product composition, product liability and manufacturing processes. Many of these regulations affect operational innovations, particularly at the product level. In order to prevent the waste of money on inventions that cannot provide any added value, they have to be considered already in the early phases of product development.

One example is the REACH agreement implemented by the European Commission. REACH forces companies to disclose comprehensive information about the use of chemical components in supplied products. Many companies do not have the required competencies and therefore have to develop or buy this expertise, occasionally employing chemists who used to work in research and development. In the worst case, they change their work fields – thus switching from performing creative tasks to implementing standards that limit creative development.

Aside from REACH, there are numerous other regulations that confront companies with the need for additional supply of information. Therefore, although tariffs have been reduced through numerous intergovernmental trade agreements, new non-tariff trade barriers were introduced simultaneously and contrary to agreements. Assessing the

risks associated with these various non-tariff barriers requires even more information than the former tariffs, which then again contributes to information overload.

2.2 Product standardization

Many discussions and analyses with regard to globalization focus on the intensified international competition, agreeing that this leads to tightened requirements with regard to working markets efficiently (Therborn, 2000: 151). To avoid being forced out of business, companies must continuously adapt, improve performance and try to be one step ahead of competitors. For this purpose, resources need to be used efficiently; the saving potential arising from division of labor and specialization as well as economies of scale needs to be exploited (Koch, 2014: 80; OECD, 1996: 7; OECD, 2007: 6). Associated with this increasing pressure for efficiency, we see two potential dangers for the development of creativity in the context of product development:

- Increase of standardized offerings at the expense of local (creative) diversity
- Focus on imitation instead of (creative) innovation

The tendency towards standardization reduces the use of local creativity potential

As early as 1983, Levitt formulated the hypothesis that only standardization would create long-term success in a global environment: "A powerful force [technology] drives the world toward a converging commonality [...]. The result is a new commercial reality - the emergence of global markets for standardized consumer products on a scale of magnitude previously unimagined. [...] Gone are accustomed differences in national or regional preference" (Levitt, 1983: 92). In his much-noticed work "Shaping the future", Keen follows a very similar line of argument (Keen, 1991). Levitt's und Keen's provocatively formulated theses are part of a nearly 50-year ongoing discussion of the advantages of locally adapted vs. globally standardized products with a number of – sometimes contradictory – contributions (for an extensive literature review see Schmid, Kotulla, 2011). The identified factors influencing the success of standardized or differentiated products are so extensive that there is currently no overarching and agreed-upon approach to derive optimal policy options. Despite the controversy, however, there is consensus about the expected impact of the two strategy options: Adaptation to local market requirements leads to a best-possible exploitation of local market potential and is therefore oriented primarily towards effectiveness, while standardization follows the primacy of efficiency targets (Douglas, Wind, 1987: 20; Koch, 2014: 69; Quelch, Hoff, 1986). Products that are designed as universally applicable from the start, allow the realization of economies of scale in production and research & development. These savings can be passed on as a price advantage to customers, which entails an additional purchasing incentive for the latter. (Levitt, 1983: 93; Quelch, Hoff, 1986: 60).

Ultimately not all companies pursue such largely standardized product policies as e.g. McDonald's or Red Bull. Research shows that pursued strategy options vary with the industry, as e.g. standardization potential is mainly seen in high-tech products and luxury items (Kotler, 1986: 13). However, a certain tendency toward unification also applies to companies that, in the sense of "glocalization", convert a combination of "as much standardization as possible, as much specialization as necessary": oftentimes neither time nor the extensive R&D budget that would be needed to implement adjustments for local markets in every detail is available. Moreover, even with regionally adapted offerings, efficiency pressure ultimately leads to a standardization of procedures and processes, often also to centralization of decisions and to an increasing pressure for employees to conform. As a result, local diversity is reduced and existing creative potential is only reflected in a restricted way.

The focus on imitation additionally limits the required creativity potential

Zara is one of the most important fashion brands, not only in Germany but also worldwide. The first store opened in Spain in 1975 and by now there are more than 2,000 stores in 88 countries worldwide, 79 of these in Germany. The textile group Inditex, to which Zara belongs, has been able to achieve annual sales increases by more than 20% (Statista, 2015). The secret to success? Speed and imitation.

Though Zara employs its own designers, the similarities to known luxury labels' collections are obvious. With the production primarily based in Spain, Portugal and Morocco (at least for the sales within

Europe), Zara is able to respond to new trends within the shortest time possible. This is how Inditex can supply its European shops within 24 hours and its American and Asian shops within 40 hours with the ordered goods, and only 11 days pass from the time the clothing piece is designed until it is on the hangers at the store (Roland Berger, 2008: 4). This allows a clear advantage over designers who normally plan their collections a year in advance and can barely respond to subsequent changes. That way, the production of Zara's goods not only takes place after the fashion shows of other brands, but even allows reviews of these shows by fashion critics to be considered. Hence, when developing their own collections, imitating existing products rather than creating them from scratch meets a clear business need.

The same can be realized not only at company level, but also for whole economies: Japan, for example, caught up with the enormous economic lag with the western hemisphere at the end of the 19th century and beginning of the 20th century by strictly focusing its economic power on copying products from the West. This history repeated itself again in the 1970s and 1980s. At that time, the success found so much admiration that many wanted to learn from Japan. The Japanese economy certainly did not distinguish itself through groundbreaking innovations though, but performance was largely confined to incremental innovations, e.g. modifications of existing products (Lill, 2013; N. N., 1969). On the same principles, other Asian countries like China have now developed a competitive position in the world market. While from the early Middle Ages to the communist turn, completely unknown products were transported over the silk road to the West, today the fully loaded ship containers contain primarily cheap copies of goods from the West. In his interview with the Harvard Business Review Shenkar captures this development and even goes so far to state that the ability to imitate is more valuable for business success than the ability to innovate (Shenkar, 2010). However, this development contains a risk that is not to be underestimated for the creativity in companies. If, due to efficiency considerations, imitation forms the base for a company's portfolio, the creativity potential for the future development of innovative offerings will suffer.

This trend is reinforced by the market power of large retail chains, wanting to respond quickly and flexibly to the latest trends. Thereby a one-sided demand-pull logic is encouraged while independent creative performance in terms of technology-push-logic receives little to no consideration. At malls in the most diverse corners of the world, one therefore increasingly finds the same brands with the same articles, sometimes even the same store design and an identical service offer. This development leaves less space for creativity.

2.3 Communication impediments

Some still associate creativity with the cliché of the solitary researcher who tinkers and experiments alone for so long until he has a vital epiphany. Much more often though, creative and new ideas are the result of team work, based upon the combination of different perspectives towards a problem. The transfer of knowledge between different individuals and thus communication are the decisive factors.

An active personal exchange between different disciplines, cultures, positions or departments fosters the development of creativity: a variety of communication relationships based on trust, cooperation, open discussion and mutual support. Besides, critical success factors are communication means that enable a comprehensive, fast and efficient exchange of information (Kanter, 1988: 172; Levin, Cross, 2004: 1478; Malecki, 2010: 1043; Williams, Yang, 2009: 387). At first glance, this may not sound like a special challenge, but practice shows that in a global context companies are confronted with a number of challenges, which make the creation of such communication environments more difficult (Doz et al., 2006: 6; Malecki, 2010: 1034):

Global or at least multinational structures provide some considerable spatial distance between relevant interactants.

The spatial structures of research and development (R&D) and innovation management of multinational companies – let alone the complexity of spatial structures at the corporate level – illustrate a first essential challenge: cooperating teams are no longer located at a central site. Access to qualified staff, cooperation with research institutes and universities as well as the development of new market potentials persuaded many companies to internationalize their innovation activities (Hall, 2011: 195; Thursby, Thursby, 2006: 2). A study by Booz and Insead shows

that during the time period of 1975 and 2004, the number of R&D facilities located abroad increased from 45% to 66% (Doz et al., 2006: 2). In most cases a new facility does not replace an existing one, but serves as an expansion or spatial reconfiguration of the value chain, so that existing and new facilities must be interlinked with one another (Thursby, Thursby, 2006: 3). In a study of Quintas et al. it is outlined that in some companies R&D activities are located in even more than 30 countries (Quintás et al., 2008: 1376).

In addition to the physical distance, language barriers often arise between the participants of international teams. The project language is not equivalent to the team members' mother tongue, which can lead to significant misunderstandings. These not only result from an erroneous translation, but also from a different expression style and misinterpretation or disregard of contextual information (Chen et al., 2006).

Overcoming spatial and also cultural distances thus becomes a key challenge for communication. In the age of advanced information and communication technologies the range of means to do so is broader than ever before. In her book „death of distance", Cairncross (2001) even affirmed that the problems of spatial distance were already solved. But although new communication technologies help overcome spatial distances, they entail additional challenges with regard to creativity development:

The usage of information and communication technologies to overcome these distances limits the opportunity to transfer knowledge because of lacking face-to-face contact.

„Electronic revolution could hit employee creativity" – says a headline based on a study by Andersen Consulting in 1998. Even then, 75% of all business communication was done electronically, which inevitably, was to the disadvantage of direct, personal interaction (Andersen Consulting, Investors in People, 1998; N. N., 1998: 7). In addition, the diversity of worldwide contacts has increased with globalization, but the communication capacity did not to the same extent; thus a reconfiguration of communication channels becomes necessary: personal face-to-face contacts are replaced by mostly electronically mediated (and apparently more efficient) forms of communication.

However, while direct personal communication enables the simultaneous transfer of multidimensional information – verbal, gesture, facial expression, body language and contextual information – this is limited when it comes to the use of e.g. mails and tele-conferences. Without face-to-face contact during interaction with others, we lack the use of those senses, which influence information processing mostly unconsciously like the smell, touch, or hearing sense. This is how dealing with intuitive elements of information fades into the background – to the disadvantage of the right-brain hemisphere, whose regular activation is essential for the development of creativity. Furthermore, opportunities to communicate implicit knowledge, which is very important during creative processes, are clearly limited (Dankbaar, 2007: 277; Storper, Venables, 2004: 354). Compared to personal communication, electronically mediated communication often shows reduced speed and spontaneity and in some cases also missing direct feedback options, thereby limiting creativity (Malecki 2010: 1043; McDonough et al., 1999: 381; Storper, Venables, 2004: 354): „Relative to electronically-mediated exchange, the structure of face-to-face interaction offers an unusual capacity for interruption, repair, feedback and learning" (Nohria, Eccles, 1992: 293).

This is confirmed by studies that show that the use of electronically mediated communication is not a sufficient basis for successful collaboration without additional, regular, and personal exchange (Malecki, 2010: 1044; Meyer, 1993). This most probably is an important reason for the fact that during the last two decades before the millennium expenses for long-distance business trips increased more than international trade (Storper, Venables, 2004: 351).

It is essentially tougher to build relevant trust for a fruitful collaboration atmosphere without direct personal interaction.

With global teams, in which different cultures, languages and infrastructure come together and where people may have never personally met before, the establishment of a joint team culture and mutual trust is already a challenge. Accepting expenditures, i.e. an investment of time and money to form a relationship is one opportunity to create trust. As these are "sunk cost" whenever the relationship is not continued, this kind of investments is a clear signal of interest in mutual exchange and collaboration.

Paradoxically, the desired efficiency of electronic communication limits its contribution to relationship building as it does not portray any significant investments of time and money (Storper, Venables, 2004: 356).

In addition, studies show that electronically mediated communication is more fact-oriented than face-to-face communication and leads to a lower number of contributions to be exchanged between collaborators (Siegel et al., 1986: 163). This contributes to the efficiency of electronically mediated communication, but at the same time illustrates that this type of communication is clearly less personal and hence contributes less to building a relationship.

In light of this quality decline, creativity, which should actually be shaped through collaboration of international teams, is clearly restricted; not all relevant content is delivered, messages are possibly interpreted incorrectly and trust, as a basis of joint creativity performance, only grows slowly.

2.4 Organizational burdens

Foreign trade has become more complicated for the German economy overall – approximately 60% of the surveyed companies complained about this in the last DIHK1-Foreign Economic Policy Report (2013). New markets and competitors may apply different rules, especially with regard to legal certainty, corruption or the protection of intellectual property. Currency manipulation, strategic trade policy, state aid supporting "national champions", industrial espionage, or the strategic use of patent lawsuits are problem areas that have gained importance in the light of globalization. While, for example, the negative impact of customs on the profitability of foreign trade used to be fairly easy to estimate, the risks and burdens of various non-tariff barriers to trade, government industrial policies or patent disputes occurring today can often not even be recognized before entering a new foreign market.

The increased complexity is especially true for innovation-friendly SMEs that face global competition. For them, cooperation with local partners is often a necessary requirement for market entry in order to access distribution channels. Furthermore an international network has become a major success factor for the innovation process. In the much-noticed concept of "open innovation", this even becomes a conditio sine qua non (Chesbrough, 2003).

But for SMEs the setup of networks with partners from other countries often fails due to capacity constraints (Herstad et al., 2008). In some cases they also occur at the expense of possibilities to control the business abroad and can, at worst, lead to foreign partners appearing as competitors also in the home country. In economic history there are impressive examples of this not only in the SME sector. The unfortunate cooperation between Daewoo and GM is legendary, from which many models have emerged with GM know-how, which the Korean partner suddenly began to sell on their own in the US. There are numerous examples in Germany of how former traditional brands fell into foreign hands against the backdrop of globalization and were then permanently damaged in their image such as Grundig, AEG or Grohe.

In particular, the experience gained from cooperation with Asian partners demonstrates an undesirable know-how-transfer (Beamish, Killing, 1997: 176; Blind et al., 2009: 59; Herstad et al., 2008: 65). For the protection of intellectual property, there are no procedures aligned to the opportunities and needs of SMEs in the international context (Blind et al., 2009: 33). The application of international patents is generally costly and so tedious, that it often seems pointless to even file an application for products with short life cycles. If, however, a patent infringement should arise, it is often not easy to comply with the burden of proof and obtain a verdict within a reasonable time frame. The granting of licenses to competitors could be an alternative to cope with competition. But German companies are usually far alienated from this useful – and among large US enterprises widespread – practice, as it very often does not fit to their company culture (Wacker, 2012).

In the commercialization phase SMEs are used to penetrate foreign markets in a successive manner, i.e. one country after the other. The counterpart to this would be a simultaneous approach ("sprinkler strategy"), which is often not taken into consideration due to SMEs capacity limits. The gradual approach, however, has been less and less successful for two reasons:

- Short product life cycles mean that countries with a similar development level have to be developed immediately.

- Especially Asian competitors are quickly in the market with imitations and other follower-commitments.

This dilemma again can basically be resolved best for SMEs by working with foreign distribution partners (despite the risks outlined earlier). Such cooperation is also important for SMEs because their employees have often gained only little intercultural competence. Yet, that is exactly what frequently leads to difficulties in cooperation with partners.

For decades SMEs were protected against (strong) competition in their specialized market niches. But with globalization, these were increasingly addressed by foreign competitors, realizing economies of scale based on their international sales activities. Having lost this protection, SMEs are forced to grow, in some cases using substantial resources, which are then no longer available for innovation projects. Also, with respect to management attention, this could lead to a shift in priorities negatively impacting innovativeness. Hence, a manager who is constantly involved in the preparation and execution of international travels, as well as the establishment of business relations in other countries, can spend less time for the enhancement of innovation activities.

2.5 Time

Some of the challenges for creativity arising from globalization, as identified in the last four sections, have a common consequence: time pressure. More and more *information* should be analyzed for increasingly complex decisions. A cross-border *communication* in creatively cooperating, intercultural teams requires more time. Speed is a crucial success factor in the development of new *products*. Thus lack of time is a kind of synthesis of the line of arguments presented previously. Repercussions on perceived or actual time constraints, however, do no not arise only indirectly, but also directly as we see a direct relationship between globalization, time perception, and creativity, which will be further explained below.

On an individual level, globalization increases time pressure by an enlarged range of options.

According to Gross, we live in a multi-option society (Gross, 2005). In all aspects of life, we have a confusing variety of options available: 17,500 eyeglass frames in an optician store, several thousand names that parents can choose from when naming their children, more than 7,500 bachelor degree programs at German universities – these are just a few examples of the almost exponentially increased number of options pressing for numerous decisions daily. Rules and traditions of our culture, which seemed unalterable as recently as 100 years ago and simplified many of these decisions - for example, to take over the occupation of one's parents – have lost validity in our modern societies in favor of freedom and self-determination.

Globalization contributes to this increase in options through two developments: on the one hand, due to elimination of trade barriers, lower transportation costs etc., globalization entails an even wider range of services and products offered and thereby expands the actual number and scope of potential choices (Koch, 2014: 77; Levitt, 1983: 93; Pieterse, 1994: 166; Sirgy et al., 2004: 251). On the other hand, globalization also affects the filter effect of culture: with its values, norms and traditions, culture helps the individual to reduce the number of feasible options – a prerequisite for coping with complexity (Pfaff, 2013: 114). However, this restriction ability of culture is lost when traditional values lose importance in a globalized world and cultural diversity evolves in terms of the postmodern idea of "anything goes".

Facing a decision, individuals therefore have to deal with a burden of options increased by globalization. The quantitative burden of options increases with the growing number of possible alternatives that need to be differentiated and selected. More complex selection processes with more selection parameters, a large amount and/or ambiguous information adds to the qualitative burden of options. If this increases to the point where available resources – and crucial here is time – do not suffice to master the variety of possible actions, the burden of options evolves to "stress of options" (Pfaff, 2013: 123).

This stress of options is also closely related to the information overload discussed earlier. If there were more choices available, more information would have to be collected, which would again intensify perceived time pressure.

On an institutional level, globalization contributes to an increase of time pressure due to a higher pace of change and increasing efficiency requirements.

Globalization goes along with an increase of efficiency pressure. This again is accompanied by a growing rate of change: adjustment periods that continuously become shorter, for example through shortened product life cycles, demand a high pace in the implementation of measures to optimize performance and increase efficiency: "no matter how stable an industry is, today it's changing at least 10 times faster than 25 years ago" (House, 2003: 34). Companies that cannot cope with this speed of change forfeit competitiveness and therefore (global) market shares – time becomes a decisive competitive factor (Harvey, Griffith, 2007: 489).

In daily work this often leads to an increased time pressure for employees: a defined workload has to be managed more quickly and with fewer resources (Elsbach, Hargadon, 2006: 470; Fraser, 2001: 20). In particular, those workers reporting 45 and more actual working hours weekly were affected by time pressure despite their already increased working hours – 66% of the respondents said in a 2011 study, they had to fight with a lack of time very often (Statista, 2011b). In a survey by TNS Infratest in the same year, almost 40% of the respondents stated that they were strongly or very strongly burdened by time pressure at work (Statista, 2011a). Where time savings can no longer be achieved, time is "compressed", meaning one tries to complete several activities at the same time: writing emails during meetings, preparing the next workshop while eating lunch in front of the computer etc. (Hauser, 2003).

Time pressure has a negative effect on the development of creativity.

How does lack of time affect creativity? Is the oftencited saying "With the necessary pressure, things get done" also applicable to creativity?

Employees basically show different responses to time constraints in their work. For some, the energy level rises, they work more and show a higher engagement. For others, the time pressure leads to frustration, increases impatience and causes a feeling of powerlessness in the face of even more tasks to be performed (Amabile, 2002: 57; Kelly, Karau, 1999: 1348). Overall, however, it turns out that even if employees are more productive under extreme time pressure and work longer hours, work results are less creative. An extensive study of different innovative projects showed that on working days with very high time pressure (highest rating on a 7-point scale), it is 45 % less probable that employees deliver creative thought processes (Amabile, 2002: 57). This creativity loss did not only impact the one stressful day, but was also experienced on the following two days (Amabile, 2002: 57; Amabile et al., 2002: 12). Thus, in the long run a "chronic time pressure" can lead to a "chronic lack of creativity". The effect is heightened additionally when a low level of creativity in the early stages of an innovation project strengthens the (perceived) time pressure in the medium run. It is like a negative spiral this will have a further negative effect on creativity performance. To conclude, lack of time is one of the key obstacles for the development of creativity (Amabile, 1997: 49, Amabile et al., 2002: 14; Soriano de Alencar, 2008: 102).

This negative impact may be explained by a number of influences throughout the creativity process. First, there is less time to understand the problem as such and the underlying customer needs. In the next step, lack of time has a negative effect on the exploration of new situations. A creative output can occur only if there is enough time available for the development of a solution space with numerous ideas and associations (Ruscio et al., 1998). The same applies for the then upcoming linkage of developed ideas and associations as well as the analysis of possible combinations: the more time is available to explore options, to assess their impact, to drop, or further elaborate, the higher the creativity (Amabile et al., 2002: 3; Ruscio et al., 1998).

Regardless of the creativity process, time pressure leads to further limitations of creative, cognitive processes. Individuals process less information, are less willing to take risks and use simpler cognitive reflection patterns and strategies to solve problems, which significantly restricts the overall creativity and flexibility in thinking (Amabile et al., 2002: 15; Hallowell, 2005: 57). The type of innovation projects and thus the relevant creativity potential change under time pressure in favor of small alteration steps. Projects with radical changes are more complex, connected to more risk and uncertainties and often encompass a wider range of impacted corporate functions. Thus, its implementation significantly slows down. If speed becomes a priority, this

results in a trend towards incremental rather than fundamentally new changes (Kessler, Chakrabarti, 1996: 1165).[2]

As a result, it should be noted that globalization increases the burden of options on an individual level and the efficiency pressure on an institutional level, thereby increasing the perceived time pressure. Ultimately, creativity suffers since less time is available for explorative thought experiments and information processing.

3. Possible countermeasures

In economic development there is practically no determinism. Every action may entail positive as well as negative effects. Of course, this is also the case for the relationship between globalization and innovation, i.e. creativity. There are definitely compelling arguments and opportunities for increasing innovation and creativity potential through globalization, too. Moreover, it is by no means as if the loss of creativity and innovation strength would be unavoidable or irreversible in its consequences. Companies can employ a range of measures to counteract the demonstrated risks:

- **Management of the flood of communication**: With regard to communication, many employees use a simple stimulus-response model: they use the more or less permanently existing options to communicate without substantial restrictions. As a result, this leads to people constantly being interrupted in their work or multi-tasking. The simultaneous work on different tasks can only be performed at the expense of creativity though (Amabile et al., 2002). Therefore it seems essential that communication is disconnected from conceptual tasks. It would make sense e.g. to fix a maximum time budget and time slots for meetings, writing e-mails and other communicative efforts, thereby opening up capacities reserved for creative activities.
- **New creativity in product development:** The creative performance of the employees and therewith also the innovation strength of companies could be enhanced by changing the focus of new product development. In addition to the attention paid to easily recognizable, rapidly changing subjective customer needs, focus should be on all the still unmet – often latent – customer needs, following an often-cited quote of Henry Ford: "If I had asked people what they want, they would have said faster horses." Another option, implemented at various corporations in Japan, is a stronger separation of pre-competitive from competitive R&D, so that besides the rapid and efficiency-oriented competitive research more attention is paid to latent customer needs and the development of completely new ideas.
- **Modified role in the innovation process**: A company – especially a SME – does not have to operate as a full-line producer in the innovation process; this can even impair the innovation capacity since the involved parties rely too much on internal resources and neglect the opportunity of interinstitutional cooperation alliances. Networks can newly align existing R&D capacities and use them more efficiently.
- **Modified organizational culture**: SMEs are often molded by their owners and therefore show, at least traditionally, a rather centralized decision-making behavior, which is known to be detrimental for innovation (see Graumann, 1994). As corporate culture has a very strong influence on a company's ability to develop innovations, decision makers are well advised to initiate a cultural change.
- **Time Management:** Companies like 3M, which allocate a fixed time budget for the development of creativity and innovation and implement this by corresponding management support in the daily work, show that there are meaningful starting points for the promotion of creativity also in time management.

4. Conclusion

Promising positive effects of international cooperation for the development of creativity and innovativeness are discussed widely. In our paper we have shown that these effects by no means arise automatically, but rather that globalization is accompanied by a number of risks to creativity and innovativeness.

The efficiency benefits of globalization could be fostered at the expense of quality and the development of creativity and innovativeness: an increasing amount of information is to be processed, more

communication processes are to be managed and a continuously increasing volume of products is to be produced based on standardized processes. In such circumstances, perceived information and communication overload as well as an efficiency-based pressure to adapt to standardized behavior can cause affected employees to draw back from creativity processes and take refuge in simpler tasks. This can lead to an unwanted vicious circle with regard to creativity, as employees that did not have enough time for creative work during a period of time also start losing their potential for creativity, which will in turn affect the individual set of priorities at the expense of creativity. These trends are accelerated by the modern information and communication technologies. By no means are these negative consequences inevitable; on the contrary, companies have a range of options at hand to counteract these threats to creativity.

Limitation of our approach and recommendations for future research

The presented approach and results are subject to some limitations:

- We chose to conduct our research on existing documentation. The conclusions are not validated by own empirical data.
- Although addressing globalization, our view is rather restricted to the cultural perspective of the occidental hemisphere where individualism finds strong emphasis in creativity development.
- Our analysis focuses mostly on innovation in terms of new product development in contrast to process innovations.
- Obviously, our analysis was focused on the obstacles that globalization creates for creativity and innovativeness. An in-depth analysis of the positive impact of globalization on the exact same constructs would also be worth analyzing.

Future research should address the specific requirements emanating from these limitations, i.e.:

- Generate empirical data that should be based on interdisciplinary efforts with respect to the areas of psychology, anthropology and business economics;
- Validate differences for individualist and collectivist cultures;
- Analyze the mutual impacts between product and process innovation in light of globalization;
- Contrast positive and negative impact of globalization on creativity and innovativeness.

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(Endnotes)

1 DIHK is the central German national organization of the Chambers of Industry and Commerce.

2 However, it is also not the case that in the complete absence of time pressure an optimum could be achieved on creativity. The study of Amabile et al. showed two opposite behaviors here: either explorative-oriented creativity, which is not related to a specific problem, or the complete lack of creative processes (Amabile et al., 2002: 60).

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Globalizacija kao čimbenik rizika za kreativnost i inovacije

Sažetak

S napretkom globalizacije raste i pritisak za inovacijama u njemačkom gospodarstvu. Pitanje je odražava li se to na povećanu inovacijsku aktivnost i kreativnost. U ovome se radu to pitanje obrađuje iz suprotne perspektive: s obzirom na to da statističke analize pokazuju pad inovativnosti u Njemačkoj i ostalim razvijenim zemljama u zadnjih nekoliko godina, taj se trend objašnjava na nekoliko načina. Globalizacija predstavlja rizik za kreativnost poduzeća i njihov potencijal za inovacije. Taj se rizik ovdje identificira u gospodarskom, poslovnom i psihološkom području te se detaljno obrazlaže njegov potencijalni utjecaj na kreativnost i inovacije. Također se iznose mjere kojima bi se moglo djelovati protiv takvih rizika.

Ključne riječi: globalizacija, inovacije, upravljanje inovacijama, kreativnost, srednje velika poduzeća, ekonomska struktura