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Perspectives on new work

Exploring emerging
conceptualizations

Esko Kilpi (ed.)
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Foreword by Olli-Pekka Heinonen

I HAVE BEEN WORKING in different positions in public service for more than 25 years. The mission has stayed the same: serve the common good of Finland. Everything else has changed. What used to work is not working any more.

The grown interconnectivity, complexity and uncertainty have redecorated our space for manouver. It is unclear that our well-intentional decisions will cause positive outcomes. Decisions dont turn into delivery the way they used to. There is no clarity what should be done and who could have the power to do it. Organizations are busy fulfilling their tasks, but alone and siloed they fall short of target. There is a huge disconnect between existing structures, organisations, management culture, leadership and the reality that surrounds us. Work is not anymore what it used to be.

Context does matter more, and it never stays the same. It is not only the question what is the policy for the nation, but it is the question how we all do things. How we all, as individuals and together, are solving problems, learning and working. That is why this book on perspectives to New Work is so important.

I have been reading the book with relief. There is so much explanatory power in it that it can really make a difference. It makes sense. The experience of “frustrating combination of new technologies and old ways of doing things” is something felt every day. Practises of management and leadership have a lot to accomplish with the ideas in the book.

The newest outcomes of research from different disciplines are knot together to an easily read narrative. Although it is easy to read, it is hard to swallow. What makes it hard is the fact that it changes the way we look at things. It has changed my ideas about my own future career. Be ready for a transformational experience.

There is a lot of policy advice in the book, and because of deep but simple insights it is a must-read for everybody planning to be in politics in the future. My own favourite is the wisdom “In the end, the winners have to pay the price of winning in one way or another. The bigger the divide is, the bigger the price that has to be paid.” With growing inequalities inside delevoped countries, that is essential for the policy-makers to keep in mind.

To me the most powerful theme in the book is the role of learning. Knowledge and skills have been on the agenda for a long time, but the interpretation of knowledge and skills has been too static for the rapidly changing landscape. Learning as a central quality for resilience is the idea for the future. For both individuals and societies.

Our schools and education systems are build to give knowledge and skills to be utilized later in the future. Work and learning have been seen as something consecutive to each other. As so vividly argumented in the book, work becomes learning. It also means that learning comes work. For pupils and students, schools are the examples that show how learning and work are organized. We can once again turn around the old saying, *non vitae sed scholae discimus*. Learning is contextual, and a social experience.

“Studies predict that nearly half of all jobs and over 70 % of low-skill jobs could susceptible to computerization over the next two decades”. No wonder those jobs can be replaced by robots, because they were initially planned to be parts of a machine-like organisation, as Esko Kilpi illustrates.

This is the book for us Finns to read in order to get out of current economical recession. Growth is not something that somebody at the top can arrange. Growth is solving our problems together. It is believing together in something valuable, and been ready to act to achieve it. The book made me ask are we doing the right things. Are we really working to solve the most burning problems we are faced with? And if not, why not? Seeing work as solving problems is a merciful thought. There is plenty of robotics- and AI-prophets around preaching the end of work. Although machines can replace existing jobs, I find the idea that there will be plenty of problems to solve, more realistic.

Trust on human beings is a theme running through the pages. Deep belief on everybodys ability to learn and the uniqueness of human beings tells the book has been written by a truly humane person. There is a strong vision inside this book. I believe in it.

Olli-Pekka Heinonen

Foreword by Vinton G. Cerf

ESKO KILPI HAS WRITTEN one of the most thought-provoking books I have seen in a long time. In a dense and idea-rich fashion, Kilpi paints an entirely new concept of work, freed from the manufacturing model that demanded all workers to be collocated with equipment and raw materials. Moreover, he argues persuasively that new communication technologies, especially those derived from access to Internet and World Wide Web infrastructure, create the means for a new kind of workforce. Its constituents are more independent and inter-dependent than workers of the past and their ability to choose work is far more flexible.

Kilpi's message is optimistic and forward-looking. As machines and especially computers take on tasks once undertaken only by humans, he foresees many new kinds of work arising. Someone has to develop software and someone has to apply it to new problems and opportunities that arise from the changing product and service environment. When I think of 3D printing, I am reminded that the product is the design as much as it is the object that is printed. In a way, this is a reprise of the pattern books one used to see for knitted garments, dresses, quilts and the like. I suppose these are still around and someday, one will download the patterns and a local robot may produce the object. In a crude way, perhaps we are seeing a trend in the direction of the famous Star Trek replicators of the 24th Century! Uber, Amazon, Craigslist and eBay illustrate the impact of distributed, fast and easy communication on the concept of commerce. The smooth and efficient inter-connection of buyer and seller, producer and consumer.

Kilpi helps us see that organizations are patterns of people and that new technology is allowing us to form more flexible and distributed patterns that facilitate increasing autonomy and dynamic structure. The nature of the work we can do is changing from repetitive production to creative and entrepreneurial activities. Indeed, Kilpi makes the case that we are entering a more human-centric world. We served each other, not the machines. And the machines serve us.

It is ironic and delicious that Kilpi brings up the game of GO vs Chess since, as I write this, the Alphabet company, Deep Mind, has just demonstrated that its machine, Alpha/Go was able to beat an international grandmaster of GO for times out of five. GO is far more complex than chess and yet a machine intelligence has been able to beat a human player. Rather than taking this as a sign of pending disaster, I see it as a remarkable demonstration that machines can learn complex tasks and serve our needs all the more effectively.

Knowledge capital, as Kilpi describes it, is different from money: capital is generic and finite while knowledge is contextual and inexhaustible. It can be shared and it is not used up in the sharing. This simple fact transforms concepts of business from a capital constrained model one of infinite possibilities and abundance. Kilpi refers to the real time company and I like this analogy. Broad sharing of demand and need allows for rapid and flexible response as one finds with AirBnB, Uber and eBay. Communications is a key enabler of such operations.

In a bold pronouncement, Kilpi says: "The Internet is nothing less than an extinction-level event for the traditional firm." Although this seems hyperbolic, Kilpi is putting his finger on something extremely important: the management functions of a traditional corporation are being augmented or replaced by distributed communication and information sharing. Visibility of needs allows for distributed and rapid response. The message is clear, the rigid, centrally controlled organizational structures of the past must give way to far more flexible, horizontal, networked structures of the future. Sometimes change is hard to see and understand when you are in the middle of it. Kilpi gives us a clarity of vision that will be indispensable for coping with the new era that is dawning

Vinton G. Cerf

Foreword by Stowe Boyd

WHEN I FOUND Esko Kilpi's work back in 2013, I wrote then, and I still believe,

Kilpi comes the closest to my thinking about the future of work and the social revolution.

The context was a piece he had written, "People, machines and the future of work", where what he wrote stands as a prologue to the growing discourse on the future of work these days, and the notion that we are in a social revolution, a movement aligned with the vision of radically different thinking about work: our relation to it, and through work, to each other, and ourselves. His words:

"The social revolution is about deeply rethinking the value of human effort. An increase in value can only occur if the 'parts' of a system can do something in interaction that they cannot do alone. Social business may be more about complementarity than collaboration."

An enterprise that is conceptualized as a social business should serve the purposes of all its constituents. It should enable its parts to participate in the selection of both the ends and the means that are relevant to them personally. If the parts of a system are treated as purposeful, they must have the freedom to choose and act. This means that the defining characteristic of a social business is the increased variety of behaviors that is available. It is no longer necessarily about common goals or shared purposes.

In the intervening years, Kilpi's vision – and mine, too, I hope – has deepened and broadened. But at the base, that shift away from collaborative work to cooperative work – which he refers to as 'complementary' – is accelerating, although the transition is not always apparent to observers.

In collaborative work, individual goals and plans are subordinated to those of the organization, while the direction and destination are set by management and tightly coordinated by approaches that might at best be considered consensus-building, and more darkly as coercion.

In cooperative work, individuals are principally working toward personal goals, while working in loose alignment toward shared ends with colleagues, companies, or communities.

The shift toward a cooperative work architecture – indeed, the emergence of a new architecture for work – isn't being driven by high-minded idealism. It's a pragmatic adaptation to a number of converging trends, such as the decrease in loyalty on both sides of the employee/ employer social contract, the rise of agile approaches to product development and organizational thinking, and the increase in volatility, uncertainty, complexity, and ambiguity in financial and world affairs.

I have characterized the new model of business – one well-adapted to this new world order – as being fast and loose. This is intended as a stark break with slower and tighter forms of organization and management. And the transition from older, collaborative forms of work to cooperative work will require a systemic relaxation of work norms, management preconceptions, and individual motivations.

'Fast-and-loose' requires relaxing the tight social links of industrial era business: the hierarchic links, the command-and-control processes of centralized decision making, and the indoctrination of all into the worldview and value systems of the few.

The new economic context – especially its demands for agility and faster cycles of innovation and learning – will increasingly be based on greater autonomy for high-performing, creative contributors. The rise of AI and robots is making that even more essential, as algorithms and 'bots' will take over all but the most non-routine and cognitively-challenging work.

What form, then, will companies take? Kilpi tells us that businesses will be transitioning from Coase-style corporations with clearly defined 'insides' and 'outsides' to semi-permeable platforms, on which 'architectures of participation and choice' will be devised, and they will be fast-and-loose:

"Work systems differ in the degree to which their components are loosely or tightly coupled. Coupling is a measure of the degree to which communication and power relations between the components are predetermined and fixed or not. Hierarchies and processes were based on tight couplings. The new post-industrial platforms are based on loose couplings following the logic of the Internet. Some people will work on one platform

every now and then, while others will work simultaneously and continuously on many different platforms. The worker makes the decision about where, with whom and how much to work. The old dichotomy of employers and employees is a thing of the past."

Yes, the new architecture of work is built on the network model of the Internet. We will work as 'connectives', networked through the services and links of organizing platforms, platforms formerly known as companies. These will operate more like cities, or biological systems. They will be adaptive systems of cooperative interdependent agents. We will be moving away from working in 'collectives', architected to operate like factories, or armies.

Many ask me, 'how will we get to this new way of work?' For years, I believed it was a matter of convincing people, rationally, of the efficacy of the new way of work. I still believe that to be one path to understanding why this transition is happening, and why we should move as quickly as we can to a new mode of operations, a new 'operating system' as many have said. Perhaps we should say a new 'operating manual', though, because it is the participants who have to live in the new architecture of work, and who will be looking for answers.

So today I believe we need to do two things at once. First, to inform and inspire individuals – management and the workforce – about the benefits for all in this new way of work. But as Hillary Clinton recently said, regarding political change, you can't convince everyone to adopt transformation:

"I don't believe you change hearts. I believe you change laws, you change allocation of resources, you change the way systems operate. You're not going to change every heart. You're not."

No, we are not.

So, second, we need to accelerate the development of new platforms for work – change the rules, in other words – and through them rework the critical work connections: between participants and the platform (or business), between participants, and between the individual and their own work.

Kilpi has positioned the new way of work directly in the foreground of the landscape of unprecedented and disruptive changes we are confronted with, and he closes this book in part with this insight:

"The difficult challenges ahead may not be technological or architectural, but habitual and contractual. The future of work has to be based on willing participation by all parties, and the ability of all parties to protect their interests by contractual means."

I agree unreservedly. The new architecture of work is right before our eyes: it's not hiding in some distant future. What remains to be done is change in the social dimension: the realm of contracts, habits, and, yes, even of hearts.

Stowe Boyd

Prelude

A GROUP OF SENIOR FINANCIERS talked about the future of banks. The discussion was mainly about the relationship that banks have with technological and societal advances and how changes in technology potentially change the role of banks.

One of the bankers talked about the history of banks, as he saw it. He said that when we use money, what we are essentially doing is making entries in registers. This began with records of trade in southern Mesopotamia about three thousand BC.

According to him, the next big invention was double-entry bookkeeping. It means that every entry to an account requires a corresponding and opposite entry to another account. The recording of a debit and an equal credit results in total debits being equal to total credits in the account books, the ledger.

The earliest known written description of double-entry accounting comes from Florence in 1494. Luca Bartolomeo de Pacioli, an Italian mathematician and a friend of Leonardo da Vinci is often called the father of accounting. He was the first to publish a detailed description of the double-entry system, thus enabling others to study and use it.

The first company to deploy this new technology of record keeping effectively was the Medici bank in Florence. Banks become the places where all the different transactions were gathered in a single register. Thus banks become the necessary intermediaries between creditors who have money to lend and borrowers who have a need for it.

Satoshi Nakamoto's paper on a ledger called Blockchain was published in October 2008. The detailed workings of the new technology, including the code which would

operate it, were published on 3 January 2009.

For the first time in history, we have a register, which does not need to be guaranteed by banks or any other form of authority other than itself. A decentralized, anonymous, self-verifying and completely reliable register of this kind is "banking without banks", as one financier put it.

The bankers asked whether future historians are going to associate the pseudonym Satoshi Nakamoto with the end of banks as we know them, in the same way as Luca Pacioli is associated with the beginning.

The Blockchain is a distributed ledger that allows transactions, or other data, to be securely stored and verified without any centralized authority, because the entire network validates them. The transactions don't have to be financial and the data doesn't have to be money. The importance of the Blockchain may not lie only in digital currency. It may also represent a novel form of network-based organization.

This kind of work, I think, may be unimaginable today.

The new technologies are not just helping us to do the things we have always been doing but in a better and a faster way. These new tools change the essence of organizations.

There are still very few organizations taking advantage of the new opportunities. This is why Sitra, the Finnish Innovation Fund, started the process leading to this book.

We need new perspectives!

The oldest strategic principle of all is "knowledge tends to precede victory, while ignorance tends to come before defeat". Instead of claiming to know what is happening, the goal is to imagine what is now possible.

But instead of imagining the future of work, we try to imagine a desirable future of work.

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THIS BOOK IS THE PRODUCT of multiple inputs, several streams of experiences, ideas, comments and guidance that took place both face-to-face and on social media.

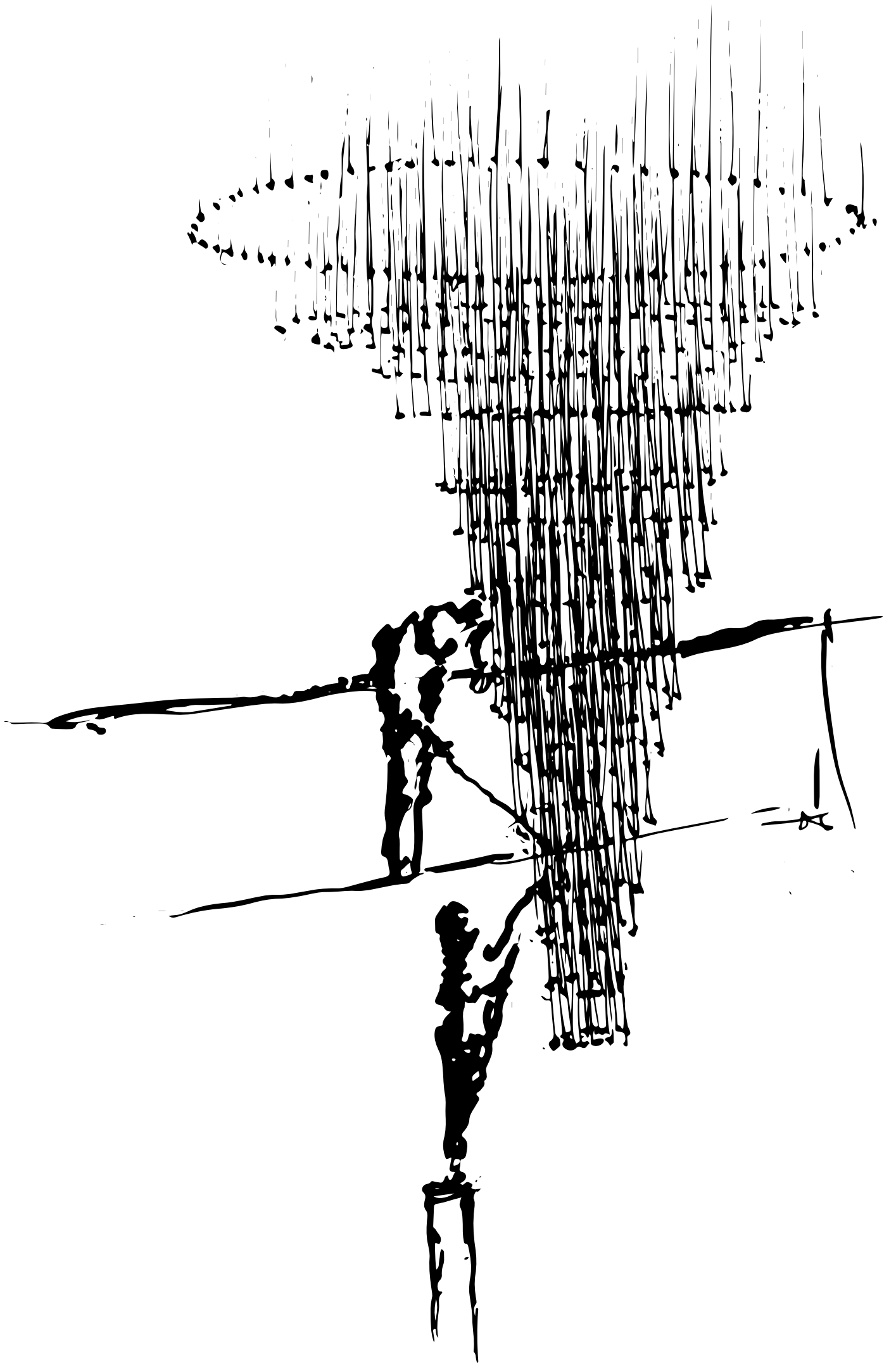
The movement of thought was open for comments and contributions all the time. It is said that when you work on a demanding topic for several months you tend to lose a lot of perspective. You're just too close to what you study. This lack of perspective takes typically one of two forms: you may think something is obvious when it really isn't. It may be obvious to you because you have been thinking about the issue for a long time. But it might not be so obvious to someone else. Hal Varian suggests that the other possibility is that after spending a lot of time on a substantial topic you may think something is complicated, while it is quite obvious to someone else. This is why the book follows the logic of my exploration being enriched, complemented and commented by many of the very best experts on the topic of the book: the emerging new world of work.

I wish to express my gratitude to the wonderful group of bright minds who joined me in writing this book. Also, my special thanks go to the Sitra team: Mikko Kosonen for the opportunity he offered to write this book, Timo Lindholm, Timo Hämäläinen and Sari Tuori.

I am totally indebted to the people close to me during the whole process: Katri Saarikivi, Ruth Vilmi, Sanna-Mari Hovi, Sasu Ristimäki and Ilkka Suppanen.

André Gide wrote: "Everything that needs to be said has already been said. But, since no one was listening, everything must be said again."

In addition, to the writers of this book I have listened very carefully to Yochai Benkler, Kenneth Gergen, John Hagel, Ralph Stacey, Clayton Christensen, Jeff Jarvis, Chris Dixon, David Weinberger, Chris Messina, Clay Shirky, Doug Griffin, Bill Davidow, Henry Minzberg, Indy Johar, Andrew McAfee, Byron Auguste, John Shotter, Tim O'Reilly, Bill Gross, Erik Brynjolfsson, Stephen Denning, Paul Graham, Benedict Evans, Stuart Kauffman, Brené Brown, Kenneth Cukier, Eric Ries, Denis Hassabis, Reid Hoffman, Eric Scherer, Devin Fidler, Esther Wojcicki, Robin Chase, Adam Cheyer, Gary Marcus, Tom Goodwin, Sean Park, Tebor Scholz, Richard Straub, Sari Baldauf, Risto Siilasmaa, Bjarke Ingels, Bryan Savage, Douglas Rushkoff, Pedro Domingos, Tim Harford, Brian Chesky, Silvija Seres, Don and Alexander Tapscott, Andrew Ng, Jon Bruner, Robert D Putnam, W Brian Arthur, Sinan Aral, Kevin Kelly, Howard Rheingold, Steven Hill, Steve Blank, Paul Mason, John Maeda, Stephen Downes, Michel Bauwens, Kevin Slavin, Tim Brown, Simon Schama, Santo Fortunato, Matti Pohjola, Antti Herlin, Ilkka Paananen, Henrik Andersin, Teppo Felin, Mikko Mäenpää, Mirjami Laitinen, Vili Lehdonvirta, Wili Miettinen, Kim Weckström, Martti Mäntylä, Esa-Pekka Salonen, Atso Almila, Teemu Arina, Samppa Vilkkuna, Timo Ahopelto, Petteri Koponen, Fredrik Karlsson, Kalle Ruuskanen, Ari Backholm Saku Tuominen, Joi Ito, Marko Ahtisaari, Steve Jurvetson and David Nordfors plus the i4j group.



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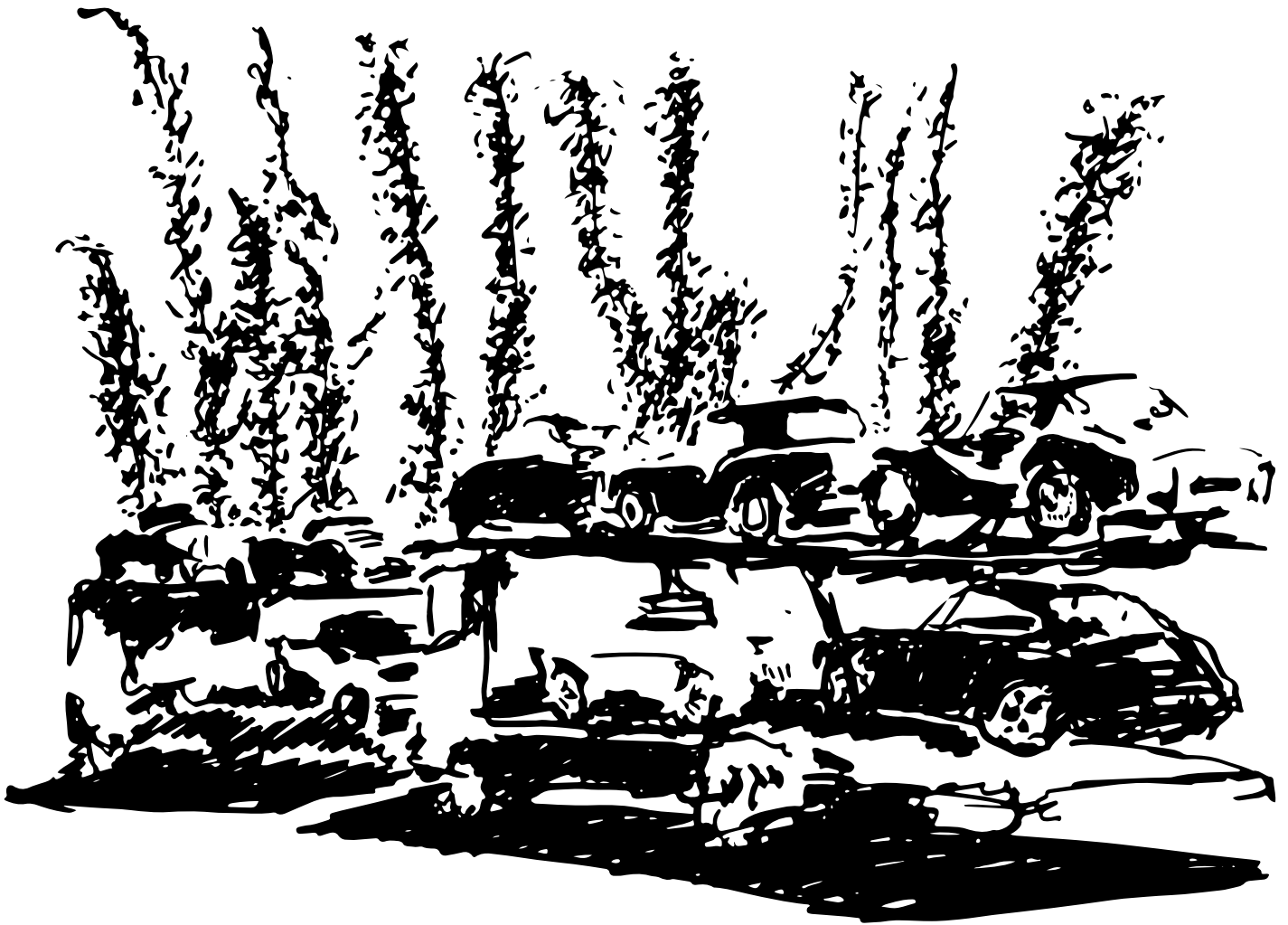
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The transformation – the road from the past to the future

IN AN ECONOMY, people essentially produce goods and services for other people. In theoretical terms, companies are intermediary organizational forms that arrange development, production and delivery processes. Our economic theories are derived from the era of the production of tangible goods and high-cost communications.

These mindsets are not only unhelpful, but wrong in a world of information products and ubiquitous, low-cost/high-quality connectivity.

The digital world we live in, the Internet and the new intelligent technologies that are now affordably available allow us to imagine and experiment with totally new value creation architectures. New communication technologies have always had a strong impact on industries, customer behavior and the logistics around production. But this time, due to information products, the societal changes are potentially even greater than before.

The Internet is the first communication environment to decentralize the financial capital requirements of production. Much of this capital is not only distributed, but also largely owned by the workers, the individuals, who themselves own the smartphones and other smart devices, the new machines of work. When computers were expensive, the economics of mass industrialization and its centralized management structures ruled them. Not any more!

The factory logic of mass production forced people to come to where the machines were. In knowledge work, the machines are where the people are making it possible to redistribute work to where they are. What emerges is creative, highly contextual work, a new design whereby *work is interaction between interdependent people*.

This creative, network-based work of the future will not be about jobs, but about tasks, assignments, gigs and interdependence between people. You don't need to be present in a factory any more, or in an office, but you need to be present for other people.

Can companies perhaps be replaced by apps? Or can managers be replaced by apps? Or perhaps more and more new companies will relate to customers via apps, as platforms like Uber and Airbnb already do.

Many of these new companies are really market makers, service marketplaces or service networks, rather than

traditional service providers.

In the network economy, individuals, interacting with each other by utilizing coordinating apps and relatively cheap mobile, smart devices, can now create information products in a way that has never been possible before.

Creative, digital work and the Internet have created circumstances in which the employee in effect chooses the purpose of work, voluntarily selects the tasks, determines the modes and timing of engagement, and designs the outcomes. The worker might be said to be largely independent of management by some other person, but is in effect interdependent. *Interdependence* here means that the worker is free to choose what tasks to take up, and when to take them up, but is not independent in the sense that she would not need to make such a choice.

The *interdependent, task-based* worker negotiates her work on the basis of her own purposes, not the goals of somebody else, and negotiates who her fellow-workers are on the basis of cognitive complementarity and her personal network, not a given organization.

The architecture of work is not the structure of a corporation, but the structure of the network. The organization is not a given hierarchy or a predictive process, but an ongoing process of organizing. The Internet-based firm sees work and cognitive capability as networked communication.

The worker is not an employee and not a contractor, but something in between. Post-industrial work may require us to create a new third model, a new conceptualization of work.

Digital services can attain the level of customer reach and network size required to capture almost any market, even as the size of the core company stays relatively small. This is why network-economy based start-ups have such a huge advantage over asset leverage based incumbents. The key understanding is that it is now the customers or members of the network who create value, not the network owner.

The central aggregator of enterprise value will no longer be a value chain. Instead, the Internet is a more viable model for making sense of the value creating constellations of tomorrow.

Exploring these new architectures and new opportunities is what this book is about. The concepts that govern our thinking and language in relation to work are not just semantic entities, but influence what we perceive and what we think is possible or not possible. We are usually unaware of how these concepts prime our thinking. We simply think and act along certain lines.

The question we raise here is whether we should start to look at work differently from the ideas that governed the industrial enterprise and the industrial era? This book studies the new conceptualizations of work that are already visible and the new thinking and the visionary thinkers around work, management and organizations. The second question we ask is: can we create a new post-industrial narrative for work?

The history of work

Minna Huotilainen

In hunter-gatherer societies, just as in ours, work was exchanged for work. A good hunter could easily catch more than she needed, and trade some of the prey with a good gatherer. According to most anthropologists, hunter-gatherers were meat-eaters, i.e. their diet included fish, meat, and insects. Catching such prey requires skill and collaboration. It also requires very good physical health without major injuries.

There is recent evidence that hunter-gatherers began cooking their food much earlier than was previously thought. Cooking meat and plant matter led to a major change in the bodies and brains of humans, the shift from raw food to cooking allowing the consumption of richer food and resulting in a shorter digestive tract and larger brain. Cooking is also important from the point of view of collaboration and scalability.

The meaning of work was obvious: everybody needed food and shelter. The threat of not having enough food created fear, while having plenty led to happiness and fulfillment. It seems that their societies were egalitarian, since no leaders were needed. Decisions on trading work for work and maintaining trust were distributed between trusted members of society.

In separate locations around the world, in the Middle East and America, the Stone Age ended in a revolution affecting work. Some humans discovered the possibility of affecting their environment by watering and weeding around locations where edible plants lived, and attempting to herd animals by penning them into enclosures or enticing them by laying out fodder. These plans included significant risks: without constant hunting and gathering, the possibility that the weeded plants and herded animals would not provide food meant that people were risking their lives for their new way of life. The earliest such transition was probably made in Jericho around 8,000 BC, where traces of human-cultivated

wheat (Einkorn and Emmer) and barley have been found. During the shift to farming, these humans still hunted for meat. The domestication of animals began with sheep and goats in the Middle East.

Surrounded by hunter-gatherers, these early innovators had a problem: they needed to protect their crops and animals, which would otherwise be easy pickings for the surrounding people. This changed the world of work completely by introducing possessions to the world. Jericho, with a population of just 2,000 people, already had protective walls and a tower. A watchman was needed in society alongside the builders of security within the pioneering agricultural community.

From approximately 4,000 BC, cows provided high quantities of milk and the strength of the ox was harnessed for dragging sledges and, later, ploughs and wagons with wheels. These innovations led to an immeasurable increase in the wheat crop and enabled transportation from more distant fields, creating even more professionals.

Step by step, work was moved further away from the original search for food and shelter. Professionalism in narrower tasks was profitable, since the tasks were divided into smaller and smaller parts. Industrialization, where the entire economy was reorganized to allow manufacturing in factories, represented the extreme in this regard.

As a consequence of industrialization, towns grew larger to enable the concentration of work force in factories. At this stage, we left behind the simple concept of trading work for work and the exploitation of workers (and natural resources) began, leading to a change in the way we think about work.

Work in a factory was no longer a simple and rewarding search for food and shelter, but was viewed as the product of an asymmetric power relationship between the worker and the employer. When taken to its extreme, this state of affairs leads to the loss of spirit, imagination, initiative, curiosity, and finally hope for a better future in the worker. In such

a situation, the worker's cognitive capabilities for innovation, development, learning, and goal orientation are lost. The worker merely functions as a machine part that is cheaper or easier to obtain than machinery or robots. The aforementioned human qualities are not needed in such work.

In our society, the workforce is facing a completely different scenario. We should be creating value via our work, which in turn creates even more opportunities for value-creation in the future. We must now make the leap from industrial thinking, in which the worker is an appendage of a shop-floor machine, to the opportunity-creating worker.

Can we learn from the history of work in order to improve our society?

We live in a society where work is rapidly changing. In this book, we will learn about the tremendous challenges that these changes imply for our society and its individuals. The transition from industrial, manual work to knowledge work is not easy and requires an understanding of knowledge work or post-industrial work from the perspective of the human brain.

Our behavior, which emanates from our nervous system, is naturally a product of our personal history, but it is also a result of the evolutionary history of our species. Our brains have changed little in the 10,000 years since the days of our hunter-gatherer ancestors. This is a very short period in the development of the human species. Our brains are still adapted to the environment encountered by hunter-gatherers and basically work in an identical way to theirs.

When pondering these traces of our evolution in our brains, we should consider not only our adaptation to the savannah environment but also the way in which hunter-gatherers worked. They were motivated in much the same way as we are: finding food and shelter gives life a clear purpose. But they also experienced trust and possibly even joy in trading

their work with others from their community, producing networks of trust among people. This remains an essential need in today's working life: we are motivated by producing value for those whom we trust – individuals within our family and society.

Two major aspects governed our ancestors' development at work: curiosity and specialization. Curiosity is one of the driving forces of innovation, even in today's work life. In the hunter-gatherer society, curiosity had fertile ground: humans worked for food for only 2 to 3 days a week, leaving plenty of time and space for curiosity and creating amazing innovations. In our working life today, curiosity is suffocated by busy schedules, deadlines and efficiency requirements. Most humans now exercise their curiosity during their free time and when engaged in hobbies, but seldom at work. This is a dangerous situation, since curiosity is the key driving force of innovation and development.

Specialization in hunter-gatherer societies was driven by motivation and excellence. Humans who naturally excelled in a certain task more than other members of society began specializing in that task. This made sense both to the individual and society as a whole. The motivation to learn new things occurred hand in hand with excellence based on personal abilities and success in learning. Applied to modern working life, this would mean that work tasks should be chosen according to personal abilities and motivation. We should do those things that we do well, and that we want to do. We should pursue and examine our personal wishes and needs, which are the key to understanding how we can create true value for our fellow members of society.

In learning from the past, for the purpose of developing contemporary working life, we go 10,000 years back in time – not just one or two centuries – and consider the environment and ways of working to which our brains have adapted.

When there are genuinely new technologies you don't typically see a new version of what currently is. Surprisingly, what you may end up seeing is the rebirth of old forms that have been lost.

Why isn't work working?

Nilofer Merchant

And let's be clear, work isn't working. This is a worldwide problem. In the US, 7 out of 10 people say they are dissatisfied at work, while 87% of people worldwide find themselves in jobs that don't ask them to bring either their minds or their hearts to work.

These statistics, which are regularly measured by Gallup, haven't changed much in the last 20 years. In many cases, they've gotten worse. And this hurts us all. It affects the person being asked to do soulless work. It affects our organizational communities, which are stunting the capacity of their largest and best asset. And it affects our economy because we're collectively missing out on the best ideas that fuel our creative economy. Expressed in net terms, work isn't working.

What's broken? Is it our measurements, our management systems, or something else? Let's look at a specific story, which I think gives us clues as to how to answer these questions.

When Marja-Leena worked at a major bank in Helsinki, her job was to help people to make good financial decisions using the tools and assets the bank could offer – decisions such as how to prepare for retirement, or how to sell your big family home and downsize as you get older. Since all big decisions in life involve money, Marja-Leena was involved in many people's decisions of this kind. She loved her job, not only because she was good at getting to know and help people, but also because she understood the financial levers the bank could offer them. In many ways, the job was perfect for her. She was creating value every day for customers, and for the bank.

Yet, she complained about her work. And she's not the complaining type.

That's because most of her time was not spent doing value-creation work. For example, she had to draw up a detailed marketing plan every year exploring how to serve the bank's customers. Instead of serving customers well and knowing those customers would share that with friends and community members going through similar situations, she had to think of theoretical things to say and do in the broader marketplace of prospects. Those marketing plans were then reviewed and approved by people far removed from the banks' customer needs. She knew that for her plan to be approved, she had to say things that mattered to those corporate types, not what actually worked with real customers.

She had to define the related metrics through activities that could be measured. Or, decide how much money to spend and know she would be held accountable for that specific dollar being spent on these or those activities. Even if she saw other, better opportunities as the year progressed, she had to stick to the original plan. These procedures were frustrating for Marja-Leena, because they measured the *doing* of work, but not how *effective* that work would be. It measured the abstract rather than the concrete.

Another example was how she was allowed to do her work. She was limited to 15-minute appointments because the bank's policies said so. Even if she knew someone needed just a few more minutes, for example 20 minutes to complete their needs, she had to ask them to come back later to get what they needed. If someone forgot a piece of paperwork, they couldn't email it to her, but had to start the paperwork process with her in a new appointment at a later time. And, so, her hands were tied by bureaucratic processes, that denied her the ability to do the right thing for the customer (and, of course, for the bank). The things the bank was managing and measuring were the things that created only the *appearance* of success, but actually *thwarted* it.

When she left the bank after 30 years, at the age of 70, her enthusiasm for her work had gone nowhere. If anything, it was stronger than ever. And although she no longer had the bank's credibility and logo behind her, she still got to do her work. In fact, her ability to contribute to people's lives increased markedly after she stepped out of the organizational context. Her daughter, Minna Huotilainen, has a Ph.D. in organizational science and works at the University of Helsinki and the Finnish Institute of Occupational Health. She measured her mother's productivity post-bank work and found it had risen by 30%.

Minna's data matches other research done in the field of engagement. People want to do value-creating work. Beyond the first few years of their career, they do not need to be told what that is. People want to contribute their ideas, to have a positive impact. They do not want to be told to perform activities that they know will not help in achieving the end-result. People have the passion to do what is right by customers and by their organizations. They do not want to be "managed" away from that. All too often, our organizations thwart people's attempts to achieve what they want, and what will best serve the organization. As you read Marja-Leena's story, what do you see in it? Do you see yourself? Or where you work? Or, perhaps the reasons why you left an

organization? When I first met Marja-Leena's daughter, Minna, and heard this story, it was remarkable to me how well it matched a global pattern of work that isn't working.

My research consistently shows that this story matches a larger pattern: organizations continue to operate on a premise that is no longer valid. Too many organizations hold onto the old and dated premise that to create scale, you need to define specific tasks, and specify all actions. You need to be able to *replicate* the *same* thing, over and over again.

And, *to be sure*, that strategy for scale exists in management today because it worked for a very long time. It was even needed. In the industrial era, from around late 1800 to the mid-1950s, when work was about building things, the design of work required that each person played their part efficiently in a very specific way. This was a time when most people had very little education. The industrial era's business model was optimal when people were simply executing one small task. If, for some reason, something happened to that person, they could be replaced by anyone else.

But is that what our economy runs on today? In the industrial era, only a few people had to have novel ideas; everyone else executed them. But in the Social Era, ideas are the fuel. We don't need the ability to do the same thing consistently, over and over again. We need the ability to adapt, create, and customize.

And let's think about the implications of this.

Scale in an ideas economy requires something different. In fact, scale in such an economy isn't about delineating and delegating the specific elements of a major goal, breaking them down into micro units. That only creates disengagement, because each party can do their "bit" while the bigger goal isn't met. In an ideas economy, what matters is the co-ownership of the idea so that everyone is doing what he or she needs to do to turn that idea into reality. The truth is that work should not be divided into tiny parts. Instead, what we should and can do is ask people to figure out what part of the whole they can own. When people co-own the big idea with you, they will move heaven and earth to make it a reality. That's because it's *their* idea, not just someone else's. And it's because they want to do meaningful work, not just show up. People want to make a dent in the world and are looking for ways to do so every day.

Three shifts are depicted in image 1. One is the source of value creation, the next is about what creates scale, and the final element is measurement systems.

Value Creation Shifts:	
Source:	Ideas and creativity of people
Scale:	People-Driven not Repeatable Systems
Measures:	Value Creation not Procedural Routines

The future of work is captured in these three shifts.

1. That you enable everyone – possibly everyone – to bring all of themselves to work. You want to draw on the ideas and creativity of all people, something I've entitled on-lyness. Onlyness says that each of us stands in a unique spot. It is a function of each person's history and experiences, visions and hopes. This is the source of the novel ideas that fuel innovation.
2. That you create scale by allowing connected people to share what matters. Repeatable systems suggest that you can forecast and plan in theory. But when real people are involved, why not count on those real people to share information, advocate for you and share their love for the service they've received. Instead of the corporation saying something, the recipient of value shares.
3. People know what needs to be done. So, we need to give them more discretion and agency over their work. In other words, let them do it. Let them focus on the value creation activities they want to do and then let them be accountable to their peers for whether they do it. When people look each other in the eye and say what they want to make happen, they do it. Commitment to one another is a stronger measurement system than bureaucratic paperwork in a corporate office.

When we change work in order to respect and honor people for being the creative and generative talents that they are, we'll be amazed by what we see them deliver. Not surprised, but amazed, and even delighted. Don't you want that? We all do.

Are machines the future of work?

A few years ago there was a workshop on technological intelligence and the future of work. One of the questions raised was: "If machines can replace people's minds in knowledge work as effectively as they once replaced their muscles in manual work, what will ultimately be left for human beings to do?"

The answer was that this concern is based on a totally incorrect assumption. Working life does not consist of a finite number of tasks to which human effort can be applied. The challenges that confront us every day are unlimited. Every solution to a problem generates several new problems and unforeseen opportunities. No matter how many are solved, there will always be an infinite number ahead of us.

Although modern technology has reduced the number of things that had to be dealt with by human beings in the past, it increases the complexity of the challenges that require human attention now and in the future. One way of thinking about work is to view it as solving problems in a way that creates value for customers and wealth for us.

Technology: robotics, machine intelligence and cognitive computing are indeed changing what people should be doing and how organizations come to be what they are. This is why we need to revisit and rethink our conceptualizations of work.

When the Industrial Revolution began, the dominant Newtonian worldview meant that there were no significant uncertainties, or unknowns, to complicate things. Physical laws described what things, following a linear, rational causality, would do. Most academic experiments were constructed accordingly, and still are today. The aim was often to study the effect of one known variable on another. Business enterprises were consequently thought of as algorithmic processes, as machines.

Like all machines, enterprises conceptualized as machines did not have a will of their own. They served the intentions of their creator, the owner. Employees were, of course, known to be human beings, but their personal intentions were viewed as irrelevant. People were retained as long as they were needed to fulfill the intentions of the creators.

A systemic and biological conceptualization then replaced the notion of an enterprise as a machine. One often-overlooked reason for this was the changing

structure of ownership. When a firm went public, its creator disappeared. Owners were viewed as anonymous, and too numerous to be reachable. The Industrial Revolution became the Managerial Revolution we are still living through today.

The Managerial Revolution changed how people thought about the purpose of a firm. Like any biological entity, the enterprise now had fitness and longevity as *raison d'être* of its very own. Profit came to be thought of as a means, not an end in itself. Success came to be measured by growth. Just as in nature, this was seen as essential.

The systemic view represented a profound change in thinking compared with the mechanistic view. A biological

organism is not goal-oriented in the sense of serving external purposes or moving towards an external goal. Rather, the movement is toward a fitter or more mature form of itself in a particular environment. An organism can adapt, but cannot leave or choose to be something else. But humans are creative and can choose – and you never know what they will do next.

This is why things are changing again. The sciences of complexity have helped us to understand that organizations can be viewed as patterns of interaction between human beings. These patterns emerge in the interplay of the intentions, choices and actions of the people involved. No one party can plan or control the interplay between these intentions. But even without being able to plan precise outcomes, or control what others do, people can accomplish great things together.

The heart of the matter is that people can only accomplish their work in necessarily uncertain and ambiguous conditions through interaction with each other. The next revolution is dawning. The social revolution of work, the human-centric revolution, is about deeply rethinking the value of human effort. An increase in value can only occur if people can do something in interaction that they cannot do alone. Social business may become more about complementarity than collaboration.

An enterprise that is conceptualized in this way, should (1) serve the purposes, the will, of all its constituents. It should (2) enable its parts to participate in the selection of both the ends and the means that are relevant to them personally. If the parts of a system are (3) treated as purposeful, they must (4) have the freedom to choose and

**What can we do to
better align today's
tools with the world
we'd like to create**

to act, not independently, but interdependently. This is because the basic unit of work is (5) interaction between interdependent people.

This means that the defining characteristic of a future business is the increased, non-algorithmic variety of behaviors available. This is no longer necessarily a question of common goals or shared purposes. It is a common movement of thought.

The way our organizations are conceptualized has a major effect on what people do, and what they do affects the way in which organizations are conceptualized. Enterprises have always consisted of people who have ideas, intentions and a will of their own. Now this really matters. All people can be creators. All people are creators!

The focal point in tomorrow's work may not be the organizational entity one belongs to, or the manager one reports to, but the reason that brings people together. What purposes, activities and tasks unite us? What is the reason for the formation of groups? The architecture of

work is a live social graph of networked interdependence and accountability.

New technologies give individuals and organizations the ability to do this, to reconfigure agency and its form in any way they desire and can imagine. We are no longer confined to any one structure. Sometimes people stay together for a long time, sometimes for a very, very short time. The Internet is no longer about linked pages but connected purposes. We want to do something – with the help of other people and technological intelligence.

The task is to combine technological intelligence and creative interaction between interdependent human beings.

In this, the key idea is to reconfigure agency in a way that brings these relationships into the center. The task is to view action within complex human relationships, supported by our relationship with algorithmic technological intelligence.

This is not the end of work, but work is definitively changing!

Designing a new operating system for work

Marina Gorbis

A few years ago, my colleagues at the Institute for the Future were exploring the future through the lens of extremophiles – organisms that seem to survive and sometimes thrive in highly inhospitable environments such as hot lava, contaminated water, or extreme cold. At the time, these creatures seemed alien and exotic, living in tiny rock crevices, on deep ocean floors, places far removed from ordinary human life. But this research came back to me recently, with a jolt of recognition, during a typical day-in-a-business-life, with its series of delayed flights, procession of meals that looked like something dreamed up in a chemistry lab, endless high-stress meetings in windowless offices with artificial lights, and then a harrowing flight home. When I got home and my head hit the pillow, it suddenly struck me: extremophiles are not faraway, exotic life forms. We working humans are extremophiles.

To see ourselves as extreme creatures, we have only to revisit the New York Times' investigation into Amazon's work culture with its brutal hours, political backbiting, and huge personal toll on workers' personal and family lives. While the revelations were met with the predictable level of shock and

condemnation, many executives and journalists stepped forward to argue that Amazon's working reality is not unique or even rare. Writing for the *Huffington Post*, Emily Peck described Amazon as "basically a stand-in for the white-collar, always-on, male-centric workplace that many U.S. workers know all too well."

The unmasking of some of the realities of working life, particularly in the most innovative companies, is happening at a time when we are engaged in a heated debate about the rise of the *on-demand* or *gig* economy. In such an economy, platforms like Upwork, Bench.co and many others can assemble teams in the cloud to provide sales and customer support, help with editorial work, conduct research, arrange delivery, and perform many other tasks. These platforms are breaking jobs down into tasks that are accomplished not by employees, but by swarms of people in an ad hoc manner. For these on-demand or platform workers, there are no institutional hierarchies to climb and often no human bosses to account to. Algorithms play the coordinating role – the traditional role of managers – matching the tasks that need to be done with the people who are available and best qualified to perform them.

Unfortunately, the debate about this new way of working is often reduced to a question of classifying workers into one of

two categories: W-2 full-time employees vs. 1099 contractors. Yet in the rising on-demand economy, entirely new classes of workers are emerging and new archetypes of workers are emerging. Among these are the “micro-taskers” signed up on multiple platforms, who often choose a particular platform or task to work on based on an individual’s time availability and calculations of the best earning opportunities. Some are musicians or artists who can do platform work while touring or during breaks in performance schedules, without committing to 9-to-5 continuous i.e. W-2 employment. The availability of such on-demand work, in fact, enables many of them to pursue their calling while providing the security of knowing that they can plug into the stream of tasks whenever and wherever they want or need to. Others who benefit from on-demand platforms are people we might call amplified entrepreneurs – those who, instead of starting a company, are outsourcing many of the required functions to a multitude of on-demand workers who do everything, from prototyping and marketing to scheduling and accounting. They make it possible for entrepreneurs to accomplish individually what previously required an entire organization. Instead of managing staff and budgets and negotiating hierarchies, they are managing crowds of “taskers” in their own time, sometimes without leaving their homes or co-working spaces. Some can literally employ and direct thousands of people while sitting in their pajamas and sipping coffee in their beds.

These new work patterns and worker archetypes may seem like alien creatures to us – like extremophiles in a hostile environment. But compared to today’s familiar extremophile existence in the so-called 9-to-5 workday, these platform pioneers may actually be evolving a much more adaptive – and fulfilling – future for all of us.

If we look at this transformation with greater curiosity than fear, here is what we see: yes, on-demand work, or what we at IFTF call the coordination economy, creates many challenges. But it also bears the seeds of something great. Among its most positive aspects is the promise of an unprecedented level of flexibility and autonomy allowing individuals to decide when to don their “worker” identities – when to engage in paid work, where, how, and for whom. This flexibility allows many people to invest in and cultivate the many other aspects of their identities as artists, makers, community and family members, and citizens, adding much value to society while fulfilling a basic human need for an individual sense of purpose. Until now, such flexibility and autonomy has been reserved for the independently wealthy, celebrities, or most highly skilled. In the coordination economy, we have

the chance to provide the same opportunities to many. Of course, not all the platforms we see around us today are enabling the levels of flexibility or incomes necessary to take advantage of this kind of privileged existence. However, the seeds of this potential are germinating in the very nature of the technologies powering many coordination platforms.

Every generation of technologies brings new possibilities and new affordances.¹ Today’s emerging platforms and ways of working may seem new and alien, but let’s remember that the way we work, the way we organize ourselves to create value, is not static and pre-ordained. It is, in large part, an outgrowth of our techno-social infrastructure – the kinds of technologies we have in our possession as well as our cultural and social circumstances. In fact, the notion of wage labor, the idea that we sell our time for money, is a relatively recent phenomenon. It’s only about 300 years old, which is really a blink of an eye in our human history. This doesn’t mean that before wage labor became the dominant way of sustaining livelihoods, humans sat around doing nothing. We produced, traded, and invented things. But we mainly did so on a local and small scale. With the rise of connective technologies of all kinds, including railroads, cars, telegraph, telephones, and today’s digital technologies, we have been able to scale up production. As Nobel Prize-winning economist Ronald Coase pointed out in his seminal 1937 paper “The Nature of the Firm,” large organizations came to dominate our production landscape because they turned out to be highly efficient mechanisms for producing at scale while minimizing transaction costs, the costs of planning and coordinating activities beyond local geographies and small markets.

In this sense, large organizations can be seen as a kind of technology for scaling up activities while minimizing the costs of doing so. Formal organizations have become the operating system, the OS, for coordination and value creation for the last 100 years. Today, however, the Internet and all the adjacent devices and technologies, from mobile phones to sensors, are changing this operating system, replacing it with the new one that we are only in the early stages of creating. Like every technology before it, this new OS, the new system for coordinating human activities and creating value, has both the seeds of something great and, potentially, something not so great.

But before we engage in a wave of nostalgia for the W-2 workforce in the face of this new operating system, let’s return to the extremophiles and the recent revelations about Amazon as well as the experiences of most of us operating

¹ For myself, I tried to sum up affordances of the new connective infrastructure we’ve been building for the past 50 years in a book, *The Nature of the Future: Dispatches from the Socialstructured World*.

in a 9-to-5 or 5-to-12 or any other formal work in a large organization. And in the process, let's do some myth busting about this glorified existence. Let's remember that survey after survey consistently finds that between 80 and 90 percent of these full-time employees are bored and disengaged from their jobs: most workers spend substantial parts of their lives doing things they don't want to be doing in places where they would rather not be. Given a choice, where would they be and what would they be doing? They might be doing all those other things that they are currently squeezing into "non-work" time: enjoying their families and friends, pursuing hobbies, volunteering in their local communities. That is, they would be engaged in unpaid but productive activities. And again, speaking of an extreme environment, we are increasingly learning that most work environments are hazardous for our health. Sitting, the plague of most knowledge workers, has been equated with smoking in terms of its negative health impacts. Spending most of our time indoors is leading to an epidemic of Vitamin D deficiency. Work-related stress is increasing heart disease rates among women. And unless you are working at Google or another privileged work place, you are probably not eating gourmet meals, but depending on unhealthy food to get you through your workday.

So instead of a nostalgic insistence on old solutions to worker equity and wellbeing, let's start considering the new operating system that is evolving before our eyes as an opportunity to build something better. This something better will require a lot of effort because it will not happen on its own. The operating system for the coordination economy is neither inherently good nor bad in itself. How it evolves and the results it creates will largely be shaped by us, by the kinds of policies, regulatory constraints, and design principles we embed in it. The same platforms that some are denouncing today for eliminating middle-class jobs could be deployed to support middle-class wages through more efficient work matching, democratized access to means of production, collective leveraging of legal and other resources, opportunities for unobtrusive, positive nudging, and greater alignment of platform owners' and workers' incentives.

**Let's start considering
the new operating
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build something better.**

Imagine that you, as a worker, can decide when and how you earn income, using a platform that has information about your skills, capabilities, and previously completed tasks. You are seamlessly matched with the task that optimizes your income opportunity. Imagine that the same or another platform could direct you to learning opportunities that would maximize your earnings potential or support your desire to acquire new skills. Suppose that instead of having to come into the office, you could work at home or in a number of co-working spaces in your neighborhood, providing you with social connections, community, and the necessary infrastructure to support your tasks. And imagine that in this world, the social safety net – all your benefits – are not tied to your employer but are portable. Every time you work for pay, independent of the platform or organization, your benefits accrue to your personal security account, as proposed by two unlikely allies: Services Union leader David Rolf and billionaire Rick Hanauer. Parts of this new ecosystem of work are already beginning to take shape, but the process is happening piecemeal, with many gaps and missteps.

However, the solution is not to force many on-demand workers into formal W-2 employment and thus undermine the core, positive elements of new work arrangements, namely flexibility and autonomy. We shouldn't go back to the old operating system. Instead we should upgrade or rebuild the old OS of work, bringing its benefits to not just the growing population of on-demand workers, but also to those working in existing organizations. What would it be like if company employees could work when they wanted based on their individual and family needs? What if companies could internally use the same coordination algorithms powering Uber and Upwork to assign tasks, create dynamic reputation metrics and feedback mechanisms instead of spending a lot of energy on much-dreaded performance reviews? In addition to providing an unprecedented level of autonomy and flexibility, the new mechanisms, if well designed, might also help us to eliminate bias in hiring and promotion. Companies such as Unitive and Knack are already using algorithms for just such purposes. Maybe, just maybe, if we brought new coordination mechanisms into existing organizations, worker engagement and satisfaction would actually increase. Maybe those annual survey numbers would look a lot better.

Our connective technology infrastructure has given us the seeds of something great, but it is our job – the job of platform designers, policymakers, and citizens – to cultivate these seeds to their full potential. We can create yet another extreme work environment, fragmenting the workforce with desperate adaptations to harsh realities in an unforgiving, global on-demand economy. Or we can work to create intentionally Positive Platforms for a coordination economy

that combines the best affordances of our new technologies, while also providing sustainable livelihoods to large swaths of the population. What we now need is not nostalgic policies that attempt to apply old solutions in a radically new environment. Rather, we need the courage to envision new solutions, to form new pathways to value creation and work fulfillment, based on a next-generation social safety net. This IS the moment. Let's not squander it!

Making our tools

The industrial approach to work clearly determined the tools used by workers. Machines and ways of working with them were given, with people essentially serving machines. Workers did not need to be concerned and feel responsible for anything other than following the process and instructions given to them.

Creative, entrepreneurial work is very different. The context of work is changing from generic, repetitive practices into a contextual, creative approach. The first thing to do is to answer the following questions: what are we here for? What should we achieve? What should we do next and with whom? What tools will help us?

This is not about generic processes, but contextual interaction. Key questions for a knowledge worker have to do with how to do things and what tools to use. This time around, it is the machines, the tools, which need to serve the worker. Human beings will come first. This is in fact a fundamental change, because the required tools may not yet be available, or even exist.

Historians claim that the invention of the printing press led to a society of readers, not a society of writers despite the huge potential of the new technology. Broadcasting systems such as radio and television continued the same pattern. A small number of people were active producers and a large number were passive receivers. In many cases, computer literacy still follows the same model. In practice, this is about the capability to use the given tools. But literacy to do no more than use is not what we need.

The perspective of a consumer/user separate from the producer was the perspective of the industrial age. For most people, being capable meant learning how to behave in the way somebody else needed you to behave.

As a result of Internet-based technologies, we now have our own printing presses and broadcasting stations. We have slowly learned how to write and speak in totally new ways; we are now learning how to work using the newest tools. But in the post-industrial world, it is not enough that we learn faster how to use the new technologies. We need to learn how to make them.

To be human is to make things, to make tools. This is unique to us as species and important to us individually. More and more often, the most successful new solutions are built on the very newest tools and the newest technologies.

We tend to be one step behind what technology can offer. A key, largely overlooked current trend is the democratization of technological opportunities. Many things are becoming much cheaper and easier than before, and some things, such as taking a contextual approach to technology, are becoming possible, perhaps for the first time. You will soon be able to create your own solutions meeting your specific, unique needs in the manner of the most successful startups.

Paradoxically, the human-centric society will be built on technological intelligence. Code may be the main domain of creativity and innovations.

Mitch Resnick from MIT talks about the challenge in the following terms: "After people have learned to read they can read to learn. After people have learned to write they can write to learn. And after people have learned to code, they can code to learn."

Creative learning is for us what productivity meant during the industrial age. Creative learning is the human edge that separates us from machines, also in the future.

Is the digital economy an amplification of the industrial economy?

The importance of history in understanding technological change

Jukka Luoma

It is not clear who said, "History does not repeat itself, but it rhymes."² But it is a quote worth keeping in mind when thinking about how technology is likely to change organizations and markets in the future. In this article, I will examine the digitalization megatrend from the point of view of marketing; in particular, the article examines how companies in consumer markets interact with customers.

Over the last few decades, the marketing discipline has become increasingly quantitative (Ramani and Kumar, 2008; Rust and Huang, 2014). On the one hand, the accumulation of customer data has created the possibility to complement managerial intuition with insights harnessed from company databases. In the context of digital business models (e.g. Netflix, Amazon), where the company never sees the customer in person, digital traces of customer behavior is a primary, if not the only source of information regarding how customers behave. On the other hand, recent methodological advances as well as the progressive development of information technology have made quantitative marketing models widely accessible. Several statistical methodologies have existed for decades and proven reliable over time, but new uses are being found for them in the digital era (Venkatesan et al., 2015). When combined with the accumulation of customer data, analytics allows companies to customize their services and offerings, even at the level of individual customers (see e.g. Metters et al., 2008).

The new techniques of "mass customization" (Rust and Huang, 2014: 209) clearly represent a dramatic change in how companies interact with their consumer-customers. However, a broader historical perspective reveals that this is nothing new. Before the self-service store, consumers were catered for individually over the counter. Before suits were mass-produced, they were tailor-made. The problem solved by the new tools of digital and quantitative marketing is the product of another technological breakthrough: mass production. Prior to mass production, there was simply no

alternative to treating customers on an individual basis. Mass production made the consumer anonymous and reduced him/her to a representative utility function. To be sure, mass production has been criticized for the creation of repetitive jobs and the suppression of heterogeneity. However, for the most part, the problems of mass production have remained unaddressed and unchallenged for decades, except now – with the aid of new technology. The ongoing digitalization and quantification of marketing is helping to solve some of the problems created by mass production. This process is creating its own problems, some of which are unpredictable and others unavoidable.

The above story is not an isolated case. In general, we should view technological change as cyclical and non-linear, not as a constant progression towards improvement. New technologies solve problems but also create new ones, triggering the next iteration of technological change, which again solves old problems and generates new ones. Problems emerge and re-emerge. Progress is uncertain.

Obviously, the non-linearity of technological change is not a novel proposition – but it is worth repeating nonetheless. Moreover, it is important to note that the problems created by earlier generations of technology are largely invisible. Technological breakthroughs, such as the advent of mass production, lead to changes in society that are so pervasive that it is often hard to imagine the alternative. People grow accustomed to the nuisances created by technology. Younger generations are like the people in Plato's Cave, unaware that there is an alternative.

By studying the past, we can see what was once a given technological breakthrough and thereby recognize the problems created by current technologies. Once a problem is recognized, a solution is possible. And when we are talking about problems that are so pervasive that no one even recognizes them, the magnitude of the business opportunity is vast. The past may help us understand what is wrong with the present. By adopting a historical perspective, such problems can be made more visible and doing so can help unearth tremendous business opportunities.

² <http://quoteinvestigator.com/2014/01/12/history-rhymes/> (accessed December 4th, 2015)

Is the microchip replacing the human race

The oft-quoted proof that machines will rise to make human work obsolete is games in which humans lose to computers. This happened in a checkers match in 1994 and in a game of chess in 1997. Now computers are matching humans in Scrabble, backgammon, poker, and even Jeopardy. Until recently, there was one exception, “Go”. Why is that? What was so special about Go? The game is similar to Chess in many ways, it is a “deterministic, perfect information game”, meaning a game where no information is hidden from either player, and there are no built-in elements of chance, such as throwing a die. But there are some interesting differences.

For the first move in chess, the player has twenty choices. In typical chess positions, there are around 30-plus possible moves. A typical game lasts about 40 moves before the resignation of one of the parties.

Go players begin with a choice of 55 possible moves. This number rises quickly and almost all of the 361 points on the board must soon be evaluated. Some are much more popular than others, some are almost never played, but all are possible. That makes for 129,960 possible board positions after just the first round

of moves. A typical game of Go lasts about 200 moves. As a game of chess progresses, like many other games such as checkers, pieces disappear from the board thereby simplifying the game. Go begins with an empty board. Each new Go move adds new complexities and possibilities to the situation. In this, the key is the number of choices available.

But in October 2015 The Google DeepMind artificial intelligence system named AlphaGo defeated the European champion of Go and in March 2016 the top-ranked Go player of the past decade Lee Se-dol. AlphaGo’s victory was considered a huge breakthrough, occurring roughly a decade sooner than experts had expected.

The way it worked was very different from earlier cognitive computing systems. AlphaGo took 150,000 games played by good human players and used an artificial neural network to find patterns in those games. It learned to predict with high probability what moves human players would take in given positions. AlphaGo’s designers then improved the neural network by repeatedly playing it against earlier versions of itself. The system learned. It made millions of very small improvements, adjusting the network so it gradually improved its chance of winning.

Work, as we know it has been designed as a very, very simple game.

Is it then fair to draw the conclusion that the microchip may well replace the human race? Or have we just designed human work in a way that is plain wrong? Could we, and should we, change the rules of our game?

The most important reason for needing a new concept of work/games is because human players and their contributions in the real world are, at best, too diverse to rank. They are, and should be, too qualitatively different to compare quantitatively as labor.

Unlike mechanical systems, human systems thrive on variety and diversity. An exact replica-

tion of behavior in nature would be disastrous and viewed as neurotic in social life.

The problem we face today does not lie in the capabilities of humans but in the outdated and limiting conceptualization of work. Work as we know it is mainly designed for machines, for robots, not for human beings.

Human life is non-deterministic, full of uncertainty, unknowns and surprises. Creative learning is the fundamental process of socialization and being human. For a human being, the number of choices or moves in the game of life, in any situation, is unlimited.

The problem we face today does not lie in the capabilities of humans but in the outdated and limiting conceptualization of work. Work as we know it is mainly designed for machines, for robots, not for human beings.

The differences between human cognition and technological intelligence

Katri Saarikivi

One could argue that work is and has always been about problem solving. Work exists to respond to human needs, ask and answer questions that humans deem important, and define and solve problems that are meaningful for humankind. At the core of work and as the reason for its existence we therefore have the human, her needs, her desires, her questions and problems, as well as humankind, its struggle for survival, its desire to evolve. This core and essence of work is perpetual. It also means that work is abundant.

Nowadays, we often hear that “work is undergoing tremendous change”. The culprit: something called digitization. However, if we adhere to the definition of work suggested above, work is actually not changing. Rather, the ways we respond to the human needs at the core of work are. And if so, this change in the ways of working is nothing new. Working has always changed and always will. Why?

There are three main reasons:

1. As a species, humans are curious. We learn and develop.
2. We are also lazy, we want to conserve energy, which means we are always looking for new ways to take it a little easier.
3. We are also social – we know how to use each other’s thinking to share the cognitive load and allow collective intelligence to emerge. We do the things we do, because we enjoy working for and with others.

This combination of our inherent curiosity, laziness, and connectedness is what keeps changing our ways of working. Our laziness drives technological advancement. This, in turn, influences the development of cognition – the development of tools frees up time for different kinds of thought and requires new kinds of cognitive skills.

Ultimately, connectedness is what defines the value of what we do. The value of any outcome of work emerges through interaction. Through this cycle, working changes, and human intelligence evolves.

Based on this model, *intelligence* can then be defined as efficient human action that creates value. Intelligence is the sum of human capability, complemented by technology and connectedness. The development of human intelligence follows the development of technology. The value of intelligence is defined in interaction.

Examples of how technological advancement has defined intelligent action are abundant in human history. When the first axe was invented, it was a major technological advancement. Intelligent action in that prehistoric time included the use of this tool – to be blunt, it was stupid not to use it. Intelligent use of the tool and the value of using it was then defined in interaction – it was most probably more intelligent to use it for creating say, a spear, than for creating a hole in your own leg. The creation of the tool required a set of cognitive skills and the use of the tool freed up time for different kinds of thinking. The tool defined what intelligent action is and influenced the development of cognition.

The development of writing and the first rudimentary ways of storing information also meant a giant technological leap forward and the redefinition of human intelligence. Specific cognitive skills were targeted: there was less need to memorize, it was intelligent to rely on this form of storage, which was far more accurate than human memory. The value of the stored information was not contained in the papyrus, but emerged in the act of reading, in interaction.

So what do our tools look like now? What is intelligent action today, in the context of work?

AI is the key tool that is currently shaping cognition and redefining intelligence. Not using AI to complement our thinking and not including it in how we work would be like using the prehistoric axe in a time of super-efficient harvesters. Problems are emerging from the fact that the processing power of computers is developing at such a pace that the organization of work is having a hard time keeping up with development. Instead of looking for ready answers on how to respond to “digitization”, work organizations need to address a range of questions during this period:

- Are we able to make use of technology to complement our thinking?
- Are we acting intelligently, if intelligence is always a combination of human cognition, and with the best tools available?
- Are we designing work tasks and jobs so that they make use of intelligence, or is our view of human intelligence outdated?
- Are we enabling the use of the most advanced tools and the development of human intelligence that cannot be represented in AI?

Thinking differently about work

A seminal concept related to how we perceive work is the division of labor, the notion of work as activities or jobs separated from other activities.

The industrial management paradigm is based on the presupposition that activities are the independent governing factors of value creation. The organizational structure of (independent) jobs comes first. Then an appropriate system of coordination and communication is put into effect.

The scheme of interaction conforms to the planned division of labor as a secondary feature. What if the Internet, network sciences and huge advances in social technologies made it possible, or even necessary, to think differently?

What if networks and interaction should be seen as the governing factors? Since jobs and communication are mutually dependent, if there are changes in interaction the activities will change. The smartphone has now become information technology's key product. Surely, then, it has an impact on the way we work?

Based on the mainstream conceptual model of communication (Shannon & Weaver 1948), a thought arising within one individual is translated into words, which are then transmitted to another individual. At the receiving end, the words translate back into the same thought, if the formulation and transmission of the words are good enough. The meaning is in the words.

Amazingly, our conceptualization of value creation has followed the very same model. Companies transform ideas into offerings that are delivered to customers. At the receiving end, the products translate back into the same value that

the company has created. The meaning is in the product.

Management scholars have made interesting claims lately, saying that although the product is the same, different customers experience the value potential of the product differently. They say that it is in fact wrong to claim that companies create value. It is the way the offering is (contextually) experienced that creates value, more value or less value. The bad news is that our current conceptualizations of work make it very hard to do anything about this. The good news is that, for the first time in history, we can do something about it. Companies can connect with users and be digitally present when and where their products are used.

But we need a new conceptualization of communication, if we want to have a new conceptualization of work. Luckily, there is such a thing.

A completely different approach to communication exists. The alternative view is based on the work of George Herbert Mead. This model does not regard communication as messages transmitted between senders and receivers, but as complex social action.

Based on the social act model, communication takes the form of a gesture made by an individual that evokes a response from someone else. The meaning of the gesture can only be known from the response, not from the words. There is no deterministic causality, no transmission from the gesture to the response. If I smile at you and you respond with a smile, the meaning of the gesture is friendly, but if you respond with a cold stare, the meaning of my gesture is contempt. Gestures and responses cannot

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be separated, but constitute a single social act from which meaning emerges.

Gestures call forth responses and products call forth and evoke responses. Value lies not in the product but in the (customer) response. Accordingly, work should be conceptualized as an interactive process, a social act.

The value of work cannot be realized in a separate, independent “job” activity or be understood through the capabilities of the worker.

If we subscribe to this relational view, it means that people and actions are simultaneously forming and being formed by each other, all the time and in interaction. Perhaps, in the future, it will no longer be meaningful to conceptualize work as jobs or even as organizational (activity) structures, in the manner practiced by the firms of today. Work will be described as complex patterns of communicative interaction between interdependent individuals.

All interaction imposes constraints on those engaged in relating, while enabling such people to do what they could not otherwise do. Enabling, complementary and energizing patterns of interaction may be the most important *raison d’être* of work.

The relational view is a new conceptualization of work, potentially opening up new opportunities to disrupt unemployment. Perhaps it is time to change the focus from creating jobs to creating customers – in new, innovative, and interactive ways.



Platforms. A new face for corporations

THERE ARE THREE FUNDAMENTAL structures that govern the nature of all economic activity: customers, producers and the way, based on the mediating infrastructure, in which value is exchanged between them.

The ways in which each of these elements relates to the others are not set in stone. Vladimir Lenin (1870–1924) famously said that the economic system in Russia would be run as one big factory where everything would be planned in a centralized way. Many economists at the time said that this was impossible. Yet there were already big factories in the West then, and there still are, so why not? Is there a limit to the size of a firm that cannot be surpassed, or is it because factory logic cannot be applied outside a real factory?

The typical form of a firm is meant to simplify communication, accountability and the coordination of tasks. In theory, an employee needs only one connection, to the boss. This is far easier, and used to be a lot cheaper, than communicating with all and trying to coordinate actions with everyone. And accountability? The worker is accountable only to her manager. That manager reports to her manager on the next level up, and the chain goes further, leading in the end to – Lenin.

During the centuries since the publication of “The Wealth of Nations” by Adam Smith (1723–1790), the principal theme of most economists has been that centralized planning was not necessary, or even welcome, in making an economic system function well. The necessary coordination would be the result of pricing and information mechanisms in markets. Lenin and the communists were advised to move to a market economy. The parties in this system follow their own self-interest and are “governed”, when it comes to the actual choices they make, by the system of prices and the information they possess. This is the polar opposite of centralized planning. Adam Smith was a proponent of extreme decentralization and something that did not really have a name in his time – equal opportunity.

Ronald Coase (1910–2013) was one of the first economists to question mainstream thinking in economics. If a system of prices and competition could perform all the necessary coordination, why did we have centralized planning, not only in the now bygone communist countries, but also in well-functioning and successful firms? Why did we need management, whose function was to coordinate?

Why didn’t we rely on markets?

Ronald Coase set out to bring these two divergent views together. It is almost impossible now to fathom that he found the answer as early as during the summer of 1932, at the age of 22. He realized that there were costs involved in using the pricing mechanism. The needs and offerings have to find one another. The prices have to be discovered. Negotiations need to be undertaken. Contracts have to be made. There may be disputes that have to be settled later. Adam Smith did not see this; these costs were not part of his “invisible hand” equation. Ronald Coase called these costs transaction costs.

His revolutionary argument was that a firm would emerge, exist and continue to exist successfully if it performed its planning, coordination and management functions at a lower cost than would be incurred by means of market transactions, and also at a lower cost than would apply if the same things were performed by another firm. This is where competition should keep firms internally efficient and where non-competition in the public sector creates complex, inefficient governance models and overly large units.

Managerial overheads increase as an organization grows. Whenever the transaction costs inside the organization reach the level of the transaction costs in the markets, markets outperform firms and central planning/management coordination in general. As a corporation grows, all of its energy finally goes into maintaining itself. This was the main theoretical argument against Lenin. The same issue is clearly evident today in large firms or public organizations such as large health care units. Many communist countries, kind of, learned this lesson, but we still haven’t.

The existence of high transaction costs outside firms led to the emergence of the firm as we know it, and management as we still have it. A large part of corporate economic activity today is still designed to accomplish what high market transaction costs once prevented. But the world has changed.

What really matters now is the reverse side of the Coasean argumentation. If the (transaction) costs of exchanging value in society at large fall drastically as is happening today, the form and logic of economic entities necessarily need to change! Coase’s insight turned around is the number one driver of change today! The traditional

firm is the more expensive alternative, almost by default. This is something that he did not foresee.

Accordingly, a very different kind of management is needed when coordination can be performed, without intermediaries, with the help of new technologies. Digital transparency makes responsive coordination possible. This is the main difference between Uber and old taxi services. Apps can now do what managers used to do.

For most of the developed world, firms, as much as markets, make up the dominant economic pattern. The Internet is nothing less than an extinction-level event for the traditional firm. The Internet, together with technological intelligence, makes it possible to create totally new forms of economic entities, such as the “Uber for everything” -type of platforms/service markets that we

see emerging today. Very small firms can do things that required very large organizations in the past.

We stand on the threshold of an economy where familiar economic entities are becoming increasingly irrelevant. Technological advances allow people to have a computer in their pocket that is as powerful as the most powerful computers in the world 25 years ago. This is creating the biggest decrease in the price of productive capacity in economic history and is changing the relations and structures that govern economic activity. The seeds of the next industrial revolution are truly here.

Our views of markets and hierarchies are going to change in ways that Adam Smith or Vladimir Lenin could never have imagined. But Ronald Coase did much to explain what is happening today, and he did it as early as 1932.

**We stand on the threshold of an economy
where familiar economic entities are
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Work as an investment

A firm is normally seen as an entity that is separate from its members. After specific financial investments have been made, the firm is defined by ownership of the physical assets and the power held by the people who made these investments. The owners choose their representatives, who act as the “agents” of the “principals”, the owners. The agents/managers then choose the workers. The key role in this model for the agents/managers is to serve the interests of the owners, the people who made the financial investment.

As a result, the relationship between the company and the contributors of financial capital is very different from that between the company and the employees. Employees are seen as a resource, albeit a human (HR) resource, which in a way differentiates human beings from other materials serving the value chain. The role of the employee/resource/human being is derived from the process and the machinery. In such a case, the management target is a close fit between the skill set of the employee and the demands of the value chain. Because of this close fit, when major changes are planned, they are more often good news for the investors than for the employees.

The modern firm has developed into a perfect vehicle for making financial contributions and, as a toolkit, serves

the needs of financial investors well, at least in good times. Since creativity and knowledge define success today, access to capabilities is as important to a firm as access to money. But what if people mattered even more than money? What if it is going to become harder in the future to obtain the contributions of knowledge workers than those of financial investors?

Should firms then serve ideas and creativity more than they serve money?

Is the way we think about firms helping us to meet the challenge of the future, or does the mainstream theory of the firm present us with an obstacle? Firms are social and legal constructs. Firms do not tell us what they are. They are what we think they are. Should we renew our old construct of the firm based on mass production and high capital costs, to create a newer version, a low-cost, lightweight, knowledge-based concept of the firm?

In the knowledge-based world we live in today, a knowledge worker is a knowledge worker due to a particular experience base. Being able to do knowledge work requires learning, very often a lot of learning, and for a long time. Thus the capabilities of a knowledge worker can be viewed as resembling accumulated capital, following

the same kind of logic that we use when referring to the accumulation of financial capital. However, here the term “human capital” is only used as a metaphor to describe the new relationship between a firm and its employees.

Skills are very different from money. Knowledge work is always contextual, while money is generic. Money can be used for books or bookings, but in knowledge work it matters who does what, when, and with whom. Thus, the skills of knowledge workers cannot be viewed as resources or as generalized labor. Knowledge work involves specific contributions to specific problems.

The new view understands firms as a form of contextual interaction, rather than as entities outside such interaction. It is no longer helpful to prioritize financial investments above human capital investments. The knowledge-based view sees firms as continually evolving platforms, live networks of various investments characterized by rich forms of interaction.

A knowledge worker is always an investor. This means that, in practice, we should no longer talk about the employer-employee relationship when discussing knowledge work. Instead, an investment-investor relationship is in question.

The challenge for the firm is to be inviting to as many contributions/investments as possible, from as many people as possible. Another difference from the industrial model is the growing need to cross organizational and geographic boundaries when trying to optimally match tasks and skilled contributions. The form of a firm that does this resembles an Internet-based platform. Firms become multi-sided markets.

This may be good news. A networked business increases its intellectual capital as the nodes of the network do the same. The network acts as an amplifier of knowledge, but the demands on the worker grow. Being skilled is not enough. The challenge for the knowledge worker is to take responsibility for the value and growth of her human capital and to plan her “investment portfolio” carefully. Work should always equal learning.

As work requires interaction between people who need each other according to the context and the task, taking responsibility for human capital also requires taking responsibility for the value and growth of the human network. Networking is not enough. Building the network is as important as building human capital.

When the architecture of work is the network, dramatic changes are possible. This is already happening in games. The firm of the future may be ten million people working together for ten minutes.

But then we will need to rethink management!

How does management change?

Guje Sevón and Liisa Välikangas

History has witnessed three industrial revolutions, each associated with a general-purpose technology (Brynjolfsson and McAfee (2014)). The first was powered by steam and the second was based on electricity. Computers and networks are fuelling the third industrial revolution, which is unfolding now, the two authors claim. That means a shift in the engagement logic: resources are no longer committed to a single organization, nor are they necessarily obedient. Resources may choose what firms they want to engage with at any point in time. In such conditions we, managers and scholars alike, may need ideas on how to engage the fluid resources “out there”, beyond any set organization’s boundaries. We claim that, in a liquid society (Bauman, 2000) where resources are unstable and engaged short-term, a new detached mode would better suit the needs of the management of an organization in coping with the mutability of work contributions.

The availability and reliability of resources – such as people, knowledge and ideas, and of money – is necessary to the operation of firms and other organizations. Organizational resources have traditionally – and ideally – been conceived of as relatively stable, fixed, and controllable by management. Here, we offer an alternative view. We claim that resources, including people who work, are becoming increasingly mutable, and also more autonomous, which presents organizations and their leadership with novel challenges, such as learning to cope with the lack of constancy and increased fickleness of resources.

We offer some remedial strategies. In addition to the more traditional Attachment mode – the traditional managerial approach to creating stable resources and the consequent dependency – we suggest a mode of Detachment, a novel managerial strategy that fits with the new, more transitory resources for mutable times. Finally, we discuss how a managerial mode such as *Detachment* can be cultivated and call for a new way of thinking about organizations in order to accommodate changing work in micro-contributions.

Resource attachment

An *attachment mode* is about making resources as dependable as possible. It denotes the tendency to commit particular resources to the organization and then expect to rely on them. Shamir (1999) found that in more

stable times, managers attempted to define the boundaries of the environment and create a sense of belonging between the organization and its internal resources. The challenge was to sustain a coalition of money, knowledge workers and customers that was a prerequisite for the survival of the organization.

Other ways to engage resources include attempts to socialize employees by developing a 'common organizational' culture. In popular management literature, represented by authors such as Peters and Waterman (1982) and Hamel and Breen (2007), interest is expressed in issues related to employee engagement – how to give an employee a feeling of belonging and benefit from such increased commitment to the company. Managers are taught to articulate and performatively demonstrate the firm's potential for future success to an audience of stakeholders, to investors, and to customers and employees. One way of doing so is to strengthen the organizational brand and build up the desirability or respectability of its products. For example, the company's commitment to environmental sustainability may be used to position the company as an attractive workplace.

Attachment of resources can work to the benefit of an organization when resources are stable, controllable and permanent. When that is less the case, other managerial modes may be needed. We will now present a mode that is rather new in the field of organizational management. We call it detachment.

Managerial detachment

Detachment may imply, as we do here, the capacity to free oneself from the dependencies of stable, strict or even stale situations and to sustain a certain ability to resist the temptations of emotional or contractual bonds. Detachment is a specific form of engagement. It is an engagement for a cause, but without some promises such as fidelity, obedience and stability. Thus, detachment is the antipode of the mode of Benedictine monks in committing themselves to the Benedictine Monastic Promises. For them, fidelity means accepting the rules of the monastic life (Latin: *conversatio*), obedience in relation to the abbot, and attachment to the place (Latin: *stabilitas loci*). While detachment is thus a far less circumscribed state than that of Benedictine monks, it is important to recognize that detachment can be as strong as the mode of attachment. An example of detachment in the world of business is perhaps the founder Richard Branson, who appears to be entirely uncaring about any commitment to a particular field of business, while doing his utmost to maintain the versatility of the Virgin brand.

We suggest that, despite the fact that detachment is increasingly important to the study of management and organizations, detachment strategies have received little attention from scholars of organizations. One exception is Gay (2008), who addresses detachment when questioning the current requirement that public bureaucrats be emotionally engaged with the services provided. He reminds us of the Weberian ideas related to detachment, that a bureaucracy is a type of organizational structure that releases the organization from human biases, and as such should be commended for detachment and not confused with other service providers who express (personal) preferences and the like. Bureaucracy is thus detachment with the help of formalization and abstract rules of operation.

Detachment may occasionally border on taking a certain ironic distance, becoming thin on solidarity and cold on loyalty, but that is not within our meaning here. Rather, the mode of detachment requires becoming cognitively flexible, but not aloof. Detachment may occasionally imply a temporarily focused passion coupled with the capacity, or strength, to move on (thus also implying emotional or conative aspects). As Normann (2001) states, it also tends to involve the ability to reframe situations, to see things from a different perspective; to transcend any particular state of affairs.

Can an attitude of detachment be cultivated, and what conditions can stimulate a swift mode of attaining stable resources? How can managers work with the assumption that resources are not owned? In referring to a study of Kondo (1990), Locke, Golden-Biddle, and Feldman (2008) assume that a transcendent condition can lead to a transformation of thought, a "shift of understanding". Kondo, who was studying the concept of a discrete "self", began to doubt her preconceived ideas. Her detachment from the past came about after living in a Japanese neighborhood with its social obligations and densely packed environment with a person-centered universe, which impressed itself upon her. Kondo comments, "Selves and society did not seem to be separate entities; rather, the boundaries were blurred. This realization, coming as it did through intense participation in social life, led me to shift my research problem." (Locke, Golden-Biddle and Feldman, 2008, p. 210)

Other examples of such letting go include changing aspiration levels (Greve, 1996) and reference groups (Lawrence, 2006) in order to change performance expectations. For example, many universities now assess their global ranking, when in the past local performance was good enough. This is detachment from a prior frame of national performance.

March, Sproull and Tamuz (1991) suggest that an organization may also experiment with various preferences when evaluating outcomes from multiple perspectives, for example by considering something a good thing and then a bad thing by turns, thus enabling detachment from any single performance judgment. Fast forgetting and unlearning (Tsang & Zahra, 2008) can become detachment strategies through their capacity to erase past learning, and strategies that consciously set aside past decisions to explore new options may help in avoiding attachment to any one path, or path dependency (Temmes & Välikangas, 2010). Rotating leadership positions and leader-follower relationships may increase the agility required to view things from changing perspectives.

After conducting extensive historical research on jesters in different cultures, Otto (2001) explains how jesters have served as universal companions to rulers around the world and thereby not only challenged but also invited reflection on the exercise of power, something that probably aids detachment. Furthermore, research by Hatch (1997) suggests that a jester may support cognitive, emotional or conative switches through his (or her) humorous antics or ridicule.

Välikangas and Sevón (2010) suggest that a jester constitutes a unique social mechanism that evolved to help humans cope with ideas that “refuse to leave them” (in other words, will not detach). Being on the move may also encourage detachment. Executives and professionals who travel constantly perform work around the world. Having no particular attachments, such as a permanent home, may allow these “new nomads” to exercise a highly global perspective (and high level of detachment).

Illustrating resource mutability: micro-contributions

Work mutability is effectively exemplified by micro-contributions that are about many individuals contributing a moment of their time and effort towards a shared goal (Gorbis, 2013). The notion of cognitive surplus (Shirky, 2010) suggests people have unused cognitive capacity that they could contribute in small amounts here and there, while waiting for a bus or washing dishes. Such micro-contributions are already forming a basis for organizational activity that is ever ready to absorb input of this kind and combine it imaginatively with others.³ This does not mean that the quality of these occasional contributions is necessarily low – people may think hard about their ideas for longer periods of time, only the act of eventual contribution may be brief in nature during the course of some other activity.

The potential for micro-contributions is underlined by fast-spreading access to communications technology. The existence of some 2.3 billion Internet users around the world, together with some 800 million smart phones, suggests that such micro-contributions have significant sociomateriality (Orlikowski, 2010): they allow masses of individuals contribute a moment of their time and some effort, using technology such as mobile phones as a common interface. “Gameful engagements”, as described by McGonigal (2011), invite top-of-the-head ideas from a large number of participants for tackling issues ranging from poverty to piracy. A micro-contribution may even involve sending data on one’s wellbeing to an organization analyzing the spread of diseases (see also Apple’s recent launch of “Research Kit”, an open platform for medical applications), or measuring the cleanness of water in the Baltic Sea while visiting your summer cottage and sending it to the public agency concerned. A micro-contribution may also take the form of showing up: a smart mob (Rheingold (2002) may be a brief gathering but constitute political power, such as the Occupy Wall Street movement. Or, a micro-contribution may take the form of playing a massively multiplayer game addressing an issue that is significant for humankind. For example, Superstruct, run by the Institute for the Future, was such a game. It was played by 7,000 people who sought new collaborative forms in order to delay the end of the world in the face of seven “superthreats”. Another, similar “gameful engagement” (McGonigal, 2011) involved collectively and locally finding a way to cope with a world which has run out of oil.

Our discussion on the resource mutability observable in phenomena such as micro-contributions underlines the theoretical issue noted by Feldman (2004): resources, by definition, are not statically available but are only created as organizational resources when being used. Consequently, then, the organization must come to terms with the potential of its core resources, people and work, in order to change in their contributory character (see March, 1995). We have offered two managerial modes – attachment and detachment – for managing engagement in the ongoing revolution within organizations and their resourcing. Detachment is a strategy yet to be mastered, but the managerial mode offers glimpses of the potential for harnessing work in micro-contributions in the era of resource mutability.

³ See the Institute for the Future’s artifact or idea from the future, suggesting the potential for identifying a medical breakthrough while waiting for a train, <http://www.iftf.org/node/3598>.

Work becomes learning. Learning becomes work

Studies predict that nearly half of all jobs and over 70% of low-skill jobs could be susceptible to computerization over the next two decades. Our chances of being successful in the new environment will be limited if old and unjustified assumptions about intelligence and people's capabilities are left unexamined. If we continue to assume that some people are born intelligent, while most are not, and continue to view intelligence as a fixed, personal possession, the options for large-scale systemic change will be limited.

If, on the other hand, we revisit the recent findings of modern neuroscience and social sciences, we can learn to see intelligence as something more fluid and an entirely different set of opportunities will become plausible. Perhaps then, rather than in low-skilled people, the major problem lies in the low-skilled occupations we have created.

The relationship between "nature" and "nurture" as causes of intelligence is also often misunderstood. In most cases, genes do not establish limits that determine space for personal growth. A recent scientific finding shows that everyday life plays a role in defining how and when genes themselves are expressed in our life. Genes take their cues from nurture. Environmental influences are sometimes less reversible than genetic ones.

There is an additional argument to that provided by genetics on whether intelligence is fixed or can be expandable. Many people tend to think that they live their lives with a certain, fixed capacity. Some people think differently. They have a growth mindset, as Stanford professor Carol Dweck calls it. They think that minds are like bodies: people come in different shapes and sizes, but everyone can benefit from exercise.

Individuals who believe that they can grow tend to enjoy challenges. They like pushing themselves because they think that struggle leads to good outcomes. People who think that their minds are fixed often view challenges as a threat to their imaginary level of ability. They do not like having to try out new things, or making mistakes, because they interpret this as evidence of their inadequacy.

These mindsets originate in the way parents, teachers and others respond to our successes and failures, and such belief systems are contagious. If, over an extended period of time, people are treated as if they are intelligent, they actually become more so. The opposite can also be true.

Success in life has been seen to be governed by two

concepts: skills and effort; how bright you are and how hard you work. Recently, researchers have claimed that there is a decisive, third, concept. It is the practice of life-long curiosity: "Knowing what to do when you don't know what to do" as Piaget put it.

The collective intelligence of our societies depends on the tools that augment human intelligence. We should welcome the fact that people are now by and large smarter because they have invented and use smarter tools. Making tools is what human beings have always done. The interactions between tools and human minds are so complex that it is very difficult to draw a line between people and technology. Neither is this a zero-sum game, where the human brain is losing out to technological intelligence, but as technology changes, people and what people do transform.

There is more to being intelligent than using the latest technologies; how we interact with others is a crucial element in how smart we are in practice. Intelligence is social and arises in communities and communication. The world has never been a more networked place, yet workplaces still focus on individuals. That needs to change.

Human behavior is learned in relations. Intelligence is socially contagious. Our brains are wired to notice and imitate others. Computational social science has proven that behavior can be caught like a disease, merely by our being exposed to other people. Perhaps you can catch intelligence from others? Both learning and non-learning reside in communication. It is not that some people happen to be intelligent and socially aware: social intelligence is not a separate type of intelligence. All intelligence emerges from the coordinated efforts of a community.

Work starts from problems and learning starts from questions. Work is about creating value and learning is about creating knowledge. Both work and learning require the same things: interaction and engagement.

Scientists have discovered that learning is learnable. We can create ways for very large numbers of people to become learners. But learning itself has changed; it is no longer about acquiring skills and utilizing those skills at work.

Post-industrial work is learning. Work is figuring out how to define and solve a particular problem and then scaling up the solution in a reflective and iterative way— with technology and alongside other people.

Building intelligence-enabling organizations in practice

Katri Saarikivi

Work organizations that wish to thrive during the digital era need to keep up with the current state of technological development and understand what it enables and how it redefines what efficient, intelligent action is. However, an equally important but often overlooked area of development involves building a more comprehensive understanding of what is *human*. Digitization is not about replacing human labor with automation, but is about understanding what the new digital tools mean in terms of performing more valuable work. Ultimately, humans define the value of any work.

As everything that can be automated becomes automated, the task of humans will be to excel in areas in which machines cannot. As computers keep developing, the most valuable human work will require skills that cannot be modeled using AI. The things that cannot be modeled (at least yet) include cognitive abilities such as creative thinking, interactive skills, learning and flexibility of thought. Intelligence at work is the combination of technological abilities and these very human abilities, used in contexts that are meaningful to others and valuable to humankind in general. Efficient *human* action at work would then involve the maximal utilization and development of such cognitive skills.

If these are the skills of the future, and if this is how intelligence is defined, how have our work organizations responded? Is this perspective visible in the structures that guide our intelligent action at work? One of the key problems and inhibitors of growth and flourishing in current organizations is the fact that we have an abundance of structures in work organizations that are based on an outdated view of human cognition.

Why? Because, the traditional corporation is not built to support creativity, connectedness or learning. It is typically built

for repeating the same tasks as quickly as possible with little or no variation. The traditional corporation resonates with models of efficiency and productivity that do not suit the work we are currently doing. The following is therefore at the root of so many unsuitable structures at work:

1. Legacy of structures that worked before digitalization
2. Legacy of an outdated view of human cognition

To update these structures, we need an understanding of the most recent developments in the study of human cognition. Neuroscience is an interesting field of enquiry in the study of human thought. In the last couple of decades, we have seen tremendous advances in our understanding of human existence; Sadly, very little of this new understanding has translated into changes in organizational structures. For instance, five years ago a neuroscientific investigation clearly demonstrated⁴ that monetary rewards decrease intrinsic motivation. Despite this, bonus schemes remain abundant.

Perhaps the most interesting current perspective in the field of cognitive neuroscience is that of two-person neuroscience⁵. According to this perspective, to truly understand and explain human behavior, it is not enough to study the individual. Researchers⁶ claim "Cognition materializes in an interpersonal space". This means that the best way to understand, say, human intelligence is not to measure IQ but to investigate interaction between individuals. Yet, work organizations overwhelmingly focus on the individual – core processes such as hiring, compensation and work roles all emphasize individual effort.

In summary, it seems that there is an abundance of new understanding about human intelligence that has not reached the majority of work organizations. Companies should be as anxious to keep up with the latest developments in human cognition as they do to keep up with technological development. If we could update the understanding of the human being in work organizations, we would enable more intelligence in the work place and create more value.

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4 Murayama, K., Matsumoto, M., Izuma, K., & Matsumoto, K. (2010). Neural basis of the undermining effect of monetary reward on intrinsic motivation. *Proceedings of the National Academy of Sciences*, 107(49), 20911-20916.

5 Schilbach, L., Timmermans, B., Reddy, V., Costall, A., Bente, G., Schlicht, T., & Vogeley, K. (2013). Toward a second-person neuroscience. *Behavioral and Brain Sciences*, 36(04), 393-414.

6 Hasson, U., Ghazanfar, A. A., Galantucci, B., Garrod, S., & Keysers, C. (2012). Brain-to-brain coupling: a mechanism for creating and sharing a social world. *Trends in cognitive sciences*, 16(2), 114-121.

Start with women

Monique Morrow

Much has been said about the role of technology and automation in displacing humans in enterprises. What kind of enterprise and culture should be the model as we move into the 21st century? I have participated in Darwinian “survival of the fittest” discussions, where the tenet has been to “refresh” the desirable talent and dispose of those individuals who simply do not fit in, based on the reasoning that “we have the right as an enterprise” to do so – technological change is so exponential that mere human beings can no longer keep up. Those individuals no longer deemed valuable by the enterprise are put out onto the streets to survive either from the meager unemployment benefits provided by the state and/or to taking on whatever work they can to reinforce the lost self esteem accompanying the stigma of “you are no longer valuable to us.”

We become numb to the Sword of Damocles-like behavior of enterprises that state “Yes, it’s that time of the year once again” and bid farewell to colleagues whose services were once valued by the company. <http://howigotlaidoff.com>

Furthermore, young people await the opportunity to contribute and build a great society, while middle-aged individuals perceived as “too old” to contribute are often the first to be let go, along with women. The power of the “AND” should be applied here, i.e. we need an inclusive model that enables contributions to be sourced from all elements of the population; otherwise we will implode.

Globalization has made our world much smaller over the last few decades, but the size and range of our problems has barely changed. Despite our many previous efforts to affect the status quo through the Millennium Development Goals, the same complex structural issues persist and affect billions worldwide. These are our results as institutions, but young people, 15–24, have been hard at work identifying and developing solutions to global problems, and this trend is not to be underestimated. As we strategize to achieve the Sustainable Development Goals, we must look beyond old approaches to establish new frontiers for partnership and results side by side with driven young people.

The creative strategies used by the young to tackle various elements of these widespread problems, from educational access and infrastructure development to sexual harassment and gender equality, have demonstrated the necessity of leveraging technology in ways we had never imagined. Young

people have spurred a newfound literacy in our approach to economic development and cooperative problem solving. The priority must therefore be supporting driven young people who are striving to improve their communities.

Government and industry support is vital to achieving these goals on a large scale. We have seen disparate examples of public-private partnerships of this kind steadily emerging around the world. Yet, while there is much discussion about supporting young people, a lack of action persists. However, an international focus that prioritizes capturing and applying the lessons learned from youth innovation narratives will engender limitless possibilities for sustainable transformation. <http://www.forbes.com/sites/brianrashid/2016/01/06/why-the-government-should-pay-women-to-learn/#63a99de7155f>

Today, the world’s population numbers 7.3 billion and counting, with massive growth in the 12–24 year-old category. This demographic category is maturing in increasingly urbanized environments, where the challenges of consumption are exacerbated by a lack of available or accessible resources. Instead of elevating their voices and involving them in solutions, we often vilify them and exclude them from policy making or from contributing to policy or real solutions.

Youth, government, and industry will work to surpass all previous landmarks of progress and, in doing so, create an entirely new cooperative process of problem-solving in uncharted territory. The opportunities are almost limitless when we connect the right talent, resources, and support. We must emphasize a strong focus on girls and gender equality – an immediate focus on bringing the Internet to everyone, and utilizing the low cost and accessibility of wireless technology to disseminate information and practical education. <http://unhabitat.org/un-habitat-champions-children-and-youth-participation-in-new-urban-agenda/>

The provocation is to turn the economics and debate around to what could be a “humanistic” integration of the value of humans towards the achievement of a so-called “caring economy” <http://www.caring-economics.org> and defining the enterprises of the 21st century and beyond. I can still see heads shaking, indicating that this is not what Wall Street wants to hear – no, not at all. But this is not a socialist view but a humanistic view of our society that we need to ponder when assessing the implications of technology in our lives.

There are security issues that arise when people simply cannot work (yet they want to work) e.g. the hollowing out of the middle class is often a source of undesired change. When

thinking about the implications of job loss or lack of opportunity to disenfranchised members of our society, could we e.g. argue that such a vacuum may feed into radical exhortations towards fundamentalism, no matter its form? We do not have to be dystopian to assert that societal health is put at risk when disenfranchised members no longer feel needed.

Quo vadis?

The Fab Creators is an example of the type of inclusion we all desire, where “everyone has the ability to be an innovator, they just need the right tools.” <http://www.fabcreator.com>

The Fab movement is providing a space for all to innovate, no matter where they are located globally; it is open to young people, women and senior citizens, as in FabLab Israel, which “engages children from the ages of 3–16 (as well as adults and senior citizens; the oldest FabLab participant is 96) from a poor and crime-ridden neighborhood (Holon, south of Tel Aviv), in building a work and play environment which is uniquely theirs, devoted to imagination, creation, and fabrication, as well as study, a place that community members eagerly look forward to visiting each day, a place they maintain with great pride and responsibility – new sentiments for these children who were without direction and commitment.” <http://www.fablabs.io/fablabil>

Why not pay people to learn?

Let’s start with the most vulnerable members of our society, like the unemployed single mother struggling to keep her head above water.

For example, the United States should use some of the \$35 billion spent each year on unemployment and pay people to learn. Imagine the single mom who is paid a monthly

stipend to be trained on Samaschool’s platform as a virtual assistant, graphic designer, or copywriter.

This would remove them from the welfare system and make them feel empowered, with a sense of belonging. You are no longer a number in a bureaucratic hell, but are an appreciated member of a team. <http://samaschool.org>

On a global scale, implementing UN Resolution 1325 is more urgent now than ever, “The resolution reaffirms the important role of women in the prevention and resolution of conflicts, peace negotiations, peace-building, peacekeeping, humanitarian response and in post-conflict reconstruction and stresses the importance of their equal participation and full involvement in all efforts for the maintenance and promotion of peace and security.”

The UN Security Council passed Resolution 1325 in October 2000, and where are we now? Stretching the idea a little further: what if there was a Nobel Prize for companies or countries that embrace women as equal partners, as opposed to awarding individual awards to people?

In his book, “The Turning Point” Physicist-Philosopher Fritjof Capra has pointed out that “Exploitation of nature has gone hand in hand with that of women, who have been identified with nature throughout the ages.” We have borrowed the Earth from our children. It is high time that we empowered them to redefine their reality and create a world that surpasses what we have dreamt of for them, far beyond the boundaries of our imaginations, and far into the future.

It’s never too late!

How to create communities

Almost all leadership concepts begin with the assumption that a key role for the leader is to set a direction. This usually means designing and communicating a set of desirable outcomes and ways of getting there. Traditionally, the roles of vision, mission and goals have been there to help people understand the direction of the enterprise, the meaning of work and how they relate to one another. Today, we need something more.

The meaning of work arises in communication between people who are in a meaningful relationship.

We need to redefine what binds individuals together. Separate individuals subscribing to the goals set by

leaders, and interpreting what such leaders mean, may not be enough if people don’t connect with one another. What we are striving to do is not enough if there is no discussion about who “we” are and what “you” mean to me.

One cannot talk about an organization of people without referring to what makes them a community. Leadership should address the human search for connecting with other people and being part of something larger than oneself. The more passionate people are, the more they want to connect with meaningful people doing meaningful things.

As almost all organizations are becoming increasingly

diverse and network-like, and since all boundaries are increasingly flexible, the notion of what brings people together is becoming even more critical.

In the era of industrial management, employees were taken for granted and had no choice or voice. The foundations of work relationships are still largely built on asymmetrical relationships between the employer and the employee, the manager and the worker. This antagonism is already affecting labor markets in many countries: firms are finding it increasingly hard to hire good people. Younger people are more and more attracted to self-employment and entrepreneurial possibilities as an alternative to joining a corporation.

Knowledge workers want to have a say in what they do in life; where and when they work and most importantly, why and – with whom!

Contracts matter more and more

We live in a technologically advanced society. Unfortunately, the study of organizational innovation has never been more than a poor and distant relation to the study of technological innovation. This has created a frustrating combination of new technologies and old ways of doing things. Platform firms and Internet-based peer-to-peer networks have created a growing interest in understanding and innovating in the architectures of work. In addition, attempts have been made to answer the old questions of why some activities are organized within firms and others are not. What is the difference between a within-firm relationship and one that is governed by different contracts, or across markets? What determines who is in and who is out? What types of relations should be long-term and what should not?

Some scholars claim that there are no particular reasons why membership of a firm couldn't change from month to month, or week to week, or even task to task. In fact, they claim that long-term contracts are not the essence of the organization we call a firm. Friedrich Hayek (1899–1992) was among the first economists to discuss the huge importance of rapid adaptation to changes “in particular circumstances of time and place”.

The focus has now changed from seeing a firm as a production function managing its own assets to seeing it primarily as a contracting structure managing network assets. The value chain has been transformed into a multi-sided market. As on-demand work becomes more common, we

can be sure that more people are going to be involved more often in the renegotiation of work contracts.

The challenge is that the contract terms in the new world of work must be acceptable to all parties. The future system has to be symmetrical, which the industrial system was not.

The original argument by Ronald Coase was that the asymmetrical relationship inside a firm is a substitute for market transactions. A central authority can coordinate activities more efficiently than individual input providers could when contracting with each other directly. This was a profoundly important insight for explaining why firms existed and was very true at the time, but not anymore.

The evolution of economic activity has, in many ways, been a direct reflection of the evolutionary stages of coordination, which build on three things: systems of information, communication and trust.

Creating transparency of information was difficult: no real-time data was available. Communication was expensive and of poor quality. Interaction was mainly based on moving documents around. Symbolic representations of trust relied on regulation, up-front permission and standardization. The system of trust was extremely expensive and unreliable!

Virtually any relation that can be described as a contracting problem can be evaluated in terms of transaction economics. This is why Ronald Coase, Oliver Williamson and many of their colleagues are so relevant today.

According to this thinking, a transaction occurs “when a good or service is transferred across an interface. It's really a kind of API. One stage of activity makes another stage of activity possible.” With a well-working interface, as inside a well-working machine, these transfers occur effortlessly and smoothly. In mechanical machines we have always tried to diminish friction. Are the parts lubricated? Is there loss of energy?

The economic counterpart of friction is transaction costs.

Do the (interdependent) parties in interaction find each other and cooperate effortlessly? Or are there frequent misunderstandings and conflicts? Is there trust? Are there situations where there is so much friction that the machine stops and the contracting parties are unable to reach an agreement to go forward? Friction has a huge cost that is understood in engineering, but not yet in economics or politics.

In engineering, the coefficient of friction is not seen as a “material property” but is categorized as a “system property”. This means that it is unhelpful to study the parts in isolation, we should examine how they function together. However, there are systems that inherently rely on friction, such as automobile brakes, which slow a vehicle by converting kinetic energy into heat.

In organizations, friction turns human energy into management pay.

Our technologies of coordination have developed tremendously, potentially allowing us to innovatively create new organizational forms. The difficult challenges ahead may not be technological or architectural, but habitual and contractual. What would management education be called

in a world where management is not needed, at least in the Coasean sense? Or could labor market organizations leave their trenches and advance the creation of new contracts?

The future of work has to be based on willing participation by all parties, and the ability of all parties to protect their interests by contractual means.

Futurice – a company built on trust

Hanno Nevanlinna

When founding Futurice 15 years ago, we wanted to build a good workplace for ourselves. Our aim was to build a company in which we could enjoy working, drive our ideas forward and have our achievements acknowledged. In the beginning, a small company was easy to run. But after reaching a headcount of 50 the company began to suffer from bad decision-making. Our advisors told us that since we were now “a real company”, we would need to start acting like one. This would mean setting up control mechanisms and strict processes. And so we obediently followed their advice.

Half a year later we realized that more control and complicated processes weren’t taking the company in the direction we wanted. We identified the root cause: information was no longer flowing freely inside the company. People were making locally optimized decisions that weren’t optimal for the company as a whole. To solve the problem, we decided to start trusting our employees instead of controlling them. This was easy for us, since we had always recruited great people who we knew would act responsibly towards both the company and their co-workers, and who had a passion for the business and customer service.

We decided to base our management model on values that would be common to the entire company. It was easy to select caring as the first one – caring for customers, employees, and anything relevant to the company.

Trust constitutes the second value. As part of our “trust policy” we encourage our employees to make all decisions themselves. They only need to follow the “3x2 rule”: consider how the decision will affect your colleagues, customers and the company in both the short and long term before making a decision.

Good decisions are based on adequate information. Considering this, we made all information public inside the company, including all company figures. All meetings are open to

everyone, and monthly “Ask the CEO” sessions – to mention but a few examples – create a culture where people feel that they can really ask for any information they need or want. Only personal employee information is an exception, being shared by the employees on a voluntary basis only. Transparency, which constitutes the third value of our management system, requires a lot of effort, but is worth it. We tend to say “transparency brings shitloads of good”.

As the company is constantly growing (~30% YOY) and the world changing faster and faster around us, we need to make sure that we preserve our adaptability. The fourth and most visible value of our management system is continuous improvement. We’ve hired people who really believe that nothing is ever good enough, and the world is a place where everything can and should be made better.

All four values – care, trust, transparency, and continuous improvement – are crucial to our management system. We can trust employees who care, and trusting people further encourages them to care and take responsibility. Good decisions require transparency. People can’t be responsible for something they don’t know enough about, and finally, you can care only if you know enough.

Our value based management system brings us many advantages: it empowers our employees and contributes to extremely high user and customer satisfaction. It makes us fast and reactive. It does make us slower in making bigger changes in the company, since we need to engage all employees in the process, but once they have been engaged they are strongly committed to the change in question.

Since being selected as Europe’s best workplace twice in 2012 and 2013, we have widely shared our management model and tools. I often hear people say that “this might work for you now, but wait until there are two hundred of you or you go international”. Well, there are three hundred of us now at six sites around Europe. And we have not been forced to sacrifice our values for growth. We continuously renew our tools and processes, but our values remain and help us to prosper.

Case Exel

Kari Loukola

To us “Interaction between interdependent people” means “Interaction between interdependent smallest entities”. Quite often, the smallest entity is a person when work is individual by nature e.g. the coding of software or driving an Uber. Most manufacturing processes for making physical products are long and steps have to be taken to reach the end goal e.g. making a computer all the way from chips, or the entire manufacturing process of a car (Uber taxi vehicle). In sophisticated manufacturing, the smallest entity is much larger than one person.

Before the Internet revolution and free access to all data, companies (units) faced the dilemma of grow or disappear. The consolidation of businesses in the same industry was inevitable; the bigger, the better. Free access to all data has provided small, specialized enterprises with opportunities to work globally without having a global physical presence. A global presence is being achieved through global visibility on the Internet: globally sharing the knowledge of companies is replacing physical global presence. In fact, information sharing is even more efficient if modern global tribes of people and smaller companies are built around mutual interests.

Composite material markets are estimated to account for around 0.4% of the global material markets, which are dominated by steel, plastics and aluminum (Composite Market Study: Lucintel 2013). Exel Composites is a world leading composite pultrusion company with a 10% market share (Lucintel 2013). Pultrusion represents around 10% of the global

composite market. Simple math tells us that the revenue of Exel Composites accounts for around 0.004% of the global material market value defined by Lucintel. Can such a small player function globally? Absolutely, yes! Exel Composites delivers its products to hundreds of customers in more than 50 countries every year.

Over the last few years, Exel Composites has increased its investments in its digital presence. Greater visibility on the Internet and stepping up its activities in the social media have increased enquires about the firm's products. People who are professionally interested in modern materials now find Exel Composites's products much more easily and more often than in the early days. For the business, these enquiries have led to higher numbers of sales leads and, ultimately, to deals, many from countries, people or companies that Exel Composites could never have encountered via traditional marketing channels.

Exel Composites has already taken its next step along the path of data digitalization, by opening a composites online shop (www.exelwebstore.com) in autumn 2015. The Exel-webstore offers Exel Composites' own products, but is and will remain much more besides. The Exel WebStore will be a market place for modern materials. Other companies are joining the community and adding their products to the webstore. Natural evolution of the market place looks set to enable expansion into modern, material-related services (e.g. consultation and installation services). Discussions about composites are being facilitated in the social media. The related composite discussion communities in LinkedIn and Facebook took their first steps in 2016.

**Rather than replacing workers,
new technologies will require
them to gain new skills**

New role of ownership

Esa Matikainen

Reconceptualizing work and the changing nature of firms calls for rethinking the role of ownership. As companies' investments are increasingly intellectual rather than physical and become less capital intensive, the role of shareholders or borrowers as capital investors has changed dramatically. In the 1980's and 1990's, Finnish industries were largely bank-dominated through large capital requirements and board nominations. As depicted in events such as Slush, today's business environment has begun to emphasize intellectual capital in firms driven by enthusiastic teams of founders and complementary talents. While growth and profitability remain the key business goals, the question becomes: what is the right balance in the division of profits between shareholders, financiers and providers of intellectual capital?

We will not see the end of shareholder capitalism in the near future. On the contrary, we have seen increasing shareholder activism in e.g. say-on-pay issues and an increasing need for active ownership. However, as concepts and innovations increase in importance compared to physical assets, we will see the balance shifting from providers of financial capital towards intellectual capital. This shift will make ownership an increasingly interesting variable. For example, we need to consider the optimal ownership structure of a company, how it evolves over time, and the best ways of engaging in active, value-adding ownership.

Furthermore, the rise of crowdfunding has provided ideas, products and individuals, as well as companies, with access to funding. Similarly, as decreasing transaction costs move the prerequisites for the existence of firms towards the organization of transactions directly through market mechanisms, we need to consider whether the "firm" will remain the key unit to be funded over the coming decades. Or will we see products or virtual networks being funded with no need for firms as such?

Competition between funding sources is also likely to increasingly take new forms. By this, we do not mean competitive bidding to achieve small percentage savings in loan margins, but more a cultural phenomenon. While listing a company on a stock exchange was very cool 15 years ago, will it remain cool in the face of all the bureaucracy and new alternatives, or will it be cooler to have your own idea crowd-funded by hundreds or thousands of like-minded people all over the world?

As a consequence, will we see new governance models emerging? It is already recognized that the requirements for good governance and various unwieldy regulations have become a burden taking directors' time away from truly strategic issues. Whereas reporting requirements have been scaled down in e.g. First North listings, the best practices are still to be figured out in crowdfunding. New alternatives may emerge alongside the trend in openness. For example, will we see online access to bookkeeping and other key measures in real-time by the crowd which has participated in funding the company? This would not at all be time-consuming and would be based on providing more, not less information to various stakeholders – but it is not at all commonplace, at least not yet.

Furthermore, if financial information is largely available, will we see boards of directors focusing more on strategy or even the company culture in the future? It is striking that, on the one hand, we say that boards should focus for 80% of their time on strategy, but on the other famous business authors have proven that the culture eats strategy for breakfast. Shouldn't we take this issue seriously and bring culture into the boardrooms? Some evidence is already emerging that large US institutional investors have begun using employee satisfaction/motivation/atmosphere as a measure for determining their investments.

In the future, inventing and making use of new practices in ownership and board work will increase the likelihood of a company's success.

A family business preparing for the future

Lari Raitavuo

Some people claim that family-owned companies are more agile and profitable than other firms? Why can they be more profitable? Because they make long-term decisions? Sometimes accepting years of low profitability if they know that they are moving in the right direction? In family-owned companies, the entrepreneurs operate with their own money. Because of this, they are more effective at taking decisions and risks. To employees and other stakeholders, families are the public face of their companies. There is a very special element in some family-owned firms - a family council. I have huge respect for the family capital found within them. Future owners begin training at a very young age. This is because the transfer to the next generation involves much more than property. It's also about transferring leadership, history, networks and know-how. Learning is important to the next generation and does not happen overnight. It is no year-long or two-year project, but continues through life, from early childhood into the senior years.

To take one family council as a case study – EM Group Oy: family councils tend to vary. We operate on the terms of the next generation. We want to learn without being pressured, creating our own paths and ideas. We are collectively figuring out our common values and dreams for the future, both personally and from the company's perspective; to create common values, you need to be aware of your own.

In other words, we begin by figuring out our own values and creating personal dreams, and then move onto those of the company. That's why none of the current owners are included in our family council.

Life experience is important, so we invite senior-level speakers and professionals to share their experiences and views at every meeting. These guests can be from our own group, or from outside.

Living your dream can be difficult if the current owners are breathing down your neck with their own ideas. I think that this is not the best way to create a change dynamic and get the most out of the family's youth. We are developing the expertise of our family council. On a common basis, we continuously challenge ourselves to reconsider our values, dreams and other, emotionally loaded subjects.

The objective is to find common values on which we can build our future. A family council is about looking into the future. This also allows us to participate in the company's boards of directors.

Success depends on your willingness to learn new things and build networks. I believe that daring to engage with people is going to play an even greater role in the future.

We need to be bold, dare to disagree every now and then. I view the generational transfer of networks as one of the key tasks of my parents and other senior executives. This will enable me to participate in changing and shaping the future.

I am truly grateful to our parents for believing and trusting in us during the handover, which was initiated when we, the younger generation, wanted to establish a family council.

After all, trust is the core that brings together the generations and creates a bright future. If we can trust each other, we can grow as people and an organisation while identifying future needs.

I also want to actively involve our employees and customers in this. Future leadership is a key interest of mine. How to provide leadership when tasks are assigned to robots? How can you motivate employees in such situations, and who will those employees be? What kinds of skills should be taught at school right now?

In other words, as decision-makers, we need to understand the factors behind the transformation of the workplace and determine our business focus on that basis. I think that leadership will continue to be important in the future. Leadership and motivating people will play key roles when taking organisations into the future.

Both internal and external networks will have to be built. Managers need to create enthusiasm and faith in the future whenever employees are anxious about what's coming next.

The role of the boards of directors is set to grow, because organisations need to take better care of their CEOs and management. In many companies, employees understand the need for change being created by digitalization. The problem is not about willingness to change, but knowing how.

Case Demos Helsinki

Roope Mokka

Demos Helsinki is a think tank that generates work to almost 30 people. It has grown from a deeply engaged band of “pirates” that had no division of labour and equal pay (yes, we’ll come back to that later) to a growth organisation that thrives on democratic culture and meaning.

The main thing people get from their work at Demos Helsinki is meaning that guarantees a thriving and engaged community. In purely economic terms we pay for meaning. To be able to choose only meaningful projects and making sure all projects reach their societal goal makes us “in-efficient” in the traditional sense of the word. Of course in reality we create other type of efficiencies, since we allow ourselves to create more value than we capture.

Our highest principles come from our casual code of conduct – “the ten commandments of Demos Helsinki”. The three most principles of the code are the following:

We always have two customers: the paying customer and the society at large.

The society is the more important customer. This phrasing of the society as the customer allows us to be fundamentally client-focused and to serve the good purpose that is the reason for us to work. Our clients know this and value us for this. We try and stick to our contracts and often succeed. As we were renewing our code of conduct the principle of the second client came out as the most important principle organising work at Demos Helsinki.

The principle of the two customers helps us to bypass the endless, inefficient and intellectually shallow conceptual minefield of sustainability and corporate social responsibility. We practise neither. We are here to make our partners and the society better in every project, all time time. There is, in other words, no difference between the core and the “good stuff”. This is our worldview. We are pragmatists who believe that all kinds organisations (public, private, profit, non-profit, voluntary) and systems (market, commons, etc) can create good societies around them and all have essentially very similar problems to be solved and jobs to be done.

The second key principle organising work at Demos Helsinki is about responsibilities and rights. It states that we believe that it is a privilege to work at Demos Helsinki and that privilege leads logically to a responsibility to make it Demos

Helsinki the best place to work (our “collective portrait” if you like). This is a principle of democratic culture and its very rich with meanings and moral implications. It means that if you do not feel that this a privilege and the best place for you to create social impact, perhaps you should be somewhere else. Additionally it means that we are all responsible of fixing things that do not work. Most importantly our organisation should allow this kind of collective authorship to take place at all times.

The third key principle defines our roles as entrepreneurs. Bizarrely enough we are an NGO that treats all the employees as entrepreneurs. The principle states that our the meaningfulness of our work and the degree of our impact is governed by the quality of our sales function. In other words, everyone is responsible in bringing in better projects, because that is the way we can create meaningful work and societal impact.

We no longer have equal pay. It’s a shame since telling that to people created some pretty interesting reactions. Still the differences in pay are small and salaries relatively low. However, it’s an interesting story how and why we took equal pay and what made us to give it up. We gave it up three years ago when we created a new strategy for growth.

We want to grow our impact globally. Revenue, profit, business model, legal structure and number of employees are tools for this growth. It’s a beautiful way of thinking, because it allows freedom of experimentation along with a clear goal. Our options are much less tied than with organisations’ that want to grow revenue, profit or say, engagement. We can do all or none of those if and only if that increases our impact in the society. In that sense we have more freedom to operate and experiment.

The growth strategy has emancipated us and given us a new kind of velocity. When we created the growth strategy we were seven people, we had no division of labour, no bosses and everyone got paid the same. These all sound like deeply ideological decisions and I remember the hundreds of frightened looks that I have met when I told people that everyone get paid the same in our organisation. It was like we were breaking some very central taboos of our society.

However, there was no ideology behind these issues outside of deep appreciation of breaking the rules and seeing what happens. Me and my co-founder Aleksi Neuvonen simple did not want to become managers nor did we want anyone to boss us around. Therefore we become a flat organisation. Secondly we did not want to negotiate salaries and

were very aware of motivation studies pointing out that salary doesn't have an impact on one's happiness after median wage increases. Furthermore management literature clearly points out that money is actually a de-motivator, and it can lead astray. The general advice to managers is to keep it "off the table" and find motivation somewhere else. So what is a rational and pragmatic thing to do? Set an equal wage for everyone, at the level slightly above median wage. And that's what we did.

It worked fantastically. However, that model does not scale and the need to take in more junior people made us change it a bit. As a matter of fact the change was advocated by the newly employed. They felt that they are under too much pressure since they were getting paid the same as the founders. This was something we did not anticipate.

Out of this experiment of five first years was born the current scalable organisation model of Demos Helsinki. Now we have a director, a decision making group that consists of those whom have worked longest in the company as well as for-profit companies that are owned by the not-for-profit organisation Demos Helsinki. This may sound complex but it's not. We have very few governance meetings and we have one person that is responsible only for administrative issues. Now we are working to make Demos Helsinki a platform for teams.

This is not as easy as it sounds as we can not copy scalable team structures of software companies. Why? Demos

Helsinki creates societal change. Our global society is by definition the most complex system in the known universe. Changing the society is therefore a messy process that involves practically an unlimited amount of iterations to methods, tools and strategies. Compare that to creating software or selling shoes online and you will notice these are complex processes that however can be reduced to code and transactions which makes them easier to manage with pre-existing rules and tools you can programme into a platform that teams can utilise. Secondly we have a certain theory of social change that gives meaning to our work. In other words, there are many projects that we could easily do with our capabilities, however they do not create the social change that we believe in. For this combination of complexity and focus it is highly unlikely that we will succeed in becoming an open platform for societal impact. We need to keep reprogramming the platform as we go and the border between the platform and the teams is likely to remain mutable.

Now I'll have to go since we're starting to create a vision for Demos Helsinki. I think it will also be an important tool for guiding the work and especially for recruiting. In the future we want people who understand our vision and are driven by it. We won't want people who want to achieve what we want to achieve. We don't want people who think that this is a good place to work with nice benefits and "good values". That may sound a bit hard. However, but the global wicked problems we've decided to solve demand a lot.

The future of platforms

Many people view peer-to-peer platforms as game changers in the world of work, with the potential to reinvent the economy and provide individuals with the power of a corporation. Others are skeptical and warn that the new architectures of participation and choice are in reality architectures of exploitation, giving rise to a new class of workers, "the precariat". These are people who endure insecure conditions, very short-term work and low wages with no collective bargaining power, and who have been abandoned by the trade unions, rendering them atomized and powerless.

It is important to understand what is happening today in the (almost) zero transaction cost economy, the digitally enabled new world that has given rise to peer-to-peer platforms as the most modern iteration of the firm.

The patterns of work and the roles of workers are

becoming very different from those we are used to: the industrial production of physical goods was financial capital-intensive, leading to centralized management and manufacturing facilities where you needed to be during predetermined hours. The industrial era created employers, employees and shareholder capitalism as we now experience them.

In the network economy, individuals, interacting voluntarily with each other by utilizing new platforms/apps and relatively cheap mobile devices they own themselves, can create value, and, even more importantly, utilize resources and available "excess capacity" as Robin Chase outlines in her book *Peers Inc.* Business can be done in a much more sustainable way than was possible during the industrial era.

Work systems differ in the degree to which their components are loosely or tightly coupled. Coupling is a measure

of the degree to which communication and power relations between components are predetermined and either fixed or not. Hierarchies and processes were once based on tight couplings. The new post-industrial platforms are based on loose couplings that follow the logic of the Internet. Some people work on one platform every now and then, while others work simultaneously and continuously on many different platforms. The worker makes the decision about where, with whom and how much to work. The old dichotomy of employers and employees is a thing of the past.

In creative, knowledge-based work it is increasingly difficult to identify the best mix of capabilities and tasks in advance. Recruitment is becoming a matter of expensive guesswork. Matching patterns of work with the capabilities of individuals beforehand is becoming close to impossible. What, then, is the use of the organizational theater when it is literally impossible to define the organization before we actually do something? What if the organization really should be a process of emergent self-organizing in the way that platforms make possible?

Instead of thinking about the organization, let's think about organizing as an ongoing process. This means that the managerial task involves the enablement of very easy and very fast, emergent responsive interaction and group formation. It has to be as easy as possible for the best contributions from the entire network to find the applicable contextual needs and people.

Instead of the topology or organizational boxes that are often the visual representation of work, the new picture of work is a live social graph. In markets the signaling may change; it is not just a system of prices that brings people together, but purposes, capabilities and reputation.

If you follow the valuations of firms today, you will notice there is an ever-widening gap between network-economy platforms and companies driven by traditional asset leverage models. Investors and markets have voted very clearly. Traditional business economics focuses on economies of scale derived from the resource base of the company, which scales much more slowly than the network effects that new firms are built on. Start-ups have a huge advantage over incumbents.

In practice, this means that peer-to-peer platforms can attain the level of customer reach and network size required to capture almost any market, even as the size of

the core (firm) stays relatively small.

The principles behind these trends are crucially important to the future of firms and society. It used to be argued that goods for which the marginal costs, the cost of producing one more unit of customer value, were close to zero were inherently public goods and should be made publicly available. Before the digital era, roads and bridges were commonly used as examples of such platforms. The maximum societal benefit derived from the initial investment is gained only if use is as unrestricted as possible. People should have free, or almost free, access to the "platform". Once the capital costs have been incurred, the more people there are sharing the benefits, the better it is for the whole value system.

This was the economic explanation for why roads were, and still are, under public ownership. The same logic applied to public libraries: a book can be read repeatedly at almost no extra cost.

A platform (company) should therefore be as open, as accessible and as supportive as possible to as many users as possible. This is unequivocally the route towards optimum value creation. The scale of the Internet can create almost boundless returns without the core company growing at all. And against

mainstream thinking, services do scale now as much as products did yesterday. One person can have a million customers and ten people can have a hundred million customers. The sheer size of an enterprise will tend to mean less in the digital network business than in the world of physical goods. The flip side is that companies do not grow and create jobs in the way they used to. It is networks that grow, creating new earning opportunities for people who are part of the network!

The central aggregator of enterprise value will no longer be a value chain, but a network space, where new firms are fully market facing and the customer experience is defined by apps. Our management thinking is slowly shifting towards understanding the new kernel of work: participative, self-organizing responsiveness.

Platforms are a valuable, shared resource making interactive value creation possible by organizing and simplifying participation. Sociologists have called such shared resources public goods. A private good is one that the owners can prevent others from using. Private was valuable and public without much value during the era of scarcity economics. This is now changing in a dramatic way,

**Think about it:
"companies used to
be arranged around
production and
products"**

creating the intellectual confusion of today. The physical commons were, and still often are, over-exploited but the new commons follow a different logic. The more they are used, the more valuable they are for each participant.

The ongoing vogue of business design is transforming asset-based firms into network-based platforms. Perhaps the next evolutionary step in the life of firms is a transformation from platforms to open commons with shared protocols. Perhaps Bitcoin/Blockchain is going to be part of the new stack, the TCP/IP of business.

In the new commons and market networks, people with more potential ties become better informed and have more signaling power, while those outside and with fewer ties may be left behind. This is the new digital divide. Network inequality creates and reinforces inequality of opportunity.

In the age of abundance economics, public is much more valuable than private. Governments have always been platform creators. I sincerely hope that they understand the tremendous opportunity we all face. The old demarcation line between public and private no longer makes sense.

Government as a platform

Jim Knight

The pace of globalization and technological change is breathtaking. Augmented by technology, humans are making extraordinary advances with profound economic, social and environmental consequences. The private sector has thrown up exciting new businesses as established brands fade away, but what of the challenge for public policy makers?

Pace is a problem for governments.

I've been a legislator in the UK Parliament for 15 years, five of them as a minister. Normally, law making takes around three years from idea to implementation. That is a lifetime in the digital economy. Governments also instinctively like control, which is why they like to do things through laws – to them; the empowering nature of digital is also cultural anathema.

Can that change?

I offer two examples from the UK. Our Government Digital Service (GDS) offers positive groundbreaking examples. Our school system is doing the opposite.

One of the most powerful phenomena to emerge from the digital revolution has been the emergence of the platform business. Robin Chase has written very eloquently about them in her book *Peers Inc.* She founded Zipcar as a platform to enable people to share cars easily and efficiently. The platform resolves payment, verification, insurance, capital investment and other related issues; customers can then just drive. These platform businesses have enjoyed rapid growth, whilst enabling other businesses in the gig economy to grow.

In a recent visit to the Government Digital Service, I was delighted to see them close to offering Government as a platform.

Their Verify service is due to go live in April 2016 after an extensive Beta phase. Verifying that a citizen is who they claim to be is a major cost and inhibitor for services for citizens. Previous attempts at a national ID card system have failed because of public concerns about personal details being held on a centralized government database.

Verify has found a different solution that allows the rapid on-line verification of identity to a high standard of security. It does so without a national database and harnesses the advantages that lie in most citizens using smartphones.

The service uses up to nine external organizations which do this kind of work for the private sector, such as credit reference agencies and the post office. The citizen chooses which one they want to use, informed by what forms of identity they want to share with that body. They then share private information, including issues such as passport details, drivers license, credit card details, and so on. They may also use their phone to share an image of themselves to compare with these identifiers.

The standard of security is impressive and reassuring. Financial institutions, and others, now want to use the service. Government departments are relieved of the headache and cost of verification when delivering existing services.

The GDS is also doing similar work on payments and on notifications to citizens. The GDS platforms then allow new services to be designed with quick and easy verification, payment, and notification services all ready to go. This massively enhances the potential for innovation and agility in the delivery of public services.

However, the next obstacle is cultural. How do we create a culture of innovation and agility in a public sector wedded to central control?

The best example of this challenge is in education.

England has a moderately good school system and some of the best universities in the world. The school system is designed around the needs of our elite academic institutions, with the assumption that the best possible preparation for a successful career is a good degree from one of our great research-based universities.

This assumption is increasingly false.

The unwritten contract when I was at school said that if you work hard at school you will get into a good university, get a good degree, then a job for life. That job would allow you to live comfortably, buy your own house and contribute to a final salary pension that would allow you to live in secure retirement until your likely demise aged about 75. Current levels of graduate debt and unemployment, high house prices, the abandonment of final salary pensions, and now life expectancies of up to 100, have exploded that contract.

Living to 100, in a very different labor market of simultaneous jobs and multiple careers, now demands a very different education. Why would you spend all of your investment in higher education in your early twenties if you are working to 80? Why would you specialize in one academic discipline when employers value how you connect a breadth of knowledge creatively, rather than your depth of knowledge?

We need a different school system.

The basis of a great school will remain great teachers and supportive parents. But I think that the content of learning needs to change, especially post 14.

For children up to around 14 we should have a curriculum and seek to embed some core skills and a framework of knowledge. Such core skills would be reading, writing, mathematics, coding, collaborating, and emotional expression.

A framework of knowledge provides a context against which to reference online knowledge, building resilience and enabling the filtering of online garbage!

But post-14 should be much more about research-based, collaborative, knowledge making, and self direction; it should relate to real world challenges and collaborating with those outside education. This would better equip learners for what they need in adulthood, whatever direction they choose.

But how do we then create the political climate needed to make that change happen? Policy makers and commentators are usually education success stories. How do we make them realize that what worked for them is no longer right for everyone in the new context?

This is harder in democracies. Ironically, it may be that countries like Singapore and Hong Kong are showing us the way and it is only when we see our competitive disadvantage that democracies will respond. It may be that some schools are freed up, or started, with the freedom to innovate in this way. It may also be that the growing clamor from employers forces politicians to act.

There is a growing crisis of legitimacy amongst mainstream politicians. Across the western world we see populists from left and right doing well at the expense of the traditional political elite. Perhaps, if the policy-making establishment woke up to the need to embrace and keep up with the digital revolution, it could become credible with voters once more. If not, that establishment will become the Kodak and Nokia of the political world. Our countries will then be leapfrogged by those emergent economies that are unencumbered by the legacy of the analogue industrial era.

The case for the digital disruption of government services is now urgent.

Is the on-demand economy good thing or a bad thing?

Industrial workers who work on capital-intensive assembly lines are typically paid fixed hourly wages and have the support of a variety of other institutional arrangements, such as paid sick leave and collective bargaining. By contrast, self-employed post-industrial workers are more likely to be paid piece rates with fewer institutional arrangements. Such a worker is paid a fixed rate for each unit of production/service.

One of the few observable differences between the industrial and the post-industrial worker is the level of independence: the latter can set their own pace and work, mainly at the times they choose, such as surge pricing periods, whereas in factories, warehouses and in many offices, individual workers cannot set their own pace, but must learn to function in a time and at a pace set for them by the process, machines and other people.

The theories we use to understand work model the labor services of employees as undifferentiated, generic inputs, for which prices can be predetermined as wages, or as piece rates.

Why are we transferring the history of work to the future of work?

An Uber driver replicates the work patterns of garment “factories” in developing countries. Independence, in the case of piecework, can hardly be called societal progress, even if there are many people who are tired of being dependent on employers and work hours, and welcome this option.

Technology allows us to re-imagine work.

What if the kernel of on-demand work is not short-term associations and spot market exchanges, but allows us to create a new understanding of work: contextual interaction based on collaborative creativity and human capital? Relations between workers become the central, and in many ways, defining feature of a firm.

A firm, then, is not a bundle of assets belonging to owners, but a bundle of dynamic commitments between people. The organization becomes a process of ongoing organizing.

The future of human-centric work can be built on relations and complementarity: the human capital of a worker

is then worth more when applied together with the human capital of other members of the community. In industrial processes, your value could easily be less than what you are. In contextual, post-industrial settings your value can be more than that!

You work based more on your relations than your skills.

The productivity of an individual depends not just on being part of a community, but on being part of a particular community engaged in particular commitments. The context is what matters most.

We used to think that collective bargaining through unions might serve economic efficiency when employees were contracting with a well-defined entity, the existing firm. Post-industrial work is interaction between interdependent people. Employees contract with other employees and the customer. The firm is the interaction and nexus of

the interplay of contracts.

The goal is to help individuals into relationships that balance complementarity, the growth of human capital and symmetric claims to (long-term) financial returns. Adam Smith was the first to envision a genuinely self-designed economic life for as many people as possible.

This was something that resembled what we today call entrepreneurship.

The death of the old can be the birth of the new. What is now disappearing is not work, but the notion of a job. It is a social artifact that emerged during the nineteenth century as a way to package tasks. It was a rigid solution to a dynamic problem.

The search is even on for a word to replace work. Perhaps, the future of work is about “value-adding relationships”. Networked intelligence enables quite ordinary people to perform in extraordinary ways. What we still lack are the institutional arrangements that would support this third way of working.

Properly understood, technology is less about replacing people than it is about connecting them to each other and to their customers in totally new ways. Perhaps the thin labor markets we have today between individuals and firms are going to be much thicker in the future, if they exist between individuals and customers.

**What if making
customers is more
important than
making products?**

Case Superson

Samppa Vilkkuna

We are delighted that Esko Kilpi is raising the transformation of working life as a subject of discussion. In many cases, only executive work and its transformation have been discussed in the same context as shared economics, even though the transition in question involves specialist work. In this field, the marketing communications agency Superson is a pioneer with a business model based on on-demand thinking.

Marketing communications agencies are often considered pacemakers and trendsetters. This is a false impression. In fact, most agencies are surprisingly conservative, due to which they have also lost a remarkable part of their business to media agencies, digital agencies and other consultants.

For a combination of reasons, we are responding to the transformation of working life in a way which is based on our fear of change. For example, in many agencies some work is performed outside the office. In the future, instead of talking about remote work we may start referring to working at the office as an exception. The increase in environmental responsibility and pursuit of increasing efficacy are also supporting this proliferation of remote work. Why rent business premises in the city center when they are empty 70% of the time? Why maintain premises for dozens of employees, if only a fraction of them will work at the office in the future? Why spend hours in traffic every day if the same amount of time could be spent doing something productive? Offices are becoming virtual and staff are becoming more like a network. Premises will not be needed in the future – soon, even employment contracts will become unnecessary.

The new generation accepts the idea that, in the future, people will work and have as much spare time as they want.

People will work as independent entrepreneurs or project resources. Temporary work may change from being something that people avoid to a way of improving one's quality of life.

At Superson, we have implemented a business model based on which people working in the office form our core team with a thorough understanding of our marketing and business strategies. The competencies of this team are not limited to the planning of traditional marketing communications – we have producers in the office who keep the wheels turning. All content creation is bought in from the specialist that best fits the given assignment.

Based on this new business model, our customers gain the best specialist possible for solving their marketing challenges, as well as benefiting from cost savings. Because the specialist already has deep knowledge of the industry, no further familiarization with the specific business in question is needed. For example, a medical company X is going to launch a new product and the related marketing operations are tightly restricted by legislation. Based on the traditional business model, the specialist is assigned from the company's own team if he/she has the resources to participate in the project. Using Superson's business model, the best specialist possible, who has strong knowledge of the medical industry, is sought. This allows us to jump straight into the work. In turn, the customer gets the best possible professional with thorough knowledge of the field, and no time or money is lost to additional learning.

The new business model represents a modern way of working whose effectiveness can be proven using our own concrete example: the customer benefits, time and money are saved and the business remains profitable.

**In a post-industrial world, we can actively
design the social constructs of work.**



From the industrial to an entrepreneurial era

WE INHABIT A WORLD of emergence, uncertainty and complex change. In his book “The End of Certainty” Ilya Prigogine wrote that the future is not given, but under perpetual construction: “Life is about unpredictable novelty where the possible is always richer than the real.”

Industrial firms have provided us with remarkable material wellbeing over the last few centuries, but are increasingly being criticized as unsuitable for handling the needs of today. Organizations need to excel in innovation. Companies need to meet new demands for change and must embrace uncertainty.

The industrial approach to management places a heavy emphasis on the formulation of plans and intentions and then communicating them as actions to be executed by the organization. The belief is that managers can make useful forecasts and set goals. Their daily responsibility involves monitoring activities in order to identify gaps between goals and actual outcomes, so that those gaps can be closed. Uncertainty plays a minor role. Managers know what is going on.

Every business has a set of assumptions that are taken as given, thus reducing the perceived uncertainty and psychological anxiety. The whole plan-execute cycle is a process designed to prove assumptions correct. The closer you are to budget, the better it is. But assumptions are never totally right; often not totally wrong either. Accordingly, ideas are seldom turned into a successful business in just the way described in the business plan. Things change.

In conditions of rapid technological change and uncertainty, there has to be a systematic process that identifies new opportunities as they emerge. What new possibilities have become visible that make our present assumptions outdated? This is much more important than forecasting or planning. It is about asking questions, continuously testing assumptions and signaling which ones are helpful and which are not. The new cycle is a process designed to prove assumptions wrong.

The task is not to reduce uncertainty, but to develop the capacity to operate creatively within a situation of uncertainty. Some of the most creative startups have even gone so far as to take a “let’s just do cool things and see what happens” approach, trying to avoid traditional governance systems. The plan-execute cycle turns into a question-answer cycle: “What is the problem we are trying to solve?

How can people participate in testing the validity of our thinking in such a way that things continuously develop and change over time?”

The strategic focus is an ongoing movement that is open-ended, and always incomplete. The strategic logic is temporal rather than spatial. Based on a spatial metaphor, there is a territory that can be explored and understood, but in this case the territory is seen as being under continuous development and formation by the exploration itself. “It is impossible to map an area that changes with every step the explorer takes.”

The new, entrepreneurial experience of work is very different from the industrial experience. It is about acting in the unknown, not necessarily working towards a goal. It is about creating the future together through interaction, not about reductionist job roles and separations. It is more about improvising together rather than following scripts. It is more about emergence than causality. It is more about sciences of complexity than system-based thinking.

By linking improvisation to a community, as in theatrical improvisation, we get to what is in fact happening in creative work. All of us with our differing intentions, hopes, and values are acting in corporate plays. We are self-organizing in shifting social configurations in a responsive interplay between different players.

In creative work, we are fellow-improvisers in corporate ensembles constantly constructing the future and our part in what is happening. The idea of improvisation is often associated with notions of unrehearsed, unintentional action. However, the more skilled the players are, the better they can improvise. The better people have planned, the more flexible the organization can be. The more people that are present for each other, the more reflexive and responsive they can be as individuals.

The Internet, technological intelligence and new sensor technologies are creating a real time company based on much more efficient approaches to coordination than we have been used to. The key outcome is that we can focus attention on what is really happening, what we are learning in the present, rather than on what we intend to do in the future or the structures and processes we created yesterday.

The world we live in is context dependent. The best way to be future-proof is to be more responsively present.

New ways to learn creativity

Martina Linder

Some of the key elements of circus training involve playing different games in a group. Some are more physical, preparing students for technical training, while some are more mental or theatrical, preparing students for artistic training in front of an audience, and some are a mixture of both.

Such training equips students with a range of circus skills: juggling (balls, clubs, hats, rings etc), balancing (handstanding, unicycle, rolabola, human pyramid etc) acrobatics (on the floor, in the air, on a trampoline, with skipping ropes, dance acrobatics etc.) The elements are many and change and develop depending on the time, the teachers and the pupils.

Why circus training is so beneficial?

Many circus skills are available and more are being developed all the time – there is a skill out there for everyone who is interested in the learning and training required. Circus training is highly inclusive. It takes place in a good atmosphere, since so many different skills and elements matter that it is not easy to compete with others. Competitive thinking is not dominant and a feeling of sharing and mutual encouragement is prevalent.

For one skill it is good to be tall, for another it is better to be small. There are no rules on the appearance needed to succeed in circus arts. Attitude and creativity are what count, and both are developed in a group.

You can do many things in a group where everyone is important (for example, in a human pyramid everyone has to be able to trust the others). You learn to view yourself as part of a group or larger system. A narcissistic or egoistic attitude doesn't work. The above-mentioned group games also create a trusting and relaxed atmosphere.

When you train for the circus, you are relaxed, which makes you very open and able to learn new things very quickly. Training groups have a very good, positive energy, which eliminates anxiety about failure. For most of people, the greatest obstacles to learning are in their own heads. You learn much about yourself and your own methods and

obstacles to learning and come to accept yourself as you are.

During circus training, you learn and accept that a natural way of learning or developing something new involves making a lot of mistakes.

You are physically close to others. Physical and friendly closeness makes people happy and helps them to overcome shyness. Learning about physical communication, both as a talker and listener, is also very important – indeed, it is a critical communication tool which is seldom taught in schools.

What do you learn when performing for an audience (e.g. of parents or other group members)?

You learn how to control your nerves and show your feelings to the audience. You need to believe in yourself, while remaining humble.

If you want to perform, you need to learn a skill, but this is not enough; you also need to find an interesting way of presenting your skill. The combination of technique and artistic presentation is the key issue. You need to learn to be yourself on stage and surprise the audience and “keep them awake”. You need to listen to the audience and learn to communicate with it.

When you make a mistake on stage, you learn that this can be the best part of a performance if used correctly. The audience loves a performer who does not give up, has a positive attitude and soldiers on with the help of the audience's applause.

Circus training moves us away from the kind of thinking associated with the official role of work and the pressure to succeed quickly that either we or society are accustomed to. In most cases, living by such rules prevents us from thinking out of the box or being creative.

Circus training is about releasing our inner, innocent, natural and creative child. Everyone has the need to be free, creative, playful and happy. When we are in this state of mind, we have a good basis for learning, understanding and creating anew.

When the organizational North Star shines brightly

Virpi Oinonen

I've had the good fortune to work for all sorts of organizations, ranging from the fairly flat to the bureaucratic, and from the charitable to the commercial – first as an employee and later as a freelancer. In my experience, there are two types of organizations: ones that are focused on achieving their goals and are quite straightforward to work with and ones with a level of office politics that can turn into a spectacularly inefficient form of organizational theater. I'll illustrate the difference based on two organizations I've worked for over a longer period of time (both in the same sector and roughly the same size).

Organization A had a very clear vision of what it wanted to achieve. Their purpose, or organizational North Star, translated into concrete goals and the strategy for achieving those goals was communicated clearly to everyone – not just people with “thinking jobs”, but everyone. When the organization recruited, it recruited for both ability and values. No one joined this organization to advance their careers.

For an employee like me (someone who wants to do a good job, but has no inner desire to climb a career ladder for its own sake) this was a very motivating work environment. It was easy to make suggestions when ideas were judged by one criterion: will this help achieve our goal? And if you could make a good case for something you were given the opportunity to take it forward – your rank didn't really matter. There was no need to worry about turf wars, accidentally challenging someone's authority or bruising someone's ego. I then moved to a different country and got a job in a different organization.

After my experience in organization A, organization B felt a bit like a return to the kids' table. It was after joining this organization that I finally understood Dilbert cartoons (until then they made no sense). While your rank didn't really matter in organization A, it kind of did in organization B. Even if it was full of smart knowledge workers, a lower pay grade seemed to mean your role was to execute – not to think. When I suggested improvements, my line manager would present my proposal to the senior management on my behalf even though he was not an expert on the subject. After sharpening my professional skills in a fairly flat organization, it was a bit of a shock to realize that you couldn't really contribute at your own level.

Another difference between A and B was the strategy. While in organization A I knew what the roadmap for achieving a goal looked like (and when the roadmap changed, I knew how and why). I had no such guidance in organization B. This meant it was difficult to prioritize work. There were often several, equally important projects, which meant that I couldn't make any real difference between them. This is frustrating to someone who doesn't work simply to earn a living. On top of that, I didn't know why we were doing the things we were doing. What logic is driving these decisions? And I wasn't the only one who was slightly confused. I conducted two staff surveys in the organization; in both cases, the number one complaint was the lack of strategy. I think everyone was eager to kick the ball into the same goal – if only they knew where that goal was.

What if more and more organizations learn to organize themselves around a purpose, communicate their goals clearly and then let their people figure out the best solution?

Contrast that with organization A, where the conflict between goals was quickly resolved because it was clear what the priorities were. I could actually turn down work because it wasn't high priority. By the way: having permission to turn down less important or non-urgent work makes all the difference to productivity and results.

Another difference was the speed at which the organizations operated. To be fair, organization A was renowned for being able to respond quickly to events and was structured in a way that enabled fast decision making and the quick (re)allocation of resources. But it was also fast because there were no real turf wars or bruised egos – just a bunch of people who wanted to get stuff done – fast. When new information comes in people are able to evaluate what it means to them – now is the time to do X or refrain from doing Y. Esko Kilpi writes that when people see where they fit into the bigger picture they are able to understand the real interdependencies and to respond much, much faster and more effectively to changing conditions.

My question is how long can organizations afford to maintain a system that results in office politics that stifle good ideas and collaboration? What if more and more organizations learn to organize themselves around a purpose, communicate their goals clearly and then let their people figure out the best solution? Would organizations that force people to spend a lot of time and energy in organizational theater finally lose out?

This, of course, would mean a different way of rewarding people. Those who are status hungry would need to be rewarded in some other way than by giving them management

positions. Maybe if management became “servant leadership”, which is more about helping your staff and less about you, management positions would stop attracting people seeking to boost their egos.

I personally have no interest in working in an organization where I have to play games, tiptoe around egos and avoid accidentally igniting turf wars in my quest to find solutions. If you want your organization to resemble a Dilbert comic, be my guest, but me, and a growing number of people like me, will no longer take part in the theater.

New work is communication

What would life be like if no one acknowledged your existence? What if you were ignored and excluded?

Our social interactions play a role in shaping our brains. We now know that repeated experiences sculpt our synaptic connections and rewire our brains. Accordingly, our relationships gradually frame our neural circuitry. Being chronically depressed by others or being emotionally nourished and enriched have lifelong impacts. This is of course unwelcome news to someone whose relationships tend towards the negative, but it also points us to where the possibilities for repairing the situation might lie.

We can no longer view our minds as independent and separate, but as thoroughly social. Our mental life is co-created in an interconnected network. The human mind is not located and stored in an individual. Rather, what we have called the individual mind is something that arises continuously in relationships between people.

Communication begins with acknowledgement. It is about paying attention to others and making room for them in our lives. Thus, how we connect has tremendous significance. Our (management) attention should be on who is talking and who is being silenced? Who is included and who is being excluded? Who do I acknowledge and who acknowledges me?

There can be no change without changes in patterns of communication. Organizations of any kind, no matter how large or how small they are, are continuously reproduced and transformed in ongoing communicative interaction. The patterns of interaction in an organization are highly correlated with its performance. Thus, we should pay much more attention to the strength and number of relationships and the breadth and depth of networked thinking.

Marcial Losada, has proven that the distinctive

characteristic of a high productivity organization is the capacity to generate expansive, positive, emotional states. Emotions can thus be seen as the driving force behind cognition and action. There is a lot of truth in the sentence, “I don’t remember what you said, but I remember how you made me feel.”

Low connectivity, self-orientation and negativity can trap organizations and people into rigid patterns of thinking and limiting behavior. “We have a human habit of getting stuck in a certain way of thinking and finding it extremely difficult to jump out of the pothole into another way of thinking,” as Murray Gell-Mann put it.

In modern psychology, the word empathy is used in three senses: acknowledging a person’s existence, understanding that person’s feelings and being responsive: I notice you, I listen to you and I act with you.

The new management challenge is to identify the patterns of interaction behind high or low productivity and high or low creativity. It is also about analyzing how and when we get stuck. Is it in endless advocacy? Is it in self-absorption? Is it a result of general negativity? The goal is to create expansive emotional spaces that open up possibilities for effective action, creativity and learning. It is not about having common goals and sharing the same values. It all starts with acknowledgment and recognition between different people with different views and different approaches, evolving into a more responsive and complementary sense of consciousness.

What would it be like to live in a world where acknowledgement was the accepted rule that we freely wanted to follow – any time, any place, and with anybody.

The like button, as one way of saying that I have noticed you, I see you, I hear you, is more important than we know.

Our ability to use words determines our creative output

Jyri Engeström

In just a few years, work has changed from the design of templates (white-collar) and their repetitive execution (blue-collar) to an iterative conversation. Messaging apps are evolving in step with this shift. Email is increasingly being replaced by near real-time conversation. Increasingly, the participants in this conversation include not just people, but also machines with varying degrees of artificial intelligence. In a sense, we are returning to the early days of computing with command-line interfaces – both written and spoken. Tracking the

completion of tasks is also becoming near real-time. Sensors embedded in machinery, our devices, and even in our bodies report back into the conversation, further enabling algorithmic action.

Language skills, conversation analysis, and turn-taking patterns will play an important role as the assets used by organizations and skilled individuals that are seeking an advantage. Simply put, our ability to use our words determines our creative output. This idea, of course, predates modern-day technology: “The more the words, the less the meaning, and how does that profit anyone?” (Ecclesiastes 6:11) Profit, in a very real sense, will increasingly come from the right words said or typed at the right time.

Working for the public good

Juhani Turunen

The Nordic Welfare State is a well-known concept around the world and a kind of development model for many countries. It has been a success story in terms of securing human well-being, social security, health care, education and equal opportunities for all citizens.

On the other hand this has meant a high tax-burden and a fairly large and cumbersome public sector. The building of the welfare state in Finland was mainly achieved during the 1960s and 70s, when legislation was passed on health care and primary education. These reforms led to huge progress in terms of the substance and availability of health services and education, but also to heavy regulation and bureaucracy. In spite of some efforts to deregulate and open these systems up to competition and other actors, their structures have remained similar to the way they were half a century ago.

In the 1990s, many critical voices raised doubts about the sustainability of the current welfare state, mainly due to the economic crisis at the time. Future demographic and economic perspectives called for the reassessment and rethinking of the structure and maintenance of these systems.

Public opinion and customer satisfaction also indicated growing discontent. Similar dissatisfaction is being shown by civil servants and their employers, the politicians.

The majority of welfare services are produced and financed

by the municipalities, partly with the support of state subsidies. Due to national legislation and detailed directives there is limited room for organizational maneuver and creative solutions in the design and delivery of services. The top-down approach also discourages municipal actors from creating public sector innovations and new-thinking. Organizational and professional silos create barriers against fruitful cooperation and discussions across “firewalls”.

However, the employees in public services are highly skilled and well-educated. There is huge potential for productivity and qualitative growth, when we conceptualize the related organizations in a way which enables and empowers employees to achieve great things together. In addition, the customers, citizens, are a great resource and facilitator in terms of co-design and co-production and the delivery of services. We might refer to this as a people-centered approach. We have recently experienced the strong mobilization of third-sector organizations and volunteers involving themselves in solutions for huge societal challenges such as the reception and integration of refugees in our societies. It is crucial for the future of the welfare society that these and other stakeholders become close partners involved in the design, delivery and financing of public services; that is why networking lies at the core of all public organizations and activities.

The Ministers responsible for Public Governance in the OECD countries met on 28 October 2015 in Helsinki. They welcomed the OECD's initiative on Inclusive Growth and concluded that public services must be at the forefront in delivering inclusive growth policies.

These policies are based on four elements:

Voice

Inclusive growth requires listening to a diverse range of voices when shaping policies:

- Give a voice to people and create the conditions for greater engagement in policy making and service delivery.
- Improve opportunities to participate in decision making for all groups in society.
- Integrate gender and broader diversity considerations when reaching out to citizens.
- Avoid the risk of policy capture by vested interests, through transparency and public consultation.

Design

Designing policies for inclusive growth requires that all parts of government work together.

- Understand the types of policy instruments that are at the disposal of governments.
- Join up government efforts and identify the best combination of policy instruments for more effective policies.
- Learn from good regulatory practice, in order to foster a whole-of-government approach.
- Leverage budgets to promote coordinated policy action.
- Lead and coordinate the role of central government

Delivery

Services that promote inclusive growth are delivered when the public sector is as diverse as the communities it serves.

- Assess the new skill needs that are emerging and take advantage of digitalization opportunities.
- Align the civil service around a set of shared values and strengthen its capacity for leadership.
- A better gender balance contributes to more inclusive institutions and better outcomes.
- Inclusive and diverse institutions contribute to a more inclusive society.

Accountability

Inclusive growth objectives are met when the results are measured and people are accountable.

- Policy evaluation promotes transparency and good governance through greater accountability.
- Who are or should be the actors in policy evaluation? How can we empower them and enable capacity for joint action?
- How can countries develop better and more coordinated government-wide evaluation systems?
- How can we identify what works and what does not, in order to benefit from success as well as failure?
- (Source: Public Governance for Inclusive Growth, OECD 2015)

Technology should be less about replacing people than it is about connecting them to each other in totally new ways.

Case Tieto

Taneli Tikka

For the past 1.5 years I have been working for Tieto Plc, one of the largest IT service companies in the Nordic region, as their Vice President & Head of Industrial Internet. My mission has been threefold: primarily to create a new growth business for Tieto, organized as a startup, around the theme of the Industrial Internet. Secondly to change, affect and create a company-wide culture of moving towards the better; to take a positive, growth-based view of our values and to help transform the entire corporate culture in that direction; and to introduce new ways of working, leading and organizing. My tertiary goal has been to productize the way all of this is done; to package the related methods, processes, rulebooks and ways of working. All of this was to be done so as to be usable by others later, in replicating the same successes.

Before taking on this role and mission, we engaged in further planning alongside Tieto's CEO, head of strategy, and the country manager for Finland. Our team read through heaps of theory on innovation management, corporate innovations, startups and related topics. We digested more than 20 case studies and interviews with companies engaged in similar activities and shared their learning. We already had a pretty good grasp of how to tackle this challenge – most of the theory, empirical evidence and anecdotes we reviewed reinforced our initial ideas.

There are clearly a few must-have factors when setting up an operation like this – I'll return to these a little later. Before diving into the details, we considered the principles on how to achieve all of the challenging goals we had set. Many of us have heard that culture eats strategy for breakfast. I have always understood this proverbial declaration to mean that culture, habits, points of view, and systems of human interaction win over strategic intent and implementation – meaning that companies which try to implement strategies that are against their cultures have little chance of success. Our conclusions strongly supported this view. Additionally, we concluded that cultures are a part of the system any company has developed, meaning "system" as in systems thinking and systems theory. A system can be understood as encompassing issues such as culture, orientation, points of view, organizational idiosyncrasies and habits, even issues such as tools and favored ways of working. As such, a system shapes and directly results in a certain kind of culture, which in turn has strong implications for strategy.

As an example, let us take a sales organization accustomed to working within a system based on slow, inadequate and poor CRM tools. Perhaps it is a CRM system that has no mobile user interface, takes minutes to load and is full of frustrating features while lacking useful ones. Due to this system-level choice of tool, we can predict that the sales team will automatically develop a culture in which the CRM tool is not particularly valued. It is probably seldom used and "forgetting" to use it is probably intentionally overlooked as a kind of open secret. The culture inside the sales team is probably one in which the CRM tool is used at a minimal level out of necessity. The sales leadership probably subscribes to this view and frequently gives cultural signals that devalue the CRM tool and does not strictly require its full usage. With such a sales team culture, what would happen if the company decided to apply a strategy that is heavily reliant on opportunities to up-sell and cross-sell?

Such a strategy would have to rely on extensive information and knowledge of the customer, its current market situation, competitiveness, future plans, investment status, organization and leadership preferences. The CRM tool probably lacks all such information, because the sales team culture does not value adding it there. The poor tool on which the system is based is the root of all this. Whether or not this example sheds light on the topic, it can be argued that the systems companies build affect their culture, competitiveness, and prospects in the marketplace in myriad, complex interdependent, holistic, inductive, and relativistic ways.

We thereby come to the conclusion that when planning strategic success in creating a new growth business, we need to be mindful of changing the system. We need to introduce system-level changes that resonate and support our goals and help to create a culture and push it in the right strategic direction. The trick is not just attacking the root cause, but lies in investing incrementally in every level of the company: from the root system to the surface details – all pushing us towards success.

A disruptive innovation is an innovation that vastly improves or totally replaces an existing product or service with a new technology, making the old offering seem irrelevant and even bizarre. The iPod, Bitcoin, Netflix and Uber are all examples of innovative companies that have permanently changed our world by creating completely new markets and value networks. All of them have one thing in common – they were all startups once.

But is it possible for major corporations to create major innovations? Yes, it is. Does this type of innovation require changes to the current company structure and organization? Absolutely!

To successfully innovate, big companies need to adapt and embrace the startup mentality, in a way that takes account of their complex systems and every level of their structure and culture.

Our solution has been to disrupt our previous model of organizational structure through so-called internal startups within our organization. We currently have two startups focusing on our main growth areas: Industrial Internet solutions and Customer Experience Management. We have identified the three factors necessary for innovation, which are summarized at length below:

Factor 1: Support from management, including stable financing.

The key factor in ensuring innovation is systematic support from management. If management is not committed to supporting internal startups, it is best to forget about innovating altogether.

Innovation springs to life from great ideas. These ideas exist in companies already. To unlock them, businesses need a management led culture and system for gathering, supporting, developing and rewarding them. Without the systematic support of management, ideas will never develop into new products or services. If you lack strong support from management already, work on this until you get it. The role of management is to align innovation with the overall business strategy.

Harnessing great ideas is now easier than ever, thanks to digital collaborative tools and workspaces that support co-creating and sharing (both inside and outside the organization). Support from management includes financing, which can be really scarce but needs to be stable. Nothing is worse than financing that suddenly disappears, only to reappear somewhere else when somebody pleases the right executive. Financing needs to be nearly “untouchable” and preferably multi-year in terms of commitment, but again I am stressing the point that it can be scarce or even stingy. Startups get by on bread, water, and bootstrapping and so should a corporate startup.

Factor 2: Autonomy, including ways to communicate it.

Disruptive innovations are rarely brought into the world within typical organizational structures. Growth-oriented startups require a different kind of organization; it is unreasonable to place them in the same planning and reporting cycle as other business units.

The key is to make operations as easy as possible for startup units, giving them the appropriate level of autonomy and removing any obstacles to innovation. A good and flexible way of directing the activity of internal startups is through internal startup boards that exist to test ideas and solve key problems.

For example, our internal startups are led by an internal board of directors with CEO, Kimmo Alkio, as the chairman. Because the startups report directly to the CEO, there is a tremendous shortcut to the innovation stage, which avoids innovation becoming bogged down at the operative planning pace of normal business units.

Additionally, we have created a “charter of autonomy” that is basically a one-page image, drawn up as a simple chart. This one pager lists areas of autonomy such as “HR”, “R&D”, “Sales” and summarizes how autonomy in these areas manifests itself. The chart also lists the limitations of each of these. Nearly all of the limitations consist of clear common sense: issues such as adhering to corporate values and brands, the obligation to communicate well with others etc. In fact, the entire corporate executive leadership team has unofficially decided to keep this charter of autonomy in effect. We use this charter as an internal communication tool, presenting it whenever somebody asks us “What are you doing and why?” It is a rule book for us and a communication tool for informing others of what rules we play by.

It is also important that the autonomous startup does not find itself in conflict with the rest of the corporate organization on issues such as ways of accounting for revenue, reaching targets, and other metrics. In Tieto, we have solved this potential problem by coming up with our own method of internal accounting. This method affects no one else in the corporation and does not disrupt their incentives or goals, but is additional and complementary to the business activities of other units inside the corporation. This makes them seek the startup as an ally rather than viewing it as an internal competitor. Inexperienced leaders, who have perhaps not yet seen how complex internal corporate politics and competition can be, often overlook this issue.

Factor 3: Continuous learning, including the correct incentives.

The third key factor is continuous learning – internal startups must be able to react to changes and embrace new developments quickly. Accordingly, we use the Lean Innovation methodology. In practice, this means that new ideas are quickly turned into prototypes that are tested and iteratively developed in cooperation with end users. One example is CXHACK, a 24-hour hackathon event during which new ideas and solutions were validated alongside end users.

Although innovation is focused in startups, it is extremely important that progress is not trapped there. Internal startups can enable an entire company to learn and adapt. This has already happened in our organization; working models based on startups (for example, administrative routines) have been copied in other business units.

To get the most out of continuous learning, the startup team also needs the proper incentives and motivation. Our incentive system is separate from the normal corporation incentive system: in its place we have a system that rewards everyone in the startup in line with the profitable growth of the new growth business. Members of the startup are not compensated at all for overtime or travel time. Their salaries are notably lower than their competencies and responsibilities would entitle them to in other parts of the company. They are working as part of a team prone to risk akin to entrepreneurs. Each and every one of them feels ownership of the startup, and is concerned about growth, bootstrapping and using money in a responsible way. Everyone is in the same boat and their incentives are aligned. This has a lot to do with learning, since it enables the team to focus on collegial learning, quickly finding out what works and achieving a breakthrough.

The power of internal startups

Internal startups have a tremendous advantage over real startups. Large companies can reap the benefits of internal startups almost immediately, as they already have both the resources and customers required to do so – as well as legal, PR, Finance, Procurement, HR and marketing departments. By definition, startups must build all of this from scratch.

It is fairly likely that all companies will soon function like startups or at least adapt their organizational models from startups. Business must be done differently, with maximum use of digitalization. Internal startups are still new to big companies, but many will soon discover the necessity of internal startups in the modern marketplace. The need to operate in a faster-moving value network and ecosystem with increasingly agile and smaller partners is clear. This is something for which the old ways of organizing are not designed.

This topic is difficult to learn from mere observations or anecdotes – trying it yourself is by far the best way to find out about it. Every corporation that applies these ideas will come across differences, at least in the nuances. Start with a bold approach, in rapid cycles, interspersed with group learning sessions to discover what works. In general, I recommend holding a “Stop - Pivot - Or Persevere” meeting every 2–3 months, where the entire endeavor is re-evaluated by all stakeholders in each case, who make a conscious decision to either stop and close the shop, pivot in a major way (basically change strategy), or to persevere on the current course towards achieving results. Corporations sometimes over-extend themselves into issues such as these and end up wasting valuable resources on activities that, in objective terms and are not working or leading to success. A recurring SPP meeting is a simple governance mechanism for getting around such problems, which also provides an opportunity for a re-buy-in by senior management.

Rather than low-skilled people, the major problem lies in the low-skilled occupations we have created.

Networks and relations

In recent years, mobile technologies and the Internet have laid the foundation for a very small-size, low-investment enterprise with the potential for managing very large numbers of relationships.

The impact of these new actors has been hard to grasp because we are used to thinking about work from a different perspective. Our thinking arises from a make-and-sell economic model. Most managers still subscribe to this and think that the core of creating value is to plan and manage a supply chain. A supply chain is a system of assets and transactions that, in the end, form the components of the customer offering. At the beginning of the supply chain are the raw materials and the ideas beginning the sequence that leads, it is hoped, to a sale.

This is now being supplanted by a different paradigm; a relational, network approach enabled by new coordination technologies. The manufacturer may even be just one of the nodes in the network, while the customer is not a passive consumer but an active part of the plan.

The old model companies are ill equipped for this digital transformation. Mass-production and mass media organizations are still much more prepared to talk to customers than to hear from them, not realizing that one-way communication was just a fleeting accident of technological development. It is not that customers lacked needs and reflections they would have liked to communicate.

We are passing through a technological discontinuity of huge proportions. The rules of competition may even be rewritten for the interactive age. The new interactive economy demands new skills: managing the supply chain is less important than building networks and enabling trust in relations. You could perhaps call the new reversed sequence an on-demand chain. It is the opposite of the make-and-sell model; it is a chain of relationships and links that starts from interaction with the customer and leads to the creation of an on-demand offering and the enabling technology. As Steve Jobs put it in a different context: "You start with the customer experience and work backwards to the technology. You can't start with the technology and try to figure out where you're going to try to sell it."

Adapting the interactive model is not as easy as identifying customer segments or a niche market because communication can no longer be confined to sales and marketing, or to the ad agency, as in the make-and-sell

model. Also, to talk about a "segment of one" is misleading because, in this case, one-way communication changes into true two-way dialogue. The interactive enterprise must be able to integrate its entire network around the needs of each individual customer's context. The on-demand chain means continuous on-demand learning and thus continuous change. Your dialogue with an individual customer will change your behavior toward her and change that customer's behavior toward you. People develop together through interaction.

A learning relationship potentially makes the whole network smarter, with every individual interaction creating network effects. Accordingly, an enterprise increases customer retention by making loyalty more convenient than non-loyalty as a result of learning. The goal is to create more value for the customer and to lower her transaction costs. This kind of relationship ensures that it is always in the customer's self-interest to remain with the people who developed the relationship to begin with. The main benefit for network partners may not be financial. The most valuable issue is to have access to "community knowledge", a common movement of thought. This means being part of a network where learning occurs faster than somewhere else.

In the mass-market economy, the focus was on creating a quality product. With increased global competition and with so many quality products around this is no longer enough. To succeed, you need high-quality relationships. When customers are identified as individuals in different use contexts, the marketing process is really a joint process for solving problems, in which you and your customer necessarily become cooperators. Together, you are trying to solve the customer's problem in a way that both satisfies the customer and secures a profit for you.

The relational approach is the third way to work. This is not about having a fixed job role as an employee or having tasks given to you as a contractor. The most inspiring and energizing future of work may be in solving problems and spotting opportunities in creative interaction with your customers.

The industrial make-and-sell model required expert skills. The decisive thing was your individual knowledge. Today, you work more from your network than your skills.

The decisive issue is not knowledge but relations.

The digitalisation of Vahterus Oy

Mauri Kontu

A mechanical engineer has a mechanical engineer's mind. We believe that we can solve practically any of the world's problems by building machines. We are proud, or at least we were until now.

We have learned how to split the atom. We have succeeded in creating drinking water from seawater and drawing it from the bowels of the Earth. We build aircraft and rockets that enable rapid transfers from one place to another across the globe and space. Ships and cars move efficiently and relatively safely, as long as oil-based fuels drive them. This too is down to engineers. For housing purposes, we build the weirdest buildings, high-low, wide-long houses to live in, and in such a manner that, for one reason or another, they are all crammed into cities, close to a range of services.

In the forests we so dearly love, trees are seldom felled by hand, but are cut down by forest robots, or harvesters, with surprising precision, but also efficiently. Mechanical engineers, too, invented these.

As a result of practice over the last couple of centuries, everything described above has been based on B2B thinking.

And the results have been both positive and efficient. We have moved from primary production to the industrial era, and our standard of living and life expectancy have grown hugely. Thanks to the machines we have created, we have dealt poverty a major blow worldwide.

We now live in a totally new world, due to the IT revolution. Admittedly, computers too were developed by us engineers – and are connected up to other machines in multiple ways.

But this new, continuous data collection is transforming the world of machines and us, the mechanical engineers. Users are exchanging their experiences of machines, ignoring us, the inventors of those very machines. The use of this almost-free-of-charge electronic channel has already transformed mechanical engineering, and will do so again soon. Luckily for us, our customers are now much more firmly in the driving seat. For them, the future prospects of machine manufacturers, even in Finland, are based on high quality, implemented based on new ideas. We can be sure of one thing – copying from one another will no longer be enough.

I once read the wise notion that there has never been and never will be B2B, only H2H, human to human. I believe in this development and want to become involved in it alongside my clients. With enthusiasm for renewal and the will to succeed. We will have a great future.

Are there examples of the new work environments?

Many people are claiming that open source software developers have the most efficient ecosystems for learning that have ever existed. What is it, then, that is so special about the way developers do things? Is there something that could act as a model for the future of work, or the future of education?

What takes place in open source projects is typically not the result of choices made by a few (powerful) people that others blindly implement. Instead, it is the consequence of the active choices and participation of all involved. What emerges does not precisely follow a plan or a design. It is about the hard-to-understand process of self-organization.

We still do not quite understand what emergence and self-organization mean. This is because we think that the unit of activity is the independent individual. Self-organization is then thought of as individuals organizing themselves without the direction of others. People think that it is a form of empowerment, or a

do-whatever-you-like environment, in which anybody can choose freely what to do. But connected people can never simply do what they like.

Cooperating individuals are not, and cannot be, independent. People are interdependent. Interdependence means that individuals constrain and enable each other all the time. What happens always happens in interaction and as a result of such interaction.

From the perspective of open source development, organizational outcomes explicitly emerge in a way that is never just planned or determined by leaders, but arises in ongoing local interaction between all those taking part. GitHub "encourages individuals to fix things and own those fixes just as much as they own the projects they start". You can't know beforehand who is going to do what. You can't plan it.

What emerges is, paradoxically, both predictable and unpredictable, knowable and unknowable. This does not

mean dismissing planning or management as pointless, but it does mean that the future always contains surprises that we cannot control. The future cannot be understood by examining plans or goals.

Emergence is often understood as things which just happen, and about which there is nothing we can do. But it actually means the exact opposite. The patterns that emerge do so precisely because of what everybody is doing. It is the product of many, many local interactions. This is what self-organization really means. Each of us is forming plans and making decisions about our next steps all the time. "What each of us does affects others, and what they do affects each of us." No one can step outside this interaction to design interaction for others.

An organization is not a whole consisting of parts, but

an emergent pattern that is constantly formed through these local interactions. It is a movement in time that cannot be understood just by looking at the parts. The age of reductionism as a sense-making mechanism is over.

What we can learn from open source ecosystems is that organizational sustainability requires the same kind of learning that these software developers already practice: "All work and learning is open and public, leaving tracks that others can follow and respond to. Doing and learning mean the same thing."

The biggest change in thinking that is now needed consists of realizing that the unit of work and learning is not the independent individual, but interaction between interdependent people.

All work and learning is open and public, leaving tracks that others can follow and respond to. Doing and learning mean the same thing.

What drives and maintains high performance?

Marcial Losada

Esko and I share two things: an insatiable thirst for knowledge and an equally strong urge to make this knowledge useful. But if I had to portray Esko at a single stroke, I would say he is a "meta learner."

Let me explain. The model I created for diagnosing and developing high performance teams is known as the **Meta Learning Model** (ML, for short). To become a "meta learner" you have to practice this model until it becomes part of your being. It is not sufficient to "learn" it conceptually, you have to go beyond that and make it part of the way you live. If you are able to do that, you become a "meta learner" and your life will take a turn for the better, because you will find that you can be and achieve much more than you thought possible.

The ML model is now being successfully used in all five continents, in a variety of fields such as business management, psychology, health, education, and sports. As data has been collected over a period of 30 years, I now have the world's

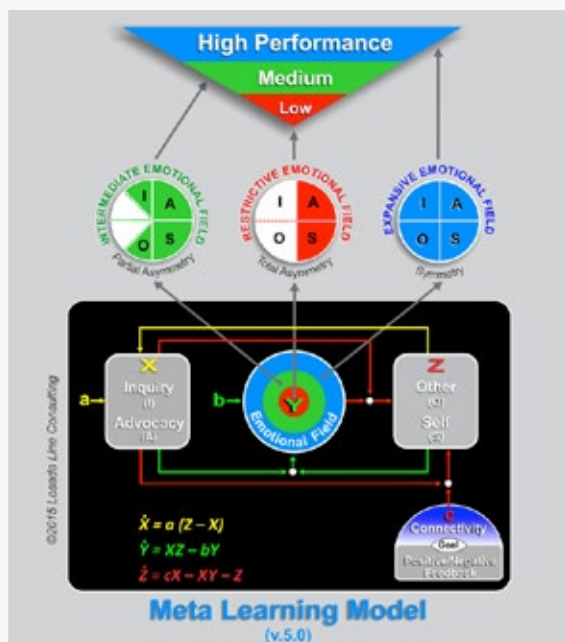
most extensive database on team interaction processes and performance. Based on such data, I have developed the latest version of the model, which I will introduce shortly.

First, I will show a graphic representation of the model. I am one of those people who believe that a good graph is worth at least a thousand words. Then I will try to make good use of those thousand words, or more, to describe the model. The model rests on the basic principles of science such as symmetry and the concept of field. When teams achieve symmetry between inquiry and advocacy, as well as self and other-focus, an expansive emotional field is generated that allows teams not only to achieve a high performance, but to sustain it over time. This is a critical issue for interventions in organizations. The majority of interventions fade away in a short time because the model used is not based on lasting scientific principles.

All the teams that have gone through my training, and keep practicing the model, are able to sustain a high performance and flourish in the process. In the business world, a high performance typically implies high profitability, high client satisfaction and high internal evaluations. I have added a fourth criterion because I believe that organizations could be more

than a “great place to work” – they should be challenged to become “a great place to flourish”. Human beings spent much of their adult life working in organizations. It would be a great advance for humankind to make this experience an opportunity to flourish.

Here is graphic representation of the model. Take a good look first, trying to make as much sense of it as you can. Then I will invite you to take a tour of the model with me.



Let’s now take a tour of the ML model. Starting at the bottom right of the black rectangle, you’ll see a dome-shaped figure that contains **Connectivity**, **Goal**, and **Positive/Negative Feedback**. Connectivity is the **control parameter** of the model. The more connected a team is, the better its performance will be. If we are able to increase the connectivity of a team there is a high likelihood that we will increase its performance. Think of a team sport like football, soccer, rugby, hockey, basketball or volleyball. A better connected team will, in the long run, achieve better results. You can have great individual talent, but if they are not well connected, another team with less talented players, but better connected, will have a good chance of beating them. Good leaders understand this and know that their main task is not just to recruit good talents, but to connect talented people. Good leaders know they have succeeded when talents achieve a multiplication effect; the mere sum of the parts is not enough for them, because anyone can do that. At the center of the connectivity dome we find the **Goal**. Unless a team has a goal it

is not a team, but just a group of people. Teams connect with a goal in mind and, hopefully, in their hearts. However, good leaders know that having a sound goal is a necessary but not sufficient condition for generating strong and lasting connections within a team.

Below connectivity, at its foundation, we find the **Positive/Negative Feedback** ratio (**P/N**). Many strong and lasting connections are formed by achieving the appropriate proportion of positive to negative feedback. Much of this feedback is given on how much, how well, and how fast we approach the goal. Some feedback is given on the interaction processes of the team, independently of the goal. By “appropriate feedback”, we mean a ratio that separates medium from high performance. This ratio has been identified empirically with respect to teams based on more than two thousand diagnoses of teams in different countries and in a variety of organizations over a period of thirty years. The ratio is 3:1 (3 positives for every negative) and is known as the **Losada ratio**. The best team we have observed using the new, more complete coding system that incorporates nonverbal expressions has a P/N ratio of 5.71 (after 6 months training in ML); the worst has a P/N ratio of 0.75 (no training in ML). John Gottman, the world’s top expert in marriages, has found similar results: lasting, harmonious, marriages have P/N ratios of more than 5 and marriages that usually end in divorce have P/N ratios of less than one, where negativity prevails.

We must always bear in mind that we give feedback not just with words, but also through nonverbal expression. Whether we are aware of it or not, we are giving feedback to people most of the time, even if we are not talking. The prestigious journal *Science* published an article in October 2010, in which the authors show that a key factor in high performance teams is the ability to read nonverbal cues. We incorporate nonverbal expressions to determine the P/N ratio; the P/N ratio is a very powerful measure of human interaction, telling us much more than we expect. Numerous studies in a range of fields have demonstrated the power of this ratio, but few have addressed the reason for this power. I have come to the conclusion that the P/N ratio is powerful because it does much more than provide **information** on how we are doing. It also generates **energy** and provides **control**. Information, energy, and control are the critical variables enabling any complex system to function efficiently. We give or take away energy based on the P/N ratio we end up providing. We control other people’s actions through positive and negative feedback and other people can control our actions by the feedback they give us. You can control simple devices, such

as a thermostat, with negative feedback alone, but complex living systems require positive and negative feedback in the right proportion. It is well documented that many of the biological systems that sustain life depend on an adequate proportion of positive to negative feedback. Positive feedback alone is too much of a “good” thing and an excess of negative feedback is too much of a “bad” thing. Neither is really good or bad per se; it is their proportion that counts.

We should start thinking explicitly about the role of symmetry in understanding complex human interactions

If we continue our journey up the model, on the right hand side we find the bivariate variable **Other–Self**. Good teams are able to maintain a dynamic balance between self-focus and other-focus. When the connectivity is high, this variable is balanced and tends to be symmetrical. On the other hand, bad teams are self-centered and pay little attention to others, so they show asymmetry in relation to this variable. Symmetry plays a fundamental role in the ML model. It shows up again in the variable on the left-hand side of the model. This bivariate variable is **Inquiry–Advocacy**. Good teams are able to generate an approximate symmetry between these variables. Bad teams advocate most of the time. They don’t ask questions and, if they do, these questions are not generative; they don’t provide an opportunity for people to show their knowledge in a way that contributes creatively to the task in hand. People have a need to show their best. Sound inquiry allows them to satisfy this need. The best teams are good at asking generative questions. By asking good questions, they are able to advocate more effectively. This is something every dedicated teacher, thorough scientist, good lawyer, or successful sales person knows and practices.

It is worth noting that **Inquiry–Advocacy**, **Other–Self**, and **Positive/Negative Feedback** are all colored grey and have a rectangular shape. This means they have something in common: they are the behaviors that we observe and code when watching a team. We give feedback to teams regarding these variables every time we hold a workshop with them. Since most teams go through three or four workshops, they

accumulate extensive feedback on their progress. By paying attention to these critical variables and learning how to monitor them, teams are able to stop repeating behaviors that drain their energy. Most importantly, they learn to generate expansive emotional fields that provide the energy necessary to achieve long-term, strategic goals. Once a team incorporates the ML training, it will remain a high performance team for as long as the team lasts and practices the model. I use the term “incorporate” in its Latin root sense: “to put into your body.” Putting things into your head is insufficient. Teams need to feel what they learn and be able to live their learning on a day-to-day basis. If they do not experience the good results of their training, they will not incorporate the ML model.

At the center of the model, we have the **emotional field**. This is represented by a circle with three concentric rings colored blue, green and red. The radii of the circles represent the magnitude of the emotional field. The blue circle has a larger radius and, consequently, greater magnitude, followed by the green circle, and finally the red circle which has the smallest magnitude. The colors were chosen to represent the different energy levels an emotional field can generate: blue is high, green is medium, and red is low. We chose this representation following the spectrum of these colors: the frequency of blue is higher than green, which in turn is higher than red. We know from physics that the higher the frequency, the greater the energy. Furthermore, an emotional field can be restrictive, expansive or intermediate; i.e. not too restrictive, but not expansive enough. An emotional field is expansive when we are able to generate symmetry in both other-focus and self-focus, as well as advocacy-inquiry. These variables are asymmetric in low-performance teams and partially asymmetric in medium performance teams; i.e. there is some transient inquiry and other-focus, but they do not last long enough to balance the variables. Symmetry generates sustainable energy, but asymmetry drains the energy of teams. Long-term, strategic goals that require sustainable energy cannot be achieved satisfactorily by low performance teams. We can already see that there is a causal chain that links symmetry, energy and performance.

Furthermore, expansive emotional fields are characterized by P/N ratios of at least 3:1; but no more than 6:1, because we can end up having excess positivity. Too much positivity can be damaging for learning. We need negative feedback to correct behaviors that are undesirable; but we must always bear in mind that excess negative feedback does not provide the energy needed to sustain desirable behaviors over time. That is why we need an appropriate ratio between the two.

This ratio must fall within the so-called *Losada zone*; that is, it cannot be less than 3:1 or more than 6:1. Expansive emotional fields open up many opportunities for action. Restrictive emotional fields open fewer opportunities for action and are characterized by excessive self-focus and advocacy that prevent us from acquiring new knowledge, closing the door to creativity and innovation that are so critical to our survival in complex and competitive environments.

Emotional fields are powerful because they affect the performance of a team or the wholeness of our relationships, as well as our own wellbeing. A low performance team usually generates restrictive, asymmetric emotional fields with little energy. A high performance team generates expansive, symmetric, emotional fields that provide sufficient energy for the team to achieve long-term goals. It is not enough for teams to set goals, they must learn to generate expansive emotional fields that provide the sustainable energy needed to achieve strategic goals. Imagine an archer pointing her arrow at a target. The target is the goal, but for the arrow to reach the target you need energy, and if the target is far away you need a lot of energy. Without energy, you cannot reach any worthy destination. Values are worthy destinations. All organizations have values, but what really matters is that these values bear enough energy for people to be able to live them. If not, they are no more than statements of good intentions.

There are two additional parameters in the ML model that we have labeled *a* and *b*. Parameter *a* represents organizational “viscosity” or resistance to change, i.e. how difficult it is to have things done within the organization to which the team belongs. Parameter *b* represents the *negativity bias*. This bias is well documented in the psychological literature and refers to the tendency all humans have to give more weight to negative than positive events. This is probably due to an evolutionary advantage: negative events can threaten our survival, so we need to pay more attention to them than to positive events which, even if helpful, do not threaten our survival. To overcome the negativity bias, but not suppress it, we need to generate P/N ratios of at least 3 to 1. Low performance teams have P/N ratios of about 1:1 on average and medium performance teams have ratios of 2:1 on average. These ratios are not enough to overcome the negativity bias. This explains why the *Losada ratio* was found to be 3:1. Note that this ratio leaves room for negativity. Without negative feedback, systems run amok and, in particular, complex, living systems, such as humans interacting with one another in teams or marriages need to know when they are doing something wrong so that they can improve their performance.

All these components of the model are linked by lines representing the nonlinear differential equations that drive it. We use matching colors for lines and equations in order to facilitate their understanding. The boundary conditions of the ML model are $18 \leq c \leq 33$, for $c = 18, 19, \dots, 33$, where *c* stands for connectivity. These equations are able to portray the different symmetry regimes that correspond to different levels of performance. Low performance teams operate within the range $18 \leq c < 20$, where asymmetry towards advocacy and self-focus is portrayed by the equations. Medium performance teams operate within the range of $21 \leq c \leq 24$, where partial asymmetry is shown by the equations (there is some inquiry and other-focus, but not on a sustainable level). High performance teams operate within the range $25 \leq c \leq 33$, where symmetry is well represented by the equations; i.e. these teams are able to maintain a dynamic balance or approximate symmetry between inquiry and advocacy, as well as a balanced focus on self and others. Connectivity is measured by the number of *nexi* (strong, lasting bonds) that team members produce through their interaction. When the cross-correlation function (inverse Fourier transform of the cross-spectrum) of the teams’ interactive behaviors is highly significant ($p \leq .001$), we have a *nexus*, a lasting bond. A high cross-correlation function is really a measure of symmetry: it shows the extent to which people are on the “same wavelength.” We can now see that the causal chain has four links: it begins with connectivity which, when it is high, induces symmetry which in turn generates sustainable energy promoting a lasting, high performance. I am convinced that the success of the ML model for developing high performance teams resides in this powerful, causal chain.

I would like to emphasize the importance of symmetry and demonstrate its implications for the future of the social sciences and their impact on society.

We have seen that as the variables *Inquiry–Advocacy* and *Other–Self* approach symmetry, expansive emotional fields are generated which can deliver sustainable energy for achieving long-term goals. High performance teams are full of such energy generated by symmetry. When we observe these teams, their energy is contagious; they are able to reach their targets almost effortlessly. They enjoy what they do and time doesn’t seem to pass for them. They’ve learned that time and energy go hand-in-hand (actually, they are mathematical conjugates or Fourier transforms of each other). Low performance teams rarely have enough time and energy to finish their tasks and, when they do, they are exhausted. They are trapped in self-focus and advocacy, thus

being unable to ask generative questions and take account of the interests of other people; hence, their emotional fields are restrictive, they are poorly connected, and their performance suffers. When we observe these teams, we also suffer, but we know that all teams can become high performance teams once they learn to put the ML model into practice. Not a single team went through our training that did not become a high performance team. Just watching these teams celebrate their passage from low or medium performance to high performance justifies our work. All this is possible when a model incorporates symmetry in its critical variables.

Symmetry plays a fundamental role in science, mathematics and the arts. It is an all-encompassing concept that unites many disciplines. It is actually one of the few concepts able to span so many diverse disciplines. In physics, it is so critical that Phil Anderson, a Nobel laureate, wrote in *Science*: “It is slightly overstating the case to say that physics is the study of symmetry.” Many other Nobel laureates in physics have echoed this notable remark. In 1915–1918, a woman mathematician, Emmy Noether, proved that symmetry is linked to conservation laws in physics, such as the conservation of energy, charge and momentum. Her theorems are now considered among the greatest achievements in science and mathematics. Einstein thought highly of Emmy Noether and wrote her obituary in *The New York Times*. There is a mathematical language that allows scientists to work deeply and generatively with symmetry. This language is known as *group theory* and was introduced by a young French mathematician, Évariste Galois, who died in a duel before reaching his 21st birthday. In his brief life, Galois was able to change mathematics forever! It took more than forty years after his death for mathematicians to begin acknowledging his genius; it is hard to imagine what humankind lost with his early and senseless departure. Fortunately, group theory was further developed by Camille Jordan, Sophus Lie, Felix Klein, Arthur Cayley and Hermann Weyl, among others, and more recently by John Horton Conway, a British mathematician who is now a professor emeritus at Princeton (he has an Erdős number 1, quite an honor, according to the American Mathematical Society). Group theory is one of the most useful languages scientists and mathematicians use to make progress in their fields. For example, group theory has allowed physicists to synthesize the Standard Model of particle physics by using just three symmetry groups: $U(1) \times SU(2) \times SU(3)$, one of the most remarkable achievements in the history of science. Galileo said that mathematics is the language in which Nature’s book is written. One could say that the grammar of this language is group theory.

I have often wondered why it is that symmetry did not make its way into the social sciences beyond the obvious applications. Economists had made equilibrium an important criterion, sociologists and political scientists worry about social equality and psychologists have worked extensively on cooperation (“tit for tat”), cognitive dissonance (asymmetry) and other topics in which symmetry plays an important role. But I do not yet see the unifying force of symmetry providing the impetus that we need to move closer to the more advanced sciences. To paraphrase Phil Anderson’s well-chosen words, we could remark that “it is slightly overstating the case to say that the social sciences will reach new frontiers if we learn to harness the power of symmetry.” We should start thinking explicitly about the role of symmetry in understanding complex human interactions, like those we find in work and sports teams, as well as in marriages. A deep understanding of symmetry will shed new light that will allow us to see how we can improve our relationships, as well as our quality of life in organizations by helping them to make the best use of their valuable, talented people and to connect them in ways that go beyond their mere sum in order to amplify their talents. This is not Utopian, I have seen it happen many times.

As I have stated in the introduction, it is not enough for organizations to be a “great place to work”, they should also become “a great place to flourish.” It would be quite an accomplishment for humankind if, by the mid-XXI century, we could say that most of our organizations had become a great place to flourish. People flourish when they learn to put themselves into the shoes of other people, when they connect with others by understanding and feeling their needs, worries, and dreams. To do this, we must learn to ask generative questions so that advocating a better world carries the weight of understanding and the moving power of compassion. By doing this, we will find the best in ourselves. We cannot find ourselves without reaching out beyond ourselves. Then, and only then, will we experience the power of the symmetry between Self and Other and learn to harness the lasting energy needed to accomplish great things.

In developing the ML model, I have tried to provide a solid scientific foundation for something that humankind has known for thousands of years, regardless of its particular spiritual traditions: “Love thy neighbor as you love yourself.” The fact that we have known this for so long and find it so difficult to practice shows that this is still among the roads less traveled. I hope that many of you dare to travel this road – the ML model can be a useful road map.

The changing social construct of work

Just as industrial society became a society of corporations, it developed into a society of employers and employees. These were two different ways of looking at the same phenomenon, jobs. Almost all economic theories have made, and still make, the same assumption: the employer–employee relationship is necessary to create jobs. We have taken that relationship as given.

Traditional management thinking sets employee goals and business goals against each other. The manager is free to choose the goals, but the employee is only free to follow or not to follow the given goals. This is why employee advocates mainly want responsible firms, nothing else, and the management of those firms wants skilled employees who do what they are told, nothing else.

The other assumption that is taken for granted is that it is the *independent* employer/manager who exercises freedom of choice in choosing the goals and designing the rules that the members of the organization must follow. The employees of the organization are not seen as being autonomous, with a choice of their own, but as rule-following, *dependent*, entities. People are not really people, but resources.

We are as used to an employer choosing our work objectives as we are to a teacher choosing our learning objectives. The manager directs the way in which the employee engages with work, and manages the timing and duration of work. This image of work is easy to grasp because it has been taught at school, where the model is the same.

We should ask whether the current social construct of jobs is inevitable, or whether it is a social artifact that is over 100 years old and should be redesigned.

Industrial workers used to do as they were told. This now creates a systemic inefficiency. Knowledge workers should negotiate solutions in active interaction with their peers. We also used to think that organizations outlived workers. The organization came first, and people served the organization. Today, workers' careers outlive organizations, in a way that profoundly challenges our thinking.

We need a new agenda connecting people and businesses. The aim should not be a set of shared goals, but

complementary goals and a co-created narrative for both.

We need to study the intersection between corporate strategy and personal narrative. Work needs whole human beings: people who are more fully present, people with responsibility and ownership.

This is where the biggest changes are taking place in the world of work. Instead of the industrial era's generalizations and abstractions about what skills everybody should have, or what steps everybody should take, it is now time to cultivate a deep understanding of the context, the unique, particular situation you are in. Who are you and where do you come from? What kind of relations are the building blocks of your life?

Reflecting on your reality should be the starting point

of any effort to find a job or to create work. Unfortunately, this is where we are often at our weakest. It did not matter in the past because most decisions were made for us. But now people can, and must, choose. Companies are not managing their employees' long-term careers any more. Workers must be their own HRD professionals.

With opportunity comes new responsibility. It is up to the worker to construct the narrative of (working) life, to know what to contribute, when to change course and how to keep engaged for much longer than we have been used to. It may be a life that is not quite like being an employee, but not quite like being a contractor either. To make the right decisions, you have to develop a new understanding of yourself and what you are actually up to in life.

The new task is to choose work commitments on the basis of our own particular strengths and sense of purpose and belonging, not just having some free time and wanting to earn some extra money driving for Uber. That is not what being independent, being your own boss, really means.

We are accustomed to taking work home, but what would the opposite be? Perhaps following your unique intentions, hopes and wishes for the future, in everything you do? Instead of thinking about what employers want, you're better off conceiving a match between what you want and what customers want.

**We need a new
agenda connecting
people and business**

Towards complementarity

The terms “knowledge worker” and “knowledge society” are around fifty-five years old. Peter Drucker and Fritz Machlup, a less-known Princeton economist, coined them at roughly the same time, around 1960.

Although the concepts have now been around for a long time, it seems that the implications for individuals and societies are not yet clear. What is quite evident is that the emerging society is different in many ways from industrial society. We know very little about the knowledge worker and knowledge society, but there are some things we do know about knowledge work.

Knowledge work is creative work we perform in interaction.

Effective skills are always specialized in terms of both successful companies and effective people. This means that highly knowledge-based companies and people are always, by definition, only a partial answer to the available opportunities. Michael Porter made us think that the players in the game of business were (1) companies, (2) customers and (3) suppliers, together with old and new (4) competitors approaching us with alternative (5) offerings. This was called the five competitive forces model. The company was seen as an independent, self-contained unit of competition.

Today, a sixth competitive force is emerging. Bill Gates had a pet project about 15 years ago that was going to change computing for millions of people. It was the touch-screen tablet PC. The device never raised a fraction of the interest that the iPad has generated. Was it because, at the time, Microsoft engaged in the project alone?

Because of specialized, narrow skill sets, a new role with a new role definition is needed in knowledge work.

Nobody can be successful without supporting contributions from network partners. The new role is a “complementor”. A complement to an offering is another offering that makes it more attractive.

A complementor is not the same as a supplier. The complementor connection is based on a non-hierarchic network relation, not the value chain. The most classic example of complements is computer hardware and computer software. The greatest hardware engineers are in dire straits without the greatest software programmers, as Nokia found out. Although the idea of complements is most apparent in ICT, the principle is universal: you can never have (in-house) all the specialized skills you need. What would smart devices be without the applications made by “third parties”? The same applies to people. What would Steve have been without Woz? The strategic question for every knowledge worker is who is the person complementing you?

Barry Nalebuff explains the sixth competitive force he coined in a very academic way: “People value hot dogs more when they have mustard. Because knowledge work is specialized, it never pays to try to make both.” Complementary contributions may be the most important explanation of business and personal success today. The new strategic imperative and one of the very first entrepreneurial tasks is to identify complementors and be inviting to them.

The Internet first enabled more efficient communication and commerce. It now makes coordination possible in ways that we have never seen before. Complementarity is not about recombining skills but redefining work. To be competitive in the new landscape is to be cooperative.

Nobody can be successful without supporting contributions from network partners. The new role is a “complementor”. A complement to an offering is another offering that makes it more attractive.

Personalization and augmentation

Jarno Koponen

Personalization technologies will transform the way we work. They can be used to create new interfaces, experiences and processes that augment our capacity to coordinate, collaborate and make decisions as individuals and organizations.

The purpose of this short essay is to highlight some central questions related to personalization technologies and offer concrete ideas on how to make them more accessible and human-centric.

Algorithmic personalization

Algorithmic personalization is becoming an integral part of our everyday lives. Just think how algorithms are choosing the updates you see in your social media feed or letting you open your mobile device using only your fingerprint. Or how your favorite apps recommend restaurants, music, movies or potential partners based on your interests, simultaneously spotting your precise location. In the likely near future, your vehicle will take the most convenient route without your direct input and your work environment will adapt to your ongoing project automatically.

Personalization is evolving into a more adaptive form by utilizing sophisticated machine learning technologies. Simultaneously, its data gathering methods are becoming more ubiquitous and pervasive. However, algorithmic personalization isn't perfect – far from it. We bump into obtrusive ads, inadequate results and ridiculous recommendations on a daily basis. By misunderstanding, exaggerating or ignoring your real interests and intentions, today's personalization solutions present a caricaturized version of you. There are five main reasons for this:

the data gap means that any personalization system has only a restricted amount of your personal data in use. The computing gap denotes that current systems are still too slow and incapable of understanding you as a complex individual. Thus, they use simplified models in order to become faster and more efficient. The interest gap emerges from the conflicting interests between you, the personalization platform and its customers. For example, you may not be able to see the most relevant information instantly because it is not appropriately sponsored. The action gap emerges from a restricted set of interactions that do not allow you to express your precise reactions. Similarly, your interactions can be interpreted in various ways. The content gap implies that

content precisely matching your particular interests and needs is not always available.

Personalization technologies have a growing impact on our mundane choices and continuously collect a diverse range of data on our lives. But they are far from being able to understand and serve us as complex human beings. How does this affect our agency online and beyond?

Personalized choices

Personalization is blurring the line between what you choose and what's chosen on your behalf. Simultaneously, you cannot see what affects what, understand how algorithms work, or know how your data is being used.

There lies a paradox in the very heart of personalization. Personalization promises to customize your experience according to your interests, intentions and values. Simultaneously, personalization is proactively used to guide you and influence what you see and do next. In concrete terms, consider the potentially controversial news articles that are omitted from your feed or if sponsored content gets the top spot on your recommendations. By prioritizing certain choices, personalization directs the way in which you are exposed to new options as well as how you make decisions based on those options. Does personalization actually serve someone else's interests better than yours?

When inaccessible personalization systems affect the number of available choices, they also significantly affect our agency. When technologies predict as well as modify our behavior, they can be used to make us even more predictable and modifiable. Responsive feedback loops offer a way of tuning your experience on the fly based on your recent behavior and historical data. Personalization can be used to understand and then utilize your explicit and implicit biases to optimize what you can see and do. A complex unique individual becomes just one variable in a larger algorithmic system.

At first, our data is used to shape and model algorithms. Thereafter, algorithms are shaping and modeling us. Is there room for meaningful human agency in the algorithmically orchestrated, optimization-driven world? Is it possible to create personalization solutions that treat us like unique individuals?

Human-centric personalization

There are four key points to take into account when we consider the future of personalization and human agency:

Awareness. We need open dialogue, critical thinking and new methods of understanding algorithmic systems and

their effects on our daily lives. Academic research is already providing insights and opening up new forums for understanding existing and emerging issues. As of now, the role of coding and digital literacy is being emphasized as a part of an adequate education. Additionally, the influence of algorithms and the usage of personal data could be popularized using e.g. interactive data visualizations and user experience designs that allow people to explore their settings and data flows intuitively.

Opening up the design and development process and making code available to external parties enables participation and emphasizes the accountability of companies, designers, developers, and users. Our human vulnerabilities need to be taken into account in a responsible way. Through increased transparency, it is becoming possible to concretize the discussion on privacy. A dialogue based on concrete facts, continuous iteration and real-life solutions is crucial to creating thoughtful guidelines for sustainable algorithms and ethical data policies.

Augmented Agency. As the amount of discoverable information increases, self-improving personalization and adaptive interfaces make sense. To create more human-centric solutions, you need to be able to control the effects of algorithms and the usage of your data. Maybe it is time to start building completely personal algorithms and machine learning frameworks that work for your own benefit. These “**algorithmic angels**” will allow you to be part of the design and creation process, thus making personalization more accessible and modifiable. Simultaneously, algorithmic angels could be used to control and analyze the effects of external systems and their data usage.

To emphasize human agency, the machine-powered algorithmic approach is complemented by human curation. A machine-learning system can learn from you and vice versa. Artificial intelligence meets collective intelligence when your interactions can be used to improve the system beyond your personal experience, thus benefiting other people. Such curation processes can be designed to be part of the basic use flows in our daily applications and services. Emerging forms of artificial intelligence can co-exist and co-evolve with us.

Choice. Personalization is used to reduce the number of choices you need to process yourself. However, personalization is currently distorted by the various gaps described above. There is no such thing as algorithmic objectivity. We

need solutions that augment our capacity to discover meaningful choices, by providing a variety of alternative options rather than objective answers. To emphasize your agency, personalization needs to increase your capacity to make sense of diverse options and formulate questions that are substantial to you. We need choice algorithms rather than personalization algorithms.

Choice grows from diversity. Personalization can encourage self-reflection by emphasizing the effects of your choices. For example, by bringing less-known information sources and topics to the surface, you become more aware of your own media consumption habits and preconceptions. Personalization can provide access to diverse content by automatically bridging the gaps between different platforms and content producers. Also, choice means that you can choose environments and systems that work for you. It is important to create opportunities for companies and individuals, in order to create new alternative approaches to personalization.

Experience. Personalization systems should be able to feed your curiosity and empower your creativity. By understanding your unique self, personalized discovery can proactively provide surprises that expand your worldview and capacity to challenge your social and personal biases. But exploration and diverse options are potential sources of friction. We therefore need new interfaces and experiences that make exploration rewarding and encounters with new alternatives appealing.

Relevant information can be remixed with surprising alternative sources and diverse points of view. In personalized discovery, trending topics meet the information troves of the deep web. Discovery should be about my-time instead of real-time. Your algorithmic angel can power an ambient discovery system that works in the background until you need it or it has something really valuable ready for you. As a “calming technology”, such a discovery system can keep you aware of the options by giving subtle signals rather than being a continuous distraction. A crucial issue is that you can turn your personal discovery system off to see and reflect on how things are changing around you.

You are not completely computable, yet. If we create sustainable personalization solutions now, algorithmic systems can become extensions of us rather than the other way around.

What are loose couplings?

In repetitive work, it was relatively easy to define what needed to be done and by whom as a definition of the quantity of labor and quality of capabilities. As a result, management theory and practice created two (communication) designs: the hierarchy and the process chart.

In a hierarchy, the most important communication and dependence lie between the employer and the employee, the manager and the worker.

Manufacturing work is, perhaps amazingly, not about hierarchical, but horizontal, sequential dependence. Those performing the following task must comply with the constraints imposed by the execution of the preceding task. The reverse cannot normally take place. The architecture consists of tightly coupled tasks and predetermined, repeated activities. Communication resembles one-way signals. Creative, highly contextual work creates a third design.

This is about loose couplings and modularity, about networked tasks. In creative work, any node in the network should be able to communicate with any other node on the basis of contextual interdependence and creative, participatory engagement. *Work is interaction between interdependent people.*

For the first time, the logic of modularity and ubiquitous communication are enabling the creation of truly network-based organizations. And we have the technology to achieve this!

The effects of Moore's law on the growth of the ICT industry and computing are well known. A lesser-known, but potentially weightier, law is beginning to replace Moore's law in terms of strategic influence. Metcalfe's law is named after Bob Metcalfe, the inventor of the Ethernet. This law states that the cost of a network expands linearly with increases in its size, but the value of the network increases exponentially. When this is combined with Moore's law, we are in a world where, while the value of the network is rising alongside its size, the average costs of technology are falling. This is one of the key business drivers of today. The implication is that there is an ever-widening gap between network-economy companies and those driven by traditional asset leverage models. The industrial economy was based on economies of scale within the corporation.

The new focus is outside, within network economies. Here, the most important goal is to create a network structure where the value of all interactions is raised by all interactions; where every interaction benefits from the total number of interactions.

The gray are between independent contractors or employees

Amazon has joined Uber, Lyft and many others in redrawing the lines between independent contractors and employees. On 30 March 2015, Amazon announced its expansion into the "on-demand" economy. Amazon Home Services is a service marketplace that connects customers to builders, plumbers, cleaners and even teachers. Amazon has successfully made it very easy to buy books and goods: it now plans to do the same for professional services. It is doing so through (1) standardizing offerings so that prices can be agreed in advance and by (2) promising that the workers are trustworthy – Amazon scrutinizes workers through searches, interviews and reference checks, and by (3) providing a great interface experience for employers (customers) of a world that is otherwise very cumbersome: one-click hiring of workers and easy payments through Amazon.

Businesses are concluding more and more often that there are no reasons why certain activities should be performed by employees rather than contractors. The skills of these workers are seen as generic, making it easy for non-permanent workers to fit in quickly. This has created Internet-based service platforms, new job markets and a huge trend for on-demand work.

But hold on. A firm is essentially about creating long-term contracts when short-term contracts are too costly, or don't make sense for other reasons. So is there a place for long-term contracts in the world of the Internet and these new markets? Is there a role for the firm, as we have known it?

One way to understand a firm is as a contracting mechanism between providers of financial capital (the principals) and managers (the agents). Principal-agent models are still extremely influential in corporate governance and, in reality, continue to form the basis of mainstream compensation structures up to the present day. In principal-agent thinking, employees are viewed as generic labor and agents for managers. Managers are understood as having firm-specific skills and are viewed as the agents of shareholders.

The economist Brian Arthur of the Santa Fe Institute argues that the ever-increasing role played by knowledge in value creation is rendering the foundations of economics and our thinking around firms badly outdated. Likewise, Peter Drucker has predicted that "knowledge may come to occupy the place in society which property has occupied over the last three centuries." As early as 1964, Gary Becker

coined the term “human capital” to refer to the fact that many of the skills and much of the knowledge required to do knowledge work could only be acquired if “some investment was made in time and resources”.

In his seminal work, Becker also considered the implications of the fact that some knowledge and skills acquired by employees have a much higher value in some relationships, in some contexts, than they do in others. Thus, the labor services of employees with specialized skills cannot be modeled as undifferentiated generic market inputs, for which wages and quantity, the number of people, and the number of hours of work are determined. In the case of context-specific human capital, the creativity and productivity of a particular individual depends on being part of a particular group of people engaged in particular assignments. Knowledge work is relation-specific and contextual.

More importantly, once acquired, knowledge and skills that are specialized are assets at risk of following the very same logic as that by which financial assets are at risk. In practice, this would mean that knowledge workers should explicitly bear long-term entrepreneurial accountability for the success or failure of the company, and additionally benefit from any possible upside, just as shareholders do today. From the point of view of corporate governance, this would mean that companies should be run in the interests of all of their investors.

In firms where employees embody critical capabilities, they must be encouraged to make creative decisions

about how to act, interact, learn and innovate. One way of accomplishing this would be to provide them with sufficient claims on long-term returns, in other words to give them ownership rights and responsibilities.

The puzzling thing about the on-demand trend is that, when it comes to actual work practices, there is really nothing new despite powerful technologies and wonderful new interfaces. It is a replication of the industrial model that separated labor, management and shareholders. If we believe Gary Becker, the big societal problem we are about to face is that on-demand work limits the value potential of human effort.

But there is an alternative conceptualization. Knowledge work is defined as creative work we perform in interaction. The price of technology is falling rapidly and the cost of starting a company has decreased dramatically. Working through market networks will also soon be a real alternative, when work is longer term than on-demand tasks. These trends will give knowledge workers more power relative to employers. If knowledge is more important than money, it gives human capital more power relative to financial capital, potentially changing the concept of the corporation.

The future of capitalism depends on whether firms create a much larger number of capitalists than they do today. Everybody will benefit if, in the future, a larger number of workers think like owners and act like long-term investors. A sense of ownership could be and should be the difference between firms and markets.

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The Hollywood model of work

JP Siili

The film industry offers the closest example in existence right now of what the future of work may be like for the rest of us. It used to be that studios created the majority of Hollywood movies. They were huge corporations with large payrolls and steep hierarchies. At the peak of the studio system, a single studio could make up to 300 films every year, thanks to efficient production. Like a factory, the studio had centralized management, efficient allocation of resources such as camera and lighting equipment, and a tightly managed division of labor among actors, directors, set decorators, camera operators, and the rest of the film crew. The studios in United States started to decline in the late 1950s. What came instead was a variety of independent and “pop-up” companies created on-demand for each new project, for each new production. A group of producers raise funds to make a film and incorporate a new company for the sole purpose of making that film. In other words, there’s a new economy of projects and professionals who work in the movie business but rarely have the same source of income for a year or even for a month. What makes that possible is the ecosystem, the networking that Hollywood is known for.

I am a storyteller. I use moving images and, of course, sound as my media. As a writer, I make up a fictitious story, hone it into a written draft, and as a director I steer the implementation of a screenplay into a film.

In every case, film work is a project tied to time. A screenwriter’s work ends when he or she hands over a completed screenplay for filming, and the director finally detaches himself or herself from the project at the première. When making commercials, the duration of the project is known and counted in weeks, while in television and films, the duration is unknown, but counted in dozens of months – my personal record was a television series that took 12 years from idea to first night.

So, what does a director direct?

The director directs a process and people, steering these towards a goal specified in advance under strictly defined limitations regarding content, finances and time.

Film work is teamwork. The team is smallest during script-writing, when the producer and director usually help out the writer. As the project proceeds towards production, the number of participants gradually increases, first with those

responsible for artistic planning (such as the cameraman, art director and costume designer), and then with other professionals needed for the actual filming. The actual shooting requires the highest number of people, to build the on-screen world and its people which are recorded by the crew behind the camera. Once the filming is over, the team shrinks again, now involving those responsible for implementing the image and sound processing. The marketing and sales team temporarily grows in the run up to the first screening.

The key prerequisites of success include recruiting the best people – this applies to both the film crew and actors – drawing up a suitable artistic plan, and skilful time management. And, of course, you need to remember the most important issue of all.

The same applies to filmmaking as to any other trade: work with the best to get the best out of yourself. On the other hand, don’t change a winning team. When possible, I always pick the best of the people I have already worked with. Familiarity and talent proven under pressure improve the chances of success. On the other hand, timetable clashes enable the introduction of new blood and new approaches.

What then constitutes “the best”? Vision, keen observation, and the ability to see things from quirky angles, explain your way of thinking and produce concrete and workable ideas. This includes constructive ways of challenging ideas and recognizing hide-bound thinking. It involves the ability to communicate. For me, we have a terrible situation if a team consists of nothing but lackies – willing executioners without the capacity to create something new that contributes to the overall goal. In such a case, the final outcome is bounded by my limitations, instead of becoming all it could have been.

A film crew can grow to include dozens of people at its largest – in Finland, this can easily mean around fifty people when the actors are included. Of course, you cannot direct all of these people separately in every situation. You need a different approach. For me, this is provided by an artistic plan. We go through the plan with each member of the film crew.

The plan consists of a few key elements. First, I write down a very short summary of the storyline we are working on, and often formulate a specific goal or set of values: I explain the lenses through which I see the story or the world.

After that, I analyse what the story is all about under the surface – for example, on the social, psychological, moral, societal or mythical level.

From these levels, I develop two to four key elements, main ideas or themes that can be realised through film-making. I then present a few concrete examples of each of them showing how they are realised on the set, in the ideas presented, in the selection of locations, props, colour palette, costumes, lighting, visual storytelling, acting, editing, sound editing, music and in image processing.

I also list the requirements of success. These can vary greatly and often take the form of pitfalls, clichés or comfort zones I and the crew want to avoid. In many cases, I also write down indicators of success, in other words issues I have considered in advance that I can assess regardless of how the film is received. The film's reception shapes your view, often groundlessly, of how you and the crew have succeeded in one direction or another.

In an ideal world, such an artistic plan should be very short and unambiguous. In principle, it should enable anyone to work out the choices made about how the film will be realised. This should be apparent to everyone. And it should be something that people are unafraid of applying in practice.

I do not draw up such a plan on my own. The creation of a plan functions as a tool for building a consensus. I work out the artistic plan in collaboration with the team leaders with artistic responsibility, while steering the process based on my own vision. The completed document works as a playbook or nautical chart which you seldom need to revisit after firming it up. I would never dare to begin filming without one. I consider such a plan – or its equivalent – as an absolute requirement for any quality outcome.

You should only make plans that have excellent chances of succeeding. You should turn your limitations into strengths and be able to create a stylish outcome from improvisations and cost cutting. All of this crystallises in time management during filming. For me, the filming schedule is one of the key phases of the process.

Each filming session is planned in advance with amazing precision. Dozens, or even hundreds of things, objects and people need to be in the right place at the right time with the right props, so that these elements can be cooked up into a small snippet of a fictitious whole, as scripted and recorded in accordance with the principles laid down in the artistic plan.

For example, filming requiring 30 days of shooting is scheduled with a 15 minute margin of error. One day of shooting can include 4 to 12 scenes involving zero to hoards of people, scenes are typically from different parts of the story, the filming technologies used can range from mobile phone cameras to helicopters, and there can be several filming locations.

From the director's perspective, the key issue is that you can never regain lost or wasted time; an extra half hour of inspiration in one place will have to be reclaimed from somewhere else. This could mean unmanaged quality fluctuations. A director's skills include realistic, advance consideration of how much time the plan will take to realise. After this, you have to be pragmatic and stay on schedule. Or at least try to do so – naturally, surprises occur and you can lose track of time when enthused by situations and new ideas. Forward planning includes reserving time for this as well.

Not forgetting the process and people. However, the key aspect remains invisible and hidden until the process has run its course and the project has resulted in a movie ready for viewing. Of course, as a director I get to "direct" the viewers.

In anything else, I can afford to fail, or just scrape through. But not in this: in trying to steer the viewer through an addictive, relentless, intensive, surprising and moving experience, which, at its best, can be unforgettable.

The Internet should not be understood as linked objects but as connected purposes.

Why are good ideas not copied?

Mikael Jungner

People have always been quick to copy good ideas from others. However, there are also many good ideas that are not copied. Everyone who has ever travelled to the UK or the US knows how impossible it is to get the water temperature right in the shower and has surely wondered why the simple design patented by the Finnish shower manufacturer, Oras, has not penetrated those markets.

There is also the story of a young couple who were spending Thanksgiving together for the first time. As the turkey was about to go into the oven, the girl wanted to cut a large piece off the bird. The boy wanted to know why. "For health reasons", was the answer. The boy was not satisfied with the explanation. So they called the girl's mother. The mother confirmed the girl's claim, although she could not give a better explanation for it. The couple then called the girl's grandmother. The grandmother explained that her oven had been too small for a whole turkey, which is why a large piece had always been cut off their Thanksgiving turkey.

People are slaves to tradition. When a habit has become routine, it is no longer questioned or even given a second thought. The same applies to work and the way we organise ourselves.

The reason for this lies in the structure of the human brain. Turning as many tasks as possible into routines frees our brain to work on conscious choices. The mind also has a habit of holding onto familiar routines. Dozens of mechanisms have been found in the human mind that are designed to hold onto an approach once learned, even if the world around us has shown that the approach is wrong.

In simple terms: "The good guys can never be wrong, and the bad guys can never be right".

Technology has all but obliterated the costs formerly associated with interaction between humans. What that means and the opportunities it presents has been explained well in this book. What is hindering progress at the moment is not

technology or understanding, but people's reluctance to let go of old routines.

It is no coincidence that it is the newest industries that fare best in this new world of ours. Industries that did not even exist before. Those industries that are not weighed down by regulations that were designed with the business models and culture of the industrial age in mind. Ventures launched by young people who have not yet been tied to the old.

If we want to make practical use of what we have now learned in theory, we need to recognise the power of routines and focus on getting around them. So how do we do that?

The first thing we need is a concise theory that sets the framework for a new kind of thinking among all those who are interested and who feel, intuitively, that the world has changed. This book does just that: puts into words the changes that many have already grasped intuitively.

The second thing we need is stories that explain the changes to those who lack the time, interest or understanding to study the subject. New approaches are quicker to introduce by setting an example than by challenging established institutions. Although Einstein's theory of relativity is hugely complex, its key concepts – $E=mc^2$ and "time is relative" – have spread far and wide.

The third step is to knock down the normative barriers that prevent us from grasping new opportunities. Public procurement is a massively important mechanism in Finland. If an agile, partnership-based model for public procurement can be adopted by changing laws or interpreting them differently, the evolution of competition will take care of the rest.

The fourth step is to ensure that ideologies dating back to the industrial age are no longer passed onto future generations. This should be easy, as people naturally learn by interaction. It is just that we have forced ourselves into a mould that was designed for increasing productivity in an industrial society. Productivity can no longer be increased using the methods of the industrial age. The time has finally come to break the mould.

Academia and exponential organizations

Denise Young

I recently attended the KIKK festival of digital arts in Namur, Belgium. In all respects, this was an outstanding event, both in terms of excellent, inspiring speakers covering a vast spectrum of domains, and the open, inclusive vibe of the community gathered there. What I found most fascinating of all was learning about how people in this space are working. This community represents the future of work in many ways. Its people are very loosely networked, and come from many different fields – art, design, architecture, and UX – really only being united by a loose affiliation with technology. They are curiosity-driven, they challenge anything that smells like business as usual, they are proudly interdisciplinary, or to be exact “anti-disciplinary” which was a label I heard more than once. They are cultural leaders, and they are driving change across many fields.

One theme in particular caught my attention: the fact that many of these leaders are either working out of academia, or rely on engagement with the research community to legitimize some of their activities and projects. What is the relationship between research and creative digital innovation?

One of the speakers articulated it like this: “If you sit in academia, it’s easy to be interdisciplinary and branch out into many different fields.”

This made me stop and think. What are these hybrid creations? Are they unique to the research community, or are they in fact a variant on “intrapreneurship”, what *Salim Ismail of Singularity University refers to as “Enterprise Exponential Organizations”, or innovation labs inside existing organizations.

Do they do research? Or are they just “hack” spaces that bring together different communities? Are they more like the Stanford D-School, which applies design thinking – or the convening of different communities – around the exercise of solving hard problems? Are they the mirror image of Google’s 20% rule in the non-profit sector – a space where people can come to experiment freely with people from other disciplines and fields?

And what can we learn from them about the future of work?

This is not an attempt to theorize about what is happening; rather, I would like to present some anecdotal observations that I hope others will pick up on and use to develop their own theories.

First, anywhere where academics embrace the potential of a digital culture, you will find these kinds of informal innovation spaces emerging. Indeed, researchers who are working at the interface of research and other communities – such as technology and innovation-focused communities – seem particularly sensitive to the idea that the “lab” of the future

won’t be a physical space, and that work as such will be conducted in free-flowing, dynamic networks that are open to non-academic communities.

In “Exponential Organizations”, Salim writes that the key to success for these ‘edge’ organizations is a very lean budget. “If the mother body senses that too many resources are being funneled into the new initiative, it

will evoke a reaction (the notorious “corporate antibodies”) and the body will attack and try to kill the startup.”

Second, these communities are highly skilled at generating new ideas and concepts – especially in partnership with other groups – but it’s hard to translate those ideas into action without the agency of persistent and determined people from the non-academic world.

Why is this? Much research is structured in a very hierarchical way, and committing to action tends to require levels of energy and focus that seem almost antithetical to the operating mode of the academic enterprise. The “mother ship” response kicks in, and action stalls at the level of debate.

This is a very interesting problem. If we agree that the research sector can generate incredible idea labs of the type that the for-profit sector cannot, (there could be multiple reasons for this – the quality of time in academia is different as they have a long-term perspective; academics excel at certain types of speculative enquiry) the challenge then becomes about how that interface can connect with similar labs from the outside world based on the tech/start-up space where the idea to execution process is much more

**In management we
acknowledge uncertainty
but then proceed
to think and talk in
terms of certainty and
predictability.**

developed and professionalized. The idea is that these two 'edges' can connect and become, in and of themselves, communities of practice for like-minded people with complementary skills across the idea to execution spectrum.

In my own work as a communicator at a scientific organization, I have often felt and observed that I work in two different organizations. On the one hand, there is the highly procedural and hierarchical world of scientific committees, governance structures and formal meetings. On the other, there is the free-form exploration of engaging creative technologists in the challenge of communicating complex scientific ideas to the general public.

If I look at the edge where the research innovation labs meet the tech/start up labs which are interested in engaging with the research space, I encounter a source of friction that blocks the idea-to-action process. This is the empathy deficit. I know that it is a cliché to observe that people working in scientific and technical fields suffer from low empathy, and that this is a barrier to engagement in the social, networked world of project working today. But I do believe that it's a big challenge. In theory, I think most people would like to be authentic, purpose-driven, working from the heart, giving honest feedback to each other all the time and remaining in a curiosity-driven learning cycle.

But in practice this is very difficult. For myself, when I am in the process of creating a new project team or a new network, there is the energy ascending phase when people are jumping on board and one feels that anything is possible. But when things go wrong, commitment across the team starts to flag and misunderstandings proliferate, I find that people tend to revert back to the old culture, which is one of rules and planning, and that the culture fails to deliver the solutions needed to get human processes back on track. The levels of emotional intelligence and empathy required to follow some of these projects to the execution phase are very high, and require a great deal of courage and fearlessness. Joining a group of quite technical, quantitative people and trying to develop an emotional connection based on showing weakness, vulnerability, and fear of failure is, frankly, a tough thing to do when the hierarchical world (that pays your salary) is calling on you to do your duty.

What we need in the research sector is a robust debate about the kind of culture needed to nurture the potential of these self-initiated innovation labs and hack spaces. The spaces alone are not sufficient to solve the problems we are confronting. We need to integrate learning from non-academic places where human-centric processes are part of the culture, and use that to shift the frequencies that underpin the cultures of our finest and most culturally recalcitrant ivory towers.

**Industrial approach is 1. Plan 2. Action.
Post-industrial approach is 1. Experience. 2. Reflection.**

Why do we have to cooperate?

Somebody working in a large industrial firm recently asked me: “Why do we have to cooperate? I know my job. If I do my job and everybody else does his, we will be fine. The people I work with every day should know what to do. I don’t get why I need to be communicating with those other guys.”

I answered that work itself and the way we understand work have both changed in a fundamental way. What we do does not consist of separate actions, but connected tasks.

Today’s organizations are complex systems that require continuous, responsive coordination to be effective, as we know from the growing number of meetings and internal email. Industrial work is now much less repetitive than before. As a result, job roles cannot be seen as independent and separated, and neither can job instructions be complete descriptions of what needs to be done. The question of who needs to connect with whom cannot be fully planned in advance, or described on a process chart. The days when we could just do our own thing without paying attention to the bigger picture are over. We are interdependent, and this interdependence is contextual, situational.

For many of us, this is not an easy change of perspective. When it comes to understanding the organizations in which we work, most of us best understand our own jobs and the work groups we have been part of. As a result, on the basis of individual, reductionist scorecards most people are ignorant of the larger network in which they work. When problems arise, this unawareness of how things affect one another often leads to short sighted and sub-optimal solutions. Issues are resolved in favor of just one point of view – typically mine.

When the circle of involvement is larger, many changes begin to occur. When people can see where they fit into the bigger picture, they are able to see real interdependencies

and are able to respond much, much faster and more effectively to changing conditions. Our research shows that transparent processes are more than five times faster than corresponding processes where people are aware of and play only their own part.

We always need a community of individuals who willingly participate and provide insights when addressing increasingly interdependent issues. Cooperation is necessary, because one person no longer has the answer. The boss does not know best. Answers reside in interaction between all of the people affected and all those taking part.

The challenge today lies in engagement. Widening the circle of involvement means expanding who gets to participate. It is about inviting and including relevant, new and different voices. Success is increasingly a result of skillful participation management: who is and who should be included, who is not, and who is actively excluded.

A grave misunderstanding is that productivity will suffer if larger numbers of people are involved. New social platforms and interaction technologies have dramatically reduced the cost and increased the efficiency of participation. Temporal communities can be formed to solve a problem or tackle an opportunity more easily, cheaply and faster than ever before – if people are invited and want to engage.

We all have the experience of teams discussing what works and does not. People often lapse into blaming parties that are not present. “If only the other group would get their act together!” This kind of thinking never results in learning and agility: it is essential that these people are brought into the conversation.

When you widen the circle of participation, you widen the solution space. “If there are enough eyeballs, all problems are shallow,” as Linus Torvalds put it.

Success is increasingly a result of skillful participation management: who is and who should be included.

Spaces for cooperation

Teemu Kurkela

I believe that the spaces in which we work have an effect on the work itself. Some people may argue that spaces are secondary and we should mainly focus on what happens inside peoples' heads. During recent decades, discussion of workspaces has centered on two spatial types: offices and factories. As an architect, I think this approach is slightly primitive. The standard has been to have no special ambitions. However, in recent years I have seen a revolution in the way the workspaces are designed. New concepts for workspaces are emerging on all scales.

What is going on?

Old building types have died out

Many traditional building types such as offices, shopping centers, libraries, schools, hospitals, and airports have been transformed. If I open a library design manual from the 1970's, there is very little that I can use to create a 2020's library. Functions have changed radically and many old buildings cannot be repaired. So it seems that we are facing the task of building a next generation infrastructure for workspaces.

Buildings are being used as a tool to reorganize companies

My architectural office just completed a new office building for 3,000 people. For clients, new offices are not primarily building projects, but a chance to reorganize the company. Staff move from several locations into one. Fragmented organizations are integrated. Key people meet every day to work on core processes. The customer walks in and likes the experience. In the end, 3,000 people actually manage to work together as one big team.

Buildings can be viewed as operating systems cast in concrete

I am currently designing a hospital, in which the design team spent the first two years just developing the functional concept. We reorganized the functions and designed the process flows. The spaces in the building were generated based on functional logic: any building can be read as an operating system.

The right atmosphere attracts talent

Competition for the best new talent is getting tough. Young professionals want to work in a friendly atmosphere near city centers. Architects are brought in to help create the right atmosphere. We can call this service design, service

architecture, user interface of buildings, or simply high quality workspaces. Who would not want to work in a company where you can feel the friendly atmosphere the moment you walk in? At the entrance to my office, we built a large kitchen and roof terrace with a barbeque. This makes our workspace unique and our staff seem happy.

Unexpected, flexible environments are here

There are no new rules for workspace design; a state of affairs which will lead to unexpected functional combinations: housing for the elderly can be combined with supermarkets, hospitals can be organized like airports, offices can feel like libraries and classrooms can function like advertising agencies. Many buildings will be hybrid, generic and flexible. It will be easier than ever to reorganize work, every month if necessary. Unexpected environments will create unexpected new platforms for work.

You will meet people everywhere

New buildings can be organized to maximize meetings of minds. Spaces for encounters can be integrated alongside key flows of people. The heart of a building may include a restaurant, which also functions as a meeting facility. Lunch can be combined with a casual meeting every day. Traditional office buildings were built to isolate people, so forcing people to meet each other leads to a very different "operating system".

You will lose your own office room

It no longer makes sense to build a room for everyone who wants it. Future workspaces will be organized in zones rather than in rooms. For instance, various zones can be developed for customer service, quiet work, talking work and meeting work. In the future, zones will help to modify functions and teams. The aesthetics and atmosphere of spaces can be developed freely. A workspace can feel like a gentlemen's club or garden bistro. In the future, instead of just one room of your own, you will have many.

I am Teemu Kurkela, an architect and a founding partner of JKMM Architects, which is based in Helsinki. In my office there are 60 architects and interior architects, who are busy working on buildings of all types for a wide variety of clients.

The need for multiple viewpoints

People need to act and make decisions in situations where there is considerable uncertainty. Different people hold different beliefs and have personal biases and agendas. However, they very reluctantly acknowledge that they face ambiguity at work. Problems in organizations tend to be labeled as lack of information. It feels more professional to try to solve a (knowledge) management problem viewed as being about lack of information than one, which is all about confusion. When the same event means different things to different people, just obtaining more information is of no help to them.

What would help is a setting where they can negotiate and construct new ideas that *include* their multiple interpretations of what they are experiencing.

The challenge lies in the fact that people often treat the existence of multiple viewpoints as a symptom of weakness that should be solved using power, rather than as an accurate and necessary barometer of uncertainty that can only be solved through interaction.

A range of stimuli always surrounds people. Such stimuli have no meaning apart from what individuals make of them. In other words, the meaning of an environment is

a product of persons, not the environment itself or something outside them. People are selective in what they attend to and what is intended to contribute to the environment. Thus, our reality is not an objective set of arrangements outside us, but is continually constructed socially.

If people want to do things together, they need to create something that is shared, talk about their experience in a common language and have a shared context for conversation. Because any information can mean a variety of things, meaning can never be simply discovered. We have to talk!

Many meetings directed at the problems of ambiguity fail to handle the issue because autocratic leadership, or norms that encourage harmony and agreement, silence potentially rich and varied views.

There is perhaps understandable reluctance to admit that you have no idea what is going on!

A crucial feature of working together is that situations can be progressively clarified through iterative interaction, in conversation. This is why work should be understood as interaction between interdependent people.

Our reality and thinking is an ongoing mutual accomplishment.

Designing a company

Jeremiah Tesolin

I happened to stumble on a metaphor that I've been seeking for some time. To get there, though, I had to spend the last fifteen years focused primarily on working within Finnish companies to help them succeed internationally: Nokia, Marimekko, and, currently, Fiskars, with a focus on Iittala, Arabia and Rörstrand.

Over the years, I have developed a theme that I call "Designing a Company". By the time I entered Fiskars this year (2015) and began focusing on Iittala, I felt that this theme was complete. I described Designing a Company to my team a few months ago as being about the active participation of all employees, not just designers, in designing the company.

The way a firm looks, behaves, produces, and provides value: everyone is involved in this process, which is a collaborative effort to design the company we work in. However, something was still missing – action. How does this process actually happen? We can map out all the elements required

in order to design a company; all the functions, teams that need to be formed and interlinked, tasks that need to be performed and we can go about working on these; but we still won't understand the actual trigger for making this work in sync. Some teams or individuals work well together and others do not. And if there's any disconnect, people outside the company, the customers, notice immediately. Whether ten or ten thousand people are involved, designing a company comes down to fluid interaction between interdependent people working towards a consistent goal in order to build a company that provides value.

Then I stumbled on the action-based metaphor I've been searching for. I call it "Designed to Dance". Let me explain this.

I was reminded about transformations in professions and disciplines in a discussion with someone with a background in dance. The dance profession has a very long history in which it has had time to evolve and expand. Each dance discipline is rooted in another. For example, if you dance jazz you also take classes in ballet because the fundamentals of dancing jazz are based on ballet and the two disciplines mutually

inform each another. If your focus is on ballet, you will also take classes in contemporary dance. In dance, each discipline retains its own brilliance and individuality, but influences and compliments others. This means that the field of contemporary dance is an amalgamation of several dance disciplines, retaining strong traditional traits but allowed to expand freely in order to make an artistic statement.

The same evolution is occurring within the field of design, although this is a much younger profession. The last seventy years or so have been dedicated to reinforcing strictly individual design disciplines. If you work in the field of graphic design, you cannot work on product design, since will not be perceived as having the necessary skills, nor would your peers “allow” you to do so because you would be mentally breaking away from your core profession. If you work within product design, you cannot work on architecture for similar reasons.

All of this has been stripped away to the point where untrained design enthusiasts can easily create their own designs if they are sufficiently motivated to learn the required skills. The design profession is undergoing a contemporary movement of its own. Design will surely follow a similar path to that of contemporary dance in the years to come. It cannot afford to remain broken down into separate disciplines and has already begun to transform.

Then there’s the company organization. In most company structures, people work in specific disciplines and focus on their own specialization. Business teams specialize in profitability, designers work on the look and feel, marketers think up campaigns, and logistics people ship the product, while retailers and salespeople sell it. Although there have been attempts to integrate and align these functions, the ability to fluidly interrelate based on specializations is rare. The

employees may not notice, but customers who value the company definitely will, because they’re often the ones who view the company as a whole and any disconnections are clearly visible. The company can’t be designed, because it hasn’t been designed to dance.

To be designed to dance, a company must relieve itself of the structures it relied on in the past.

A dance troop used to be controlled by a choreographer and was very hierarchical. Now, you often hear that it is the dancers themselves that define the choreography. Everyone has a say. Even a lighting designer can influence the design of a performance and participate as a dancer in the performance itself. They do this because the performance needs to work as a whole, in order to create a credible and cohesive impression for the audience. The same is true of a company.

Choreography needs to be co-defined by employees, based on a directed, purposeful effort to create the impression of a whole in the minds of their audiences. The purest form of dance performance is an artistic statement. Themes of death, love, rebirth, personal or group oriented statements that are felt had to be expressed. Dance as entertainment is a completely different type of output. There, the purpose is to entertain the audience. If we seek to build companies for the long term, they must have a higher purpose than pure entertainment. They need to take the path of producing artistic statements, ones which can easily be income generating and yet meaningful performances which their audiences wish to gravitate towards.

Designing a company means that it needs to be designed to dance. It is only then that it becomes a performing company providing value and able to give further performances throughout the years.

There are essentially two kinds of jobs:

1. Do this jobs, and
2. What should we do jobs

The democratisation of design

Teemu Leinonen

Victor Papanek begins his book⁷, published in 1971, with the words “All men are designers”. By this, Papanek means that an element of design is involved in almost everything people do. Design is the basis of all human activity. The fact that Papanek himself was an industrial designer gives more weight to his words, even if his statement can be considered self-evident. This includes the idea that each and every one of us is capable of designing products, for ourselves or our loved ones.

It is often thought that Finnish design is reflected in the durability and timelessness of its products. We believe that buying high-quality products is more economical, even at a higher price, than creating inferior quality for less. High-quality products are cheaper in the long run. Due to industrial production, high-quality products are viewed as a universal entitlement. A high-quality product is not considered a status symbol, but a means of leading a good life. Industrialisation is viewed as having democratised design products. This can be considered the first wave of the democratisation of design.

Design is a peculiar word. Where Papanek refers to design as an activity, as something that produces a plan, new product or service, in Finland the word tends to take on its second meaning – that of a finished product. When we talk about design, we often refer to a high-quality product, not the underlying process. This is probably partly rooted in the honourable history of Finnish design and architecture. We are well aware of what good design, or a high-quality product, means.

Design too is being challenged by the post-industrial and global network society. In new products and services based on digital technologies, such as Uber, Airbnb, Facebook and Wikipedia, design has been the key to hyper-success. These design products of our time are successful combinations of an enjoyable user and service experience, to which aesthetic values have been added. The key element, however, is the user’s experience of using the service together with other people, and the service experience thereby generated. The design and development of such services requires seamless collaboration between multi-professional teams.

Three phenomena are rapidly changing our society and its economy and culture: (1) the Internet-based network; (2) growing computing capacity; and (3) robotics. The above services are mainly based on the first two elements, but each of them is also flirting seriously with robotics. Major future

products and services will probably be based on a smart combination of these three phenomena.

What will this mean for design if we consider it as an activity in the way Papanek did? It is easy to foresee product design in particular becoming more democratic as the impact of the above-mentioned phenomena accumulates. Increasing numbers of people can design products themselves using tools such as 3D software (growing computing capacity), can share activities and learn from others (Internet network) and manufacture products independently (robotics) without expensive investments in production facilities.

Alongside industrial products, at both a superficial and deeper level design is also becoming more democratic in terms of services. The services described above represent superficial, democratic design. Uber and Airbnb are networks that rely on car and house owners. The people with whom these companies have established a new kind of contractual relationship constitute one of the cores of their design service. The service experience provided by these companies is dependent on car and house owners, and their drivers and caretakers. When the service experience is based on a network, it makes sense to include all network operators in the design of the service.

Similarly, Facebook and Wikipedia are dependent on their own users, who create the value added provided by the service. In these examples, too, power accrues to the users, although this is often in the form of faceless swarm intelligence that service providers cannot ignore if they want to remain competitive. Wikipedia, in particular, can be primarily defined as a community which has developed a novel operating model and complex and multi-level design method for implementing its goal of producing and disseminating information for all people in the world.

On the other hand, the so-called deep-level democratisation of design can be seen in services such as those that rely on novel social peer networks, and the reorganisation of public space and public services. Restaurant Day, Cleaning Day and Time Banks are examples of services that have been developed by active communities. The broader dispersal, in recent years, of urban planning towards ordinary citizens and away from professionals, political decision-makers and various interest groups is another example of the democratisation of design. In recent years, public service provision has been developed through collaborative processes, while exploring how services might also be produced on this basis. In all of the above examples, the key issue is, once again, how they

⁷ Papanek, Victor (1971). *Design for the Real World: Human Ecology and Social Change*, New York, Pantheon Books.

apply contemporary phenomena, i.e. the Internet-based network, growing computing capacity, and robotics. The cleverest democratic design groups use all of them in their own activities and the services they are collaboratively designing.

In other words, it looks as though Papanek's statement that all men are designers is coming true. The first wave of the

democratisation of design, or the provision of high-quality products and services for everyone, is blending into the second wave, where all of us act as designers providing products and services for one another. We need to keep both traditions alive and capable of reinventing themselves.

My views on (working) life

Mari Männistö

A new power, a new production factor is increasingly redefining our competitiveness and possibilities for growth as individuals, as well as companies or even nations. This new factor of production is intangible: in the case of intangible value creation, growth is more and more dependent on creativity, competence and significance.

For this reason, (working) life is also undergoing a tremendous, inspiring change. People who tend to stress about mixing leisure and working life will have more challenges ahead, as it becomes more difficult to draw a line between life and working life. It goes without saying that the challenge will seem more positive if, at the same time, more people end up working on tasks that are aligned with their personal interests in life. The ability to manage one's energy and time will then become even more important from the individual's point of view and, on the other hand, a much more valuable asset from a company's point of view.

In my case, there is basically no major difference between my working and "other" life, because they are either the same thing or, at least, overlap heavily – fortunately, I would say. This is even more the case since I moved from working in publishing, media and large companies to the contemporary art world and a small company. At the same time, three elements seemed to be key issues in my working life: meaning, relations and engagement.

Meaning

I've had the privilege to work on tasks that are meaningful for me and the people I work with. To be honest, I would have been incapable of doing anything else – and, yes, I've tried to do so. My experience tells me that the meaning of work is often a highly essential element in communities,

which work with and around cultural content such as art, literature or media. This has put a certain kind of people together with certain kinds of tasks, which they find important to themselves as well as to others – their customers. We share an idea of what is meaningful and enhance it by working together – the meaning is not important due to the company vision or mission, but because of our personal point of view, the way we see the world. And that makes it easy to work towards and alongside the company vision and mission, if they are aligned.

This all sounds great, and highly dangerous! When working in a community that deeply shares its idea of meaning, I tend to become worried about group think. Finding a meaning in one's work can be easy, but maintaining healthy criticism which develops the whole can be harder – even more so, if a loose – even if ideologically tight – community is involved and no one is responsible for leading change. This is why, in our uncertain world, I still believe in the importance of persons with vision accompanied by the ability to communicate this in a way that engages and inspires. And I don't mind calling them leaders or bosses.

Engagement

For me, engagement is more or less the same as mental entrepreneurship or ownership. My dream team would consist of entrepreneurial professionals whose knowhow and skills would not overlap, but where the curiosity, passion and willingness to learn would. In my work in a small challenger team, this means everyone contributing via their own knowledge, network and engagement to growing alongside the challenges we face and the goals we are pursuing.

In my opinion, engagement creates security and can replace the security that used to be generated by organizational hierarchies: we may not need "decision making machines" if we have engaged individuals, peers who, by showing their engagement, create trust and a feeling of responsibility

amongst each other. When I work with professionals who are engaged, talented and responsible, I naturally find decision making much easier. This is, of course, because I find quality information and experience in such people, but also because I trust them to intervene if I am about to make a wrong decision, and to be around even when trial and error leads to an error. This is the kind of certainty I appreciate in the uncertainty in which we are all working.

Relations

During my first year of work in the art world, in a gallery, I have heard people talking about networks more frequently than ever before. At first, this sounded like an old fashioned buzz word dug out of dusty management handbooks, but its deeper meaning remains valid, and very much so in the art world. Rather than networks, I would refer to relations, relationships, communities and networks of communities. This is something, which I associate with the new role of middleman (who is supposedly being killed off by the internet). Middlemen should have become "networking men" long ago,

and thereby "enabling men or women". An enabling woman stands strongly on her own two feet and relies on her skills, but creates value for her customers based on her passion and ability to build and nurture relations. A gallery, whether physical and/or digital, must serve as a platform for people – artists, curators and other professionals, customers and the media – enabling them to connect with art and each other. Artistic content per se has value, but a gallery can only create value if it succeeds in connecting the artistic content that it believes in with the right people and ideas, and is capable of mutual cooperation which nurtures the network in the long run.

As I write this, I realize that many elements of the "new work" are actually in place in the field in which I operate, but something seems to have been hindering Finnish cultural exports from truly succeeding and achieving their full international potential. Or maybe our time, the era of intangible assets, is about to come.

The essence of the entrepreneurial approach

In the industrial economy, adding value was a transformation process from physical raw materials to physical goods. The economic growth of the future will still be about value added, with the difference that the generic raw materials of the industrial era are now unique ideas and problems we want to solve. The transformation process in the post-industrial, entrepreneurial economy is also very different. While the industrial process was a linear, sequential chain of predictable acts, the creative process is an unpredictable, iterative and complex movement from ideas to value. The key input is not knowledge but on-demand learning.

We require a very different kind of thinking, skills, and even science to explain what is going on in the worlds of knowledge-based added value and creativity-based added value. Creative work is not about reductionist job roles and clear, task-related responsibilities. Everybody needs to take part and cooperate in the messy, onward movement of thought. This is independent of what you do, or the organizational unit you belong to. It is about combining the theory of complexity with the practice of networks.

For an entrepreneur, economic success is the result of the energy and interest you create, the "cool factor"; to fail is to need to motivate people, to find no one interested in

what you are trying to achieve. Successful ideas and arguments are those that inspire people, bring them together and bridge various purposes.

Paradoxically, while you always need people who agree with you, you also need people who do not think like you. Thinking develops best through friction and argumentation. The transformation from ideas to value is a movement of thought that always builds on working with differences. The requirement for efficient work is not necessarily about having common goals or reaching agreement. The new skill involves moving forward quickly while keeping paradoxes alive!

Thinking always clusters. This happens in groups, but more importantly, over time. Thought can sometimes move slowly and even get stuck. A person with an idea worth pursuing will, in time, give rise to an interacting chain held together within comparable chains of contributors, lurkers, and opponents.

The entrepreneurial task involves understanding (1) the speed of movement and learning; (2) what is being discussed; (3) the quality and cool factor of the conversation; (4) how ideas concretely develop towards creating (customer) value and solving the chosen problem, and (5) how the solution will be scaled up.

Thinking does not take place inside separate people, but in rich, continuous interaction. The richer the interaction, the more economic value can be created.

Firms are formed and networked links initiated around exciting new ideas. The onward movement of thinking then occupies the most limited and important issue there is: our focus. What we focus on is called our attention space.

Our attention space is a metaphor for the creative era industrial process and even the corporate office. It is a “place of the mind”, an expression of collaborative creativity and cooperative contributions. For an entrepreneur or a startup, what happens there is the key real-time measurement of what is actually going on. Additionally, the driving force behind power and change is competition for room

within this space. The role of leadership involves influencing the things that occupy the attention space, the consciousness of the organization.

Economic growth is more and more a result of interactive movement of thought expressed as the entrepreneurial capacity to transform ideas into customer value. We are now in the midst of this huge economic change.

The post-industrial era is about a new kind of entrepreneurship. The good news is that many of the brightest young people are already joining startups instead of traditional firms.

The entrepreneurial revolution is going to be of the same magnitude as the Industrial Revolution was in its time.

The new entrepreneurial Renaissance

Piero Formica

By launching projects in which scientific and humanitarian approaches to creativity mingle, the entrepreneurs of the twenty-first century are creating the scenario of a new Renaissance, described by Creel Price – one of Australia’s most dynamic entrepreneurs – as the ‘Entrerenaissance’ i.e. entrepreneurship which marks the reawakening or rebirth of learning and culture. The art form of entrepreneurship is a network in which creative relationships between different participants intertwine; and the innovators of the 16th century Renaissance were regarded as the protagonists of this interweaving. As in the Renaissance workshops in which masters were committed to teaching new artists, so today innovative entrepreneurs are tracing original educational paths for new generations of entrepreneurs. Some established innovative entrepreneurs teach by using knowledge maps on which they are finding new pathways. Others, comprising a minority, are casting off these maps and relying on intuition springing from the source of their creative ignorance⁹.

Today, digitization is a technological medium that facilitates and expands the formation of networks in which mutual learning, through experiments that lead to business opportunities, is occurring faster than somewhere else. Supported by digital technologies that are creating the infrastructure of ‘knowledgefication’, whose force of transmission is comparable to that of the electricity networks of the early twentieth century, the growing power of the human mind is voluntarily building the future using mental gymnastics to manage

uncertainties, while being unable to predict what tomorrow will bring.

Learning, which enhances the expression of one’s own original ideas, and digitization, which provides resources online and in the cloud, herald the arrival of the creative age of entrepreneurship. Each of us has the opportunity to act as an artist of production – now able to manufacture at marginal cost which effectively goes all the way down to zero – goods of high aesthetic and functional value which multiple consumers can acquire and use the next day. The first draft model of a product no longer looks like an ugly duckling but, rather, a beautiful swan that arouses admiration. In short, we are witnessing the rebirth of entrepreneurship involving artist-craftspeople who make a cultural difference by exploiting new technologies that assist them in the act of production.

The pioneers and early followers of the digital age have accumulated fortunes that break down national, geographic, linguistic and currency barriers. In communities where what *The Economist* has called the ‘Cambrian explosion’ of entrepreneurship in the digital age was seen with greater force, new entrepreneurs have accumulated huge fortunes and become established in the same way as the Renaissance Seigniors. Along what roads will they take their fortunes? As in the Middle Ages, will it be their ambitions that dictate the rules of the game? Or, as occurred in the Renaissance, will today’s renaissance generation show willingness to encourage the mobility of social classes and individuals, in order to break down the power of the overwhelming feudal hierarchy of lords of giant enterprises?

⁹ Piero Formica, *The Role of Creative Ignorance: Portraits of Path Finders and Path Creators*, Macmillan Palgrave, December 2014.

Work in the Anthropocene

Ville Tikka

When we explore the post-industrial narratives of work and envision the new directions of the next Industrial Revolution, it is important to acknowledge the shifting context in which these developments are likely to play out. In order to conceptualize the prospective socio-economic repercussions of climate crisis on future work and firms, we should contemplate what is going on, understand the causes driving such change, and identify the related inspiring ideas and responses.

So what is going on? For the last few years, a frenzy has been generated around the idea that we now live in a new era, the Anthropocene. This is a term popularized by scientist Paul Crutzen in 2000, to indicate a geological era in which our planet and its processes are being significantly altered by human activity and hurled towards the unknown. Under this increasingly popular rubric, the problem we face is seen as a rapidly changing planet, caused by the fossil-fuel burning mankind.

Once we admit this uncomfortable but scientific fact, we also find it relatively easy to pinpoint the logical solutions to dealing with the problem and mitigating the risks. The most straightforward response is focusing on changing the energy paradigm, with a promise to keep most of the remaining fossil fuels firmly in the ground, executed through a myriad of technological, political, cultural, and behavioral interventions.

Others, such as Donna Haraway, propose that we talk about the Capitalocene, an epochal transition in the accumulations and extractions by organizations consisting of labor and production technologies – which now threatens the long-term survival of life on the planet.

This line of thought proposes that we realize how the root cause of the rapid changes in our environment is not rising CO2 levels, the fossil fuels we burn, or our growing population, but global commerce and corporations with their 20th century ideological positions.

When we elaborate the agency behind the energy-hungry man of the Anthropocene, we find that the real culprit is *the Man* and the culture of mass consumption that keeps feeding it. To rethink work and organizations in *the Age of the Man*, we should ask why do organizations and corporations continue to accelerate the crisis, instead of accelerating themselves in order to solve it.

What are the ideas, ideals, and ideologies that are pushing people to work towards creating short-term value and long-term insecurity, rather than creating sustainable value, mitigating risks and enabling future societal well-being?

A short history of the (Californian) ideologies of work

All work happens – and all firms operate – within a broader socio-cultural and ideological context. Our shared values and common principles define why we work, how we work and what we want to collectively achieve. To see where we are and how future ideologies and principles of work might unfold, we should begin by looking into the past.

In many ways, the contemporary Western knowledge-based economy and its influential firms are flying in the strong tailwind of the technological, ideological, and social upheavals of the late 1960's and early 1970's. Trends and events – from the Cold War to the Vietnam War, the civil rights movement, the rise of feminism, the 1967 energy crisis, and the emergence of personal computing – created waves of social and cultural change that deeply affected our economic and political structures, and our collective identities, ideals and values.

It was around then that the arriving digital network culture, the new sustainability paradigm and forceful socio-cultural movements for betterment were coming together for the first time. There were a high number of lofty ideals, such as personal empowerment, communal well-being, social justice, and global unity that provided the higher ground for many of the everyday technologies and social institutions that live alongside us today.

While many of these ideals made an impact on society, the general cultural overtone in relation to work and leisure remained strongly tilted toward individual freedom and personal fulfillment. Likewise, in the world of business, basic assumptions such as “rational and self-interested economic man” and the “priority of profit” defined how firms wanted to create, capture and deliver value.

Maybe more than anywhere else, all of these ideals found a perfect home in the California of the late 1960's. The growing counterculture movement that combined seemingly disparate tribes of cyberneticists, hippies, naturalists, and tech geeks, blended the new and old ideologies into a freewheeling exploration of better living and working in the New Age. In practice, they were experimenting with everything from geodesic domes to self-actualizing technologies, solar energy applications, raising bees, communal

living, whole system thinking, and much more.

This was the emblematic dawn of “the Californian Ideology”, a heterogeneous orthodoxy for the coming information age that created the unique socio-cultural context for the rise of networked technologies in Silicon Valley in the 1990’s. Dubbed and defined by Richard Barbrook and Andy Cameron in 1995, this Ideology was a fluent mix of updated technological determinism, radical individualism, libertarianism, and neoliberal economics.

Despite the fact that the Ideology’s contradictory blend of conservative economics and hippie radicalism reflected the very particular history of the West Coast, people in the “virtual class” across the world seemed to believe that it provided the only way forward. And why wouldn’t they, as that is what we have seen happening in the last two decades: the exceptional rise of the networked digital technologies and the underlying californicated ideologies have truly redefined how we think about firms and organizations, startups and entrepreneurship, and progress and prosperity in society in general.

Today, many of these ideas and ideals are central to what most forward-looking organizations believe in or aspire to become. For example, we see this in how the terminology and the ethos of the original 1960s counterculture – including “sustainability”, “innovation” and “creativity” – have been elevated to the highest standard of all organizations, in both the private and public sector, around the world.

As some argue, eventually the Californian counterculture became less of an antithesis for the Man but, with hindsight, the crucible of contemporary cultural, economic and technological systems that now rules the world, and constitutes the bulk of the problem we are collectively facing.

New counterculture rising

As we look forward, it is certain that the new, low-carbon architectures of work and value creation cannot be built on the same ideals as the existing ones. Solving this crisis will require unforeseen ideas and measures that enable us to rethink all aspects of work. But while this may sound daunting, this chaotic and complex change will also provide an immense opportunity to rethink work and firms for the better.

The motto of this book was written by Max Planck and beautifully captures the essence of this motivation: “If you change the way you look at things, the things that you look at change.” So, we should ask which early 21st century organizations are already looking at the world differently, and how

do they see it? How is this new counterculture preparing to survive in the Age of the Man, and what new beliefs or principles is it following?

At least three categories of organization are making major waves. First, we have the new Californian counter-establishment, ranging from Tesla to Patagonia and Planet Labs, as well as many other firms all over the globe which are psyched about living in long-term unity with the environment. They have fervently placed sustainability on the corporate agenda and have rethought everything from their business models, brands, and products through their sustainability vision.

Another pertinent category is formed by modern cooperatives – the community, worker, or multi-stakeholder owned organizations – that are increasingly distributed with the help of social technologies and which are steadily growing in both size and importance. For example, the algorithm-empowered activist hedge fund Robin Hood Coop, or the “open value network” Sensorica that is dedicated to open source hardware development, are effectively making the case that if sharing is the new owning, co-owning is the new sharing. These cooperatives want to democratize ownership, expand the commons, and live up to the values of their communities.

And then we have the next generation of decentralized platforms that are often empowered with blockchain technology, such as the smart contract platform Ethereum, the transparency and proof platform Provenance, the decentralized transportation platform La’Zooz, or the digital human rights platform Ind.ie. These platforms aim to collectively re-decentralize all aspects of life, commonly based on a libertarian ethos, but while making many areas of life safer, fairer and more equitable for everyone involved.

The new principles of work and value creation

So what makes these organizations the challengers that the Age of the Man demands? First of all, what is common to all these organizations is their purpose, which provides them with a powerful reason to exist, and a strong idea of what they stand for in the minds of the network of employees, customers, partners, and all others involved. They are working on something bigger than their products or the organization itself. Their purpose usually lies at the intersection of the insightfully defined crooked problems in their world, and the organization’s unique superpowers to do something about those problems.

To create way more value, these purposeful organizations tend to design their offerings insanely well and combine this

excellence in customer experience with bigger values, such as access, equality, and well-being. Because they let their purpose guide all of their actions, profit is not their motivation per se, just something that follows when they get things right.

This is a dramatic leap forward from a traditional organization that emphasizes individualism and just optimizes its offering and brand for sheer consumer value, or thinks that numbers have intrinsic value and aspires simply to maximize its profit. It is also a major shift from the currently fashionable form of an organization that stresses its social responsibility and advances its sustainability, but does not challenge its reason to exist, its operational model, or its business model.

Secondly, these organizations are firm believers in interconnectedness. If, back in the day, firms were run as if they were wholly insulated from societal and environmental matters, networked organizations now comprehend that they are connected with everyone and everything else. This helps them develop a more progressive, systemic and empathetic take on the problems they are tackling, and to strive for value creation on many scales and for many parties at once. Rather than becoming the best in the world, they want to become the best for the world, and to effectively create a thriving actor network fueled by generosity that will also help the organization to succeed.

Related to these first two principles is the third idea – that most of these organizations are planning to be around for good. Their focus is as much on continuity and long-term success as on short-term victories. They embrace resilience, the acclaimed ability of a system to recover from difficulties and bounce back stronger than ever. For example, they believe in dynamic systems, inherently diverse and modular operations, and radically simple structures. Their resilient systems are constantly evolving, messy, imperfect, and sometimes inefficient, like life itself, but that is how they are able to thrive and survive.

Resilience thinking also translates into new practical approaches to adapting within a complex and unpredictable environment. The most progressive organizations do not really organize themselves, but emulate the swarm behavior of flocks of birds, or emergency departments for that matter, so as to be able to evolve when the context changes. In practice, this means minimizing the role of management

to systems-level decisions, and letting the organization construct the rules and habits of work, as well as making decisions on what to do and where to go.

Finally, what really separates the 21st century organizations from the rest, is not just how they think and act, but also what they produce and create. In the platform era, emergent and responsive organizations expand their scope beyond what used to be possible for only the biggest corporations in the world. They now build businesses upon which others can build businesses, and develop service systems that facilitate social action and exchange between very large communities of people. This means a wholesale shift from traditional business models dedicated to selling stuff and services, to networked, decentralized and exponentially growing models of common value creation.

How to accelerate the change

The epic challenges ahead will require epic scales of engagement, and this is what the next-generation counterculture is all about. As we master the skills of building benevolent organizations, those on the edge are building positive platforms of engagement. This is basically a process of learning how to seed and catalyze further action through transformative social movements, the “certain types of organizations of social practices, whose developmental logic contradicts the institutionally dominant social logic”, as defined by Manuel Castells.

The counterculture for the Age of the Man is already emerging, and we can vilify or glorify it, but we cannot deny its importance. That is why, collectively, we need to further explore the new low-carbon architectures of work, and eventually design our organizations and businesses accordingly. The Nordic values – that put collective wellbeing first with the aim of helping everyone and everything thrive, often within a context of relatively scarce resources – provide an inspiring foundation for this mission.

This is why we are now launching a Nordic media platform together with a new agency network, and inviting people and organizations to experiment with the new principles. The future is being built every day by our actions. We must now ask ourselves what kind of future we want and what kind we want to avoid. Then we can envision and design new architectures of work and value creation that help us thrive in the Anthropocene.

The new opportunities

The democratization of technology currently under way does not determine social and organizational change, but is creating new opportunity spaces for new social practices. Some things are becoming much easier than before and some are becoming possible, perhaps for the first time. Finland's vibrant startup culture is proving this point.

Capable people always have capable peers, people who act as filters connecting them with people and with high quality information. In a sense, creative people are more remixers of other peoples' ideas than inventors. Technology and development are not isolated acts by independent thinkers, but a complex storyline, where storytellers and curators are more important than heroic inventors, if such inventors ever existed.

Creative, connected learning is at the core of the startup business. Businesses and non-profits rather than government, seem to be driving the changes in education required for the knowledge-based economy. Government-run education systems are lagging behind the transformation of learning that is evolving.

Creating learning connections is now more valuable than creating learning content. Information is becoming a process of continuous iteration and networked

negotiation. Information networks are the architecture of work and a valuable, shared resource. These networks are the new commons. In the new commons, people with many ties are better informed and have more signaling power, while those outside the commons and with few ties may be left behind.

As we engage in new relationships, we are creating new potential for action. Every human relationship, every connection, serves as a model of what is possible. The Internet era has proven that we are capable of working together competitively/cooperatively and building social communities that would have been dismissed as impossible dreams not too long ago.

**Creating learning
connections is more
valuable than creating
learning content**

The impact of the Internet

Ilkka Kivimäki

There has been much talk about the impact of the Internet over the last twenty years. The first phase involved the new things that were easiest to commercialize, then came the era of reinventing business processes (the current IoT bazooka is part of that). While the second wave is already deeply penetrating existing industries, it has had little effect on the way we work. The next wave is the "redefining the industries and creating the experiences the customer wants" era. This also means that many products will turn into services. Uber is the lighthouse example of this, but many others are evident from other industries (examples from the Nordic scene include Enevo in waste logistics, Wolt in eating – food discovery, delivery and payment; and Barona in business process outsourcing services).

With a cloud-based service layer, you can raise the customer experience to the next level and radically shift the focal point in the value chain (i.e. the point at which the money in the value chain is accumulating). In the future work context,

this means global winning companies that extract high value from the value chain, while in the interdependent work context they can offer plenty of opportunities for the best local and global experts in the subject. These companies can choose the people they want to work for them and thus select the suitable skill-sets/cost level of each individual task. Many of these companies are now based in Silicon Valley. Competition for the best global talent is high, which is driving compensation of the best in their own class. On the other hand, these global companies and all others can also tap into a global workforce much more easily, thus driving the price of less skilled work to a minimum. This is also amplified by the fact that, in the "always on" cloud era, all non creative issues can be measured easily and accurately and thus priced very accurately.

On the other hand, in many industries the internet is destroying multilevel distribution hierarchies. I see the same thing happening in the labor market. This is enabling the creation of networks of interdependent professionals and I believe that there will be a new rising class of skilled individuals, who will find it easy to work interdependently and extract more

value out of the network for themselves by creating a personal brand as a sought-after professional. Naturally, we are seeing this type of personal brand emerge today, two extreme examples being world-famous architects and designers, and on the other end customer-generated Uber driver reviews. In the Uber case, the only current use of this is to weed out non-professional/ethical drivers, but for more creative work more granular rankings and personal brandings make a great deal of sense and work in favor of genuine professionals.

On a separate note, I believe in the renaissance of craftsmanship. Since the cost of product/service discovery is close to zero and logistics costs are low, artists and craftsmen have unprecedented opportunities to present their work and specialize in very narrow areas; there is always demand for the world's best in niche segments. This is also a fresh way of being an entrepreneur on a global scale.

Being part of something and feeling secure

People have the basic desire to be part of something in order to feel respected and important. My view is that the company of the future will be built on strong values and vision, enabling people to take pride in working towards such a shared vision. Controlling the workforce is easier than ever, but as purely manual work becomes more and more automated, the management focus should be on setting motivating targets which are converted into action by a motivated workforce.

For the most skilled people in their respective fields, there is always an excess of work available, but for those with lower skills that might not be the case.

Clearly, the nature of work in a networked interdependent world will be more project/task oriented. The security of a steady income is important and this has not been built into the new system. Due to these two issues, there need to be flexible working contracts that allow people to work, but there also need to be safety net mechanisms to support them when they cannot.

The role of sovereign nations

Governments need to form new approaches in order to support the new way of working. Intuitively, some form of basic income would be logical, guaranteeing a minimum level of income for all without restricting people from taking on work – even for short while – to earn extra income. There needs to be an open dialog on this. The current contract and social security models in countries such as Finland need to be revised quickly.

Naturally, from the job creation perspective rapidly changing structures are an opportunity and a threat at the same time. The US, not Europe, has been the traditional driver of innovation; the US has been the powerhouse of both technology and business process innovation. Lately, the Chinese have also been very successful in creating companies with the latest and most efficient business models (Xiaomi, Meituan, Alibaba etc.).

In a study by lawyer, Jaakko Lindgren, in 2015, 8 out of 10 of the largest private companies (by WSJ) could not have been started in Finland, because they would either have been regulated to death or downright illegal. That is a very alarming finding for most European countries. Unwieldy regulation is hindering the survival of these societies rather than protecting them. At the same time, young skilled workforce is highly mobile and able to locate to new countries or regions which are offering the best opportunities and standards of living. I view the brain drain as a genuine threat for many countries – the flight of potential young entrepreneurs could be very costly.

In the Nordic countries, we have created exceptional nations with wonderful values and a high standard of living. In our changing world, such a system is very much under attack from the ever alert and hard-working Americans, and to a greater extent from the very hard working and hungry people of the growing Asian economies, where there are no safety nets or pension payment burdens.

This means that, without delay, nations such as the Nordic countries should

*introduce welfare renovations that reward their people for working, while supporting those in need

*ensure that change in the labor market is allowed to happen, by accepting flexible work contracts and new models, whatever they might be

*examine labor laws to ensure that they flexibly allow the best people and their families to come here from abroad to work for the best-performing companies

As I said, we are now living in a world that is more connected, where people are more willing and able to relocate, are aware of pollution and health risks and an ever growing number of jobs can be performed location-independently. Looking a little further ahead, this will be amplified with the emergence of Virtual Reality technologies. This is therefore a great time for agile nations and people with enthusiasm and skills to prosper.

If we need innovation, we need networks

Amanda Schaffer describes tech's enduring Great Man Myth as follows: "The problem with such portrayals is not merely that they are inaccurate and unfair to the many contributors to new technologies. By warping the popular understanding of how technologies develop, great-man myths threaten to undermine the structure that is actually necessary for future innovations."

So what would be an alternative view of innovation?

It is reported that Charles Darwin wrote 15,000 letters during his career. This becomes particularly interesting if we assume that he received roughly the same number of letters as he sent. Think about the time he spent reading and writing; think about the time he spent networking. Would we have advised Charles to limit his time spent on social media and stick to his productive work? Perhaps not!

The history lessons taught in schools and leadership case studies taught in executive education classes view the properties and ideas of particular persons as drivers of the events unfolding in the world. Even today, this is reinforcing the common notion that history is created by outstanding individuals. But is it really the case that, if Newton had never been born, we would still be ignorant of gravitation? Or do we think that, without Steve Jobs, there would have been no smartphone revolution or, without Elon Musk, no surge of interest in electric vehicles, as Amanda Schaffer asks?

Does the great man theory of innovation, science and business really help us to understand the world we live in? We always try to make sense of our experiences and explain both to ourselves and others what is going on, and the way in which we understand what is happening. In many cases, the sense-making we deploy is based on outdated mental models or yesterday's science, and is often just plain wrong.

Alfred Wallace, the British explorer and anthropologist, published his version of the theory of natural selection at the same time as Darwin, or, as many claim, before him. Wallace had an impact on Darwin and, among other things, prompted him to publish his work.

The interesting issue here is that a great idea matured in different places at roughly the same time.

However, the idea had a history. Both Wallace and Darwin based their studies on earlier work by the Augustinian priest and scientist Gregor Mendel. To be absolutely fair, of course, we should continue the chain and find out who the nodes in the network were before

Mendel? So, instead of talking about Darwinian evolution, we should really call it Darwinian-Wallacian-Mendelian-and-the-scientists-before-them, evolution!

Before universities, scholars depended largely on correspondence networks for the exchange of ideas. These communities, known as the "Republic of Letters", were the social media of the era, and their practices were astonishingly close to the communication patterns of today.

Many researchers claim that one of the key success factors in science is the scientist's network. This was also the case for Darwin. Historians say that Darwin's network was one of the decisive issues that tilted the focus towards him and not Wallace.

The better-networked scientist is the better scientist. The better-networked knowledge worker is the better knowledge worker. The main difference between now and the time of Charles Darwin is the efficiency of our networking tools, our tools for thinking. This is what Darwin used letters for, to think together with his network of contacts. Over 6,000 of those letters can be studied on the Darwin Correspondence Project web pages. What is similar to the social media of today is the many casual letters Darwin sent, reflecting his own life and the life around him, sometimes in a very intimate manner.

Nowadays, a "man of letters" can be a man of tweets, posts and Facebook updates, but the principle is the same: the size and quality of the network is what matters. What matters even more than the network, is networking, the way in which we use the network. In trying to understand what is going on, we should shift our focus from independent events and independent heroic people to networked temporality.

Amanda Schaffer writes: "Scholars are eager to identify and give due credit to significant people, but also recognize that they are operating in a context which enables work. In other words, great leaders rely on the resources and opportunities available to them. They do not shape history as much as they are molded by the moments in which they live, although corporate leaders often insist on a success story that fails to acknowledge the importance of support from the government."

Even more than understanding networking, we should acknowledge the inherently creative commons nature of thinking, innovation and all development. It all takes place through interaction.

Liminal thinking

Dave Gray

"It is only with the heart that one can see rightly; what is essential is invisible to the eye." ~ Antoine de Saint-Exupéry

The big change initiative was about to be launched. The CEO said, "Does everyone understand what we're going to do?" Everyone around the table nodded. "Everyone is in agreement that this is the way we're going to do this?" Nods and agreement, all around. "Everyone knows what they are supposed to do, right?" Yep, everyone nods again. "Okay, let's get started."

What do you think happened next?

Nothing!

Nobody did what they said they were going to do. In fact, some people **actively undermined** the project, telling peers and subordinates that it was doomed to fail. Have you ever seen this dynamic at work? I have seen it, many times – too many to count.

I used to think that good communication was all about clarity and understanding. I named my company XPLANE because we focused on explaining things. The purpose of that company, originally, was to make information crystal-clear, so everyone would know what to do.

I was convinced that the biggest problems of organizational change were complexity and confusion, that if we could help companies explain things more clearly, their change problems would go away.

Boy, was I wrong.

I've discovered that people will often say they agree when they don't agree. They will say they are on board, when they are not on board. They will say that they don't understand something when they understand it perfectly well.

In a top-down organizational hierarchy, "I don't understand" is a polite way of saying "No, I'm not going to do this." Why does this dynamic play out time and time again, in organizations large and small, all over the world?

It has to do with emotion. Feelings.

We've all heard the saying "leave your emotions at the door." It's a common saying in business. Be objective. Focus on the facts. Nice idea. But it's impossible.

Emotions are an important and necessary part of the reasoning process. If you had no emotions, no feelings, no needs, then there would never be a reason to do *anything*.

There would be nothing to be objective about. Everybody has needs. You do the things you do – go to work, go shopping, eat lunch, and so on – in order to meet your needs, your need for food, water, shelter, and once those are met, your need for higher-level things: a nicer house and car, or maybe greater meaning and purpose.

"Leave your emotions at the door" is a dangerous idea. You cannot take off your emotions and leave them at the door, like an overcoat. I don't mean to suggest that we should go to meetings and act like emotional messes, but we achieve results in life not because we are objective but because we care. When a meeting, for example, is not a safe place for people to share their feelings and their needs, you will get people saying one thing and doing another, a story we have all seen play out hundreds of times.

Why did he say he agreed if he didn't agree? Because he had to leave his emotions at the door, that's why. And when he left the meeting, what did he do? He put his emotions back on and went back to work.

Reason does not get people to act. Emotion is what causes people to act. People can think something is perfectly logical and still not do it because they don't care enough about it, or they don't have any emotional attachment to it. The reason that people do things, especially heroic or major things, things that take a lot of effort, is because they care. Imagine a basketball team that left their emotions at the door whenever they went into a game. They would never win! If you leave your emotions at the door, what's the point in even playing a game like basketball, what's the point in winning? There is no point. The car service, Uber, recently started doing business in my home town of St. Louis. Uber is an app that connects people who need rides with people that have cars and are willing to drive them. I decided to give it a try. The driver who picked me up was an older guy named John. He was driving a Ford Taurus. I suspect he was retired. I got in the front seat. As he drove me to my destination we started talking about St. Louis. Many of the places we drove by had recently gone out of business, or changed hands from one business to another. Gradually, the conversation began to move from small talk to what I can only call conspiracy theories. The Federal Reserve. Monetary policy. Several times, he said, "Most people don't understand what's really going on." I asked him to explain, and as he did, it became clearer and clearer to me

that his theories were muddled and confused. I couldn't understand how they could make sense, even to him. But they did. To him they seemed clear. Every element of his theory pointed to the fact that everything is going to hell. He was certain that there would be an imminent collapse. We drove by some mansions and he said, shaking his head, a few years ago you could buy one of these for almost nothing. I was trying to suspend my disbelief and go with his theory. I said, well, maybe soon, when everything collapses, they will be cheap again, right? Well, even though it seemed to fit his theory, he didn't want to hear it. The conversation ended when we reached my destination, and he awkwardly made some kind of comment about the Uber review system. I think he was worried that I would give him a bad rating (I didn't, I gave him five stars for being interesting). His theories were muddled and fuzzy. But they were deeply meaningful, to him. Beliefs are explanations of the world. When an emotional need is unfulfilled – especially when it remains unfulfilled for some time – the brain seeks to fill that gap with some kind of explanation. Why did John the Uber driver adopt his conspiracy theories? We may never know. But numerous studies^{10 11 12} have found that when people feel a lack of control, they have an increased propensity to form conspiracy theories as a way to explain their helplessness. Think about it: when you are doing everything you can to fulfill an unmet need, and you are not having success or feeling any traction, you look for reasons. Something must be blocking you. What could it be? The conspiracy theory arises to fill that gap. It explains why you are not getting what you want. We tend to think that people change their beliefs when they are given new facts. But it's not as simple as that. Beliefs often fulfill deep emotional needs. Needs, beliefs and behavior are deeply interconnected. For example, if you have a strong need, you will tend to direct your attention and focus toward meeting that need. That's your motivation. You want to do something to fill that need and you will tend to notice things that relate to it. But what's the best thing to do?



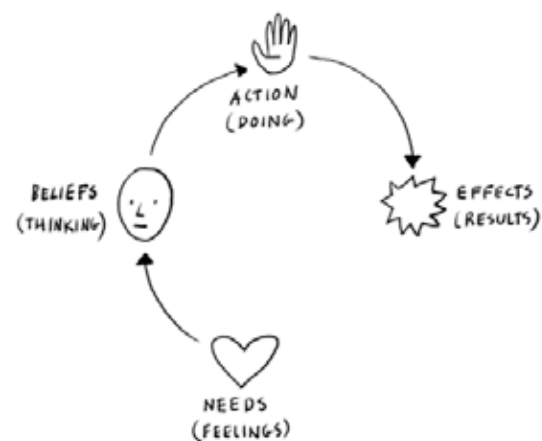
Before you can take action, you need some kind of belief that will help you think about it, to decide what to do. That's how needs give rise to beliefs.



Your beliefs determine how you will act when you want to fulfill a need. A belief is a rule for action.



I sometimes visualize this dynamic as a cycle. Needs provide the motivational force, the desire to change something. Beliefs then supply ideas about the best ways to act in order to fulfill the need.

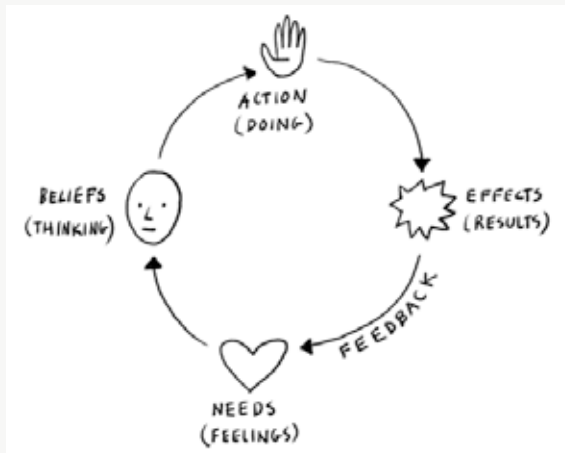


¹⁰ Whitson, Jennifer A., and Galinsky, Adam D., "Lacking Control Increases Illusory Pattern Perception, *Science* 322, No. 3, 2008;

¹¹ Sullivan, Daniel, Landau, Mark J., and Rothschild, Zachary K., "An Existential Function of Enemyship: Evidence that People Attribute Influence to Personal and Political Enemies to Compensate for Threats to Control," *Journal of Personality and Social Psychology* 98, No. 3, 2010.

¹² Kay, Aaron E., et al, "Compensatory Control: Achieving Order through the Mind, Our Institutions, and the Heavens," *Current Directions in Psychological Science* 18, No. 5, 2009.

When those beliefs are put into action, they create effects in the world. These effects create a feedback loop.



If you perceive the effects as pleasant or rewarding, that means that your beliefs and actions are fulfilling your needs. That pleasant feeling will reinforce your beliefs, because they are getting you the results you want. In other words, they work. They are effective. Over time, these beliefs and actions will become habits.

If you perceive the effects as unpleasant, you will tend to replace the belief with something that works better for you. If the effects are unpleasant and you don't feel that you have control of the situation, there's a tendency to create beliefs that help explain away that lack of control. To create bad guys. Conspiracy theories.

The philosopher Charles Peirce said that beliefs are habits of action. When you acquire a belief, you also acquire a disposition to act in a certain way.

To understand why someone does the things they do, you need to understand their beliefs. And in order to understand their beliefs, you need to understand their needs.

But people's needs are not easy to uncover. People will often conceal them.

Why? If I reveal my emotional needs to you, that makes me vulnerable to being manipulated by you. That's not an easy or comfortable place to be. It requires a lot of trust. So if trust is lacking for some reason, people will conceal their needs.

Because of this, figuring out what another person needs can sometimes take a bit of detective work.

My wife, Michelle, used to work at a technology company,

which shall remain nameless. She was working as the marketing manager at this company, and the rest of the office was out of town at a conference. She was expected to be in the office that day to make sure that she could take any calls that came in, even though she didn't normally field calls. That morning the temperatures were below zero. She was driving our son to school, and she noticed that the car was not heating. It was just freezing cold, and she smelled something burning. She got our son to school, but the car broke down and she had to be towed to the garage. I was out of town, unfortunately, so I was no help at all.

So, knowing that she wasn't going to be able to make it to work that day, she called in and left a message for the rest of the team, got a ride home from the guy at the Auto shop place, and forwarded all the office calls to her personal cell-phone. So she was able to handle everything, just like she had been in the office.

That wasn't good enough. The next day the boss chewed her out.

He could have said, "Oh, wow, I'm so sorry you got stranded on the highway, but what great initiative. What a good job you did to take care of everything in such difficult circumstances." But he didn't say that.

What he said was, "You didn't have the right to make the decision to work from home without getting my verbal authority. You should have taken a taxi to work, and actually been there in person."

How do you think that made her feel? If you're a boss and you're acting like this, I can guarantee that your best people will be leaving to find other jobs, and you will be left with those who are afraid to leave. They will stay because they are afraid they can't get anything better. And that will hurt your company in the long run, which will probably hurt you too.

Stories like this are all too common. People need to feel like they are important, like they have some control over their lives, the ability to make decisions. They need to feel like they are being treated fairly.

Well, I don't think I have to tell you this, but Michelle doesn't work there anymore, and almost everyone else who was working there at the time has quit too.

When people's basic emotional needs are met, they do better work. When they feel valued and important, they perform at much higher levels. When they have a sense of control,

they will take the initiative. When they feel a sense of belonging, they will contribute more. When they feel they are treated fairly, they will go the extra mile.

If you take these things away, you are emotionally starving them. When people are emotionally starving they come up with conspiracy theories. They cover up, hide and hoard information. They play political games.

Liminal Thinking is an awareness of the important role that emotional needs play in the formation of beliefs; how beliefs then become habits of action; and how we create the world we live in through those actions.

In any situation where you are dealing with others, especially situations involving conflict, ask yourself, ***do I truly understand the need?*** And don't leave your emotions at the door.

Look at the margins, for the margins are the future

Minna Aslama Horowitz

The future of work is a conversation filled with hope, but also with great anxiety, especially for those who are about to enter the labor market.

I teach topics around the media, communication technologies, globalization, and human rights, to university students from around the world who are studying in Europe and in the United States. One of the first comments, and most positive predictions by the students, is that they, too, can potentially become entrepreneurs, influencers, and advocates in the borderless networked society, and live a creative life with flexible working arrangements.

Then, they quickly continue to the but of the situation: globalization means increased competition, especially from developing countries and emerging economies, signifying fewer rather than more work opportunities for them.

It is understandable that the 20-somethings located in the Global North view the world based on their own challenges. They need support in envisioning the globe, and their role in its workforce, in a new way. The biggest opportunity for them to survive, and thrive, is to embrace global collaboration, not competition. The regions, communities, and people that, for their parents' generation, were on the margins of their worldview are now crucial in developing prosperity and jobs for all of us.

My students currently have few mentors who represent this line of thinking. Innovation is progressing quicker than government regulation. Education has not (yet) responded adequately to the new demands and challenges. Few technologists are devoting time to understanding global structural inequalities and building tools, together with different communities, to

ensure the applicability and effectiveness of new technologies.

And there are many challenges to overcome. While mobile leapfrogging and major innovations, especially in banking and health care, are making a difference in less developed regions of the world, a hidden digital divide exists, comprising issues such as the speed of internet connections, or the rapid development of hardware and software in the developed countries, which the rest of the world cannot match. The predicted disruption in the nature of work and labor markets over the next few decades is likely to hit the most vulnerable populations the hardest.

However, according to a new report by the Foresight Alliance, one of the key solutions to these challenges is that higher-income and lower-income countries learn from one another about best practices in policies, flexible institutions (including education), and formal-informal work. In essence, knowledge exchange of this kind is not between countries but people. Those entering the job market must be ready to learn.

"Look at the margins, for the margins are the future". That is what the world-famous cultural scholar, John Fiske, used to say to us graduate students of media and technology in the 1990s. That is why Google and others are now investing heavily in Artificial Intelligence, a phenomenon still relatively marginal in our everyday lives. But this is also why a small crowdmapping project, started by a Kenyan blogger and developed into the open source platform Ushahidi, is now used everywhere in the world to monitor elections, natural disaster relief, and more.

"Center the experiences of those at the margins of the economy", concludes the Open Society Foundations in its recent report on the Future of Work. Look at the margins, care about those experiences, and collaborate. Without the margins there may be no future.



Drafting the new world of work

The Platform Economy

John Zysman, Martin Kenney

We are entering a Platform Economy – one in which tools and frameworks based on the power of the Internet will frame and channel our economic and social lives. The algorithmic revolution – the application of an array of computable algorithms to myriad activities, from consumption and leisure to services and manufacturing – is the foundation of this digital transformation.

Algorithms now live in the cloud and form the basis of digital “platforms.” For our purposes, “platforms” are “frameworks that permit collaborators – users, peers, providers – to undertake a range of activities, often creating de facto standards, forming entire ecosystems for value creation and capture.” The unfolding cloud computing paradigm, coupled with the Internet of Things, is an incredibly powerful ongoing technological wave that will drive further change.

Many scholars and the popular media believe that software and software-enabled robots are likely to replace an enormous number of today’s workers, leading to massive and persistent structural unemployment. Undoubtedly, changes are already affecting long-standing employment arrangements, and more will be disrupted. For those working or seeking work, these changes may be as wrenching as those that workers faced in the Industrial Revolution or during the Great Depression. It is much easier to predict which jobs might be destroyed than those jobs that may be created or the character of that newly created work. And yet, in each of the previous technological revolutions, even as old work was destroyed or transformed, new work was created. Those who do find work will undoubtedly experience a transition from one set of authority and economic relationships to another as we move from a set of “employment” relationships to gig, contractor, and consignment arrangements.

It is important to examine not only where work and employment are likely to be negatively affected, but also sectors and fields where work may expand. Where should one look for new opportunities, and what will these opportunities require?

At least part of the answer is in examining the opportunities being created by the new cloud-based and software-enabled platforms, or that may be created in the near future.

Of course, prediction is hazardous in fields within which technological restructuring is underway. Business models and concomitant opportunities that appear to be promising can suddenly collapse, and many surprises are likely to occur. We are not claiming that these platforms will spontaneously lead to a new employment utopia but, rather, that the new technologies are creating avenues for growth in value-creating activity – though with compensation regimes quite different from the ones with which we are familiar. Many of these new activities may not be either high quality or adequately compensated, but some certainly will be. However, the political process and new producer organizations are likely to cause these arrangements to evolve over time.

The Platform Economy participants that have received the greatest attention are firms, such as Uber, Airbnb, Handy, and TaskRabbit, whose business model is predicated upon connecting individuals wishing to purchase a service with individual service providers. In some cases, these services threaten to transform existing business models, such as those of taxicab drivers or delivery staff, which often had barriers to entry that allowed higher pricing but also corresponding public service requirements that imposed costs.

The new platforms dissolve barriers to entry but also skirt around public service requirements, such as serving the disabled, providing accommodation to anyone regardless of color or creed, or picking up passengers in less safe areas. There is also a shift in power from public agencies such as the local Taxi Commission or zoning administrators to the platform owner, who, particularly in winner-take-all sectors, can simply make changes to the software and immediately shift the terms of engagement for providers and customers in order to maximize the owner’s position. The opposite is also the case, in that through mere tweaks to the software the owner could increase the benefits to the other platform participants. Platforms do bring greater efficiency to these markets, through better price discovery and allocation of resources, but their impact on service providers can be

contradictory; in some cases, decreasing income and shifting risk but also possibly increasing demand. For example, Uber appears to have shifted demand for personal transportation from established vendors such as taxis, while also increasing demand, but in every case these platforms have certainly centralized market power.

An entirely different group of platforms are those creating new markets or which attract both newcomers and existing producers by offering access to larger markets. The ones we are familiar with are Amazon and eBay and new firms, such as Etsy. They are all interesting because they allow businesses to grow on the platform and thus may create new jobs, though – in the case of Amazon, in particular, and, to a lesser degree, eBay, and probably even less so, Etsy – they can replace existing offline jobs. The demise or transformation of the remaining offline bookshops comes to mind here.

One truly intriguing new opportunity for creating compensated activity may be the burgeoning opportunities for individuals and small teams to create digital and even new software-enabled physical products that they can either sell directly or be compensated for through other payments, such as a share of advertising revenue. The largest of these platforms are, of course, the Apple, Android, and Amazon app stores. To illustrate, as of January 2015, Apple had paid developers over \$25 billion; while Google paid \$7 billion in 2014. Information is not available on Amazon. YouTube, Amazon self-publishing, Vimeo, and other websites have also become sources of income. Conceptualizing the meaning of all of this becomes even more difficult as the Maker's Movement gathers strength and, through it, software and computation increase their suzerainty over the world of atoms even further.

In this changing environment, a growth and “jobs” policy may need to be re-conceptualized, in part, as a “compensation-for-value-creation” policy. Well-compensated

value-creating activities are the objective, but they will be the outcome of successfully guiding structural transformations in the economy and society that the platforms bring.

Many issues are accompanying this enormous change, and we can allude to only a few. Government involvement may not comprise a jobs policy per se, but a collection of efforts to shape an environment within which skills in software creation as well as design, video, and other forms of creative expression are supported. This will probably mean that art and music programs will require more support, though such programs are not likely to be the art and music appreciation courses of old. Competition policy will also have to be rethought. Moreover, the state is likely to be asked to play a role in regulating platforms, many of which are already virtual monopolies or duopolies, to ensure that power is not vested entirely with the owner. Finally, tax policy will have to be revisited because the massive value created by the platform ecosystem is now captured in capital gains typical of a winner-take-all economy, in which the economics even for those creating apps and making YouTube videos demonstrate winner-take-all returns for the successful and long-tail, minimal returns for the vast majority. How can our tax policies take better account of such dynamics?

In sum, human activities that create value are not disappearing; however, the forms and arrangements within which those activities are organized are changing as we speak.

While economists have monopolized the discussion thus far, these changes require a far broader framing, since considerations of equity and empowerment will be necessary for building acceptance of the social context within which these new value-creating activities are embedded.

Human activities that create value are not disappearing; however, the forms and arrangements within which those activities are organized are changing.

Platforms, blockchains and digital trust

Juri Mattila and Timo Seppälä

In the Europe 2020 strategy, the European Commission has defined trust and security as one of the seven key pillars of its digital agenda. This decision, of course, is not a difficult one to rationalize. Without trust and security, the prospects of benefiting from any kind of network of systems are extremely limited – no matter how interoperable and pervasive the network in itself may be. Digital trust stems from a combination of factors. When we choose to engage in digital transactions, we trust that the products and services provided are secure against malware and data abuse. Secondly, we trust that the parties involved are who they say they are. Thirdly, we trust that the parties involved will make good on their commitments, and if not, that our contractual rights can be effectively demonstrated and enforced.

So, in essence, digital trust requires three factors: security, identifiability, and traceability.

Quite often, however, the presence of these features can be too difficult for an individual to evaluate – particularly in a digital environment. In such cases, we often fall back on another form of trust: that which manifests itself in the scale of operations.

In this, the assumption is that if an entity has managed to grow its business beyond a certain point without building a prohibitively poor reputation in the process, it can in all likelihood be considered trustworthy. A large company, for example, would stand to lose more in goodwill damages than it would stand to gain from breaching its contract with a customer, and we can therefore trust that compliance is in our mutual best interests.

As the platform economy is becoming more pervasive in society, an increasing proportion of the population is transitioning from traditional steady jobs towards precarious self-employment. Somewhere in the gradient scale between employment and entrepreneurship, they choose to offer products and services to customers independently through digital platforms, such as Uber and AirBnB.

One problem for these informally self-employed workers, however, is that they lack the means of establishing digital trust on their own. They are therefore easily locked in by large-scale platform providers who use their size offer to mediate trust for them and hence bring in the customers – but for a hefty price.

Without other alternatives, the self-employed workers face the threat of finding themselves in a commoditized layer of product and service providers, whilst the platform providers reserve the right to set prices and other contractual terms on their behalf. Thus, the independent workforce may be facing a future with more independence – but weaker labor rights and minimal leeway in the terms of their offering.

The increasing influence that platforms are having on the working conditions of society could also translate into less governmental control over the issue. To ensure that this does not happen, three policy options are available: **legislation, standards, and technological disruption.**

As the least invasive approach, the government can acquiesce to the status that these platform providers have seized for themselves as the mediators of digital trust in society. In doing so, the government would limit itself to enacting laws laying down boundary criteria for the arrangements between platform providers and independent workers. By enforcing some base level of minimum rights, the government could try to ensure that market-driven platforms do not abuse their power over the workforce. Alternatively, the government could seek to disrupt the status of the trust-mediating platforms by creating an agnostic universal standard for digital trust. In practice, this could mean allocating the social function of mediating digital trust to some international non-profit organization which would carry out its function transparently, agnostically (i.e. irrespective of identities or motives) and with no interest in economic gain. Since initiatives of this kind are already in existence, any government wishing to engage in this approach would only have to decide which initiative it wants to support and endorse.

A third way in which the government can try to shock digital platforms is by expediting the technological disruption of digital trust. By creating secure, distributed platforms where identifiability and traceability are woven into the algorithmic fabric of the network, digital trust could be brought within the reach anyone and everyone. For example, if applied correctly, blockchain technology could allow any group of individuals to establish a digital trust among themselves for whatever purpose they desire, without the need for an external mediating party of any kind. This, in turn, would emancipate independent workers, enabling them to effectively offer their goods and services directly to the customer, without necessarily having to go through the dominant platforms.

Digital trust is only one of many aspects contributing to the growing trend of platform dominance, since platform

providers have other means of locking in their users, such as network effects and multi-sided markets. Nevertheless, removing digital trust from this equation would undoubtedly restore some of the swaying balance between the platforms, the workers, and the public authorities – if such a balance is considered worth preserving.

Before a platform for a network of systems is established, society must decide to whom it wishes to grant the power to build and govern such a platform. The question of whether control will lie in the hands of public or private authorities is far from irrelevant, and digital trust is one of the decisive factors by which this choice will eventually be determined.

Creative, connected learning is at the core of the post-industrial business.

The biggest social experiment

Mikko Hyppönen

The Internet is the best thing that has happened to mankind during our lifetime. It has brought us so many good things: communication, business, and entertainment. For the first time in mankind's history, a very significant proportion of humankind can freely communicate with anyone else on the planet. While the Internet has brought us so much good, it has also created completely new kinds of risks. Before the Internet, you really only had to worry about criminals who were living close to you. Now we're constantly faced with online attacks from thieves who could be operating 12 time zones away from us. An even bigger change concerns what the omnipresent Internet does to our privacy.

Before the Internet, having a private discussion with your friend meant that you would go somewhere where just the two of you were present and have your discussion. Today, having a private discussion means sending your message to a third party – like Facebook, WhatsApp, Twitter or Google – and then that party sending the message to your friend. How on earth is that private?

As computing performance has continued to skyrocket, we have the technical capability to collect all communication, and save it forever. However, just having the technical

capability to do something doesn't mean that it should be done. And it certainly doesn't make it right. Regardless, intelligence agencies around the world are now using the Internet to place online users under blanket surveillance. Information can be collected and saved just in case. You don't have to be a person of interest to have your communications recorded. They might be collected on the off chance that in 20 years you will become a person of interest. If that were to happen, whoever has collected your emails, chats, forum posts and online searches can easily find something to use against you or for twisting your arm. Show me your Google search history and I'll find something incriminating or embarrassing in five minutes.

It's crucial to note that we are the first generation in history to experience this level of surveillance. We live our lives online. We are the first generation whose location and communications can be collected throughout our lifetime. This makes us all guinea pigs. It's as if a global experiment were underway to test how we cope without privacy.

What does this mean to us as human beings? I'm afraid we don't know. By the time we understand the implications it might be too late.

Drafting the future of management

Risto Harisalo

In what follows, I explore where society is going and what implications such a direction has for the management of our organizations. There is much, valid, talk about industry and information as the basic drivers of societal and organizational development, but I propose that the next great challenge lies in managing ethical issues, which provide the broader framework within which our choices and behaviors must be understood. There are three compelling reasons for turning our attention to this.

It is often argued that, in our thinking, we are moving into the era of postmodernism in which organizations comprise ongoing, aggregative, world-making activities rather than solid and static objects. This means that potential ethical issues are continuously being met at every level – institutional, strategic, and operative – of organizations.

The second reason is the fact that continuous change is making organizational life chaotic, complex, uncertain, and unpredictable. In such a world it is impossible to appeal to previously learned ways of thinking, rules of thumb, and statistical regularities. Although economy and efficiency are still relevant criteria, they do not offer acceptable and valuable solutions to new challenges. Only ethical thinking does this.

The third reason is the power of ethics. Strong, ethical thinking tackles possible weaknesses in budgets, assignments, and responsibilities, while weak ethical thinking destroys ambitious purposes and carefully designed programs.

To meet the challenges of ethical thinking, we must lean on our ability for catalytic sense making as a virtual neuron, making interactions possible and tying an organization together. Catalytic sense making is based on curiosity, patience, broad-minded, candidness, and trust. It serves decision-making by generating alternative problem definitions and forging potential solutions to them. There are three vital methods of catalytic sense making; that of discussion, debate, and dialogue. These are the necessary phases in making ethically and rationally sound decisions.

Catalytic discussions precede concrete decision-making and assist us in spotting potential ethical issues. They are used to collect a wide variety of more or less relevant hunches, ideas, perspectives, and points of view about issues and problems in decision-making. The more of these that decision-makers can gather, the better they are able to avoid parochialism

and short-sightedness, and the easier it is for them to resist the temptation to accept the obvious.

Catalytic discussions require careful listening as a means of identifying new questions and alternative answers, bringing hidden visions to the fore, and of continuous enquiry. They strengthen humble learning, active participation, and out-of-the box creativity. They also defy groupthink, subordination, and dogmatism.

The main purpose of catalytic debates is to set proposed alternatives against each other in order to discover their ethical and practical strengths, and weaknesses. Catalytic debate is an earned skill. Properly practiced, it promotes collaboration, mutual development, and clarification of thought. Failing in these areas intensifies juxtapositions, mistakes, and conflicts. Catalytic debates can be held as both formalized argumentation and during informal occasions at all organizational levels.

**In modern work, leaders
create the followers,
and, at the same time,
followers create the
leaders.**

The final phase of catalytic sense making is that of dialogue with the purpose of generating solutions that go beyond the original demands and conflicts. In other words, catalytic dialogue sets participants free from their individual bonds of ways of thinking and experiences that are invisible to rational assessment. Dialogical solution is not an agreement based on the lowest common denominator, but based on the highest possible standards

As a whole, catalytic sense making leads to certain significant outcomes for the organizations practicing it. First, it is capable of uncovering potentiality scattered and hidden issues in all corners of an organization. It should be emphasized that the technically faultless preparation of decisions is not usually sufficient to uncover all of the relevant dimensions associated with decisions.

Second, it is an efficient motivator for participation, because everyone has something to say or add to decision-making

processes. If people are given a say in catalytic discussion, debate, and dialogue, they will invest in their thinking and sharpen it up in collaboration with others.

Third, catalytic sense making is a guarantor of mutual respect because is based on the supposition that everybody's ideas and thoughts are needed in order to frame and design choices, and identify the ethical issues within them. It allows people to air their concerns and anticipate future problems.

Fourth, it promotes flexibility, which is necessary in an uncertain and unpredictable world. It encourages people to engage in the continuous re-assessment of their choices and avoids the passive work routines often deeply ingrained in their behavior. Flexibility is about active co-creation and interaction.

Fifth, catalytic sense making helps people to break down the barriers in their thinking and to widen their perspectives. Many dangers lie in the way of decision-makers; frame blindness, over-confidence in their own judgments, shooting from the hip, process blindness, groupthink, mistaken ethical choices, etc.

Catalytic sense making is needed in order to provide protection against the ethical errors and failings that are so dangerous to organizations. Nothing is more hazardous to them than a tarnished public image. Consequently, top management must ensure that catalytic sense making permeates the organization.

Basic income – the safety net that enables the new work?

Markus Kanerva

In 1964, the most valuable company in the U.S. was AT&T, which was worth \$267 billion in today's dollars and employed 758,611 people. Today's telecommunications giant, Google, is worth \$370 billion but has only around 55,000 employees—less than a tenth the size of AT&T's workforce in its heyday. According to Carl Frey and Michael Osborne of Oxford University, the turmoil in the job market is set to continue. In 2013, they projected that 47% of today's jobs are at risk of computerization over the next two decades.

Even if you still have work, it may no longer pay. The wages of most American workers have stagnated or declined since the 1970s. About 25% of workers (including 40% of those in restaurants and catering) now need public assistance to top up what they earn. This has happened at the same time as corporate profits have increased and to set historical records. With labor costs accounting for roughly 60% of corporate expenses, higher profits bear a direct relation to low hourly wages.

The wage share (the ratio between employee compensation and GDP) has declined in all OECD countries over the course of the last three decades. Research by the International Labour Office ILO attributes most of this decline to financialization, while welfare state retrenchment and globalization have also had negative effects. Technological change, on the other hand, has only modestly negative effects on the wage

share. These findings suggest that income distribution is not primarily determined by technological progress, but also depends on social institutions.

National social security institutions have been successful, so far, in providing public assistance to the people affected by the fall in the wage share. Such institutions developed when the traditional model of stable employer-employee relationship prevailed. To prevent any misuse of public money and ensure that it is targeted at the needy, benefits have been handed out conditionally. However, research in social psychology reveals that people perform better on the basis of trust, and better outcomes are achieved in general compared to a situation in which actions are monitored and people are sanctioned for misbehavior. When we put this together with the dawn of a new era in which work is based on interaction between interdependent people, and is about tasks, assignments and gigs rather than going to an office or factory, it becomes clear that the current social security model needs to be rebooted.

How to reboot the old system

What we need is a system that can provide financial security in continuously changing circumstances, and which also covers the self-employed, who are often excluded from current social benefit systems. An approach that seems worthy of exploration may be a system which unconditionally guarantees that everyone's basic needs are met. This goes by names such as a guaranteed annual income (which could be administered as a negative income tax), or citizen income or universal basic income. I will call this a basic income.

As a policy, the basic income radically departs from the mainstream means-tested and work-dependent perspective of income maintenance which predominates within the traditional welfare state. In its generic form, it is understood as guaranteed income provided by the state to all citizens or long-term residents, irrespective of their individual background or income or wealth level. Basic income allows individuals to top up this guaranteed income with other private and public sources of income. It can be set at a relatively high level that ensures reasonable living standards, but with no other state benefits remaining. Or, it can be set to a lower level when some additional benefits, such as housing benefit, are retained.

Reducing uncertainty, increasing capacity

In 2013, Tänk, an independent Finnish think-tank, examined whether Finns lead their lives in a personally fulfilling manner. Their study found that a secure economic situation and social networks lead to improvements in the attainment of personal goals. This, in turn, is closely linked to an individual experience of wellbeing. Social policy makers may be unable to support people in building up social networks, but they can affect how people experience their economic situations and can improve their wellbeing in this way.

Financial security is also linked to cognitive skills. Researchers from Princeton, Harvard and the University of Warwick have run experiments with low-income people, who were primed to think about financial problems. They performed poorly in a series of cognition tests, being weighed down by a mental load that was the equivalent of losing an entire night's sleep – the condition of poverty imposing a mental burden similar to losing 13 IQ points. One of the researchers, Professor Eldar Shafir, says the following, "When your bandwidth is loaded, in the case of the poor you're just more likely to not notice things, you're more likely to not resist things you ought to resist, you're more likely to forget things, you're going to have less patience, less attention to devote to your children when they come back from school."

Not as dangerous as you might think

In 1964, a committee of scientists and social activists sent an open letter to President Lyndon B. Johnson arguing that "the cybernation revolution" would create "a separate nation of the poor, the unskilled, the jobless," who would be unable either to find work or to afford life's necessities. These warnings propelled poverty reduction programs and brought basic income into the public eye. This was supported by people such as Dr. Martin Luther King, Jr. and Richard Nixon among others. But it was also criticized – as it is today – for making people lazy.

To understand whether this is true or not, five different social experiments were conducted in the U.S. and Canada between 1968 and 1979. The labor supply did diminish in some of the experiments but not all, and in many cases reductions in working hours meant more time spent with children or in education.

"Prosperity in a society is the accumulation of solutions to human problems" Nick Hanauer

There are findings on this subject that are less than 40 years old. In recent pilot studies on basic income, Guy Standing, a Professor of Development Studies at the University of London, concluded that they did not deter people from working. Instead, he says, "Once people are no longer afraid of not making ends meet, they become productive."

Researchers have studied the behavior of the winners of a Belgium lottery called 'Win for Life', based on which the winners receive a relative modest monthly payment for the rest of their lives. At the time of the study, the winners' monthly payment was €1,000. In the study, this served as a proxy for the basic income. Although the sample size was fairly small, the basic story is that a win did not make people work less. When winners were given the chance to comment on how the win and their improved financial situation had affected their lives, they stressed that the main effect was less uncertainty about the future. Monthly payments provide security and generate a more relaxed approach to life, in which people are able to make balanced choices.

From speculation to evidence

The idea of a basic income has been confined, over the last two decades, to the political margins, until recently. However, on this occasion, it is not only the political left but entrepreneurs and venture capitalists who are speaking in favor of it.

Götz Werner, the German founder of a European drugstore chain with sales of over EUR 8 billion and 50,000 employees, argues that the advance of globalization, automation and rationalization has created a post-industrial society in which production and economic growth can no longer serve as

the basis of societal wealth. He urges us to focus on creativity as the only remaining, sustainably exploitable resource of the twenty-first century. To avoid the social unrest that will accompany the shortage of constant paid work, and to tap into this resource of creativity, people must have universal access to material security. An Austrian chocolate maker, Josef Zotter, believes that with a basic income “people can rest and recover their freedom. Thus a basic income would also unleash innovation.” Albert Wenger, of Union Square Ventures, points out that a minimum income would allow us to “embrace automation rather than be afraid of it” and enable more of us to participate in the era of “digital abundance”.

Finnish Prime Minister Juha Sipilä, a successful entrepreneur turned politician who is leading a centre-right government, has committed his government to conducting an experiment that will evaluate the effects of a basic income system. This experiment is still under preparation, but is scheduled to begin in 2017 and run for two years. A large, randomly selected national sample, including focus groups and control groups, will be included in the trial. Some municipalities may be involved, based on high participation rates among residents in order to learn about the dynamics of a basic income.

The basic income is likely to be based on existing benefit levels, which means that the model tested during the experiment will not quite be the one envisaged by the idea’s proponents. However, the testing of even a partial basic income would still generate a large amount of information on how giving up means-testing and simplifying social security affects behavior. The effects on labor supply will lie at the center of the experiment, but other outcome measures such as subjective wellbeing will not be overlooked.

Running an experiment like this is the only way to find out whether a basic income would work as its proponents have argued. Until such an experiment has been carried out, arguments for and against are ideological and based on speculation.

Utopia at hand

In the midst of the Great Depression, the economist John Maynard Keynes forecast that technological progress would allow a 15-hour working week and abundant leisure by 2030. If we can provide a safety net that allows workers to pursue their ambitions and their creative potential, we are heading into a bright new future. Otherwise, Keynes’ vision will become a nightmare.

A 2025 scenario

Riel Miller

As I had hoped, my life now runs at a comfortable pace. Not that I am doing or learning less today, November 30, 2025, than I was fifteen years ago in 2010. If anything, I do even more of pretty much everything that I like, just with less stress and less wasted time. Of course, the day has not gotten any longer. What is new is my ability to manage the allocation of my attention more effectively. I am better at prioritizing and making decisions about my own life and the world around me. This is a skill that I learned the so called “hard way”, through experience and feedback. In many ways, my current capacities are a by-product of the way I live. And the way I live is very different from fifteen years ago in at least four crucial ways.

The what, how and where of production and consumption

Starting with what everyone was forced to put first in the past, I earn my cash income primarily from one source

– intellectual property. No, I did not patent a new cure for cancer or write a number one pop song. What I do is much less exotic. Part of the revenue I get is from an area that I specialize in, designing urban reconversions. Sometimes I’m hired as a consultant for a specific project; on other occasions, I am paid for writing or speaking. I am often paid to assist with the learning process, so people can do reconversions themselves; I play roles such as mentor, coach, and co-designer.

Another important part of my monetary revenue stream is based on little things that I have dreamt up along the way, like a design for a neat urban bicycle, a few, great main course recipes, a virtual dance routine used in virtual reality “places” and even some photo mashups I have created. I get royalties from such intellectual property, the payments flowing in automatically, in small amounts, when people download an item that includes my intellectual property. I also earn some monetary credit from the surplus energy I generate and sell to other members of the community. These disparate and mainly small-scale monetary flows are congruent with an

economy where old style firms and employment no longer play a major role. Instead, it is vast networks, clouds of co-operation and competition, buying and selling, that generate today's money flows.

However, I have to admit that my income level, measured in terms of money, is not what it used to be. Actually, a good part of my quality of life is not purchased directly since it comes either from the collective/community services of the place where I live, or the lively local market for in-kind and time-based transactions. Sure, I still pay out about 20% of my monetary income in taxes, but that is only half of my tax burden. The rest I pay by helping out around the community in a whole bunch of ways, from storytelling and cooking to gardening and teaching in seminars.

I have to admit that I was initially very worried about the idea of community service as one of the obligations associated with living in a community. What changed my mind was the shift in the composition and location of "my community". I no longer organize my life for work but work in ways that enhance my life. Instead of my home serving as a base for going to work, living in the midst of anonymous commuters and residential support services, I now live with a community of people I know, in a location that reflects my preferences, not the arbitrary (from my point-of-view) location of a workplace.

Another outcome of the radical changes to what, how and where I produce and consume is that my ecological footprint has diminished drastically. Without going into the many factors that made this possible, the reality today is that going "light" in terms of ecological sustainability is easy. Generating more electrical energy than I use, growing a one-third share of the food I eat and reducing unrecyclable waste streams to a very small proportion, are all natural, unremarkable parts of my everyday life. In part, my sense of identity and creative expressions find an outlet in thinking about what is sustainable. And in part I am quite aware, as well as in a position to do something about, the fact that my quality of life is closely connected to the quality of my local environment.

Still, a large part of my lighter ecological footprint (associated with the much higher quality of life that I enjoy) is due to major shifts in two areas: a) why, when and how people travel and goods are transported (travel is mainly for pleasure and learning, transport within a community has almost been eliminated while inter-community and long-distance transport is only for highly specialized items); and b) the design criteria of goods and processes (ensuring much greater eco-efficiency – less toxicity, more recycling, clear lifecycle accounting).

Old ways of doing things that were once central, such as employment, firms and economies of scale, are no longer particularly important since a vast share of wealth creation is now in the form of unique learning experiences. This is the learning intensive society. Of course, industrial parts of the economy remain, but they are as marginal today as agriculture became at the end of the 20th century. What is even more striking is that the pyramid structure of goods, knowledge, status, innovations – with the biggest selling and most profitable winners of the game being at the top – no longer holds sway. All of this is because the economy is now dominated by something unique to each person, the learning they engage in day-in and day-out as they create their own identity and local community. What is also striking is that this kind of economic value is not aimed at a mass market, does not call for ingenious forms of innovation in technology or mass-production. What counts as "value" is the creation of knowledge that is meaningful to each person. In other words, what we keep track of is the value arising from the processes (doing) and outcomes (acquired skills) of all kinds of learning.

When I think about how anxious people were at the beginning of the 21st century, what is even stranger is that there is now constant productivity growth. That is because learning-by-doing or experimenting throughout life actually shows increasing returns to scale (age). That is, people get wiser. And as they get wiser, they become more efficient at learning, and since learning is the main source of wealth creation the richest societies are the ones with the highest average age. If only they had known this when everyone was so worried about being able to pay for pensions and public services! I guess it was a bit like when the agricultural era was ending; there were a lot of people convinced that industrial society would just mean poverty for most people.

The convergence of the virtual and physical worlds at a higher level of transparency

These changes to what and how I live and work would not be possible without a series of important changes to the world around me. Crucially, the virtual and physical worlds have been put in the same playing field. The major institutional and legal obstacles to establishing trust, privacy, ownership and payment systems on the Net have been overcome. Internet based transactions are seamless and unobtrusive. Property rights are tracked, including well established "fair use", and payments are all made automatically. Security is handled based on safety standards which are similar to the kinds of rules combined with research that eventually made cars safer.

For instance, it is mandatory to encrypt all digital storage and messages in line with a regularly revised standard. The public commons aspects of the Net, which is freely accessible and capable of carrying anyone and everyone's digital streams, are strongly entrenched and protected against balkanization. Everyone has the right to "cybercitizenship", which includes an inalienable identity that anchors everything from the ownership of privacy to protecting your medical profile. Methods of verifying producer's claims and seeking redress are global and efficient. The Net is now fully searchable due to the 'semantic web' with its constantly changing folksonomies and has been made a public good so that advertising and other moral hazards don't get in the way of constructing a useable, equally accessible store of all human information.

The virtual and physical worlds have been put in the same playing field

As the economic, legal and social aspects of the virtual world are brought up to par with an even more transparent and seamless physical world, strong incentives are being created for the integration of information technology into all aspects of everyday life. Virtual presence, which allows people to be together in many important ways without actually being in the same place, is now taken for granted. In fact, I pay little attention to the technological side of my daily life because all of the IT, bio-tech and new materials that make up a ubiquitous computing world have disappeared from view, being absorbed into the walls and becoming invisible but omnipresent like electricity in the 20th century.

Flows in the physical world are also much more seamless (largely since the diffusion of sophisticated, inexpensive three-dimensional solid object printers). Protectionism and subsidies, border controls and migration limits have vanished. Limits are now imposed by the transparency of incentives and disincentives, as well as the certainty of being held accountable (the blockchain played a key role here). People know how much protectionism costs, not just directly in terms of higher prices but also with respect to opportunities lost to others to use their comparative advantages.

People also have a better sense of how much it costs to be an immigrant, both in terms of what they lose and what they gain.

Of course, it makes a big difference that standards of living and quality of life are gradually converging around the world. Institutional innovations have also helped, like the universal system for validating people's human capital – made up of highly diversified and efficient peer review systems that validate and keep track of what people know how to do. This makes it easy to find the right collaborator for a project just by interacting (usually verbally) with your personal pattern recognition and correlation enhancer that then accesses the semantic web. The barriers imposed by the inaccessibility of contract law and language differences are also being lowered by innovative institutional developments (children are invited, while playing and connecting on the web, to learn about at least forty different types of blockchain contract). And of course, we've come a long way in cross-linguistic interaction, since the "Babel fish" translation system makes communication across languages pretty seamless.

The pursuit of identity breeds diversity that feeds creativity

Seamlessness has encouraged much higher degrees of integration and inter-dependency. In the physical or virtual worlds, people are in contact and deeply involved in joint endeavors of all kinds – locally and globally. In turn, this diversity is playing a key role in providing the inspiration that underpins everyday "banal creativity" – the learning of unique creation. What powers up this seemingly relentless and inexhaustible creativity are two very basic drivers. One is the need to feel clear about and at ease with our identity. The other is the desire to improve our quality of life – or once that quality seems satisfactory – to sustain it.

Fortunately, the easier proximity of people, physically, virtually and in terms of mutual understanding, makes it much easier to sustain our creativity because we are continuously confronted by our differences. The splintering of identities and the institutions that framed them, lamented by some as the "bowling alone syndrome" at the turn of the century and slightly later as the "algorithmic ghetto" of filtering, eventually flipped over. What was needed was a change in the conditions of change – like the transition from illiterate to literate populations or the diffusion of the smartphone (now integrated into our bodies, clothes, walls, etc.). Breaking through the walls created by inward looking "likes" required the emergence, not without growing pains, of a virtuous circle between people's capacity to forge their personal/collective identities and the learning economy of "banal creativity". Wanting to be "yourself" in a specific and distinctive community needed to combine with being able to invent and tell the stories that create meaningful depth and connectivity.

The end of individualism, long-live the individual – the principles of governance

Power has not disappeared, but one of the old industrial society dualisms has. Paradoxically, now that individuals are more capable of forging their own identities there is less of a conflict with the limits and imperatives inevitably imposed by collective choices and aggregate outcomes. This is because when developing one's own identity, it quite quickly becomes clear that it is not autonomous or autarkic, unless you want to be a hermit in a forest. Collective and individual identities are forged together.

As a result, three of the key determinants of social sustainability/political legitimacy have been transformed – essentially by the sharing of a few strong common values; values that are internalized (learnt/formed) through the intensive experience of making choices in the quest for identity. These three determinants are actually principles that people strive to follow.

The first is equality of opportunity, which has been made much easier to maintain since the primary form of wealth is now human capital – an asset that is evaluated on the basis of what you know how to do (not credentials).

Second, in order to sustain high levels of openness to change, there is a commitment to the principle that those who win from change will compensate those that lose.

Third, decision-making is done in ways that are transparent and accountable in order to ensure integrity – adherence to core values (human rights).

These principles would be very difficult to implement, in part because their practical realization requires continuous operational adaptation, without much higher capacity throughout society to make choices (spontaneity). This high level of ambient decision-making knowledge is available for governance activities because people have extensive direct experience of making choices about both their identity and what, how and where to produce and consume. And, something which is of critical importance in this respect, people are now Futures Literate. This was in fact the tipping point ingredient, because it has allowed humanity to reconcile its agency (conscious volition-intention), or consciousness of its ability to act – to do things – with the reality of complex, emergent evolution. In other words, we no longer wallow in the vain and arrogant posture of godlike engineers who will colonize the future by implementing plans that give life to today's grand visions of tomorrow.

We now have the capabilities needed to overcome both the systemic contradictions and painful cognitive dissonances that arose from the incompatibility of our understanding of choice and the ex-ante unknowability and amazing richness of the specificity of time and place emergence. Progress in understanding anticipatory systems and processes combined with significant efforts to integrate new ways of using the future with the basic habits of daily life have significantly changed two fundamental conditions. One is that the ability to continuously invent new stories about the future, including some that are not rooted in probabilistic or normative reasoning, has changed our ambient ability to sense and make sense of the present. This was the key to appreciating the time-place specific, ephemeral and improvisational attributes of the wondrous complexity all around us. Two was the acquisition of a more humble approach to the future combined with greater capacity to appreciate novelty, which meant that uncertainty, the terrible enemy of planning, has been transformed from a liability into an asset.

Such changes in the conditions of change are like one of those super-glues that only harden into a solid binder when separate components come together – in this case principles and decision-making capacity. One without the other does not achieve much – as in the case of the Universal Declaration of Human Rights adopted in the middle of the 20th century. The principles were there but progress on implementation was painfully, tragically slow. Those basic principles can now be put into practice because the capacity to do so is in place. So-called “human nature” has not changed, but the generalization of awareness, skill and clear incentives/disincentives effectively internalizes the values that sustain social solidarity.

Of course, this “spontaneous society” may not please or suit everyone. I dare say that people are as happy and unhappy as they have always been – we always live in the now. But I enjoy this and think it offers more freedom for more people than at any time in the past. And what I like most of all is that knowledge creation, learning, is at the centre of everything we do, but without the stress of a race to be the most innovative. After all, the joy and sense of identity that comes from my learning does not diminish or impede my neighbors' learning. There is no hierarchy here, no better or worse, just the personal value creation of the learning intensive society.

Re-understanding value creation

Sasu Ristimäki and Esko Kilpi

The current predominant value model, the current paradigm, is based on leveraging scarce assets that the company controls “the asset leverage model”. The assets can range from natural resources, real-estate, capital, radio spectrum to an HR pool. The asset leverage model has also typically led to a search for size, to maximize economies of scale, and to maximize control of assets that have been considered scarce. This has been the age of the Large Enterprise, where Large has equated to powerful, predominant and omnipresent.

The focus on company assets/resources, has consequently driven this to be a model which almost always leads to a production driven, supply driven or inventory driven model of business. Given this focus, it has been natural for the companies to concentrate on the management of their assets, with large companies necessarily expending huge effort in managing their own internal organization. Thus, it is also consistent that the key operational measures of this paradigm are those such as RoI, RoIC, RoCE, etc., all relating to asset use and/or leverage.

This paradigm has existed essentially unchanged since the industrial age begun, and the concepts of scarcity it employs are embedded in the very core of our thinking. As a consequence, too much of what happens now is based on limitations carried over from before.

So why are we still running systems on the basis of rules and capabilities introduced a century ago?

The changing paradigm of value creation

There are five key characteristics of the new paradigm of value creation. And, together these pose a revolutionary challenge to the current model.

1. value creation does not take place at the point of production, but at the point of use;
2. contextual problem solving and situational solutions are more valuable than mass solutions;
3. transactions are replaced by interactions and network relations
4. people work more from their relations than their skills
5. greatest value is no longer related to ownership of resources, or to production, but rather to connecting, to the linking of network solutions.

All in all, production/service generation can no longer happen independently of the customer or of the context of the customer.

This leads to a fundamental question, that can supply driven models remain competitive or compelling long term? We think not.

Contextualizing the customer relationship

The key driver of commercial value exchange is that it resolves the problem of the customer. Previously, it has been largely up to the customer to define the problem, and select from the available potential remedies. Now this is fundamentally changing, as customers expect (and reward) contextual problem solving. In its simplest form this means that customers expect to buy not what is offered, but what they need; or more simply they expect to buy what they individually want, how it relates to their current (not past) situation, in the form that they would like to consume it, and through their preferred mechanism.

One practical consequence, as an example, is that the use/value of inventory undergoes a transformation. This is critical for all business models based on charging a return for the convenience/risk of carrying inventory as it is suddenly a redundant convenience.

On a more abstract level, there is a fundamental change that value is no longer based on what you produce and the cost of the production, but in how I perceive the value in consumption/using of it, and how you adjust in customizing the product to my varying needs in order to maximize that value.

Note the key characteristic of contextual that it is necessarily interactive.

In a conversation, any thought communicated by you is shaped by my understanding of what you said, our relationship is shaped by my response to your message, and furthermore how I signal the message to our community (third party potential participants). While this interaction is accepted as normal in social contexts, it is a pattern distinctly absent from traditional business models.

Why is this important? Without an interactive communication channel, a producer cannot understand any specific context of an individual customer, let alone changes in the context. Nor can there be any aggregate learning from all the contexts in the market. Instead, there is a persistent reliance on making available a supply and expecting there will be demand for it.

The changing basis of how the value is created ties in with the ability to move from linear to exponential growth without previous limitations from diminishing returns. This is one aspect of what we mean when we say that transaction costs of exchanging value are eroding rapidly. It is however a critical aspect in understanding the value potential of businesses based on the new paradigm.

Contextual problem solving and platforms

Accepting that contextual problem solving needs to be interactive, we implicitly accept that there needs to be a channel for carrying that interaction. The channel needs to carry not only data, but the metadata required to establish the context (as well as provide addressing and common protocols). Additionally, it may facilitate the value exchange, potentially serving as a delivery channel. Somehow, the channel must also be supported, in the form of infrastructure. These are amongst the core functions provided by a 'platform' and companies that have established well functioning interaction channels have generally been branded 'platform companies'.

This raises an interesting question that can you get contextual problem solving without platforms? Our answer would be that the functions of a platform are necessary, but the platform itself does not have to be directly related to, or owned by the parties in the interaction.

Too often the metaphor of the platform is understood incorrectly – as it is visualized as a foundation layer, which supports a hierarchy of elements above it. A better metaphor is to consider the platform as a router – to see it as a facilitator of linkages, where it sits in the centre/confluence of value chains. This is a better metaphor also for seeing the platform in the context of a network.

The platform allows, and supports the linkages and interactions that become the facilitators of contextual problem solving. Consequently, maximizing network interactions becomes the route to maximizing value, and this applies to the transaction parties as well as the platform.

Value from data

The interaction channel(s) supported by the platform facilitate the contextualization of relationships. At scale, they also allow the platform to contextualize the market. Thus, the platform benefits from the aggregate data that is being generated by the system – the more interactions it routes, the more data is generated and this drives value.

A key differentiation to supply-driven asset-leverage companies is that generally the collection or use of the interaction data they generate is not key to their business model (except in very basic form). In contrast, all companies based on network economics are fundamentally reliant on this data – the data not only drives the business but it drives the value generation in the business.

This raises questions regarding the value and ownership of data. If we consider the position that the 'owner' of the data is the individual, the fact is that any individual's data alone is practically worthless. Data to an individual is a value-less asset. Yet, systemically collected this value-less asset potentially becomes incredibly valuable.

Data thus has emergent value – the accumulation of value cannot be derived backwards, or disaggregated. Moreover, the value function is clearly not linear which complicates any projected assessment of value.

How does this tie in with the concept of ownership then, which historically is an exclusive concept (if I own something, it means you do not own it)? It is not economically motivated for an individual to guard exclusive ownership over their data, but considering that aggregators of data leverage huge value from it, the individual feels they should gain as well.

The question becomes even more problematic when we consider that large scale platforms, driven by large scale data aggregation, tend to become natural monopolies, shutting out competition and leaving users little choice except to become parties to the platform on the terms dictated by the platform. It would be naïve to assume that all of these platforms are, or will continue to be, of benign purpose.

Value stems from interactions

The value of the network is a function of network interactions. And, exceeds the value of any physical assets (or other factors of production) directly deployed by the facilitating company.

Referring to data use, we should note that accumulating data may be a necessary aspect of value generation but the data itself is not what creates the network value. Instead, network value is created from the interactions of the network. The platform owner, though, benefits from (and relies on) the data in maximizing the value potential of the network.

Similarly, the value of the network (or the platform) is not a function of the resources of the company that supports it. The value continues to lie in the interactions; and the larger

the network the greater the number of interactions independent of the platform owner. This leads to two key characteristics of network-economics: a) the value of the network scales geometrically; and b) the value of the network scales independently of the size of the company facilitating it.

The platform is one mechanism that allows the monetization of the network and the network interactions. In this sense the platform is the most modern version of the corporation. It allows the combination of economies of scale and scope, with an inverse of diminishing returns (value scales geometrically with the reach/richness of the network).

The key driver of commercial value exchange is that it resolves the problem of the customer.

Inertia and resistance to change

If the value potential is so great, why are existing companies so slow to chase this then? Value creation drives the change on a macro level. However, most enterprises are self-sustaining cultures and even when the macro level pressure is acknowledged there tends to be a fundamental resistance to change. Being Large has traditionally also provided a strong defence against disruption (and big moats lead to complacency), as access to resources at scale has been defined by scarcity.

The challenge of Large is that if the company has accumulated a resource base of significant magnitude as the underpinning of business, and suddenly that resource base becomes less valuable, then major parts of the asset base become a liability. The asset base needs to be restructured.

Typically restructuring has been advertised as cyclical adaptation. Our core suggestion is that restructuring is increasingly structural, even in cases that do not immediately appear to be so. Sadly, restructuring addresses the resource base but seldom involves re-addressing the business model.

As a case in point, why do many durable goods have to be durable and standard and sold off a shelf? Typically, the companies involved refer to established production

and distribution, which drive the business (and “cannot be changed”). Concurrently, those same production and distribution assets are gradually becoming redundant, and are subject to constant write-offs. Instead, ignoring the existing structures, the goods could instead be re-thought and delivered as services, provided fully customized, on demand (durability itself becomes a secondary adjective) and creating a platform for further attached services.

A shortage of analytical tools / you manage what you measure

What we are proposing leads to a management problem. If, as we propose, value creation is no longer a function of asset deployment, then most of the analytical tools that management currently deploy, including all measures of asset efficiency, become redundant. Simply, historical models of value measurement cease to apply.

Individuals raised in the paradigm of Large often struggle with the market capitalization afforded new companies that do not show well on the metrics that they have always used. Without understanding the basis of value of the new models there is a lack of impetus to transition the business model.

Capitalization, of course, is important because it is a causal proxy for the resources a company can bring to bear in its markets, (and a market capitalization adds very high signal value to this). And, it is the core measure of value creation. But it has a diminishing correlation to being large.

We may re-iterate that the value is not in the assets but rather in the network and the interactions within the network; it is clearly far more of a hurdle for a CFO to transition a company’s reporting system to capture this.

This is not a modest problem, in that most legacy enterprises have an ERP system entrenched in their core, with the system itself defining core processes and concurrently institutionalizing limitations. Additionally, there is a whole industry of accountants, advisors and analysts trained in asset-based management and financial accounting, and all employing the same standard tool-set.

The fact remains that most organizations ‘manage what they measure’. The challenge is that as the measures become increasingly peripheral to value creation, then the company will continue to be ‘securely’ managed, while becoming increasingly lost. This is akin to the fact that one of the most common cause of terminal aviation accidents through history has been CFIT – controlled flight into terrain. CFIT is an

occurrence in which an airworthy aircraft, under complete pilot control, is unintentionally flown into the ground, water or an obstacle. Given all the training, given all the defined processes, given all the real-time read-outs and support systems, it should not happen – yet it does.

Consequently, the development of new metrics and instruments is one of the most critical tasks we have identified in facilitating the transition to new models of value creation. So far we can identify what creates great value – we continue to need the tools to guide that value creation.

From resource deployment to New Work

To bring our argument full circle, ultimately new work is about value creation which is the force that will drive the emergence of new industry winners. The underlying factors of that value creation are changing; in order to adapt, companies must begin to think of themselves as service marketplaces and service market makers, and to accept that their source of value creation is no longer in their balance sheet.

For value creation network reach and richness becomes more important than any and all other assets and thus maximizing network interactions becomes the route to maximizing value.

The tools of being successful are likely to include at least the following:

- understand the data that can be made available, and what can be done with it
- understand networks and network topology
- understand contextualization of the relationships in their value chain
- understand interactivity and interactions in the network
- understand algorithms as tools for the above
- understand how to build business models in this context
- understand the new key metrics for the new models
- institute new reporting and management that does not lead to CFIT

Adopting the above will undoubtedly be difficult, as it involves fundamental change or transformation in the face of persistent inertia. On some level, most organizations recognize that they need change, and it is now fashionable to speak of innovation as the key to success. It is indeed easy to say “organizations need to excel in innovation”. It is more difficult to say what should be done to organizations that do

not. In companies that struggle, management invariably refers to poor markets, or an uncompetitive cost structure on the metrics being used (“the asset-base is incorrectly sized”).

This does not necessarily imply poor management, it is just a part of the CFIT problem. A part of the management challenge is the very fact it is accustomed and trained to command a linear chain of command, supported by a set of pre-defined metrics (aka ‘the process’). Traditional linear, hierarchical organizations that reward ‘alpha’ role behaviour (and have promoted accordingly) are particularly susceptible, or in other words particularly resistant to change.

Overall, hierarchical relationships in an organization become arguable less useful, as a diminishing number of the company’s critical relationships are any longer asymmetrical in power.

Instead of transformation, as already noted, ‘restructuring’ is often the preferred approach taken, as this is the observed route for short term value creation (share prices usually react positively to cost cutting, which is paradoxical in itself).

Such restructuring needs to be seen in the context that for most companies over 75% of their net-present value is related to profits generated more than 5 years from now. Conversely, only 5% of the company’s value is related to expected value creation in the next year.

The challenge of restructuring is that it typically becomes iterative, constantly addressing the 5-20% of total value attributable to the next 1-3 year’s performance, and diminishing the asset base. Importantly, ‘right-sizing’ alone does not increase the new value creating characteristics of the firm – it does not correlate with introducing contextual understanding of relationships, or maximizing network interactions or beginning to shed all the adopted limitations of the past 100 years.

Maximizing enterprise value is ultimately the responsibility of the principals, not the agents of the firm. However, the objective of value creation (and avoiding CFIT) should be a shared interest, and it is particularly the employees that have an inordinately high dependency on success vs. failure. The great challenge is to find a new common conceptual understanding, align incentive structures and ultimately recognize not only the commonality of purpose but the inevitability of change.

Changing the games we play

When coordinated behavior occurs without a central authority or supportive regulation, we often attribute the resulting coherent action to the existence of a functioning market economy. It is a world which, some people say, resembles a game.

A game theory approach to the economy assumes that people choose the kind of behavior that gives them the greatest expected benefit over time, given their expectations about what the other players will do and the rewarding or punishing feedback they receive as a result of their own actions. Economic players, for example just now in Russia or Greece, are thought to learn by trial and error, retaining strategies that work and altering those that turn out badly. Players observe each other and each other's actions and responses. The expectation is that what has worked is likely to be used again. Game theorists claim that if you want to understand the future, you should study the past.

In most games, the issue of who wins and who loses is the whole point of playing. It would be hard to imagine a more unpopular outcome in the reality TV-series watched by millions than the announcement that all of the players ended up as winners! It is, of course, beneficial that the lazy, incompetent, and unmotivated are superseded by those who are better motivated and more enterprising.

But there are growing problems with this. As our best intentions play into each other, patterns emerge that none of us really want.

Most games we play have been played under the postulation that you play against others and win independently, without the help of others. That is fair but, in real life the unit of survival is the actor as an interdependent, not independent, part of the game being played. In line with Darwinian rhetoric, the unit of survival is not a species but the species within its environment. In competitive games, and our society in general, there is an inbuilt lack of understanding of this interdependence.

This has formed the world we live in. Have you ever asked why there are more losers than winners in our games, and why the divide between winners and losers is continuously growing? The conundrum is that the winners end up having to take care of the losers. In the end, the winners have to pay the price of winning in one way or another. The bigger the divide, the greater the price that has to be paid. As the losers are eliminated one by one, as on TV, they are excluded from the possibility of learning to win. Competitive social games then create shadow systems of losers competing at losing, in the same way as in jails and gangs. Human beings as a species are thoroughly social and interdependent. Because of this, totally different social cultures begin to form, as is happening in big cities. Losers multiply as winning behaviors are replicated in smaller winners' circles and losing behaviors are replicated in larger losers' circles.

We need a new relational approach that combines competition and collaboration. In games that are paradoxically competitive and collaborative at the same time, losers would not be eliminated. In competitive/collaborative games, the winners would be all those whose participation and contributions were incorporated. The players would then have responsibility not only for adhering to the existing rules, but also for developing the rules further – particularly when the game decays as a result of the actions of the players.

The criteria of success do not lie solely in winning, but in the development and continuation of the game. The question of who wins or loses is of minor importance compared to the decay of the (game) environment as a result of our outdated zero-sum thinking and winner-take-all philosophy.

Winning and losing are thoroughly social phenomena. We lose together, but we can also win together. This is possible!

**The criteria of success do not lie solely
in winning, but in the development and
continuation of the game.**

Changing Capitalism

Nick Hanauer and Eric Beinhocker

The financial crisis of 2008, the stagnation of the middle class in many developed countries, and rising income inequality are challenging some of our most deeply held beliefs about how a fair and well-functioning society should be organized.

Many business leaders are in two minds about the situation. They note that market capitalism has yielded massive increases in human prosperity, particularly in the West in the 19th and 20th centuries. More recently, it has lifted hundreds of millions out of poverty in emerging economies. Yet, despite these historic accomplishments, it is also easy to feel worried that something is wrong with how the system is performing today.

This article will argue that while we have been correct to believe that capitalism has been the major source of historical growth and prosperity, we have mainly been incorrect in identifying how and why it has worked so well. By analogy, our ancestors did know that the stars and planets moved in the sky and had various theories to explain their observations. But it wasn't until the Copernican model replaced the Earth with the sun at the center of the solar system and Newton articulated his laws of gravitation that people understood how and why they move.

Likewise, the conventional economic theories we have relied on for the last century have misled us in the way we think about the workings of capitalism. Only by replacing our old theories with better and more modern ones will we build the deeper understanding necessary to improving our capitalist system.

For the last century, the dominant economic paradigm – neoclassical economics – has painted a narrow and mechanistic view of how capitalism works, focusing on the role of markets and prices in the efficient allocation of society's resources. The story is familiar: rational, self-interested firms maximize profits; rational, self-interested consumers maximize their "utility"; the decisions of these actors drive supply to equal demand; prices are set; the market clears; and resources are allocated in a socially optimal way.

Over recent decades, though, some of the bedrock assumptions of neoclassical theory have begun to unravel. Behavioral economists have accumulated a mountain of evidence showing that real humans don't behave as a rational homo economicus would. Experimental economists have raised

awkward questions about the very existence of utility; and that is problematic because it has long been the device economists use to show that markets maximize social welfare. Empirical economists have identified anomalies suggesting that financial markets are not always efficient. And the macroeconomic models built on neoclassical ideas performed very poorly during the financial crisis.

Andy Haldane, the chief economist of the Bank of England, notes that the conventional theory views the economy as a rocking horse that, when perturbed by an outside force, rocks for a while before predictably settling back into a static equilibrium. But, as Haldane has pointed out, what we saw during the crisis was more like a herd of wild horses – something spooks one of them, it kicks another horse, and pretty soon the whole herd is running wildly in a pattern of complex, dynamic behavior. In the years before the crisis, a new view of economics had begun to stir and has begun to blossom since then. This view holds that the economy is a constantly evolving, interacting network of highly diverse households, firms, banks, regulators, and other agents, more like Haldane's wild herd than a rocking horse. The economy – a complex, dynamic, open, and nonlinear system – has more in common with an ecosystem than with the mechanistic systems the neoclassicists modeled their theory on. The implications of this emerging view are only just beginning to be explored. But the two of us believe it has fundamental implications for how people think about the nature of capitalism and prosperity.

Significantly, this view shifts our perspective on how and why markets work in every respect, from their allocative efficiency to their effectiveness in promoting creativity. It suggests that markets are evolutionary systems in which millions of simultaneous experiments on ways of improving our lives are carried out each day. In other words, ***the essential role of capitalism is not allocation, but creation***. Life isn't drastically better for billions of people today than it was in 1800 because we are allocating the resources of the 19th-century economy more efficiently. Rather, it is better because we have life-saving antibiotics, indoor plumbing, motorized transport, access to vast amounts of information, and an enormous number of technical and social innovations that have become available to much (if not yet all) of the world's population. The genius of capitalism is that it both creates incentives for solving human problems and makes those solutions widely available. And it is solutions to human problems that generate prosperity, not money.

Most of us intuitively believe that the more money people

have, the more prosperous a society must be. In 2013, America's average household disposable income was \$38,001, versus \$28,194 for Canada; therefore, people believe, America is more prosperous than Canada.

But the idea that prosperity is simply about having money can be disproven with a simple thought experiment. Imagine you had the \$38,001 income of a typical American but lived among the Yanomami people, an isolated hunter-gatherer tribe deep in the Brazilian rainforest. You'd easily be the richest of the Yanomami (they don't use money, but anthropologists estimate their standard of living as being equivalent to around \$90 a year). But you'd still feel a lot poorer than the average American. Even after you'd fixed up your hut, bought the best baskets in the village, and eaten the best Yanomami cuisine, all of your riches still wouldn't get you antibiotics, air conditioning, or a comfy bed. Yet even the poorest Americans typically have access to these important elements of wellbeing.

This is why prosperity in human societies cannot be properly understood by observing purely monetary measures, such as income or wealth. Prosperity in a society is the accumulation of solutions to human problems.

These solutions run from the prosaic (crunchier potato chips) to the dramatic (cures for deadly diseases). Ultimately, the measure of the wealth of a society is the range of human problems it has solved and how available it has made those solutions to its people. Every item in a modern retail store can be thought of as a solution to a different kind of problem – how to eat, dress, entertain, make homes more comfortable, and so on. The more and better the solutions available to us, the more prosperity we have.

Growth redefined

We typically talk about growth in terms of GDP, although this has recently been much criticized as a measure of progress. There have been a variety of attempts to make GDP account for things such as environmental damage, unpaid work, the progress of technology, or the development of human capital.

In our view, the key problem with GDP is that it does not necessarily reflect how growth changes the real, lived experience of most people. In the United States, for example, GDP has more than tripled over the last three decades. Although those increases have been concentrated at the top of the income spectrum, people across the board have benefited from improvements in technology (say, safer cars, new medical treatments, and smartphones). Other changes, though,

have been accompanied by unintended consequences (such as the stress many knowledge workers feel from 24/7 connectivity). Is life actually better or worse for most people? How are the gains of growth shared? GDP cannot answer these questions.

The problem with GDP is that it does not necessarily reflect how growth changes the real, lived experience.

If the concept of growth is to have significance, it should represent improvements in lived experience. If the real measure of a society's prosperity is the availability of solutions to human problems, growth cannot simply be measured by changes in GDP. Rather, *it must be a measure of the rate at which new solutions to human problems become available.*

Going from fearing death by sinus infection one day, to having access to life-saving antibiotics the next, for example, is growth. Going from sweltering in the heat one day to living with air conditioning the next is growth. Going from walking long distances to driving is growth. Going from needing to look up basic information in a library to having all of the world's information instantly available on your phone is growth.

Growth is best thought of as an increase in the *quality and availability* of solutions to human problems. Problems differ in importance, and a new view of growth must take this into account: finding a cure for cancer would trump many other product innovations. But in general, economic growth is the actual experience of having our lives improved.

This is different from other alternative measures of growth. For example, research shows that happiness does not necessarily correlate with GDP growth – famously, Bhutan has even developed a Gross National Happiness (GNH) Index. Likewise, the United Nations has created a Human Development Index (HDI) based on Amartya Sen's theory of human capabilities and freedom. What the two of us are proposing sits somewhere between GDP and these measures. Like GDP, it is intended to be a definition of *material* prosperity. But it is also

a more meaningful way of thinking about material standards of living than GDP.

Can the rate at which solutions appear and their availability be measured? While such a measure has not yet been tried, we believe it to be possible. Inflation is measured by examining changes in the prices of goods and services in a “basket” typically consumed by households. Similarly, it’s possible to look at how the actual contents of such a basket are changing across time, or how they differ across countries or levels of income. What kind of food, housing, clothing, transport, healthcare, education, leisure, and entertainment do people have access to?

Capitalism redefined

If prosperity is created by solving human problems, a key question for society is what kind of economic system will solve most problems for most people most quickly. This is the genius of capitalism: it is an unmatched evolutionary system for finding solutions.

Finding new solutions to human problems is rarely easy or obvious – if it was, they would have already been found. For example, what is the optimal way to solve the problem of human-powered transportation? There are a multitude of options: bicycles, tricycles, unicycles, scooters, and so on. Human creativity is developing a variety of ways of solving such problems, but some inevitably work better than others, and we need a process for sorting the wheat from the chaff. We also need a process for making good solutions widely available.

Capitalism is the mechanism by which these processes occur. It provides incentives for millions of problem-solving experiments to occur every day, provides competition to select the best solutions, and incentives and mechanisms for scaling up and making the best solutions available. It also scales down or eliminates less successful ones. The great economist, Joseph Schumpeter, called this evolutionary process “creative destruction.”

The orthodox economic view holds that capitalism works because it is efficient. But in reality, capitalism’s great strength is its problem-solving creativity and effectiveness. It is this creative effectiveness which, by necessity, makes it hugely inefficient and, like all evolutionary processes, inherently wasteful. Proof of this can be found in the large numbers of product lines, investments, and business ventures that fail every year. Successful capitalism requires what venture capitalist William Janeway calls “Schumpeterian waste”.

The role of business

Every business is based on an idea about how to solve a problem. The process of converting great ideas into products and services that effectively fulfill fast-changing human needs is what defines most businesses. Thus, the crucial contribution business makes to society is *transforming ideas into products and services that solve problems*.

This sounds simple and obvious, and many executives would say, “Of course that is what we do.” But again, that is not what standard theory says businesses should do. In the 1970’s and 1980’s, academic work based on neoclassical theory argued that maximizing shareholder value should be the sole objective of business. If corporations just did this, said these professors, they would maximize overall economic efficiency and social welfare. This focus did correct some deficiencies in the previous system, most notably by empowering shareholders to push back against CEOs who maximized the size of their empires rather than economic returns.

But some argue that elevating the creation of shareholder value to the status of primary objective is based on a faulty assumption – that capital is the scarcest resource in an economy, when in reality it is knowledge that’s the scarce, critical ingredient in solving problems. It has also led to a myopic focus on quarterly earnings and short-term share-price swings, to say nothing of a decline in long-term investment. This is in startling contrast to the attitudes of even the recent past. If you asked a CEO in the 1950s, an era of tremendous growth in prosperity, what his job was, his first reply would probably have been “to make great products and services for customers.” After that, the CEO might have said something about looking after his company’s employees, making profits to invest in future growth – and then, finally, giving shareholders a decent, competitive return.

We believe that a reorientation toward seeing businesses as society’s problem solvers rather than simply as vehicles for creating shareholder returns would provide a better description of what businesses actually do. It could help executives to become better at balancing the interests of the multiple stakeholders they need to manage. It could also help shift incentives back toward long-term investment – after all, few complex human problems can be solved in one quarter.

This is not to say that shareholders or other owners are unimportant. But providing them with a return that is competitive compared with the alternatives is a boundary condition for a successful business; it is not the *purpose* of a business. After all, having enough food is a boundary condition for life – but

the purpose of life is more than just eating.

Some companies are already thinking in these terms. Google, for example, defines its mission as “to organize the world’s information and make it universally accessible and useful” – a statement about solving a problem for people. And it famously refuses to provide quarterly financial forecasts.

Government redefined

Traditional economic theory holds that markets are efficient, inherently maximize welfare, and work best when managed least. But such perfect markets don’t seem to exist in the real world. Furthermore, this view fails to recognize that the great genius of capitalism – solving people’s problems – has, by necessity, a dark side: the solution to one person’s problem can create problems for someone else.

This is the age-old puzzle of political economy: how does an economic system resolve conflicts and distribute benefits? A fancy derivative product may help corporate treasurers solve their problem of managing corporate risk, and may make bankers rich, but it could also create greater systemic risk for the financial system as a whole. It can be challenging to distinguish between problem-solving and problem-creating economic activity. And who has the moral right to decide? Democracy is the best mechanism humans have come up with for navigating the trade-offs and weaknesses inherent in capitalism. Democracies allow its inevitable conflicts to be resolved in a way that maximizes fairness and legitimacy and that broadly reflects society’s views.

Viewing prosperity as solutions helps to explain why democracy is so highly correlated with prosperity. Democracies actually help to create prosperity because they do several things better than other systems of government. They tend to build economies that are more inclusive, enabling more citizens to be both creators of solutions and customers of other people’s solutions. And they offer the best way to resolve conflicts over whether economic activity is generating

solutions or problems. Many (though not all) government regulations are created to do just that – to encourage economic activity that solves problems and discourage economic activity that creates them – thereby fostering trust and cooperation in society.

Businesspeople often complain about regulation – and indeed many regulations are poorly designed or unnecessary – but the reality is that solving capitalism’s problems requires the trust and cooperation that good regulation fosters. It is notable that the most prosperous economies in the world all mix regulation with free markets, while unregulated and anarchic economies are universally poor.

What problems do you solve?

Once we understand that the **solutions** capitalism produces are what create real prosperity in people’s lives, and that the **rate** at which we create solutions represents true economic growth, it becomes obvious that entrepreneurs and business leaders bear a major part of both the credit **and** the responsibility for creating societal prosperity. But standard measures of business’s contributions – profits, growth rates, and shareholder value – are poor proxies. Businesses contribute to society by creating and making available products and services that improve people’s lives in tangible ways, while simultaneously providing employment that enables people to afford the products and services of other businesses. It sounds basic, and it is, but our economic theories and metrics don’t frame things in this way.

Today, our culture celebrates money and wealth as the benchmarks of success. This has been reinforced by the prevailing theory. Suppose that instead we celebrated innovative solutions to human problems. Imagine being at a party and rather than being asked, “What do you do?” – code for how much money do you make and what status do you have – you were asked, “What problems do you solve?” Both capitalism and our society would be the better for it.

**Every business is based on an idea about
how to solve a problem.**

The top ten things I've learned

Aditya dev Sood

If there are any philosophical guides to this digital world, we must count Esko Kilpi as one of the foremost among them. I have followed his blogs and tweets for almost a decade now, since we met by accident at a wedding in Helsinki. He has visited our organizations in New Delhi and shared his developing thoughts via remote lectures with our students and startup founders. Without reference to the substance of his argument herein, but based on our ongoing interactions, here are the top ten things I've learned from him:

10. The digital life can be a good one.

This simple proposition is still controversial. The new powers of mobile and social media strain our consciousness and demand new kinds of behaviors and controls. Where there is change there will also be fear and insecurity. Amidst all the scaremongering and self-hate that is out there, Esko's writing helped me recognize, early on, the overall good that digital networks bring to each of our lives. If you can expand the circle of associations, the learning relationships, the flow of ideas that make up your life, that makes for a richer, digitally empowered form of everyday life. They enhance our reach, our understanding, our presence and our relationships – so long as we tune our consciousness and cognitive behaviors correctly, so as to be continuously well aligned with those we are now connected to online.

It is an unprecedented age we live in, where we can be connected with anyone's thoughts, anywhere in the world. We must be grateful and responsible when wielding this great new power.

9. We are all already always digital by default.

In a low-resource environment like India, where networks can be patchy and forms of life varied, it was normal for me to think in what I would call a 2.xG framework. That is to say, there may be some network somewhere and sometime, but it will not be pervasive or universal. Esko's visit forced me to take a new look at my own context, which has been going increasingly digital, as well as my larger place in the world. Even if the network is patchy today, we must increasingly live as if the entire world were always already digital by default.

Esko advocates a digital-first worldview, rather than a second life or any kind of virtual escape. That is to say, it is not that there is a 'real-life' with a digital extension, but rather that we now inhabit a blended reality that cross-cuts digital and

co-present forms of sociality. Recognizing this simple fact will help you reprioritize the way you think of your digital footprint, or halo online.

8. You will become your network.

If, until very recently, you were your family, your reading habits and your commute, you are now defined through your social networks and how you participate in them. It must be obvious to you that just about every notion you have ever held is an echo of something someone else has thought or shared first.

This is particularly important in the case of asymmetric relationship platforms like Twitter, which allow you to choose whom to follow, without expecting them to follow you back. By bringing knowledgeable and inspirational voices into your social stream, you decide whom to bring into your worldview, and therefore shape who you are going to become. As Esko often says, whom you follow and what you like is far more important than who follows and likes you.

7. The point of networked platforms is to develop learning relationships.

At the inception of the social media, many of us were confused about what exactly they were for. Recent rumblings about the death of Twitter and the pervasiveness of trolling behavior remind us that many users of networked media really have no idea what they are for. Esko's answer is one that should be circulated widely: the social media are important because they allow us to build learning relationships on a scale unforeseen and unimagined in human history. With this insight in mind, how would your behavior online change? How much more reciprocal, forgiving and creative might it now become?

6. The highest forms of value are created through our interdependence with others.

The point of learning relationships is that they allow people to create value together. This is the foundation of the networked economy. Esko articulates this insight in multiple ways and draws many important corollaries from it, including networked value, living digitally, algorithmic work and many other issues.

At times I have wondered whether Esko derives this insight empirically from an observation of our networked life, or through introspection or some other form of transcendental insight, or whether each has validated the other. In any case, here too I note an approach that welds behavioral, psychological, economic and business insights together in an

integral whole that cross-cuts all these fractured ways of understanding our negotiation of the world.

5. Higher qualities of effect are associated with higher economic returns.

Here in India, as in the rest of the emerging economy world, we inhabit multiple life worlds at the same time. There are large corporations, young startups, and then there are construction crews, factories, and share-cropping farm hands. Older forms of more belligerent, authoritarian styles of management coexist with more subtle, dialogic forms of leadership. Where one stands on that continuum and which way one is gravitating is a daily choice. What is certainly true is that in this networked age engagement and inspiration has edged out command-and-control or hectoring-haggling models of leadership. Moreover, I take it as a corollary of Esko's larger thinking about the economic value of interdependent interactions: they will always exceed dependent or counterdependent structures, and so it is always beneficial to tend towards them.

4. Organizations must be redesigned to promote higher qualities of interaction.

If relationality, empathy, collaboration and creativity are as important as Esko says, and indeed, as I have come to believe, then how will this change the way we think about organizations, institutions and work itself? This is the actual focus of Esko's current work, which I will not attempt to preempt or summarize here. In my own experience, however, having Esko come in and visit our organizations, interact with our people and share his worldview has had a catalytic effect on how we think about how we work together and in relation to our larger ecosystem. We think flatter, more dynamically, with fewer walls and silos, and encourage more of our colleagues to take on more and more kinds of responsibility, and to learn as much as each of us can in the process.

3. Your own capacity for empathy is the foundation of your networked value.

"Don't be a hater" is the shorter way of saying this. But Esko's analysis is much deeper than random self-help. If, as we have reviewed above, interdependent people can solve problems together and create new forms of economic value that are

emergent rather than algorithmic in nature, then it naturally follows that your own contribution to this process will be determined by the patience, understanding, and yes love, you bring to your work.

Esko's inquiries over the past several years have led him to an ever deeper and more profound reconciliation of ethics, effect and value. Perhaps these have always been understood by philosophers and mystics in their own ways in their own times and cultures in the past. But Esko has articulated these truths in a bold new way that effortlessly reconciles identity, presence, creativity and empathy in relation to economic value. Perhaps I am being crude in describing his synthesis in terms of a characteristically Finnish worldview. Nevertheless, I am quite sure that this view is not found very widely in the world.

2. You must be there for other people.

It's hard to capture the precise cadence Esko uses when he says something like 'I'm there for you.' But he says it with several layers of resonance. First of all, he says it and means it like it is: in the course of our learning relationship he is there for me. Second, he means to reaffirm and signal that relationship itself, and to call attention to its durable existence. Third, he means to remind me that this is a good and right way of being, to share knowledge and understanding with as many people from around the world as one can. This is what it truly means to live digitally.

1. Read, write and think a little bit every day.

Esko had several hardcopy books with him when he came to visit us and at the end of drinks and dinner he would retire to them. He wrote and reflected on the day we had spent together and the new stimulus he'd encountered in India. This is what he also wants others to pursue, no matter how busy or pressed their worklife. Or rather, the more responsibility one takes on, the more important it is to keep learning and reflecting on your experience and to share those reflections with others. If you are willing to emulate Esko in this daily reparation and preparation of the self, you too will contribute new ideas and reflections to the world every day. What you do next is amazing.

Postscript

- Organizations are patterns of interaction between people. Value is created through interaction;
- People are interdependent. They enable and constrain each other all the time. Work is interaction between interdependent people;
- Power is not about hierarchies or job descriptions. Power is enabling and constraining and thus a central organizational reality, independent of the way we draw an organizational chart, or name the roles of people;
- What really happens is not simply determined by the intentions and choices of a few (leaders), but by the interplay of the intentions and choices of all;
- No one can control this interplay. The relations, the links, between people are not linear, following a rational causality, but non-linear and complex;
- The interplay produces emergent patterns. Emergence is a different understanding of causality. It differs totally from the idea of causality in classical science;
- Very small changes can later escalate across populations;
- Since no one can control this interplay and small changes can escalate, uncertainty is a fundamental reality of life;
- Organizations are characterized by paradoxes: continuity and change; knowing and not knowing; forming patterns and being formed by them at the same time;
- Since executives are more influential than most in the interplay of intentions, their visibility often leads to idealization, creating the “hero leaders” cult we experience. This leads to unrealistic expectations (and unreal compensation packages).

What is so special today is that there are so many possible ways of organizing our experience of working together. Lifestyles are becoming work styles. Diversity is increasing. More and more people are seeking novel ways to earn a living. More and more often the way to do that is a combination of human creativity and software. Humans want to work above the app, not below it. We don't serve the machines, but the machines serve us. The pace is dictated by people, not the assembly line. Learning is the new word for productivity.

Henry Ford was the first to insist that high performance and affordability could be combined. This had not been done previously in cars. It was an idea on a par with Tesla's current combination of electricity and software. To re-create work, we have to follow the same pattern of making new combinations.

We live in a world of post-classical science, as well as in a post-industrial world. This time we need to combine the new sciences and the new technologies in a human-centric way.

That has not yet been done.

**The industrial world was
about reducing choices.
The pre-digital world is
about expanding choices.**

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Ormerod	Paul	1997	The Death of Economics
Osterwalder	Alexander	2012	Business Model You
Osterwalder	Alexander	2011	Business Model Generation
Ostrom	Elinor	1990	Governing the Commons
Ostrom	Elinor	2012	The Future of Commons
Ostrom	Elinor	2011	Understanding Knowledge as Commons
Page	Scott E	2007	The Difference
Papert	Seymour	1993	Mindstorms
Parker	Follett	Mary	2001 Creative Experience
Pearson	Taylor	2015	The End of Jobs
Penrose	Roger	1996	Shadows of the Mind
Penrose	Roger	2007	The Road to Reality
Pentland	Alex	2015	Social physics
Pentland	Alex	2015	Social Physics
Petzold	Charles	2008	The Annotated Turing
Phelps	Edmund	2015	Mass Flourishing
Piaget	Jean	2001	The Psychology of Intelligence

Piketty	Thomas	2013	Capital in the 21st Century
Pink	Daniel H	2009	Drive
Pink	Daniel H	2013	To Sell Is Human
Pink	Daniel H	2002	Free Agent Nation
Pinker	Steven	2003	The Blank Slate
Pinker	Steven	2009	How the Mind Works
Pinker	Steven	2007	The Language Instinct
Pinker	Susan	2014	The Village Effect
Polanyi	Michael	2009	The Tacit Dimension
Polanyi	Michael	1969	Knowing and Being
Polanyi	Michael	1959	The Study of Man
Poppendieck	Mary and Tom	2003	Lean Software Development
Prahalad	C.K.	2008	The New Age of Innovation
Prigogine	Ilya	1997	The End of Certainty
Prigogine	Ilya	1984	Order Out of Chaos
Prigogine	Ilya	2003	Is Future Given
Purdy	Jedediah	2015	After Nature
Putnam	Rober D	2001	Bowling Alone
Putnam	Robert D	2016	Our Kids
Putnam	Robety D	2004	Better Together
Rainie	Lee	2014	Networked
Ramirez	Rafael	2003	Agents of Change
Ramirez	Rafael	2016	Strategic Reframing
Randall	Lisa	2015	Dark Matter and the Dinosaurs
Raymond	Eric S	2001	The Cathedral & the Bazaar
Reich	Robert	2015	Saving Capitalism
Resnick	Mitchell	1997	Turtles, Termites, and Traffic Jams
Rheingold	Howard	2014	Net Smart
Rheingold	Howard	2007	Smart Mobs
Rheingold	Howard	2000	The Virtual Community
Rheingold	Howard	1987	The Cognitive Connection
Ries	Eric	2011	The Lean Startup
Rifkin	Jeremy	2014	The Zero Marginal Cost Society
Rist	Gilbert	2014	The History of Development
Rose	Todd	2016	The End of Average
Ross	Alec	2016	The Industries of the Future
Rushkoff	Douglas	2016	Throwing Rocks at the Google Bus
Rushkoff	Douglas	2011	Program or Be Programmed
Rushkoff	Douglas	2014	Present Shock
Sacks	Oliver	2015	Gratitude
Sandberg	Sheryl	2013	Lean In
Sawyer	Keith	2008	Group Genius
Sawyer	Keith	2013	Zig Zag
Sawyer	Keith	2012	Explaining Creativity
Sawyer	Keith	2001	Creating Conversations
Sawyer	Keith	2003	Group Creativity
Schmidt	Eric	2014	How Google Works
Schon	Donald A	1984	The Reflective Practitioner
Schor	Juliet	2014	http://www.greattransition.org/publication/debating-the-sharing-economy
Schotter	John	2008	Conversational Realities Revisited
Schumpeter	Joseph A	2009	Can Capitalism Survive?
Schwab	Klaus	2016	The Fourth Industrial Revolution

Schwaber	Ken	2007	The Enterprise and Scrum
Scoble	Robert	2013	Age of Context
Scoble	Robert	2006	Naked Conversations
Scott	John	2012	Social Network Analysis
Scott	John	2014	Social Theory: Central Issues in Sociology
Scott	John	2014	Stratification of Power
Scott	James C	1999	Seeing like a State
Searls	Doc	2012	The Intention Economy
Seely Brown	John	2000	The Social Life of Information
Sen	Amartya	1988	On Ethics and Economics
Sen	Amartya	2003	Rationality and Freedom
Sen	Amartya	2000	Development as Freedom
Sennett	Richard	2013	Together
Sennett	Richard	2009	The Craftsman
Sennett	Richard	2007	The Culture of New Capitalism
Sennett R	Richard	1993	Authority
Shaughnessy	Haydn	2015	Shift
Shaw	Patricia	2002	Changing Conversations in Organizations
Shirky	Clay	2011	Cognitive Surplus
Shirky	Clay	2009	Here Comes Everybody
Shirky	Clay	2015	Little Rice: Smartphones, Xiaomi, and the Chinese Dream
Simon	Phil	2011	The Age of the Platform
Simon	Herbert A	1997	Administrative Behavior
Simon	Herbert A	1996	The Sciences of the Artificial
Simon	Herbert A	1990	Reason in Human Affairs
Sinek	Simon	2014	Leaders Eat Last
Sinek	Simon	2009	Start with Why
Smith	Adam	1776	The Wealth of Nations
Smith	Adam	2013	The Theory of Moral Sentiments
Stacey	Ralph	2012	Tools and Techniques of Leadership and Management
Stacey	Ralph	2001	Complex Responsive Processes in Organizations
Stacey	Ralph	2010	Complexity and Organizational Reality
Stacey	Ralph	2007	Strategic Management and Organisational Dynamics
Standage	Tom	2007	The Victorian Internet
Stern	Andy	2016	Raising the Floor
Stibel	Jeffrey	2009	Wired for Thought
Stiglitz	Joseph E	2013	The Price of Inequality
Stone	Brad	2014	The Everything Store: Jeff Bezos and the Age of Amazon
Strogatz	Steven H	2004	Sync
Strogatz	Steven H	2001	Nonlinear Dynamics and Chaos
Sundararajan	Arun	2016	The Sharing Economy
Surowiecki	James	2005	The Wisdom of Crowds
Susskind	Richard	2016	The Future of Professions
Sveiby	Karl-Erik	2007	Treading Lightly
Tainter	Joseph A	1988	The Collapse of Complex Societies
Taleb	Nassim Nicholas	2014	Antifragile
Taleb	Nassim Nicholas	2010	The Black Swan
Taleb	Nassim Nicholas	2005	Fooled by Randomness
Tapscott	Don	2008	Grown Up Digital
Tapscott	Don	2010	Macrowikinomics
Tapscott	Don	2014	The Digital Economy
Tapscott	Don and Alex	2016	Blockchain Revolution

Teece	David J	2000	Managing Intellectual Capital
Terkel	Studs	1975	Working
Tetlock	Philip	2015	Superforecasting
Tett	Gillian	2015	The Silo Effect
Teuscher	Christof	2006	Alan Turing
Thaler	Richard H	2015	Misbehaving. The Making of Behavioural Economics
Thaler	Richard H	2009	Nudge
Thiel	Peter	2014	Zero to One
Thopson	Clive	2014	Smarter Than You Think
Tiwana	Amrit	2013	Platform Ecosystems
Toffler	Alvin	1980	The Third Wave
Tuchman	Barbara	1996	The Proud Tower
Tuchman	Barbara	1985	The March of Folly
Tufte	Edward S	2001	The Visual Display of Quantitative Informataion
Tufte	Edward R	1990	Envisioning Information
Tuomi	Ilkka	2002	Networks of Innovation
Turkle	Sherry	2015	Reclaiming Conversation
Turkle	Sherry	2012	Alone Together
Turkle	Sherry	2015	Reclaiming Conversation
Turkle	Sherry	2011	Evocative Objects: The Things We Think With
Vance	Ashlee	2015	Elon Musk
Vance	Ashlee	2015	Elon Musk
Vygotsky	L. S.	1980	Mind in Society
Vygotsky	L. S.	2012	Thought and Language
Wark	Mckenzie	2015	Molecular Red
Wattenhofer	Roger	2016	The Science of the Blockchain
Watts	Duncan	2012	Everything Is Obvious
Watts	Duncan	2004	Six Degrees
Watts	Duncan J	1999	Small Worlds
Weick	Karl E	2000	Making Sense of the Organization
Weil	David	2014	The Fissured Workplace
Weinberger	David	2014	Too Big to Know
Weinberger	David	2008	Everything is Miscellaneous
Weinberger	David	2003	Small Pieces Loosely Joined
Weinberger	David	2000	The Cluetrain Manifesto
Wenger	Etienne	1991	Situated Learning
West	Darrell M	2011	The Next Wave
Wettenhofer	Roger	2016	The Science of the Blockchain
Whitehurst	Jim	2015	Open Organization
Wiener	Norbert	2013	Cybernetics: Second Edition
Wiener	Norbert	1988	The Human Use of Human Beings
Williamson	Oliver	1999	The Economics of Transaction Costs
Williamson	Oliver	1998	The Economic Insitutions of Capitalism
Williamson	Oliver	1983	Markets and Hierarchies
Willimason	Oliver	1995	Organization Theory
Wright	Alex	2007	Glut
Wu	Tim	2011	The Master Switch
Zittrain	Jonathan	2009	The Future of the Internet
Zohar	Danah	1997	Rewiring the Corporate brain
Zohar	Danah	1997	Who's Afraid of Schrödinger's Cat?

Esko Kilpi is an internationally renowned management author and speaker. He leads a group of researchers and strategists laying the intellectual foundations for Post-Industrial Work. As an executive advisor, he helps organisations and individuals to develop capabilities, innovate and grow in the rapidly evolving technological and societal landscape characterised by transformative algorithmic capabilities and new platform-based business models. Esko has spent the last ten years researching the art of human interaction, the science of social complexity and the design of digital work.

A photograph of a man with dark hair, seen from behind, wearing a black t-shirt. He is looking towards a large screen or display in a room. Other people are partially visible in the background, but they are out of focus. The lighting is somewhat dim, and the overall tone is professional and contemplative.

The concepts that govern our thinking and language in relation to work are not just semantics, but influence what we perceive and what we think is possible or not possible. Usually we are not aware of how these ideas prime our thinking. We simply think and act along certain lines.

The narratives of work can be helpful but also outdated and crucially incorrect. As we are passing through a technological discontinuity of huge proportions we need new narratives beyond the models of industrial production and the separatist, mechanistic concepts of a corporation.

Smarter and smarter tools surround us, but if we don't want to learn the new practices and take up the new roles that the new technologies make possible, they might as well not be there.

This book drafts three new narratives for the pre-digital era we live in: the algorithmic economy, the platform economy and the interactive economy.

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The Finnish Innovation Fund Sitra is a future-oriented organisation that is building a successful Finland for tomorrow's world. Sitra anticipates social change, tries out new operating models in practice and accelerates business activities aimed at generating sustainable well-being.

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