companies for the production of pharmaceuticals and materials became leaders in the number of newly created legal entities – their number increased by 600%. During the quarantine period in Ukraine there was an increased demand for antibiotics, antivirals and antipyretics.)

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THE USAGE OF COMPETITIONS IN DIGITAL INNOVATION

A literature based research proposal
The present paper follows the TREO (Technology, Research, Education, and Opinion) concept for presenting research ideas, education innovations, exciting tools & data, or opinions related to any area of information systems, the information systems research community, or information technology.

Key Words: Digital Innovation, Challenges

1. Introduction
The general trend of globalization in the era of Industry 4.0 (Kumar, Zindani, & Davim, 2020) is that the inclusion of innovation with digital technologies and line of thoughts has become a premise for survival (Brynjolfsson, 2011, pp. 60-76).

The digital industry has succeeded in arguing that unless the companies (organization) change and acquire the digital disciplines, disruption (disruption) occurs in the market. It may even be from brand new competitors or technologies that have not previously characterized the industry (Christensen, Raynor, & McDonald, 2015).

Many system development organizations face difficulties assuring innovation in their digital innovation processes. This paper suggests an experiment in form of a competition between two information system development teams to explore how these can support digital innovations.

A competitive element for innovation can be added by allowing several participants to challenge each other and thus sharpen the final contribution. Digital innovation competitions run from a few days to several months and are targeted to develop or contribute a digital service where digital content is a prerequisite (Hjalmarsson, Juell-Skielse, & Johannesson, 2017, p. 11). The competition element in the form of a digital innovation course is most commonly used in open innovations and is not yet widely used in internal and closed innovation courses. Hjalmarsson et al. (2017, p. 11) point to the need to move towards open innovation using external resources, such as ideas, technologies or people. However, primarily external developers make the difference between open and closed digital innovation and the organization will have some level of loss of control for the process of open innovation.

Innovation competitions exist in four categories and combine the format with the competition objectives and criteria, and it is the competition's final contribution and the maturity of this contribution that must form the basis for choosing the type of competition. Innovation competitions can be particularly vulnerable to unclear objectives; whose scope is too broad or narrow; has too few participants; has unclear rules or too low organizational support (Hjalmarsson et al., 2017).

Many companies and organizations hold innovation contests to gain greater creativity, or to look at their business or product context from new angles. Our daily lives in businesses, educational environments, government organizations, and even industries are filled with Case Competitions, Hackathons, and Digital Challenges. A simple Google search returned 1630 results for «industrial innovation contests»[1]. If we look for 'innovation competition' the number rises to 12,000. A search for «innovation challenges» returns hundreds of millions of results. You will even be able to find online marketplaces for innovation contests, also used by global software companies such as SAP[2], who otherwise have no history of openness. In the present paper, we define Challenges *as a course of innovation containing a competition element in a digital context*. For practical purposes, this could be as Hackathon's, Design Sprints, Design Thinking, Innovation Sprint, Open Innovation and Co-creation.

2. Design

To explore the competitive element and looking for perspective and effects of using Challenges for digital innovation we, therefore, suggest a three faced research process to identify a framework for improving future use of challenges. There shall be a special focus to identify significance for Collaborations, Methods used, Organizing and balancing in relation to everyday life, Knowledge and learning perspective, the competition element and the concrete results.

Phase one: preparation of a theoretical analytical framework via a literature analysis. The literature analysis shall contribute with an analytical framework by mapping and comparing the commonly used methods, thereby classifying a

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[1] 29/12/2019

[2] https://innovationchallenges.global/challenge/203

framework for digital innovation into practice providing a conceptual and theoretical foundation for the subsequent case study research (Webster & Watson, 2002). The search will be based on a combination of keywords (innovation practices, concepts and attitudes) with (Hackathon, Design Sprint, and Design Thinking).

Phase two: Based on a set of beforehand defined criteria two development teams (a variation on seniority) will be asked to do an experiment in form of a digital innovation course, called Design Challenge. Through the specific case's deep knowledge and real practical experience is gained, and at the same time based on contextual experience and with a background in contextual theory. This gives rise to a high level of learning (Brinkmann & Tanggaard, 2015).

The experiment will be analyzed through qualitative data collection in form of six interviews with the participant and collection of the produced design artefacts. The background to the qualitative approach must be seen in the light of the insight that can be created through dialogue and concrete insights from practical experience through in-depth interviews.

Phase three: reflection and setting into perspective to investigate other companies' experience in the field of digital innovation in practice through a semi-structured interview with a top responsible (Corporate Vice President) for digital innovation at a Large Company.

3. Conclusion

Based on the above we aim to answer the research question:

How can a company work with digital innovation using Challenges, thereby acquiring organizational methods and learning through practice?

What concrete experience comes from using the Challenge concept as an innovation model, in the digital innovation perspective, and how are these compared to theoretical knowledge?

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