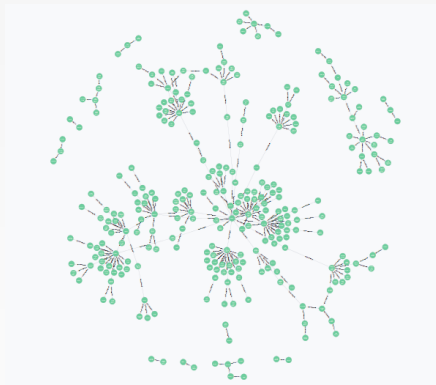


LIVE SOFTWARE FOR REPRAP ASSEMBLY WORKSHOPS



TORBJØRN LUDVIGSEN

INTRODUCTION

Productivity

Simple machines: RepRap

Copyability

Structural Virality

RepRap Assembly Workshops

An Achilles heel: Software

THE EXPERIMENT

A Solution: Package Software With Live Operating Systems

Experiment design

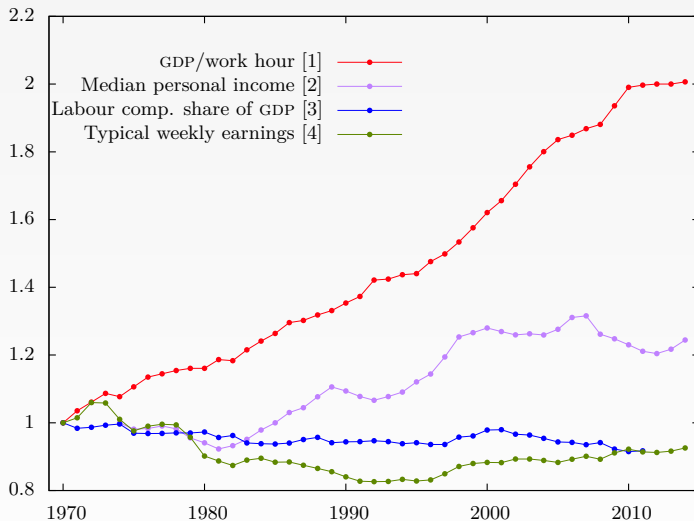
Boot failure

Copyability success

Yes, live OSes can work

Fix the boot failure

Computer productivity payoff has not reached median income Americans yet



They need simple, small scale machines



Source: Lglsw. (CC BY-SA)

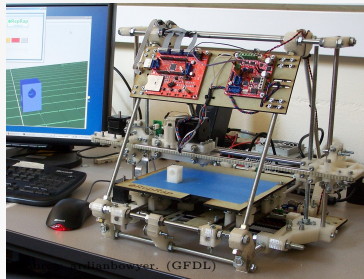
T-Ford (1908)

Low-priced

People took it apart and learned

Standard interchangeable parts

Central production line



Source: GFDL

RepRap Mendel (2009)

Low-priced

Favourite among maker enthusiasts

Standard or self-manufactured parts

User production and distribution

Problem: There is no central factory where we can go and optimize RepRap production!

Optimizing user distribution means optimizing copyability

Measuring user distribution means measuring structural virality over time

The most popular RepRap design has spread through RepRap Assembly Workshops

Software is an Achilles heel for motivation

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The software needed to host RepRap assembly workshops can be packaged in live operating systems

We configured a live OS and tested it in a full experiment

Out of 11 participant groups, 5 failed to boot the live OS

Participants regarded software as likely to hinder their 3D printing, but not their workshop hosting

The live OS *can* shorten RepRap assembly workshops without decreasing copyability if used with care

More participants must boot successfully

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OECD. *GDP per capita and productivity levels*. URL:
<http://dx.doi.org/10.1787/data-00686-en> (visited on 05/02/2016).



US. Bureau of the Census. *Real Median Personal Income in the United States*
[MEPAINUSA672N]. URL: <https://research.stlouisfed.org/fred2/series/MEPAINUSA672N>
(visited on 05/02/2016).



University of Groningen and Davis University of California. *Share of Labour*
Compensation in GDP at Current National Prices for United States
[LABSHPUSA156NRUG]. URL:
<https://research.stlouisfed.org/fred2/series/LABSHPUSA156NRUG> (visited on 05/02/2016).



Council Of Economic Advisers. “Economic Report of the President”. In: *Washington,*
DC: US GPO, Annual. US Council Of Economic Advisers Economic report of the President
(2015). Table B-15: Hours and earnings in private nonagricultural industries.