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REIMAGINING THE FUTURE

MANUFACTURING-AS-A-SERVICE

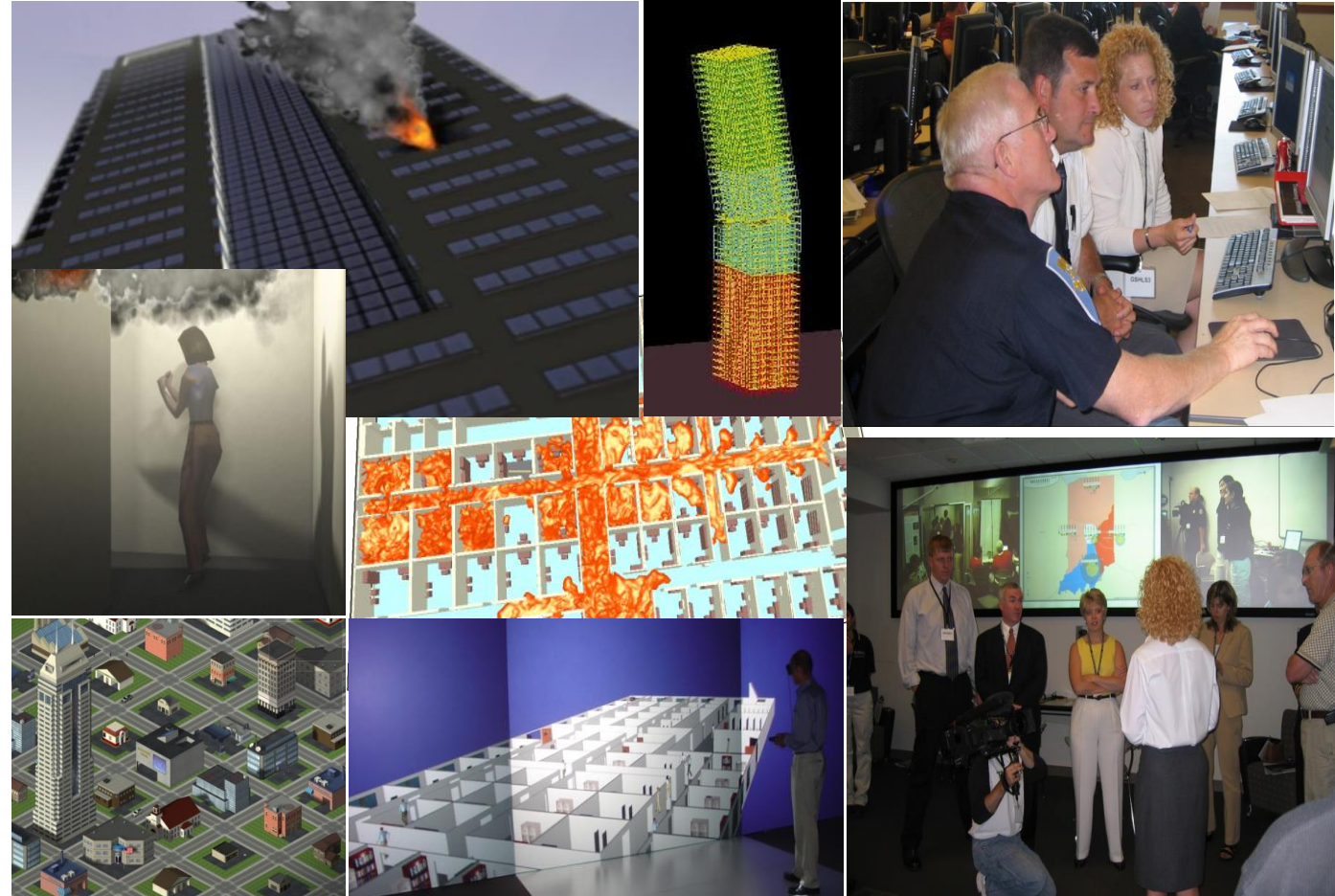


Outline

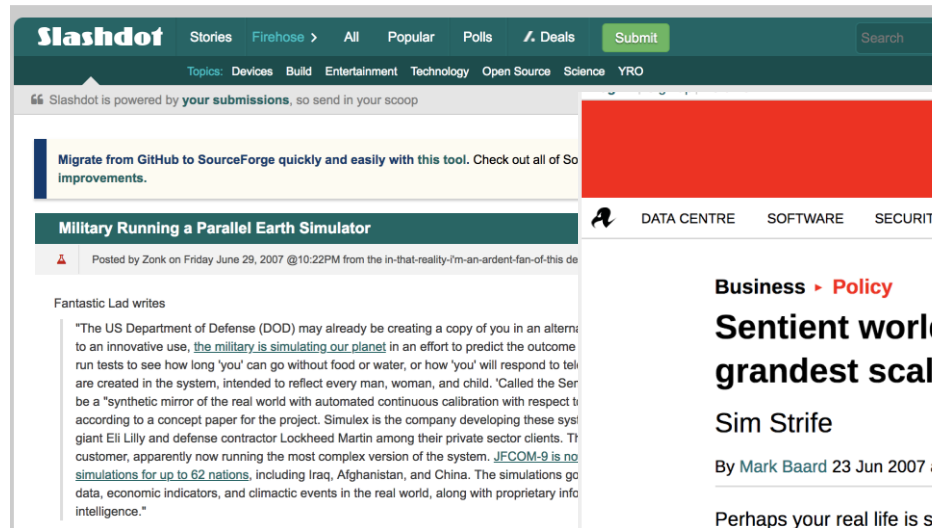
- Background
 - About me
 - Institute for Social Empowerment thru' Entrepreneurship and Knowledge (ISEEK)
 - Project Saksham – the India Experience
- Manufacturing-as-a-Service
 - Why now
 - The concept
 - Bringing MaaS Main stream

Alok R. Chaturvedi, PhD

- Inaugural Director, Purdue Homeland Security Institute (2002-2007)
- Presidential fellow for Policy, Global Policy Research Institute, 2014-2016
- Technical lead US DoD Sentient World Simulation Project (2004 - 2008)
- Sagamore of the Wabash, highest civilian award for the service of the state of Indiana, 2005



Founded and exited from 3 Companies



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Migrate from GitHub to SourceForge quickly and easily with this tool. Check out all of So improvements.

Military Running a Parallel Earth Simulator

Posted by Zonk on Friday June 29, 2007 @10:22PM from the in-that-reality-7m-an-ardent-fan-of-this-deb

Fantastic Lad writes

"The US Department of Defense (DOD) may already be creating a copy of you in an alternate reality to see how long you can go without food or water, or how you will respond to televised propaganda. The simulations go data, economic indicators, and climactic events in the real world, along with proprietary info intelligence."



DATA CENTRE SOFTWARE SECURITY DEVOPS BUSINESS PERSONAL TECH

Business > Policy

Sentient world: war games on the grandest scale

Sim Strife

By **Mark Beard** 23 Jun 2007 at 09:02 20

Perhaps your real life is so rich you don't have time for another.

Even so, the US Department of Defense (DOD) may already be a copy of you in an alternate reality to see how long you can go without food or water, or how you will respond to televised propaganda.



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Baghdad reduced to bytes

Some experts question whether the Defense Department is overreaching with a simulation of Baghdad that tries to model most human factors

By **Josh Rogin** | Nov 06, 2006

About USJFCOM: Urban Resolve

On a hot summer day in Iraq, U.S. soldiers fight a low-intensity counterinsurgency battle on the streets of Baghdad. At 10 a.m., a truck parks near a warehouse in a crowded part of town. The truck explodes, killing the men inside and one of the soldiers standing guard.

After securing the area, the remaining soldiers sound the alarm and call for help. Onlookers gather — some cursing the bombers and others cursing the Americans for attracting the attack. Eventually, emergency responders arrive and begin to treat the wounded and quell the mob. If it had occurred in the real world, this scenario generated in a Defense Department simulation would have immediate and future repercussions in the neighborhood, the country and the Middle East.

Related Links

- Defense Modeling, Simulation, and Analysis
- DOD's uberportal

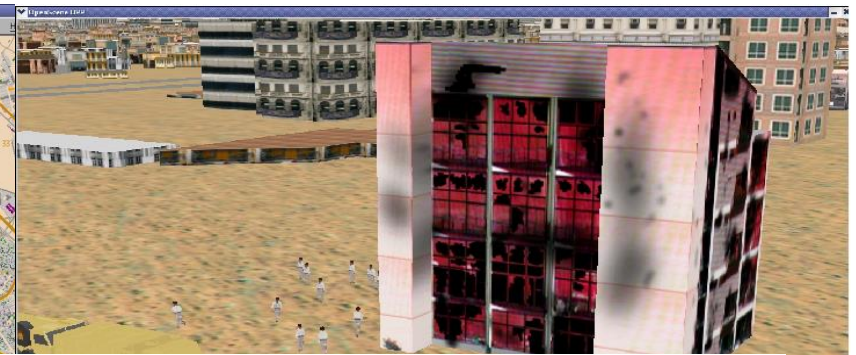
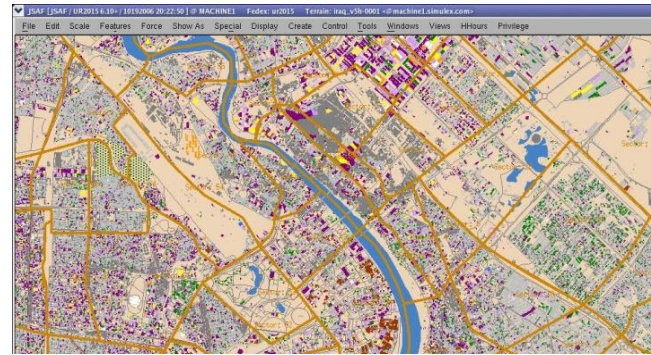
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FCW UPDATE

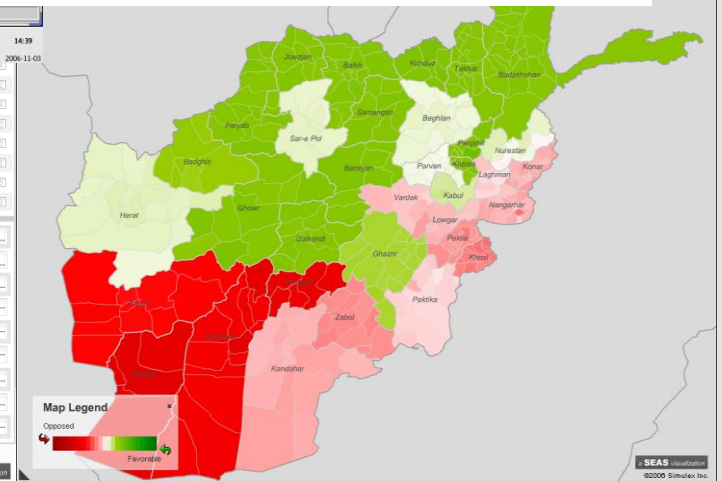
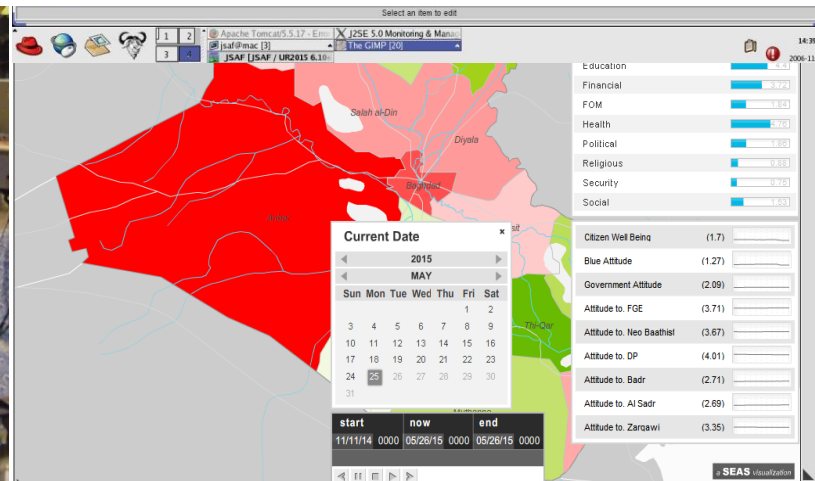
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NEW FROM FCW

Senate OKs creation of new DHS cyber agency

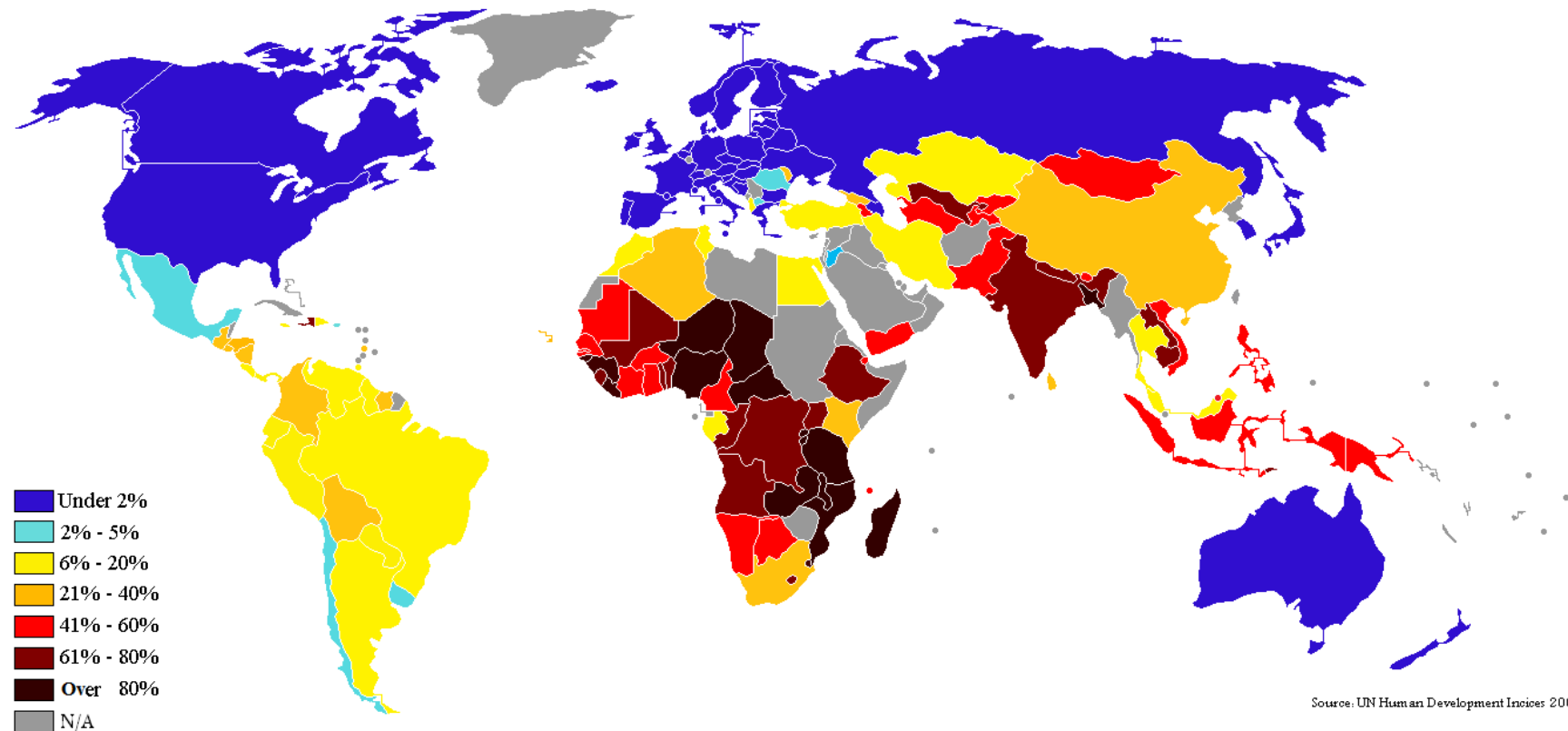


Rated best Simulation Technology for Analysis in all of Department of Defense, 2007 by an Industry Group



Institute for Social Empowerment through Entrepreneurship and Knowledge (ISEEK)

Nearly 3B in the world & 400M in India live on < \$2/day



If everyone in the world lived like the average American, it would require resources of



Change our prosperity model from:

- Produce and Pollute
- Exploit and Profit
- Consume and Waste



To Prosperity in Harmony with the Planet and People

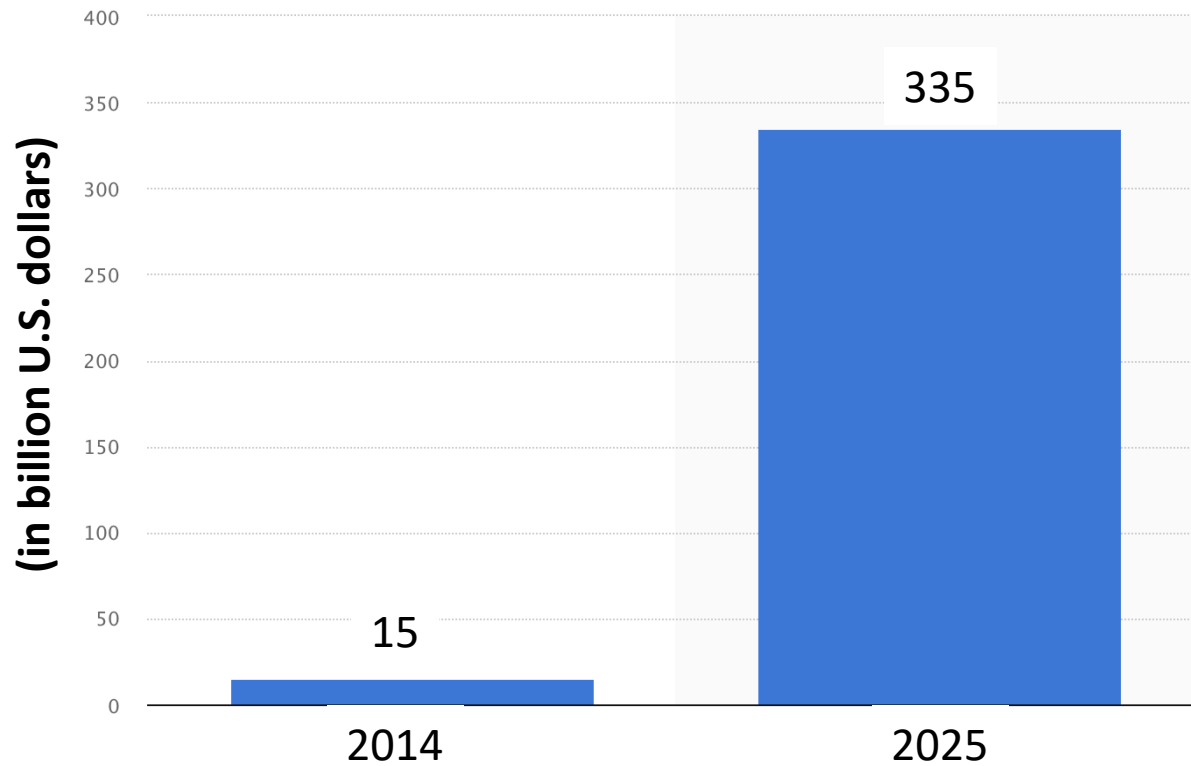
Institute for Social Empowerment through Entrepreneurship and Knowledge (ISEEK)

- Established at Purdue's Krannert School of Management in 2014
- Vision: To create resources that empower the under-privileged population of the world
- Mission: To lift
 - 10 Million People, in
 - 10 Countries, in
 - 10 Yearsout of poverty through



ENTREPRENEURSHIP & KNOWLEDGE

Ever growing worldwide sharing economy



© Statista 2018

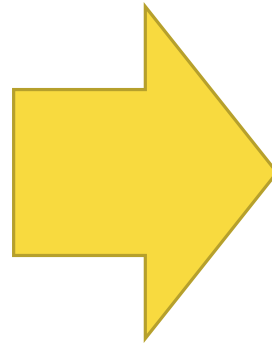
Mobile Shared Manufacturing
=
Factory-as-a-Service



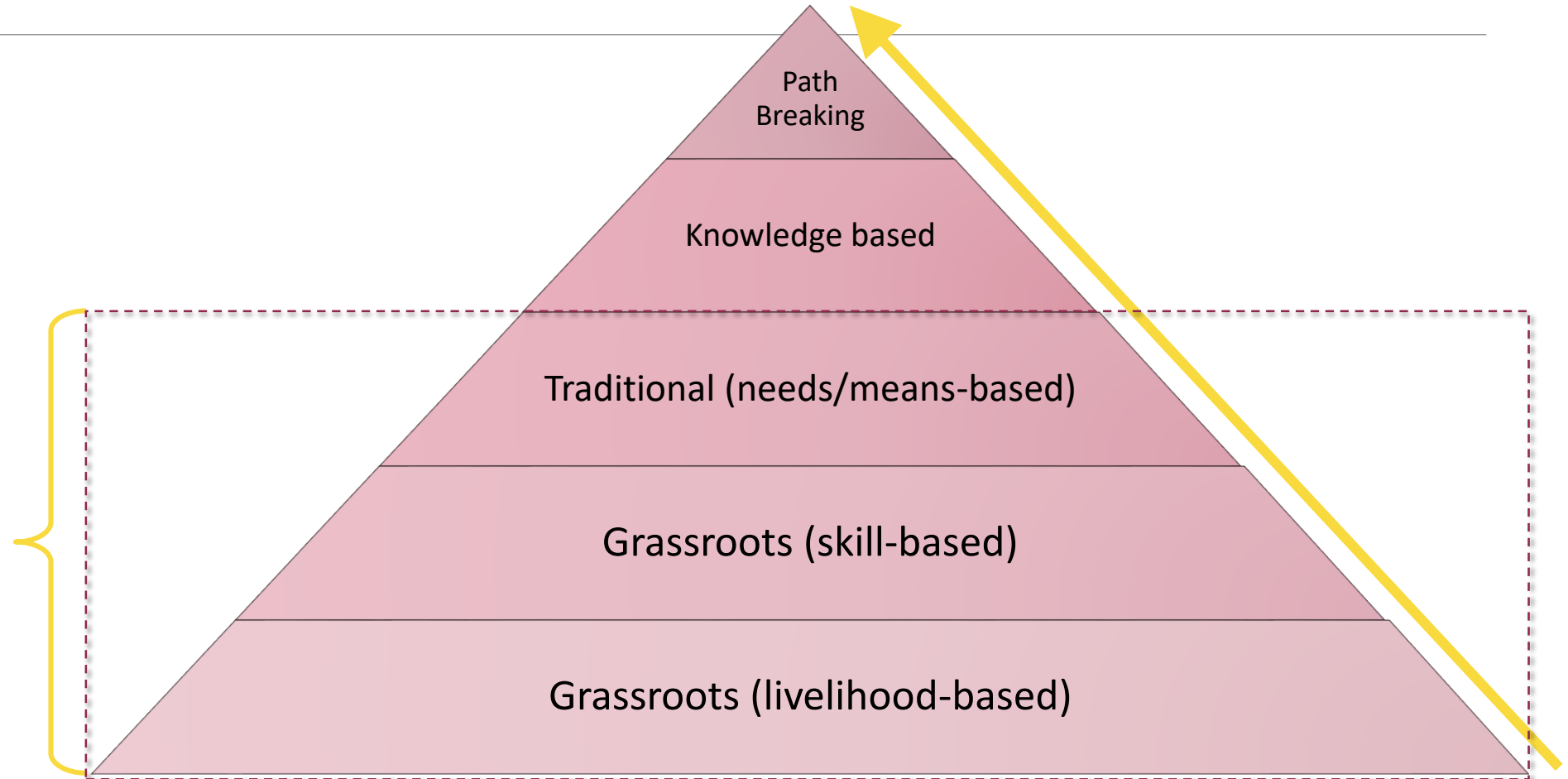
Outline

1. Reimagining Manufacturing of the future
 - Project Saksham
 - Manufacturing as a Service (MaaS)
2. Insights into FaaS Scalability
3. Discussion

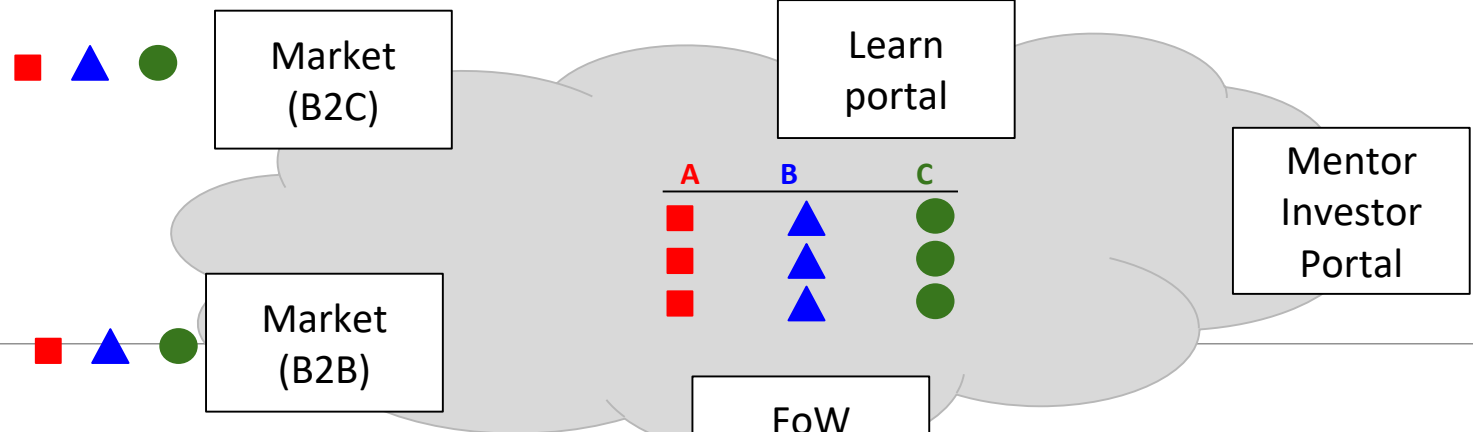
Saksham -- India Experience



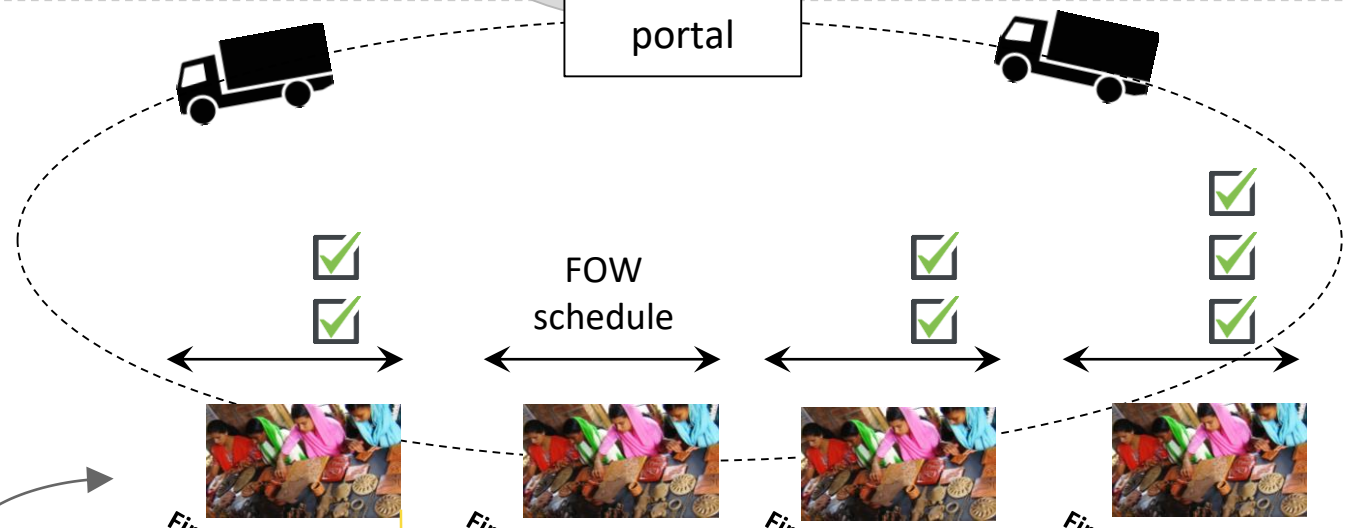
Entrepreneurial Pyramid



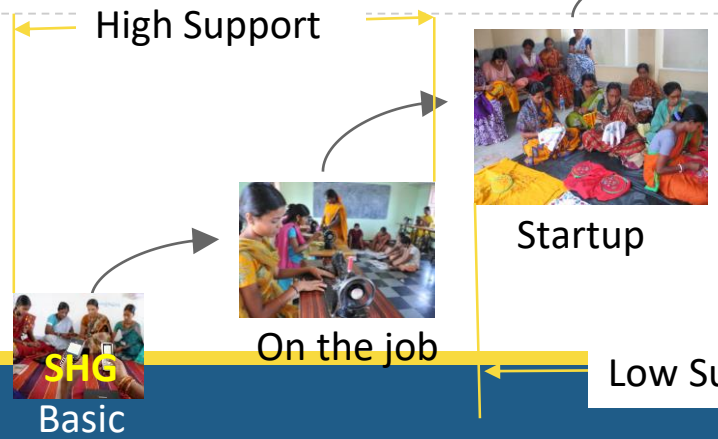
Saksham: Manufacturing as a Service



Manufacturing Cloud



Factory on Wheels (FOW)



Hybrid Development Model

Entrepreneurship for the masses!

Daksh: Shared innovation economy platform

Create small businesses from self help groups

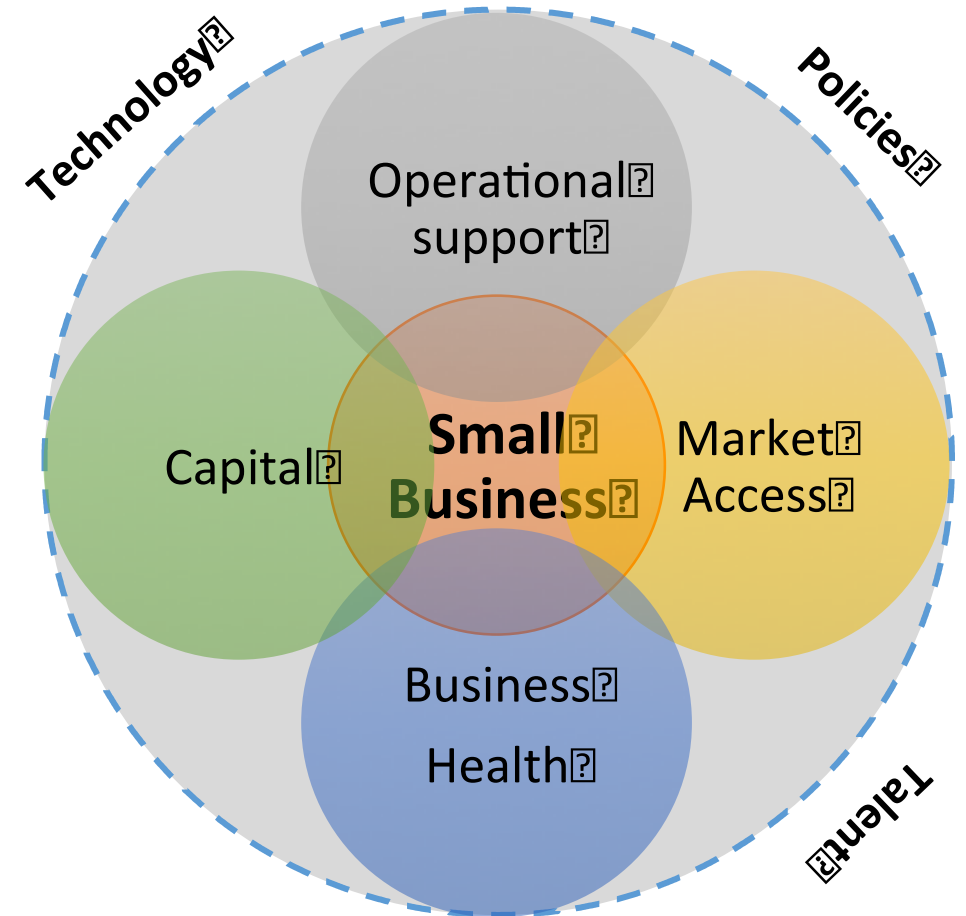
Provide business & health knowledge through mobile games

Facilitate access to startup, working, and growth capital through investors, Govt. & banks

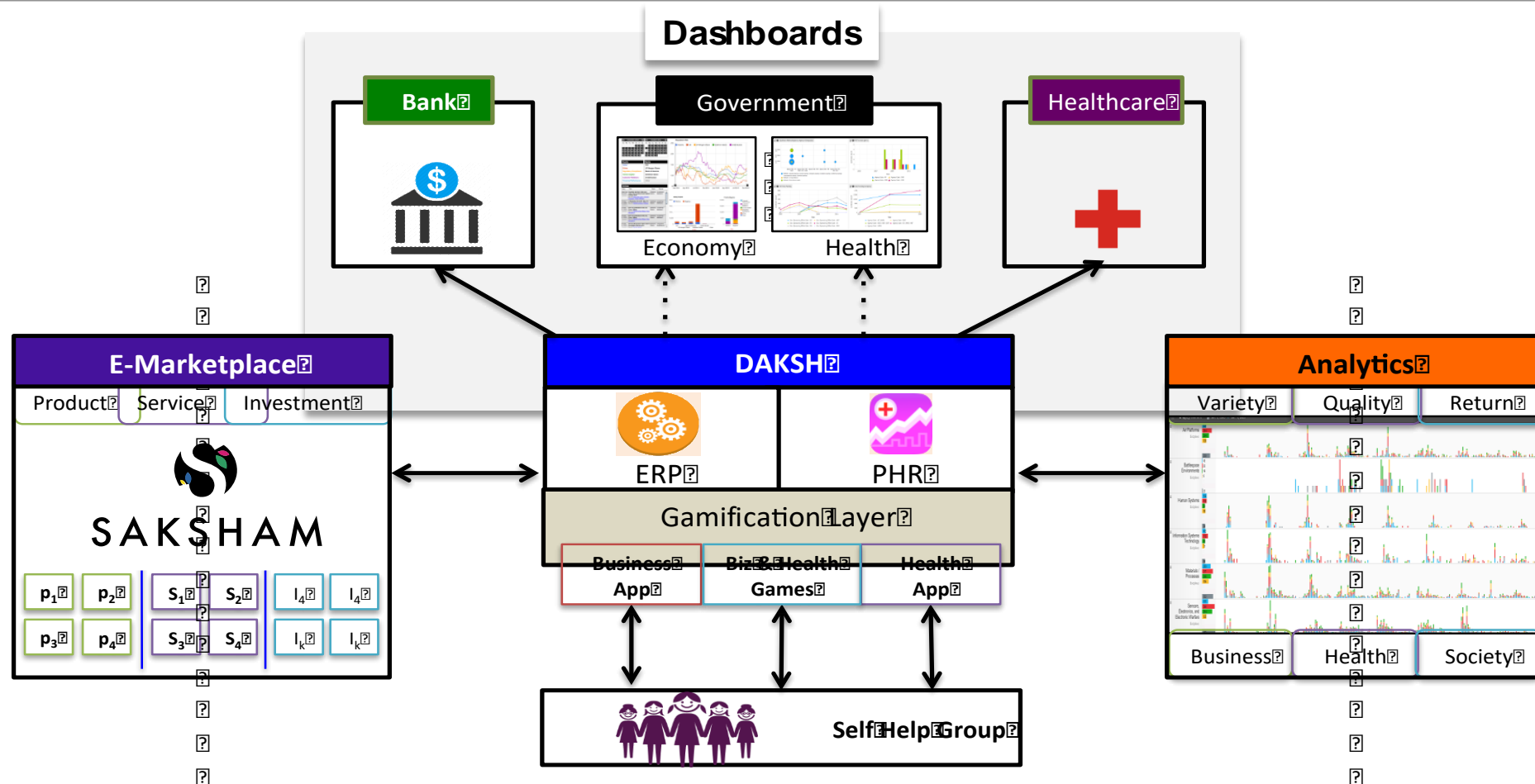
Provide operational support through business and health apps

Provide access to the market through e-portal and partnerships with local, national, and global retailers

Provide enabling services – technology (DAKSH), Talent, and Public Policies



Daksh: Innovation economy platform

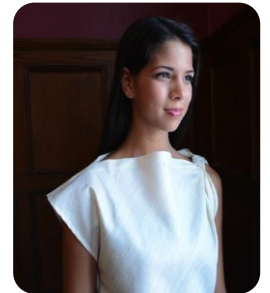


Jharkhand, India

~ **100** Self Help Groups
(quasi Business)

~ **1500** young women
involved

~ Avg. income of Rs.
10,000/ **\$160** per
month from \$80/year

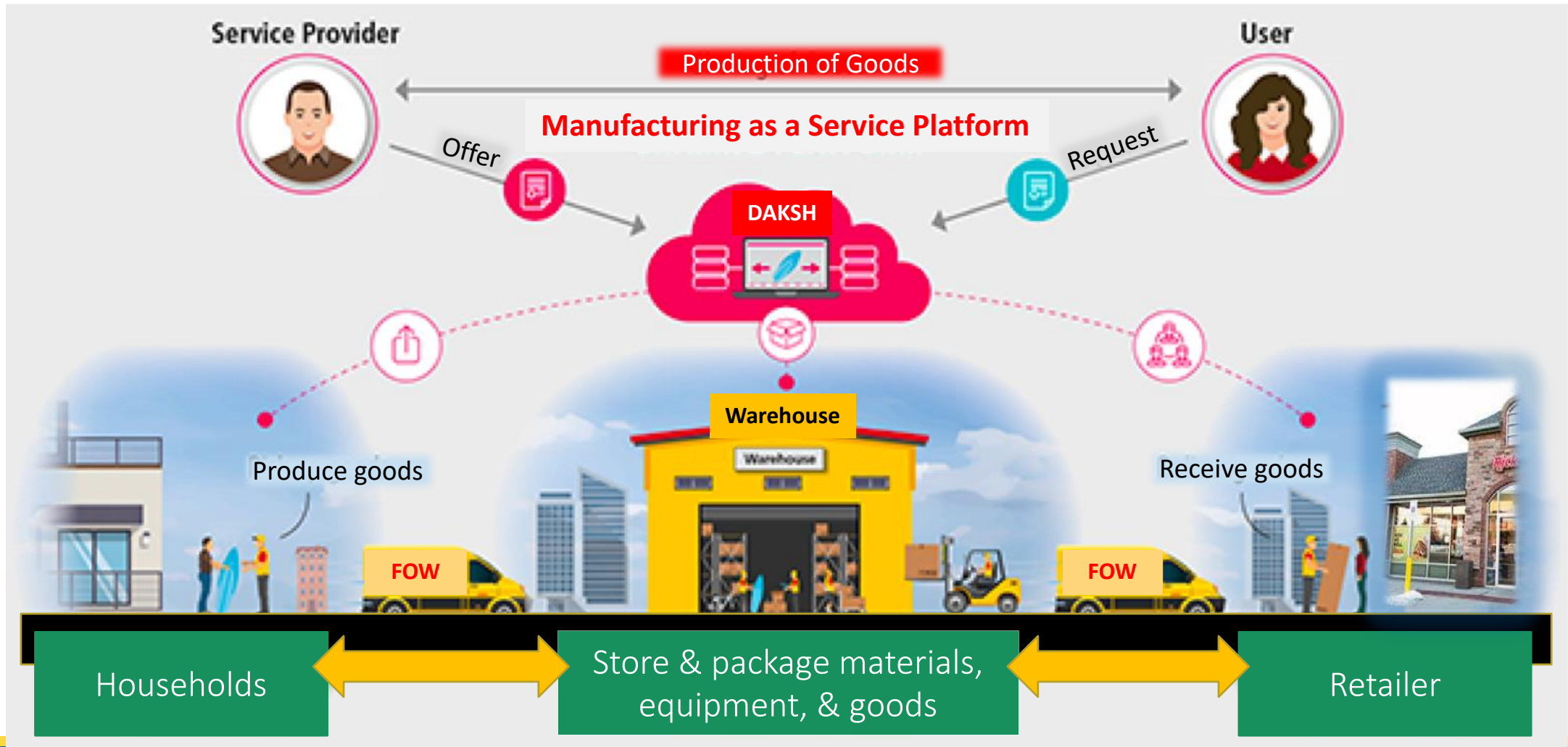


Bringing MaaS to Mainstream

US Manufacturing since 2000

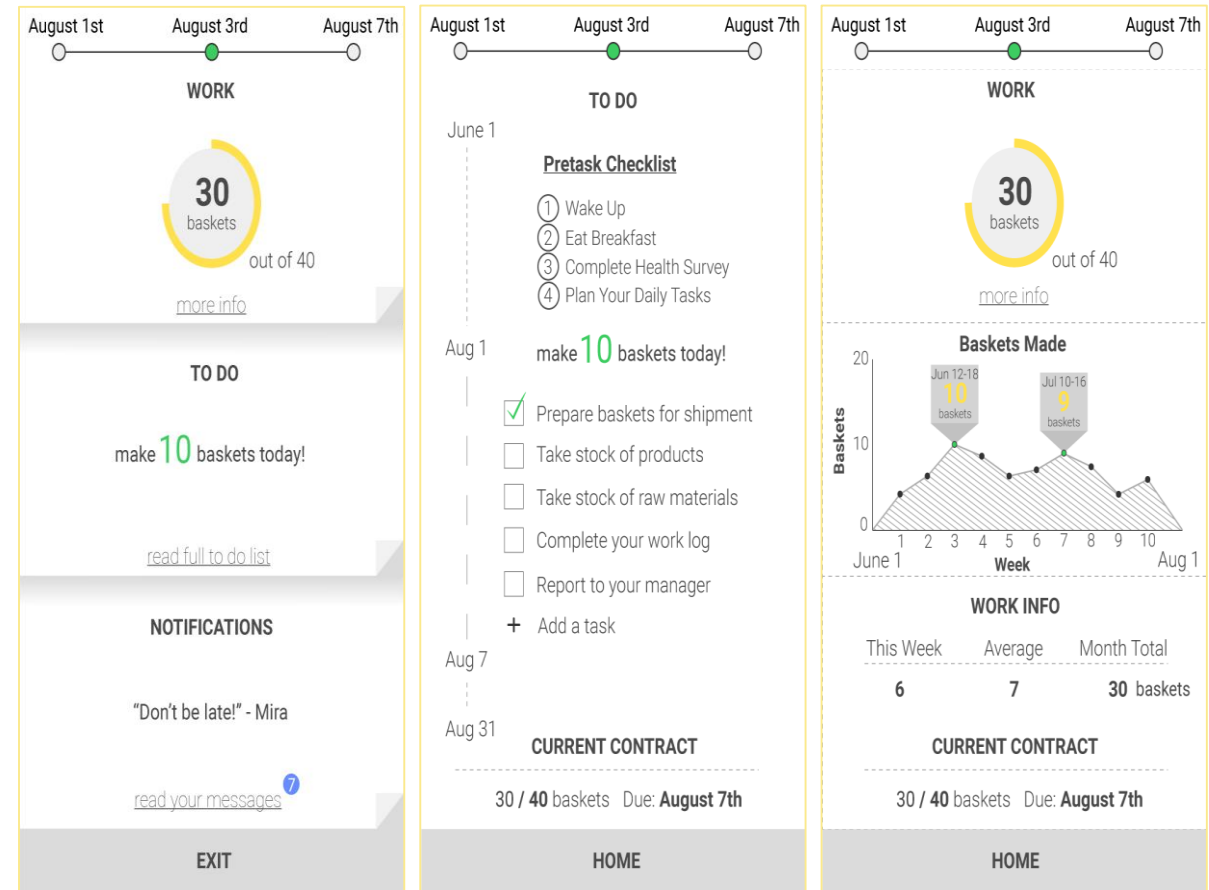
- 5,000 plant closures and a loss over over 5M jobs
- Plant closures have large adverse and lasting effects on workers and communities:
 - Dislocated workers experience large, persistent earnings losses
 - Large adverse shocks can send regional economies into downward spiral, depress regions for decades (Dix-Carnairo and Kovak, 2017)
 - Collapse of manufacturing employment contributed to decline in employment rates, especially among less-educated men and women (Charles et al. 2016, Autor et al. 2016)
- There are millions of well trained workforce, but no job opportunity

Mainstreaming Manufacturing-as-a-Service (MaaS)

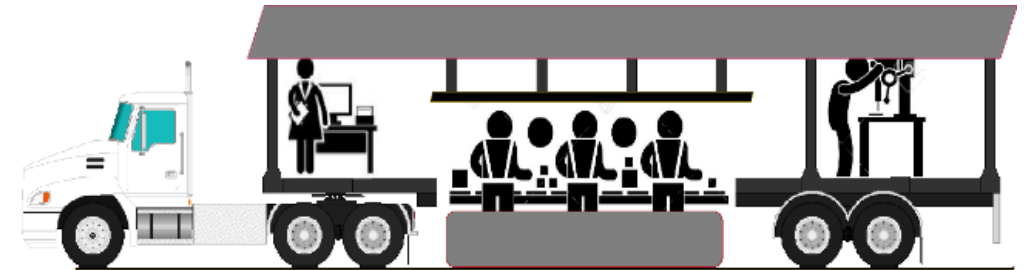
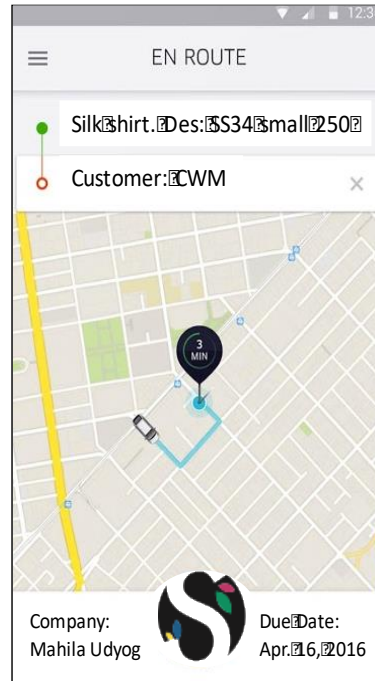
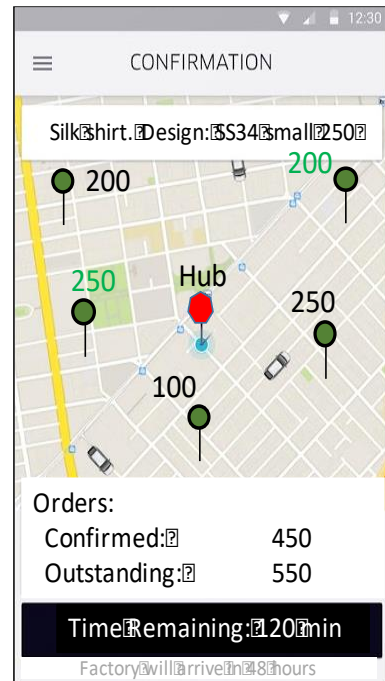
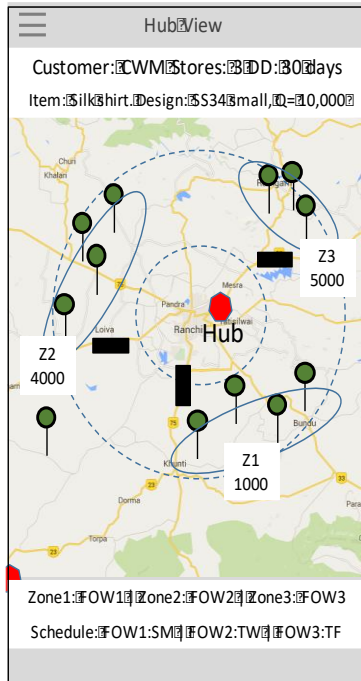


Challenges in bringing MaaS mainstream

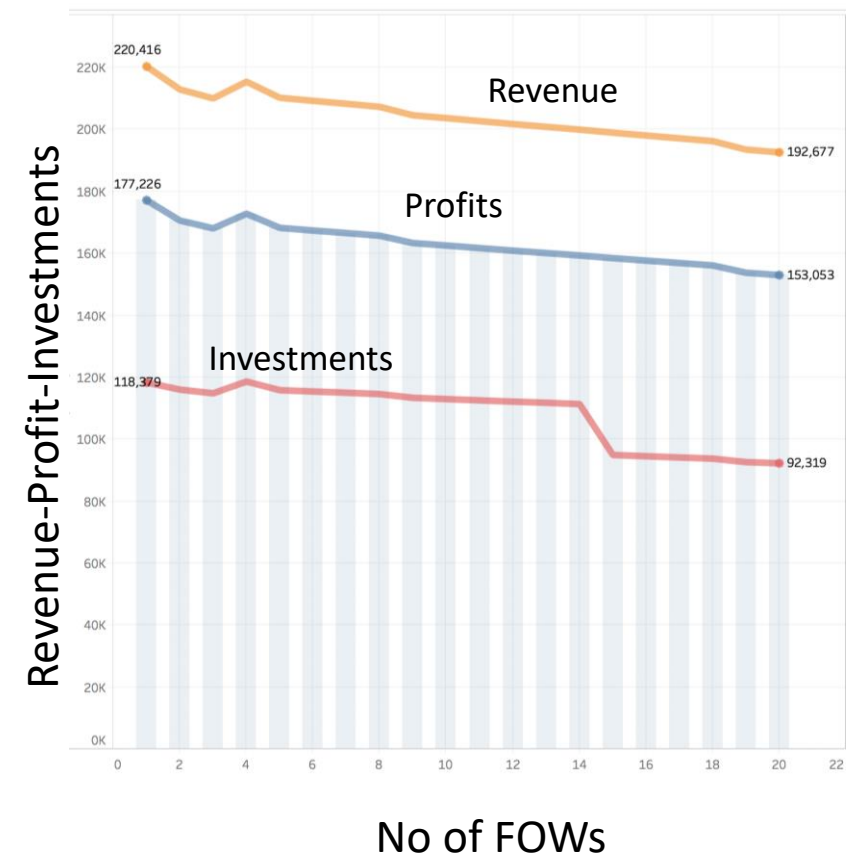
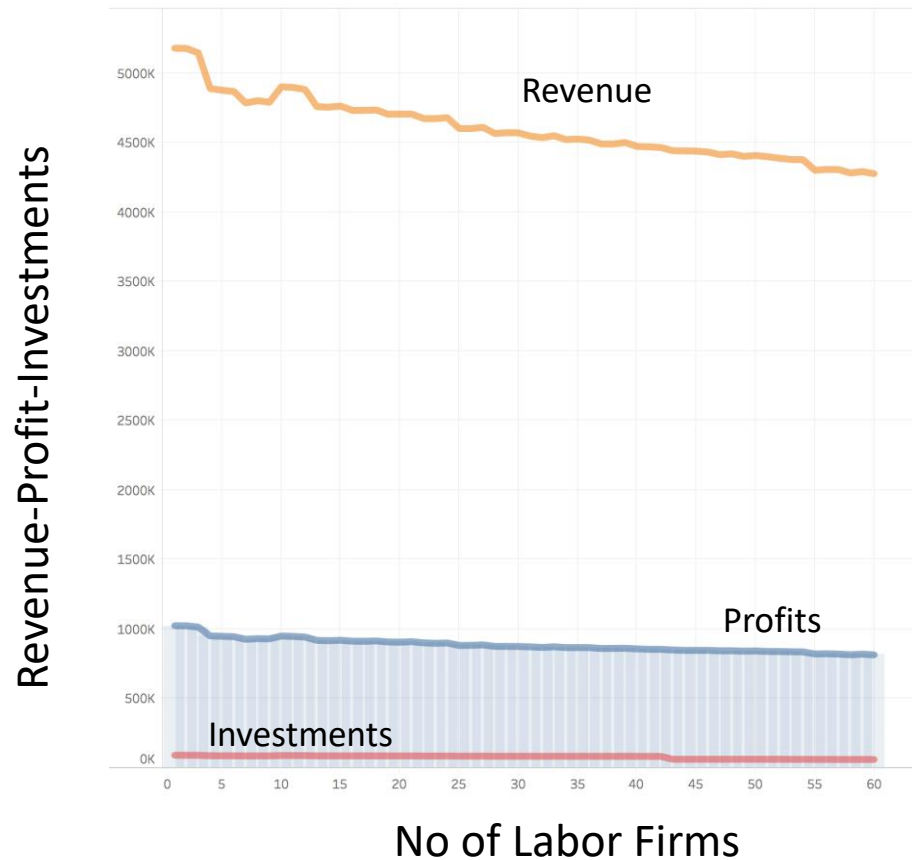
- Scalability
 - The power of Network
- Quality and Counterfeit products
 - Blockchain
- Model sustainability
 - Social welfare



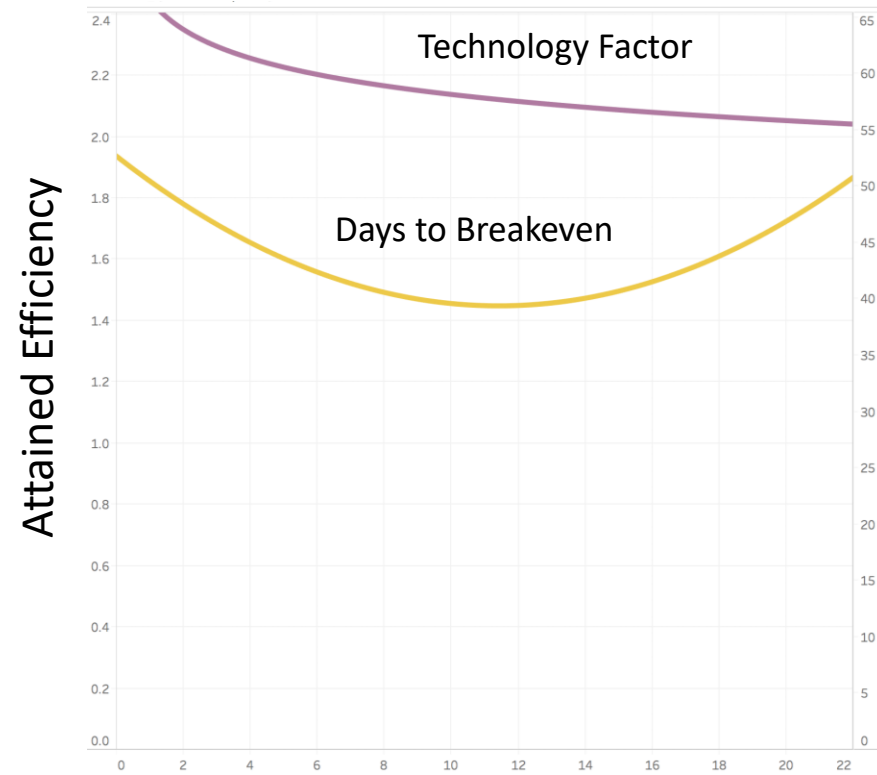
Challenges in bringing MaaS mainstream



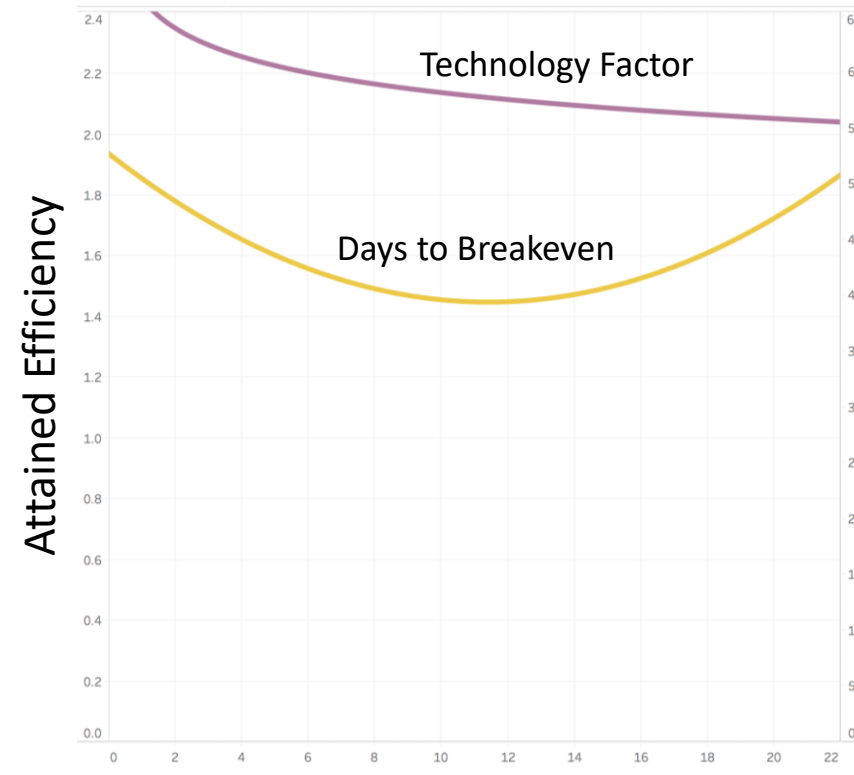
Revenue-Profit-Investments per Firm



Efficiency and days to breakeven



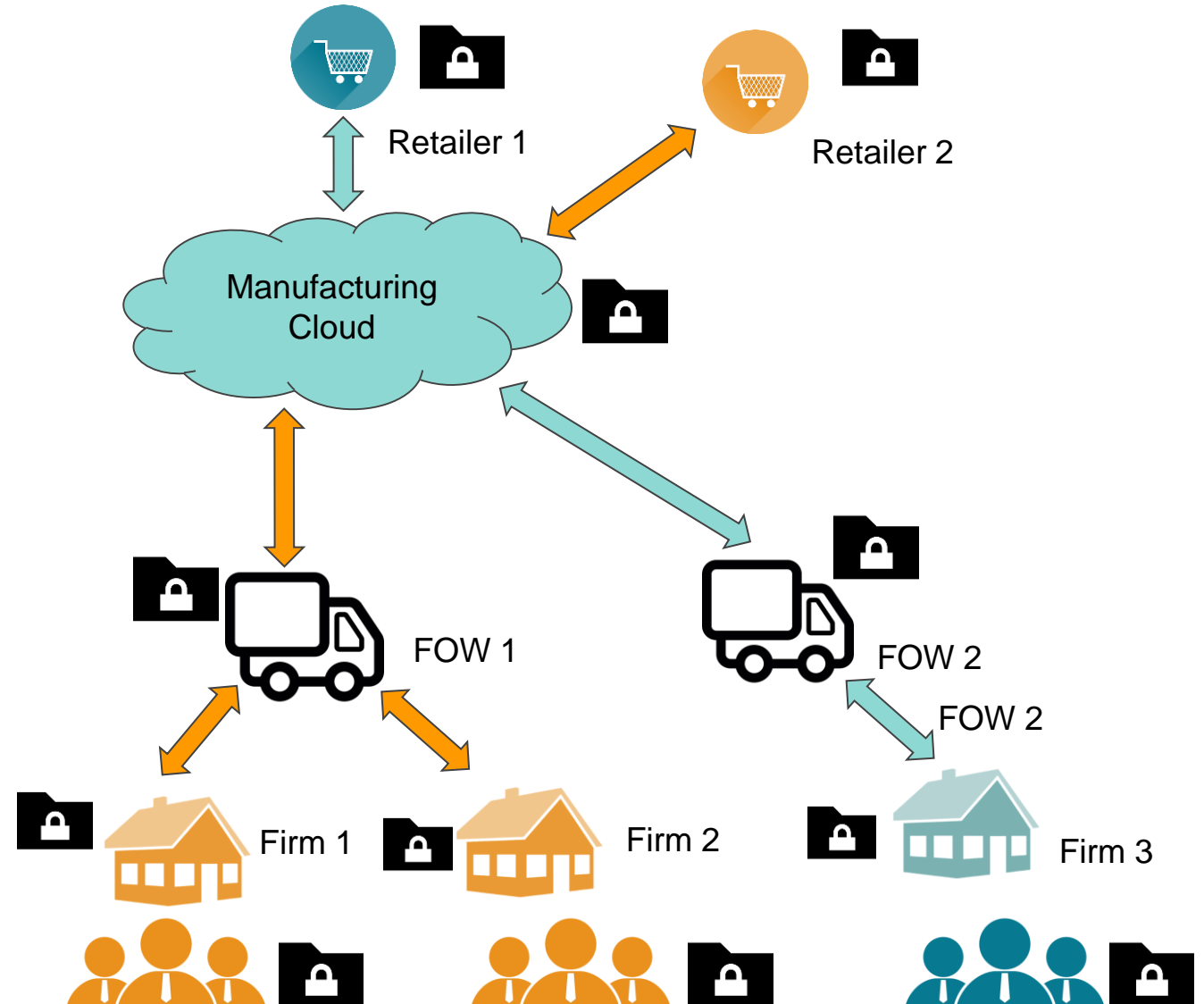
No of Labor Firms



No of FOWs

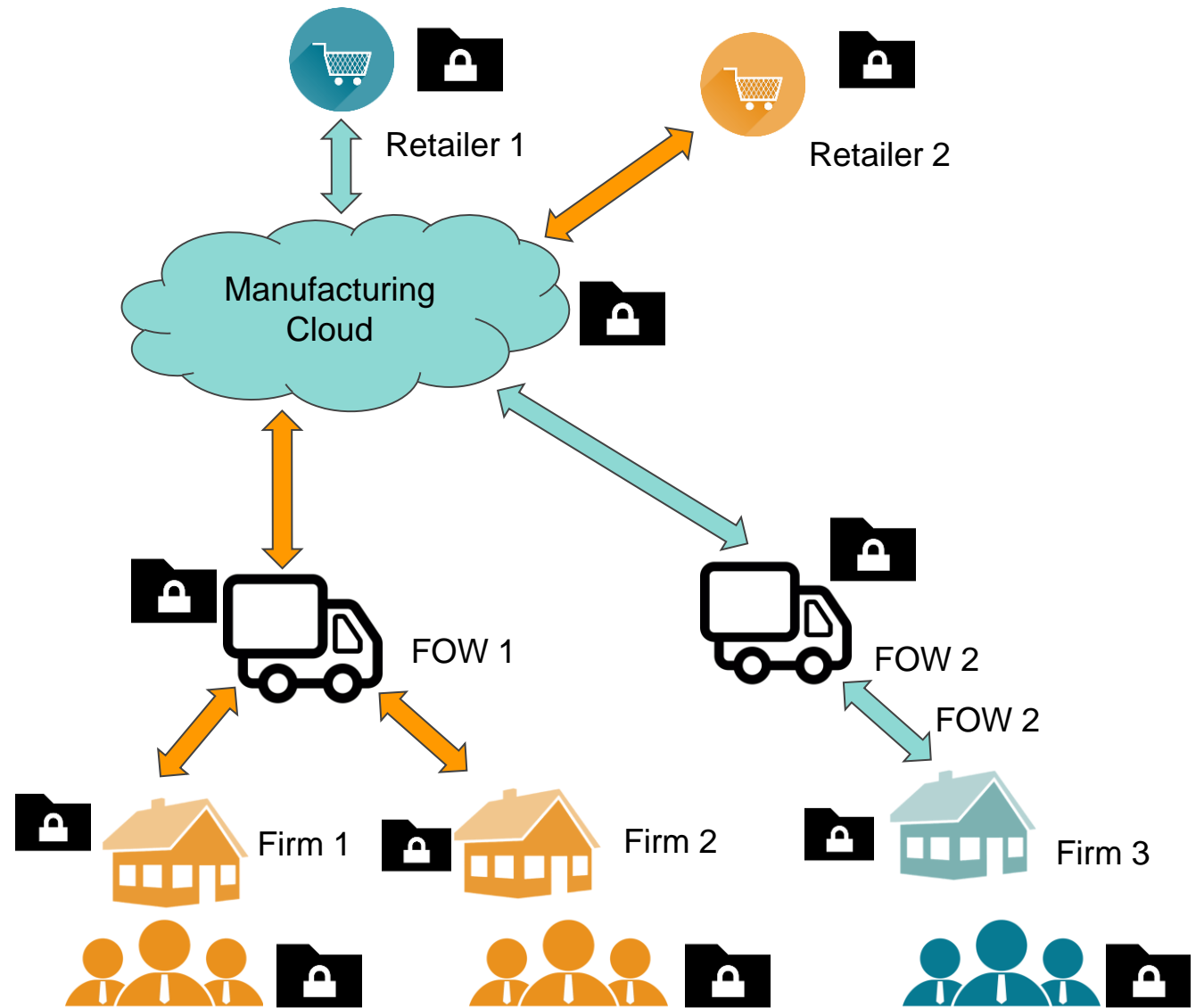
FaaS Blockchain Supply Chain

- Private Blockchain with view-only access to Firm workers. Admins to approve other entries.
- Copies of ledger maintained by all stakeholders - Retailers, Cloud Admin, FOW Admin, Firm Admin, and Firm workers.
- Money transfer in form of Saksham coins from Retailer to Cloud, Cloud to FOW, FOW to Firm, and Firm to worker
- Transparency in system to prevent fraud or underpayment
- Traceability of product at all times

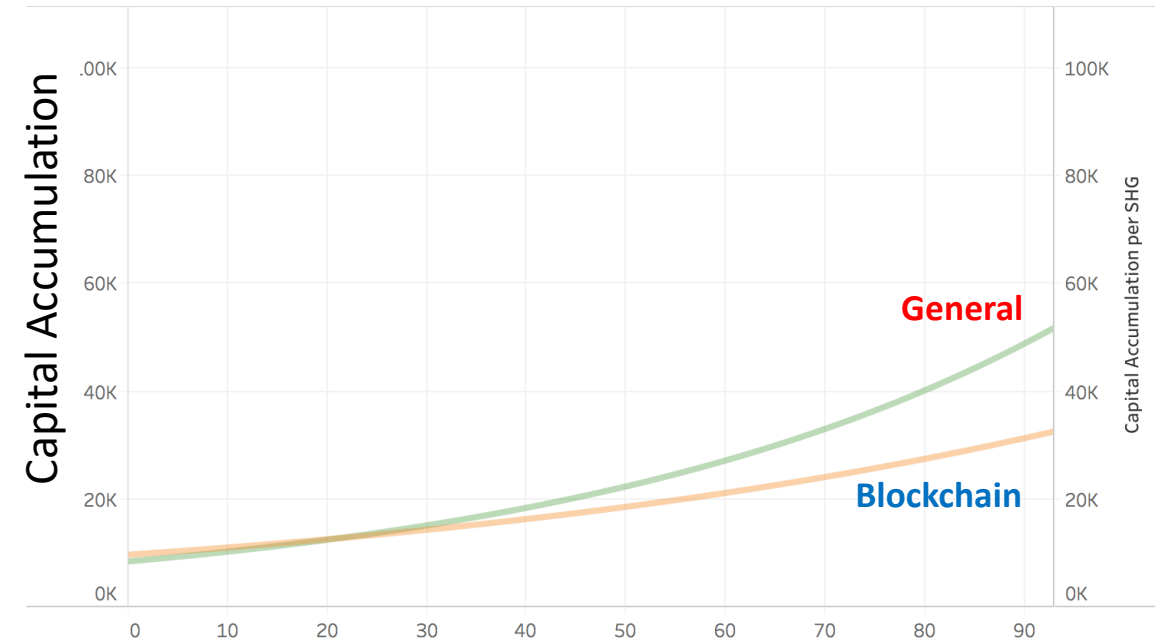
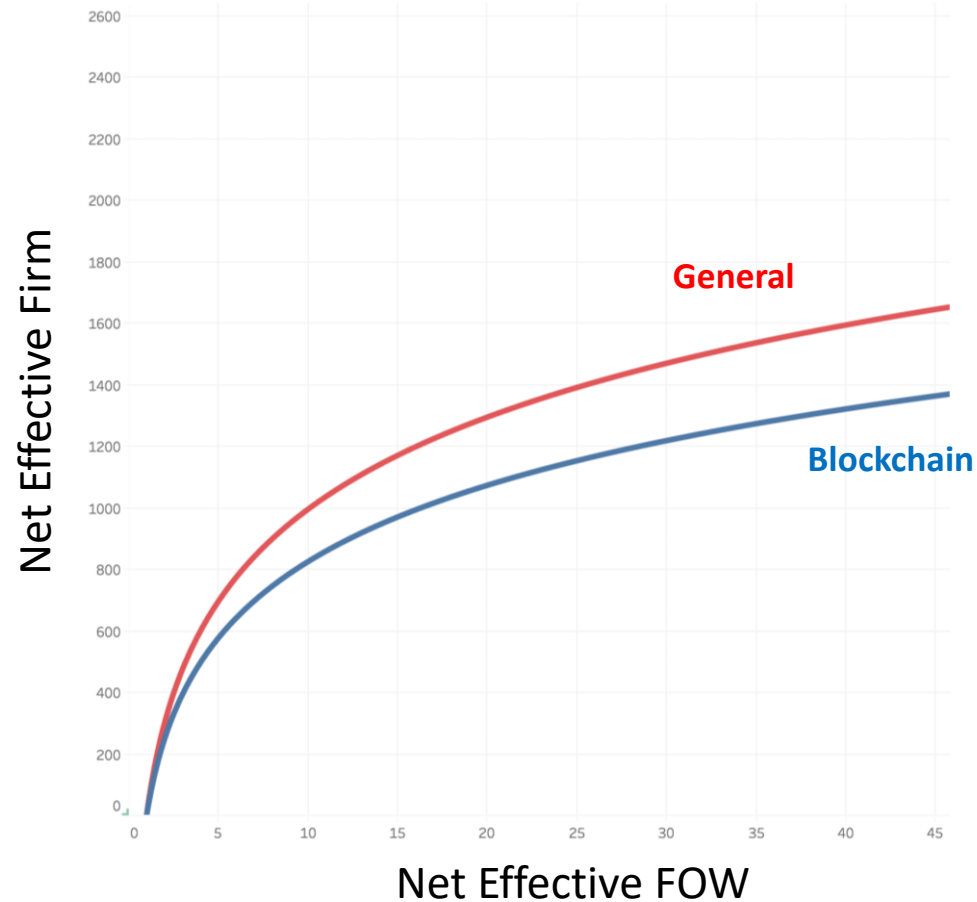


Blockchain Ledger Entries

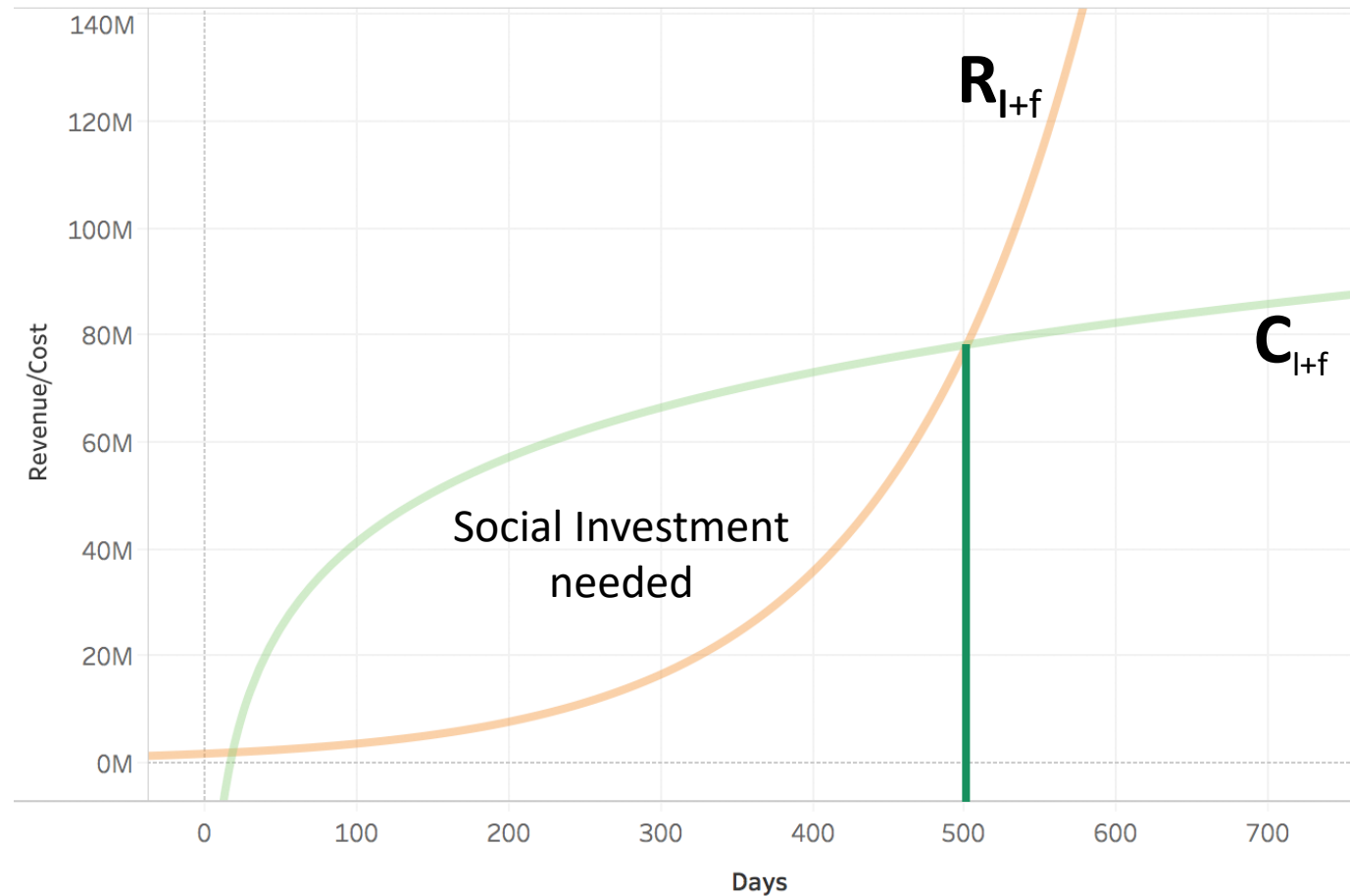
Action	Role
Add Order	Retailer
Assign Order	Cloud Admin
Accept Order	FOW
Assign Order	FOW
Accept Order	SHG
Deliver Product	FOW
Accept Product	Cloud Admin
Deliver Product	Cloud Admin
Prod. payment	Retailer
Salary Payment	Cloud Admin



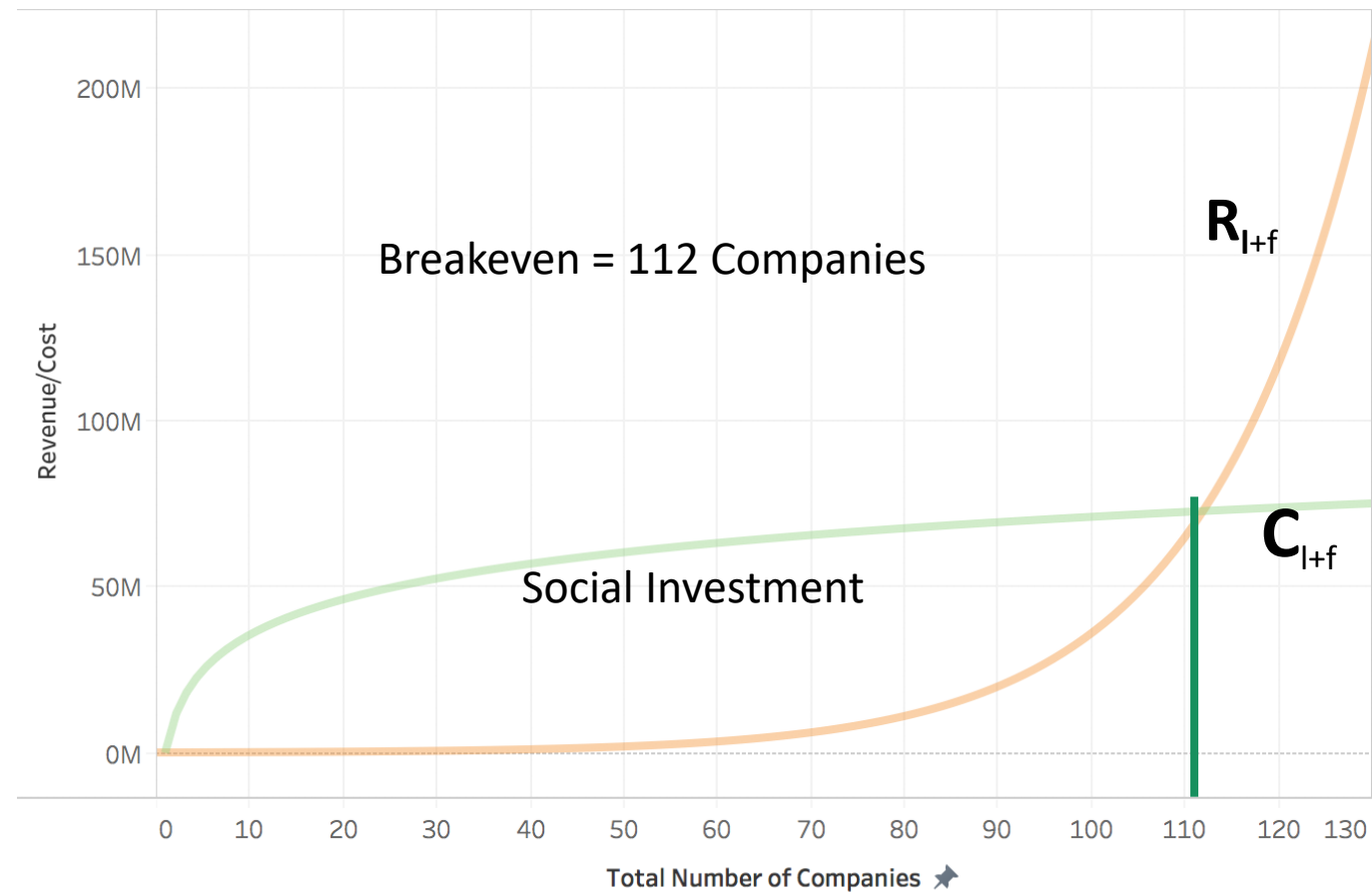
Output per Effective FOW and Firm



Social welfare breakeven in days



Social welfare breakeven in # of Companies



Summary

- Project Saksham is a bold initiative designed to transform the lowest rung of the society through platform driven innovation and entrepreneurship. It brings:
 - World class partnership
 - Breakthrough technologies and concepts
 - State-of-the-art delivery
 - Risk pooling among partners and sponsors
- Prevents rural to urban migration
- Creates opportunities that could lead to prosperity

QUESTIONS

