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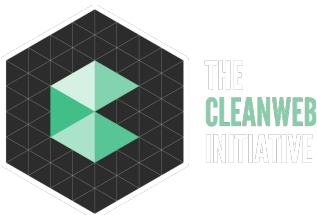
Startup Manifesto

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A new wave of high impact
startups is emerging from
consumer cleantech

18.11.2014

” Smartups generate a cloud for physical
asset reallocation via the digital sphere.”



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A new wave of high impact startups is emerging from consumer cleantech

News this year: Google to Buy Nest Labs for \$3.2 Billion; Uber Sets Valuation Record of \$17 Billion; Airbnb Might Soon Be Worth \$10 Billion, Valued More Than Hyatt Hotels; Opower Shares Soar in IPO. There is something intriguing going on in the world of startups - the biggest and most interesting new companies, like Airbnb, Uber, Opower, BlaBla car, Sidecar, Scoot Networks, Swap.com, Piggybaggy and many more, are all of a different and very particular breed.

We've started calling these companies startups. They drive a convergence of the physical and the digital. This new breed of startup is among the first to bring online interaction into the material world.

The emergence of services and technologies in the intersection of physical and digital changes both. Rather than everything being digital or physical, everything becomes something else. This "something else" is currently being defined by startups. Most physical services and goods such as housing, transportation and automotive can't be replaced by digital to the degree that communications and entertainment once were. Facebook and other similar services can be said to have replaced postal services and media to a degree, but

Startups are combatting one of the grand challenges of human kind: the rebound effect. Due to climate change and natural resource scarcity, resource efficiency has been recognized as a key goal for new high-impact business. Resource efficiency is not new - it provides a competitive advantage in many fields, such as construction, energy production, and manufacturing of machines and devices. Despite considerable progress on many fronts, energy consumption and greenhouse gas emissions have continued to increase globally. This is due in part to the rebound effect, which means that effective production makes products more affordable, thereby increasing consumption.

This is why a shift towards sustainable lifestyles is required. Startups are startup companies that facilitate this shift.

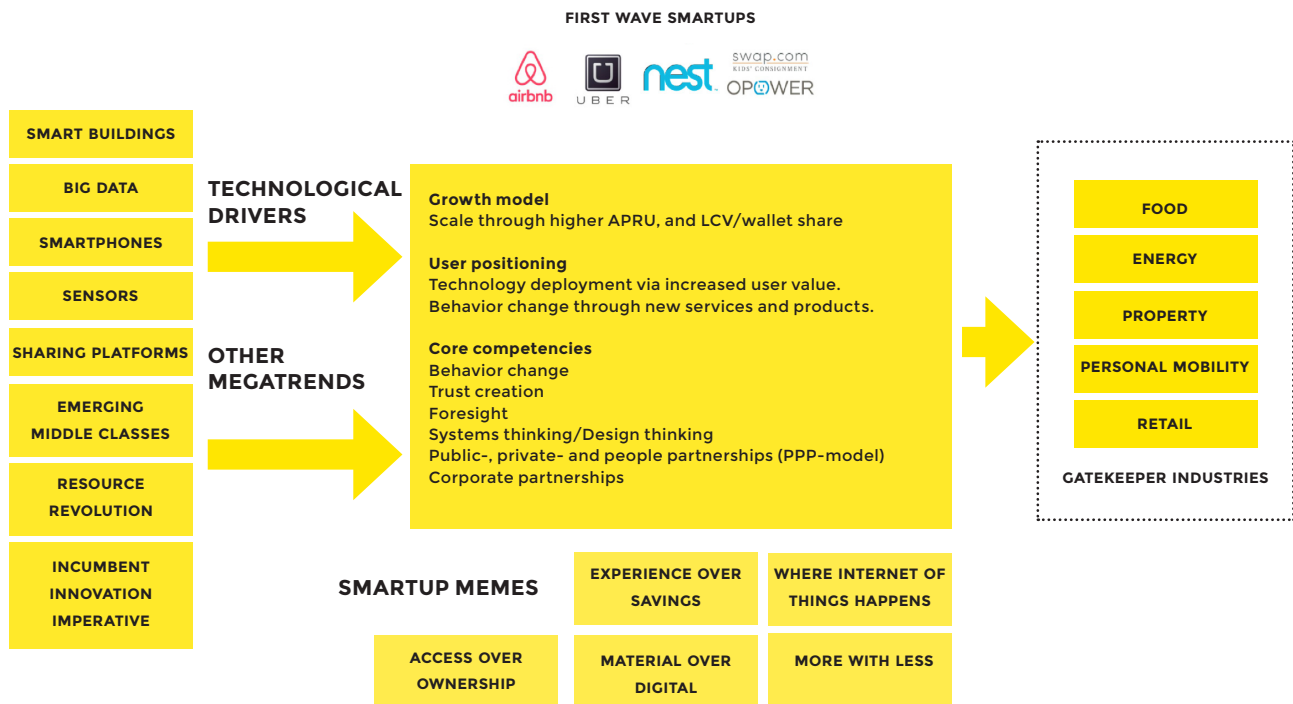


Figure 1: The Smartups Narrative Map

Airbnb will never replace property and building services. People will always live somewhere and that somewhere needs to be heated and cooled. They will most likely want to move to from A to B and they will eat one form of food or another. All this consumes energy and other natural resources, so digital will not replace physical, but these two will join and exchange qualities. That does not mean smartups are small in their impact. Quite the opposite.

Due to their relationship to natural resources, smartups are essentially startups that help free their users from the inefficient use of natural resources. In a word, they do more with less. This still very loose movement offers a new way of thinking about reaching similar goals as cleantech (or “cleanweb”, a term many innovating in this space have adopted). Whereas cleantech was about large-scale efficiency, centralized industrial processes and huge, high-tech and efficient machines, smartups are about the very core of our everyday life - smarter ways of living, moving about, housing and so forth.

We expect this convergence of digital and physical to have a great impact on both digital and physical technologies and business models. Since physical and digital worlds are merging, a necessary next step for

maximizing value creation is for smartups to partner with incumbents and infrastructure providers. Things get really interesting when startups start dealing with the material world - they are suddenly disrupting really big traditional businesses and entire sectors such as housing (Airbnb) and transportation (Uber, et al).

Think about this: Smartups bring about innovations related to activities that consume most of our natural resources, as well as household budgets: housing, mobility, energy and food. They operate at the point where our time, capital and natural resources intersect. In recent decades, high growth companies have largely focused on small markets, like communications and entertainment, where people spend about 10% of their annual income. It's a fraction of the roughly 60% consumed by housing, transportation and food combined.

In the EU, for example, people spend more than third of their income on housing, a tenth on transportation and nearly a fifth on food. We are talking about tens of thousands of euros per year per person. Similarly these three sectors together consume over 70% of the natural resources we use and produce the greatest CO₂ emissions, too.

Smartups leverage resources by sharing, up-cycling, optimization and smart substitution

Stanford Professor Steve Blank famously defined startups as “temporary organisations searching for a scalable business model”. Extending that definition, smartups could be described as organizations searching for a scalable business model to free their users from a dependency on natural resources. And to succeed they need to gain access to underutilized resources. In other words, smartups are basically creating new resources (“proliferation”) via smarter use or re-allocation of available resources. Generally, smartups don’t have to invest in capital-intensive infrastructure, because they find inefficiencies in systems that already exist or create a different service model that provides better user benefits. This gives them an “unfair advantage” in their respective markets. (e.g., Airbnb doesn’t need to build hotels to provide lodging services to its customers).

There are four major models in which a business can proliferate resources and therefore create value:

1. Increasing the utilization rate of physical resources by sharing. Examples include ride and home sharing services, such as BlaBlaCar and Swap.com.

2. Optimizing the use of physical inputs through the use of feedback, smart home and metering applications. Companies active in this field include Nest, Optiwatti, Enerfy and Opower.

3. Upcycling and refurbishing physical assets by implementing energy efficiency solutions for homes, as well as various circular economy applications. Companies that do this include Bundles, Zen Robotics and Bio-bean.

4. Using smart substitution to replace resource-intensive practices - videoconferencing and virtual reality applications instead of travel for meetings, and replacing animal based proteins from the food system with something that takes fewer resources to produce. Oculus Rift and Beyond Meat are emerging smartups in this sphere.

Adopting one of these proliferation models (see figure 2) may provide access to other models, and companies active in sharing can enter optimization and vice versa. Combining optimization with upcycling and refurbishment is one of the most underexploited value creation models.

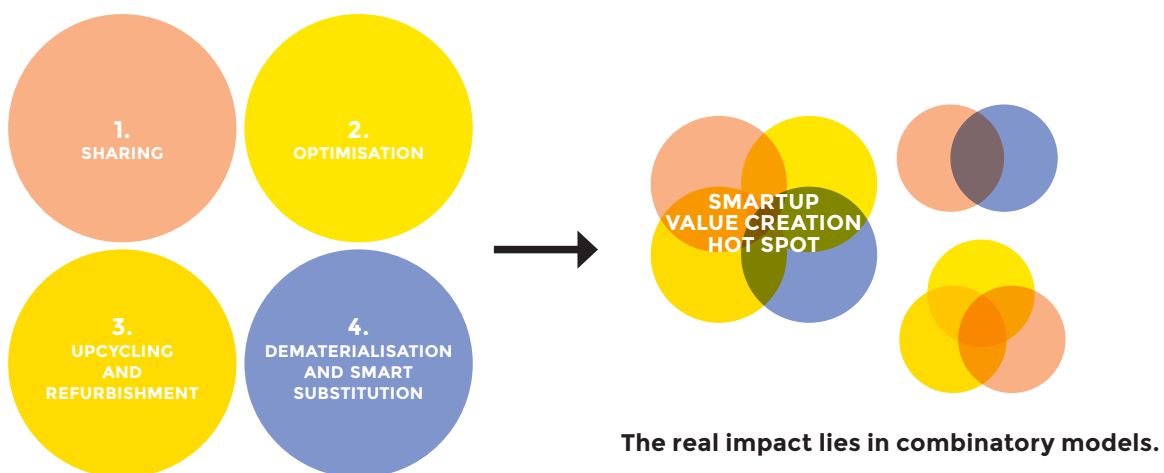


Figure 2: Smartups utilize one or more of the four major ways to circumvent natural resource scarcity by using predominantly digital technologies.

Take smart home applications, for example - by utilizing Opower's program, a utility can collect energy usage data and offer targeted services to homeowners. Recommendations for products ranging from windows to heating and cooling systems can be based on direct needs and projections for saving the most energy and money. The recent alliance between Airbnb and Nest is a good example and we expect to see similar overlaps as the costs of natural resources rise.

Currently the vast majority of startups are focused on sharing and optimization, but we expect to see a third type of startup emerge within a few years - one focusing on upcycling and industrial scale energy refurbishments. This can bring rapid growth and scaling to business sectors that are traditionally slow to adapt to change: maintaining, fixing, refurbishing and upcycling complex and expensive goods, such as cars and homes. New levels of growth can be achieved by linking the performance data of physical assets to mass-customization. Imagine a window manufacturer with access to detailed heating and cooling data for millions of households. They'd be able to mass-customize window production and execute targeted sales with detailed payback offerings.

Also a fourth type of startup focusing on smart substitution has already started to emerge. They offer services that replace the resource intensive practice with a more convenient and less resource intensive one. Teleconferencing and virtual reality partially replacing the need to travel is a good example, as are smarter

nutrients and their delivery systems that replace some animal-based proteins.

Smartups offer more user value than just marginal savings

Smartups make more with less. They create a more convenient, compelling, economic or desirable (in a word better) service experience and are therefore able to change resource-heavy consumption patterns to ones that consume less. Smartups provide more user utility with reduced resources and make the goods or services more accessible to more users, and most successful startups' ability to provide added value to the user is not limited to providing marginal savings. Airbnb is not just using homes more efficiently, but also provides a more compelling and affordable experience than an ordinary hotel. For the renter, Airbnb provides extra revenue in addition to savings. Uber is more convenient and offers better availability, with dynamic pricing. They also tap into user demand with new and exciting services.

Many startups utilize hybrid business models that combine multiple revenue sources and value offerings. In addition to offering savings to users, Opower creates extra revenue from data sold to utilities. Nest provides users with information and convenience, as well as the possibility of extra revenue via its partnership with Airbnb. QuickSense offers healthier offices, not just savings on the energy bill.

Figure 3. Share of consumer spend in EU [Eurostat]

Smartups are likely to succeed in housing, food and mobility.

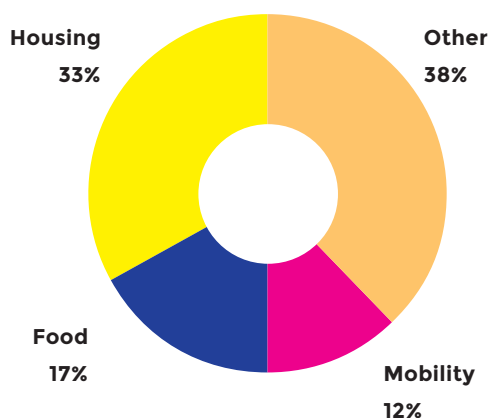
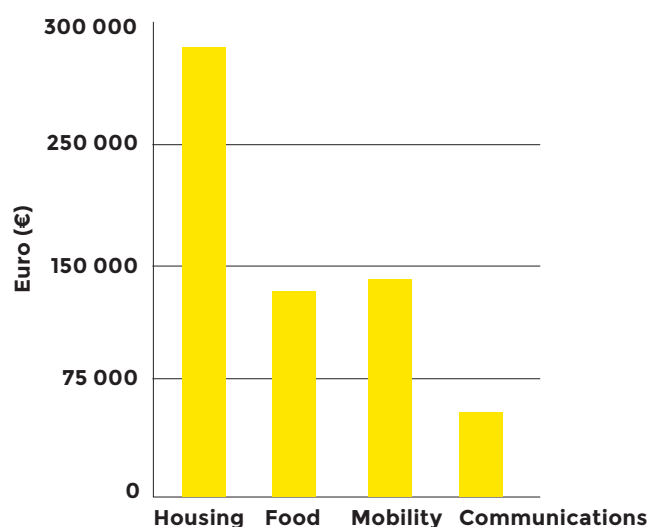


Figure 4: Consumer Lifetime Expenditure [Eurostat]

Consumer Lifetime Expenditure in the EU



Smartups interest investors due to their high lifetime value

There are two reasons why the investor community should be interested in smartups.

- **First**, smartups that operate in the field of “consumer cleantech” or “cleanweb” promise a much quicker time-to-market than industrial cleantech, which is saddled with unreasonably long payback times for non-governmental investors. Smartups fulfill a growing consumer demand for more convenient and newer services. Benefiting from the user’s desire for new services that bring more convenience, savings, income, status or experiences (or in the best case all of them!), smartups can accelerate technology deployment.
- **Secondly**, and more importantly, if you look at the average spending on housing, transportation and food in startup valuation terms such as Average Revenue Per User (ARPU) or Customer Lifetime Value (CLV), you will notice that even a slice of these huge numbers creates massive business opportunities. However, the fast growth model is different compared from the model for industrial cleantech or traditional digital startups. The “housing ARPU” in Europe is 3 700€, transportation ARPU is 1 800€ and ARPU for food is 1 700€ (Eurostat). When you compare the lifetime values of the services they provide, smartups become even more tantalizing. The special nature of big natural resource consumption clusters is that (in technology business terms) “penetration” is close to 100% and there is hardly any “churn”. This makes smartups unbeatable in Customer Lifetime Value (CLV). We suggest that instead of focusing on AR-PU or amounts of users, smartups and investors should focus on the lifetime value of the services provided. We believe this makes it possible to create more sustainable value.

Smartups introduce a new growth model

The growth model for the most popular web apps is based on the idea that of a large number of users a small share pay small fees (the freemium model) or users pay nothing at all and entire the business is supported by advertising. As a part of large infrastructure projects,

hardware-centric technologies or industrial projects Cleantech has involved relatively expensive technology deployments. Smartups offer a third way to grow that is different from both web apps and cleantech. Given the potential for high unit costs and sizeable lifetime value, the growth model can be based on customization and localization of services to a larger extent than with entirely web-based services. Smartups themselves do not have to do customization and localization, but by partnering they can include them in their business models.

The life cycle of a smartup is similar to a life cycle of a startup, as defined by Steve Blank and others. However, because smartups work with atoms in addition to bits, there are considerable differences in their business models, growth logic and markets - i.e. in *what* they do to reach the desired levels of growth. The digital growth model aims to utilize a near zero marginal cost. In the smartups’ markets this is not the case, but since the industries they are now disrupting command a 2-3 times higher wallet share than industries where startups traditionally operate, it’s not a problem.

Smartups drive a debate around updating laws

The industries smartups are trying to disrupt are historically among the most controlled and regulated, so it’s no surprise that the companies interviewed for this report name regulatory stiffness and a slow bureaucracy among the most challenging barriers they face. Industries, like construction, property, transportation and food have a lot to gain from opening up to new innovative players. Industrial age regulation and industry lock-ins pose challenges, especially when it comes to upcycling, resource optimization and sharing. Slow bureaucracy is also problematic, specifically when proofs-of-concept are carried out on a physical testing ground and may require permission from the authorities. Some of the most successful smartups, including Uber and Airbnb, have been dealing with these types of problems in courts around the world. They are tangling with entrenched incumbent lobbies, claims of predatory behavior and even operational bans.

Why startups are taking the spotlight

Startups disrupt prevailing value chains by riding strong trends that go beyond technology – these trends mould the very fundamentals of value creation:

1. RESOURCE REVOLUTION

To keep growing, current and future business will have to use a lot less oil, aluminium, phosphate, arable land, water and other natural resources. Many key resources have largely been extracted, the cost of future extraction is exceedingly high or their usage exceeds the rate of renewal. As the demand for these resources continues to grow, we step into an age where alternative approaches to both production and consumption are needed. Clean-tech industries have traditionally tapped into opportunities on the production side. Despite gains in efficiency and other areas in these industries, resources continue to be depleted, so there are more and more opportunities for businesses working on the consumption side.

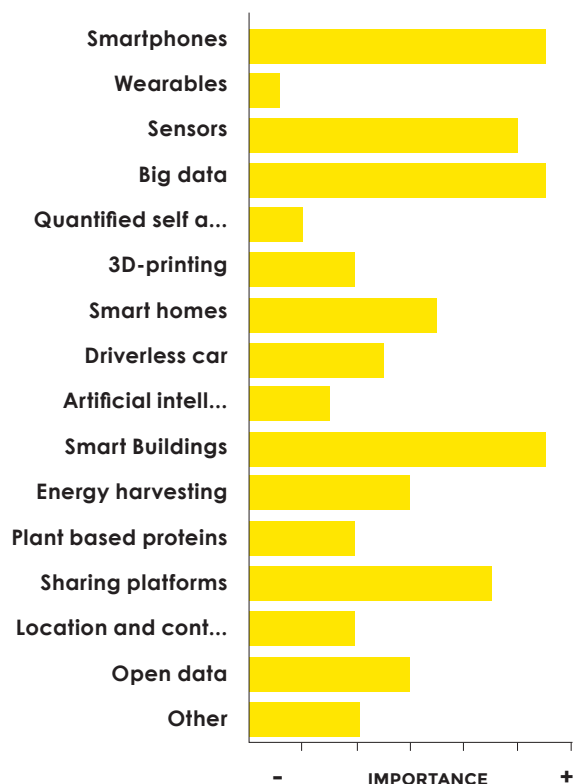


Figure 5: Technologies driving startups, from a survey of the participants of the Startups Summit

2. THE GROWING GLOBAL MIDDLE-CLASS

The people of Earth are getting older. They are becoming more urban, wealthier and more educated. By 2050, 1/5 will be over 60 years old, and 70% will live in cities. There are 1.8 billion middle class people in the world and this number will grow to 3.2 billion by the end of the decade (Brookings Institute). This means that there are entire industries that need a better understanding of how to meet their customers' increasingly diverse and unique needs, while at the same time cutting down on their use of natural resources. As a result, sustainability will no longer be a luxury for eco-aware people in developed countries, but embedded in products and services to enable smarter ways of living for all.

3. INTERNET OF THINGS

Most industry analysts estimate that by 2020 there will be more material things connected to the internet than human beings. The convergence of cheaper sensory and network technologies and the explosion of data that follows it is often called Internet of Things. This new environment of smartphones, wearable technology, smart homes, sensors, big data, etc. opens up a unique space for business model innovation. The Internet of Things enables smarter ways to allocate, optimize, share and access existing resources.

4. INCUMBENT COMPANIES' IMPERATIVE TO INNOVATE

Dealing with customer experience and hybrid business models makes it extremely difficult for incumbent companies to understand how startups can have a beneficial impact on their business. An electric company, for example, might find its growth coming increasingly from downstream "smart services", which requires an understanding of the user experience beyond electricity. Value could, for example, be derived from improving user experience and engagement with gamification, health or even home improvement. Understanding added value might be too big a stretch for many utilities, so in the future utilities will either be active, creative facilitators of this process or just "dump pipes".

A startup's three phases

We expect startups to develop in three phases.

- The first phase** is what we are witnessing right now - the most basic material resource becomes sharable, ripe for optimisation and open for more efficient upcycling, mainly due to technological developments. The material-digital infrastructure is laid out.

- In the second phase** we expect these basic assets (such as homes, cars, etc.) to become a focal point for further innovation and service provision. This opens up huge potential markets for refurbishment, maintenance, upcycling, insurance, finance (ESCO) and other support services. This phase could be stifled by the monopolization of data and customer relationships by dominant startups and incumbent companies.

- The third phase** is when we expect the resource prices to rise enough that some type of convergence and even consolidation of the most natural resource-intensive services will take place – buildings, for example, will be part of mobility, energy and food systems.

How to create smart ecosystems?

Even with the strong drivers listed above, startups will have plenty of hurdles to clear. Incumbents can't, will not or simply do not know how to tap into the opportunities of the 21st century. Startups are struggling to run proof-of-concepts on a sufficient scale in the material world. Cities and other public sector institutions face challenging environmental goals. This presents an opportunity to create a smart ecosystem that brings together established companies, the public sector and startups.

1. GOVERNMENTS: actively enable smart growth.

Key elements for generating startup breakthroughs include more basic research, incentives for investments and better programs to pilot new technologies. Only when research is pointing towards a product (after patient long-term finance) can we expect the private sector to kick in. This approach must welcome public sector risk-taking, i.e. failure and experimentation. Government is not picking winners, but winning some and losing some. Government's role is to enable experimentation, which means helping startups by adapting legacy laws to fit the needs of the experiments.

2. CITIES: create testbed areas. Startups operate in highly centralized and regulated markets. Therefore they need support in bringing strategic flexibility to how regulation is interpreted. In addition to regulatory flexibility cities should aim to hit their emission targets by procuring from startups especially for public housing, offices, transportation and food services.

3. INCUMBENT COMPANIES: partner with startups. 80% of company leaders see immediate business opportunities arising from the depletion of natural resources (Accenture). Startups have managed to turn global drivers, including digitalization, scarce resources, changing consumer demand and the innovation imperative, into a competitive advantage. Thanks to their relatively small size and agility, they are quick to learn from their mistakes and can very efficiently find ways to operate in changing environments. This does not, however, mean that startups can operate by themselves. Despite the fact that the startup movement is growing to become one of the most visible innovation drivers, it isn't the whole story. In order to scale up and flourish, they need the incumbents as well as the public sector to pave the way for smart futures.

4. SMARTUPS: understand the market you are disrupting and leverage your users. Never compare yourself to web apps or cleantech when trying to attract the attention of investors. Compare yourself to housing, energy, transportation, etc. Be open about the relatively large proof-of-concept costs. You are always dealing with the material world, which increases your costs and near-zero margin can be an unhealthy target. Leveraging users is important. Fast iterations with a group of committed early adopters are a key to success.

5. SMARTUPS: don't just bring new products to the markets - help people adopt new practices. They change behaviours. In order to scale, you need to build trust with the people using their products and new solutions and in building this trust, forerunners are very important. The key question is: How do we scale trust? Our studies suggest that environmental consumer values are not a driver, but demand for new and exciting types of services is. Smartups can utilize their users, who can be motivated to share the perceived value (smartness), as evangelists. Clever smartups empower positive lifestyle and impact. This is indeed very similar to how social media has spread.

6. INVESTORS: look at wallet shares to predict where the next disruption will happen. The majority of VC funding is still going to entertainment and communications, both of which are fiercely contested fields with a limited share of people's wallet (8% and 3.3% respectively in EU) and limited access to people's available time. Smartups operate in home (up to 33% wallet share), transportation and mobility (12%) and food (17%). They offer both a larger wallet share and more sustainable revenue potential, since the potential user base in these fields is close to 100% and churn considerably slower. Investing in smartups offers a potential for rapid growth, but the logic is different due to the physical component that might require installations and/or maintenance.

Defining smartups

Smartups are startups that have evolved from digital services to operate in the physical world. They add a sustainability-focused service layer to physical computing. The combination of digital services and physical assets is unique. Smartups generate a cloud

for physical asset reallocation via the digital sphere, so we see them as the next generation of startups. Their scale and growth ambitions equal those of startups, but dealing with the material world makes them very different.

Startup	Smartup
Mass market	Big market
Proof of concept	Sufficient market
Quick exit	Sustainable value creation
Disruption of markets	Transformation of infrastructure
Winner takes all	Market creation
Communications and entertainment	Housing, transportation, food, energy
ARPU	CLV
Born global	Global platforms for customisation and localisation
Facebook, Google, Apple, Instagram	Airbnb, Über, Opower, Nest, Blablacar
Exit via IPO or acquisition by digital corporate	Exit via acquisition by incumbent (or digital corporation)
Freemium and long tail	Transactions and ESCO as service
Time	Things
More value out of personal relationships	More value out of personal property
Ownership (free or paid for)	Access
Mass exodus to next service	Low churn
Creating new resources (e.g. connections)	Efficient use of current resources (proliferation)
Virtually unlimited pool of resources	Tangible pool of assets base
Free for users	Cheaper for users

Figure 6. Moving from startups to smartups

They're similar enough that we can twist the famous definition of startups by Steve Blank to describe the next generation, too:

"Startups are temporary organisations searching for a scalable business model to free users from dependency on natural resources." This definition can be further applied to different interest groups:

- For users:** Startups create new experiences that make behaviour and daily practices less resource-intensive. Startups are here to offer smarter choices where they matter.

- For incumbents:** Startups use innovation to disrupt industries where extremely low R&D budgets are the norm.

- For startups:** Startups find new resources ("proliferation") from the smarter use of previously limited resources. This provides them with an unfair advantage in their respective markets. (i.e. Airbnb does not have to build hotels).

- For investors:** Startups introduce a new kind of fast growth model due the large size of the industries they disrupt in combination to the fundamentally physical nature of their operations.

20 startups to watch

EnergyDeck

EnergyDeck makes it easy to track consumption data for different categories and sources - from electricity to travel, and from utility bills to smart meters.

Sharetribe

Sharetribe allows you to easily create a marketplace online and let the members of your community sell and rent goods, services and spaces.

WeShareSolar

A crowdfunding platform for collective solar-energy initiatives

Bundles

Consumers buy cheaper household equipment that ends up at the scrapheap faster and faster. Investment in more expensive quality machines that are cheaper during use are made less and less. Bundles lowers the hurdle of using quality appliances and supports the optimal use of them.

Hampton Creek Food

The mission of Hampton Creek is to bring healthier and affordable food to everyone, everywhere. The company was named one of Entrepreneur Magazine's 100 Brilliant Companies and one of CNBC's Top 50 Disruptors. CEO Josh Tetrick was also named to Inc. Magazine's 35 Under 35 list of top entrepreneurs. Its first product, Just Mayo, which sold out at Safeway stores within two weeks after launching, is now available nationwide in Dollar Tree, Whole Foods, ShopRite, Kroger, select Costco warehouses, over 600 natural channel stores, and will soon be launching in North American Target and Walmart locations. Hampton Creek was named last year by Bill Gates as one of three companies shaping the future of food, and is backed by Li Ka-shing, the wealthiest man in Asia.

Grow the planet

Grow The Planet is a social network dedicated to anyone who loves good healthy food, anyone who has a vegetable garden or simply wants to learn, in a simply fun way, how to grow some of their own food.

Piggybaggy

With PiggyBaggy service people can deliver goods to each other along their way and get paid for it. PiggyBaggy provides more affordable home deliveries with a fully trusted solution. Together we save time money and the environment.

qwiksense

Qwiksense aims to improve the quality of life at work and reduce energy consumption.

FirstFuel

FirstFuel analytics drive commercial energy efficiency at mass scale by finding, sizing, planning, delivering and tracking operational and retrofit improvements in each building with Zero-Touch: No on-site visits, devices or connections.

Bitty

Bitty makes delicious, high-protein foods powered by cricket flour.

Greater Than

Greater Than develop technology and social platforms that inspire to smarter driving. Unique about the new technology is that driving performance can be measured and compared regardless of make of car, fuel consumption, load, traffic situation and weather.

FarmDrop

FarmDrop provides local communities, farmers and independent food producers with a flexible platform for buying and selling direct.

Fourdeg

Fourdeg is a solution for water-radiator heated buildings ensures energy savings and at the same time improved comfort.

Hyko

Hyko is a friendly-looking polar bear glows 18 shades ranging from white, through blue, to red, to indicate whether the family is consuming a lot of energy.

Optiwatti

Optiwatti is an energy saving heating system that is installed alongside the traditional heating system. The system helps you optimise your energy consumption in heating your house, and can be controlled through your smartphone, tablet or computer.

Swap.com

Swap.com promotes itself as the largest online consignment store for baby and kids' items. On the website, users can buy, sell, or swap used children's clothes and accessories. The company operates a centralized logistics center to make the user experience more like Amazon than eBay.

Yerdle

Yerdle is an online platform for swapping things you don't want for things you want.

Blablacar

Blablacar is a ridesharing website with more than 8 million users in 12 countries that connects passengers with drivers for long distance rides.

Ohmconnect

Ohmconnect is a smartphone app that pays you to reduce your energy use at certain times, by putting your saved energy into the energy market and passes its economic value on to you.

Open Utility

Open Utility aims to create a peer-to-peer energy marketplace, by helping users find the best quote for the energy they generate.

There are four major models in which a business can proliferate resources and therefore create value:

Increasing the utilization rate of physical resources by sharing. Examples include ride, home, goods and energy sharing services, such as BlaBlaCar, Open Utility, Swap.com and Yerdle.

Optimizing the use of physical inputs through the use of behaviour change, smart home and metering applications. Companies active in this field include Hyko, Optiwatti, Enerfy, Energydeck, Greater than and Opower.

Upcycling and refurbishing physical assets by implementing energy efficiency solutions, or a number

of circular economy applications. Companies that do this include First Fuel, Bundles, Zen Robotics and Bio-bean.

Using smart substitution to replace resource-intensive practices - telepresence and virtual reality applications instead of travel for meetings, or for example replacing driving to get animal based proteins from shops to get vegetables delivered home. Bluescape, Bitty, Suitable Technologies, Farm Drop and Beyond Meat are startups in this sphere.

Even if it is possible to assign examples to each category, the most innovative companies utilize more than one of these models.

Based on the expert talks, interviews and workshops at the Startup Summit in Helsinki 8.-9. August 2014

List of participants



Ari Hyppönen (FiBAN)

Ari is a cleantech business angel with a portfolio of ten companies. His investments targets are startups that find new ways to use technology to let consumers and businesses save money and resources by reusing, recycling and becoming more energy efficient. Ari was with F-Secure Corporation for 20 years as a member of the board and CTO.



Ville Niinistö (Minister of the Environment)

Ville is a Finnish politician. He is a member of the parliament, current chairperson of the Green League and incumbent Minister of the Environment. He has a master's degree in political science from the University of Turku. Before being elected to the parliament in 2007 he worked as a doctorate student in political history (Finnish foreign policy) at the University of Turku in Finland. He became active in politics because the future of the world is a too big of an issue to be neglected.



Juho Peltomaa (ZenRobotics)

Juho is one of the Founders of ZenRobotics Ltd., working as a VP of Marketing. Previously a successful marketing professional with a number of international awards under his black belt, Mr. Peltomaa is a serial entrepreneur who has founded multiple successful companies, including Hybrid Graphics Ltd., later acquired by NVIDIA.



Chris George (Cleanweb)

Chris is a Community Catalyst for The Cleanweb Initiative and has been growing a global community of developers, entrepreneurs, investors, and enterprises large and small who believe that the growing web of information technologies may be our most powerful and profitable tool to improve global sustainability, economic prosperity, and human wellbeing.



Blake Burris (Cleanweb)

Blake is a leading expert on hackathons and the creation of grassroots innovation communities. Since 2011, he has working to evangelize the #Cleanweb among entrepreneurs to apply information technologies for solving sustainability challenges. His work is at the forefront of the Resource Revolution to create a new wave of environmental and economic prosperity. Blake has grown the Cleanweb into a global movement and network of Cleanweb communities, startups and entrepreneurs spanning 20 countries.



Jan Michael Hess (Ecosummit) <http://ecosummit.net>

Jan is Founder and CEO of Ecosummit and the Berlin-based consulting firm Mobile Economy. Ecosummit is the smart green business network and conference connecting startups, investors and corporates to accelerate smart green innovation. Ecosummit's goal is the global transformation to the smart green economy powered by 100% renewable energy and ubiquitous internet and cleantech. Since 2010, Jan produced 7 international cleantech conferences in Berlin, London and Düsseldorf. He advises startups on fundraising, strategy, marketing and sales.

**Emily Wheeler (ACRE)**

Emily Wheeler is currently the Deputy Director of NYC ACRE and the Operations Manager for PowerBridge NY. ACRE is a critical AXIS for innovators to connect and develop new technologies essential to meet both city and state energy and environmental goals, as well as the demands of climate change adaptation and mitigation. Previously she was a Project Manager in the Loan Program Office at the Department of Energy.

**Brent Schulkin (Carrotmob)**

Brent is the founder of the Carrotmob movement. Since orchestrating the first ever Carrotmob campaign in 2008, he has built an organization to support Carrotmob organizers around the world, who have organized over 250 campaigns and spent over \$1 million in over 20 countries around the world. Brent is also the founder of The Spring. The Spring helped people use their consumer power as a force for good.

Brent previously served as a Board Observer for One Block Off The Grid, a nation-wide solar company in the US, to create a single online destination for homeowners who want to explore options for going solar. He co-founded Virgance, an incubator for social enterprises which produced One Block Off The Grid. He has also worked for The Go Game and Google and has directed a documentary film.

**Scott Wilcox (SXSW Eco)**

Scott Wilcox is the founder of SXSW ECO and Director of Technology for SXSW LLC. An 18 year veteran of SXSW LLC, Scott leads the company in specialized technical innovations such as web and custom software development, mobile applications, video production and network design. In 2011, Scott created the SXSW Eco conference, an event for sustainability professionals, which will take place this year in Austin, Texas from October 6-8. Scott lends his leadership and technology expertise to SXSW Eco, shaping the foreground for innovators dedicated to making progress for society, the economy, and environment.

**Tero Ojanperä (VisionPlus)**

Tero is a Co-founder and Managing Partner of Vision+ Fund. He has versatile background at intersection of technology, business and creativity. Tero was nominated as Young Global Leader of World Economic Forum 2006. He has been recognized as 7th Most Creative People In Business 2009 by Fast Company. Tero has a Ph.D. from Delft University of Technology in the Netherlands. Tero is also a member of the board at Kiosked, a unique content monetization platform. Prior to Vision+, Ojanpera served as Executive Vice-President of Services at Nokia. He also served as Nokia's CTO and Chief Strategy Officer. Tero was a Member of the Group Executive Board of Nokia for seven years and served as a Member of the Board of Directors of the NAVTEQ Corporation.

**Even Heggernes (Airbnb)**

The disruptive travel rentals startup Airbnb has been leading the growth charts of the tech world. Airbnb is a textbook example of the emerging sharing economy. Previously the Head of Sales & Business Development for Airbnb Nordics, Even knows the ins and outs of building and growing a business from the ground up. He understands the unique breed of talent that is required to create a high-growth, successful startup and is glad to share his wisdom.

**Bruno Girin (EnergyDeck)**

Bruno is the CTO of EnergyDeck. EnergyDeck provides technology, which achieves substantial cost savings by enabling the better running of buildings. Their award winning platform enables and encourages landlords and tenants to share data and learn from the experience of others to build trust, knowledge and ultimately a community within and between organisations. The platform provides customers with automated analytics and tailored reporting which analyses energy use and other utilities such as water and waste. Their crowd-sourced universe of benchmarks and projects also provides an objective view of the energy performance of a building and the most effective saving measures.

**Tarja Teppo (Cleantech Invest)**

Tarja (MSc. In Engineering, PhD in Tech) is Partner, co-founder and member of the Board at Cleantech Invest (www.cleantechinvest.com), investment and development firm founded in 2005. Cleantech Invest (CTI) currently has 13 firms in its investment portfolio. CTI invests in early-stage cleantech ventures in the Nordic area, with investment focus being smart energy and clean environment. Since 2014 CTI shares are traded at Nasdaq OMX First North Helsinki.

**Yme Bosma (Rockstart Smart Energy)**

Yme Bosma is supervising the Rockstart Smart Energy Accelerator program and mentors the 10 startups currently involved. The international program helps participating startups to bring their product or service faster to market and this year it includes startups from the Ukraine, Greece, Chili, The Netherlands, Israel, UK, Romania, France, Spain and Germany.

**Marko Ahtisaari (MIT Media Lab)**

Marko is an entrepreneur, designer and investor who is currently a Director's Fellow at the MIT Media Lab. For the last four years he lead product design at Nokia, responsible for both hardware and user interface design. Previously, he was CEO and Co-founder of Dopplr and part of the team at Blyk, the free ad-funded mobile network. Both directly and through an early stage fund Marko has invested in PeerIndex, Formlabs, littleBits, Path, and Viki among others. He is also on the programme committee of O'Reilly Solid and the Advisory Committee of WITNESS.

**David Weingartner (OuiShare)**

OuiShare is a global think-and-do-tank with the mission to build and nurture a collaborative culture by connecting people, organizations and ideas around fairness, openness and trust. With a background in international business, David joined the OuiShare community through researching the social and environmental impacts of collaborative consumption and the implicated transformation process that affects traditional business models. As a social entrepreneur, facilitator and consultant David helps individuals and organisations through various formats to increase resilience and build a more human economy.