“Meet Your Personal Cobot: Will It Change You? Can You Resist It?” Appropriating Collaborative Industrial Robots in Makerspaces as a Trading Zone

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Introduction

Collaborative robots (cobots) were first introduced in automotive factories as devices capable of

Collabulatle-4.0 visions promote cobots and human

“Computer Integrated Manufacturing” paradigm of

[1] Project website:

After introducing the case and the theoretical framing, the focus in this paper will be on the first encounters between researchers, cobots and makers, and on how the actors approached the safety issue in the studied project; followed by a short and open discussion of the case.

Case Study

The “Cobot Meets Makerspace” project aims to install cobots in the “GRAND GARAGE)(i)-1.2ma.001 Tk(e)-23sTJ321 (t)-6.

The trading zone concept has also been applied to exchanges between non-scientific communities (Balducci & Mäntysalo, 2013; Gorman, 2010). In these examples, the different groups involved in the trade seem to have had sufficient epistemic, political or other kinds of authority to act as approximately equal partners in the trade. The balance of power relations between trading partners determine whether a trading zone tends to be collaborative, coercive or subversive (Galison, 2010; Collins et al., 2007).

Having triggered common interests with the members of different technical cultures, I would argue that cobots may be regarded as *boundary objects*, which stimulate and justify exchanges between researchers and members of the GG—as two different "user-developer" groups—and between different kinds of institutions. The sociotechnical configuration of the studied project thus appears to resemble a trading zone, centred on a manufacturing technology in th,manufin. This configuration is interesting because it creates the premises for the co-construction of cobots and their (un)projected [2] users (Oudshoorn & Pinch, 2003; Akrich, 1992). In processes of co-construction, users play a determinant long-term role in the des

other participants wished to test the sensitivity of the robot by programming it to build a tower of asymmetric stones.

Being used to industrial applications, the trainers were puzzled by these ideas. And, after countless, repetitive rounds of testing, only playing a simple melody on the kalimba seemed to work. Owing to its limited programming interface, the cobot was clearly unfit for most of these tasks. Currently, Panda's capabilities can only be extended by acquiring additional apps from Franka Emika's app store. In this store, a single app costs 800-2000€; and, besides Franka Emika, only carefully screened companies are allowed to develop and sell new apps.

During this exercise, one type of "good" being traded between the trainers and the participants appeared to be in the form of "demystifying truths" about the potential and limits of cobots. The difficulty to implement any kind of unscripted idea suggested that robots are still unfit to replace humans in various work settings. The HMI researchers also confirmed their hypothesis that the sparsity of industrial cobot use cases is not only

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Instead, the safety of an application is “negotiated” between the integrator (i.e., factory) and a certified safety consultant. These consultants have a profound understanding of the multitude of applicable norms, and perform the necessary measurements and calculations for each application

safety. This suggests that, introducing a new technology in makerspaces may—under certain conditions—cause some degree of institutional isomorphism (DiMaggio & Powell, 1983) through professionalization and normativity.