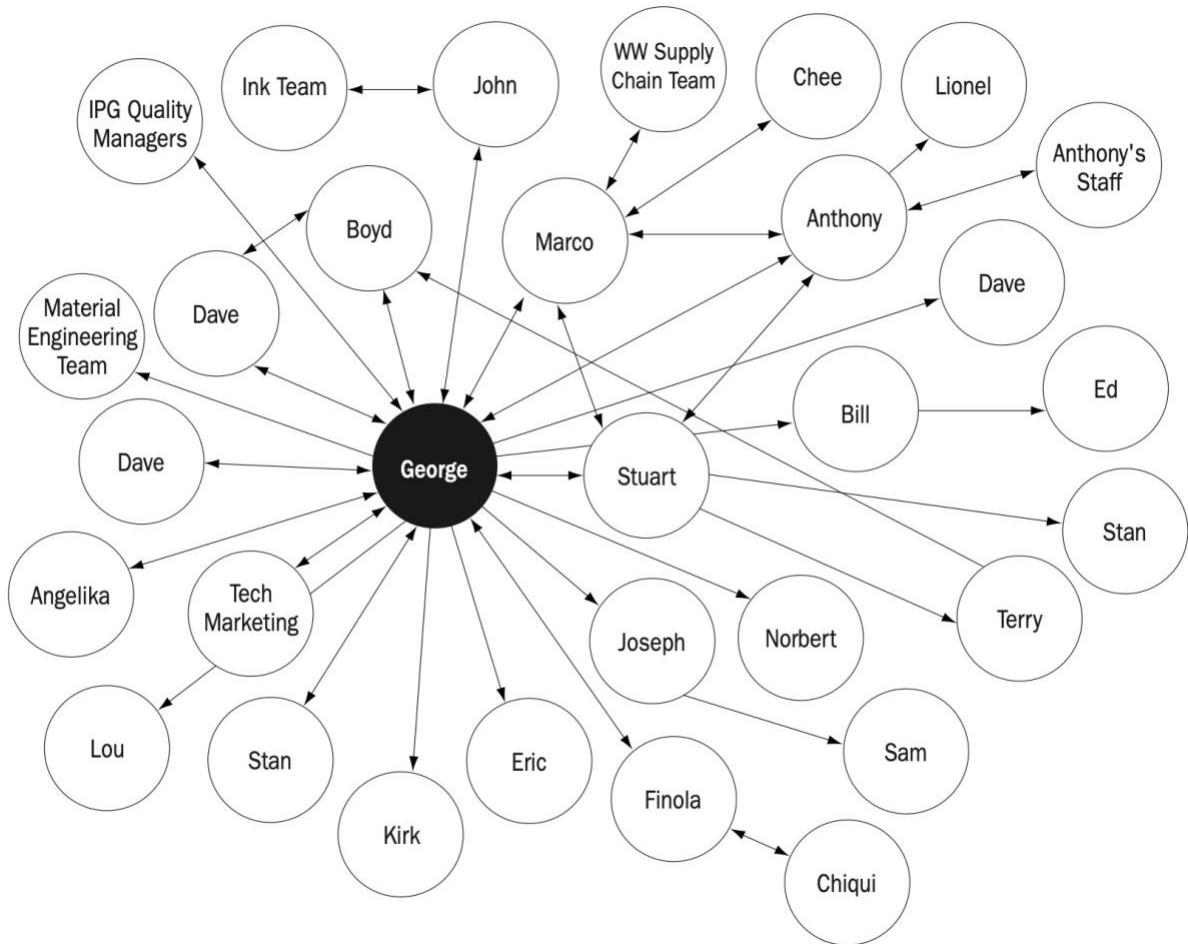




Wellbeing at work: Reflections on HP's First Work Relationship Index



Inkjet Cartridge Quality escalation network, HP Imaging and Printing business, Hewlett-Packard [1]

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Executive Summary

As 2023 ended, the Hewlett Packard Company released the results of a survey finding that most knowledge workers have a negative relationship with work. This follows decades of research documenting the negative impact work has on governmental workers health and scientists who struggle with ill mental health caused by their work culture. In December 2023, Gallup listed workplace trends managers need to act on in 2024 including reducing worker stress, establishing a mission and purpose, improving employees trust in management, showing employees that the organization cares for their wellbeing, and establishing a long-term remote work strategy. Finally, the December 2023 Gallup report makes it clear that how workers are managed has about four times the influence on workers wellbeing that work location has.

HP' First Work Relationship Index is important because it is the first time a private sector company has studied the struggle knowledge workers have with work. In announcing the study, HP's CEO writes of the opportunity to strengthen the world's relationship with work in "ways that are good for people and good for business". To accomplish this, CEO Lores lists three factors that need to be acted upon - rethinking productivity, evolving the culture of work, and upgrading technology. Foundational to improving all these factors is person centricity. An approach is needed that brings wellbeing to work – in the daily living of employees.

The purpose of this report is to describe my history of working with HP and achieving high performance outcomes and employee wellbeing. My history began in 1979 when I employed people with developmental disabilities suffering abuse and neglect in state run hospitals. I started my not-for-profit business as a research site for the University of Oregon recruiting employees whose lives were at risk due to physical abuse and neglect. Our mission was to prove that those once thought to be sub-human and incapable of learning could become productive citizens and return to their community. We had one significant challenge. To be successful, we had to establish a culture of work that reduced their trauma and PTSD while improving their productivity. In short, we had to create a workplace culture that was good for our business and the people we employed. We were successful and our research was used to support change legislation in Oregon and the US, replacing institutional care with community-based services.

This report does not end there. I brought my approach to establishing wellbeing at work to HP's Inkjet Business Unit in the 1990's. Applying this approach we reimaged HP's supply chain as a knowledge creating social network, trimming 15 weeks off new product development. We discovered the nature of collaboration and applied our learning to manage performance in large networks addressing a chronic inkjet cartridge quality problem and saving HP over \$200 million. We were also learning about systems science from world leaders who came to HP to augment our learning including MIT's Peter Senge and Chilean biologist Humberto Maturana.

The report concludes with recommendations to create a high-performance work culture and social wellbeing.

The Hewlett Packard Work Relationship Index

HP's Work Relationship Index [2, 3], is one of the latest studies presenting the state of work for knowledge workers showing unhealthy relationships with work.

- A 2004 Whitehall II study of UK government workers established health risks at work including heart disease and ill-mental health from not having freedom, little or no support at work, and not being recognized and rewarded for their contributions [4].
- In a 2010 study, Gallup correlated ill-being at work with productivity losses costing their company \$28,000/year [5].
- 2020 Wellcome Trust research studying 4,000 scientists found that 80% believed that competition generated mean working conditions, 50% struggled with depression and anxiety, and 25% claimed the culture had damaged the quality of their research [6].
- 2023 Gallup reported 32% of workers being engaged and workers feeling increasingly disconnected from their employers and just 20% feel extremely satisfied with their employment. 32 % of employees feeling like someone is encouraging their development and 41% feel like someone at work cares for them [7].
- A 2023 Gallup report commenting on the impact of workplace wellbeing concluded that managers relations with their employees had four times the impact that the place of work has [8].

This brings us to HP's Work Relationship Index.

- Only 27% of the 15,000 knowledge workers surveyed reported having a healthy relationship with work.
- 83% were willing to earn less in order to be happier.

Business impacts:

- 34% report being less productive.
- 39% report being more disengaged.
- 71% of employees who feel neutral about their relationship with work consider leaving their company this increases to 91% when employees are not happy about their relationship with work consider leaving the company.

Employee impacts:

- 55% of employees struggle with their self-worth and mental wellbeing.
- 46% report their relations with family and friends suffer because of work.
- 59% feel too drained to pursue personal passions.

- 62% report trouble maintaining healthy eating, working out and getting sufficient sleep [2].

Announcing the study's findings, HP CEO Enrique Lores wrote:

"I believe there is a huge opportunity to strengthen the world's relationship with work in ways that are both good for people and good for business. And it's critically important that we do – because the world's relationship with work today is strained." [2]

In his introduction to the research, Lores identified three domains of action necessary to repair employees relationship with work [9].

WE HAVE TO RETHINK PRODUCTIVITY

"For starters, we must reject the false choice between productivity and happiness. Too often, these are portrayed as opposing forces. But when you really stop and think about it, they go hand in hand. The most effective teams don't simply perform at the highest level, they enjoy doing it. And now more than ever, that's what business leaders need to enable."

COMPANY CULTURES MUST EVOLVE

"Through our research, we found that only 25% of respondents feel they consistently receive the respect and value they deserve—and even fewer experience the flexibility, autonomy, and work-life balance they seek. People also told us they yearn for purpose, empowerment, and genuine connection to their work, but just 29% say their job consistently fulfills these needs."

TECHNOLOGY NEEDS AN UPGRADE

"I know that may sound self-serving coming from me, but there's no denying the fact that technology has a critical role to play. Three-quarters of the people we surveyed said tools and technology are an integral part of being successful, whether they're working from home or the office. Seventy percent told us they want technology that allows them to be seen and heard from wherever they are. But only one in four say they have access to these tools today. New technology that gives people the flexibility they seek while enabling them to feel more connected, collaborative, and productive can bridge these gaps."

HP's Work Relationship Index identified *people centricity* as a driver of healthy relationships at work [3]. **The people centricity data shows us where we need to begin – in the workplace, studying and understanding high performance and wellbeing as they arise in the daily living of employees.**

“Employees aren’t willing to compromise their health and well-being for work. In fact, 70% of knowledge workers say it’s important that people are encouraged to prioritize their physical and mental health above work (69%) and their well-being throughout the day (68%).” [3]

I’ll return to Lores three domains of action after reviewing my history of studying high performance work and wellbeing with Hewlett Packard.

Creating wellbeing at work wasn't an option– but a necessity

My history in creating wellbeing at work began in 1979 when my company, Dynatron, employed workers with developmental disabilities suffering from unimaginable abuse and neglect in Oregon state hospitals [10]. Our employees experienced intense and chronic PTSD, so creating a culture of wellbeing in the workplace was essential to both their success and the success of our business.



Dynatron employee wiring a printer cable for HP's Vancouver Division 1980

A history of working well with HP

Advancing the civil rights for people with developmental disabilities at work

1980-1982 Hewlett Packard Vancouver Division

"The Dynatron facility is something to see, these severely handicapped individuals are performing close to 100% in quality and delivery for the V.C.D. and C.S.O. "

Chris Luongo, HP Corporate Material Management

I opened Dynatron Incorporated, a non-profit electronics assembly business employing people with developmental disabilities who were subject to unimaginable abuse and neglect in Oregon's state hospitals in 1979 [10]. Our purpose was to create a positive workplace culture where the most vulnerable people held in Oregon's institutions could become productive citizens living well in communities. To accomplish our purpose, we became a research site for the University of Oregon's Specialized Training Program studying the effects of positive behavior change on performance and productivity [11].

Our research proved that our employees who were once treated as though they were "sub-human and untrainable" were becoming [productive](#) workers and our data was used to support [Oregon legislation](#) that closed state hospitals and replaced them with community programs. The key to our success was to generate a culture of wellbeing by study our [accomplishments](#) on a daily basis. The first business to do business with Dynatron was HP's Vancouver Division and together we achieved exemplary [performance outcomes](#) while contributing to the advancement of human rights of people with developmental disabilities in Oregon and across the US.



HP 293x Printer built at Vancouver, WA HP with components made by Dynatron, Incorporated, Bend, OR

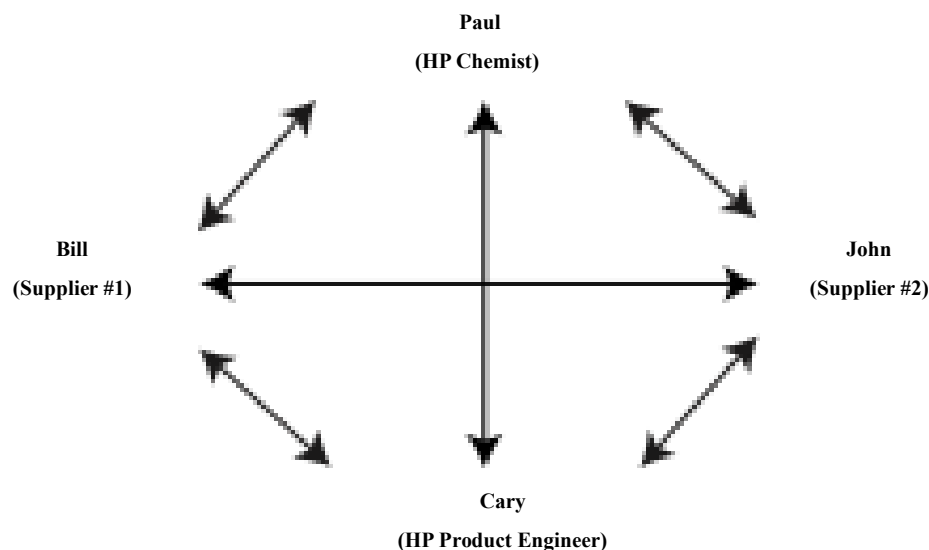
Collaboration in supply chain networks decreases product development time by 15 weeks

1999-2006 Hewlett-Packard's Inkjet Business Unit Corvallis, Oregon

"The key to agility in the supply chain network lies in personal development, which results in listening, understanding, and building trust. These relationship behaviors will generate collaboration, which in turn will create creativity, support, and agility in the supply chain network."

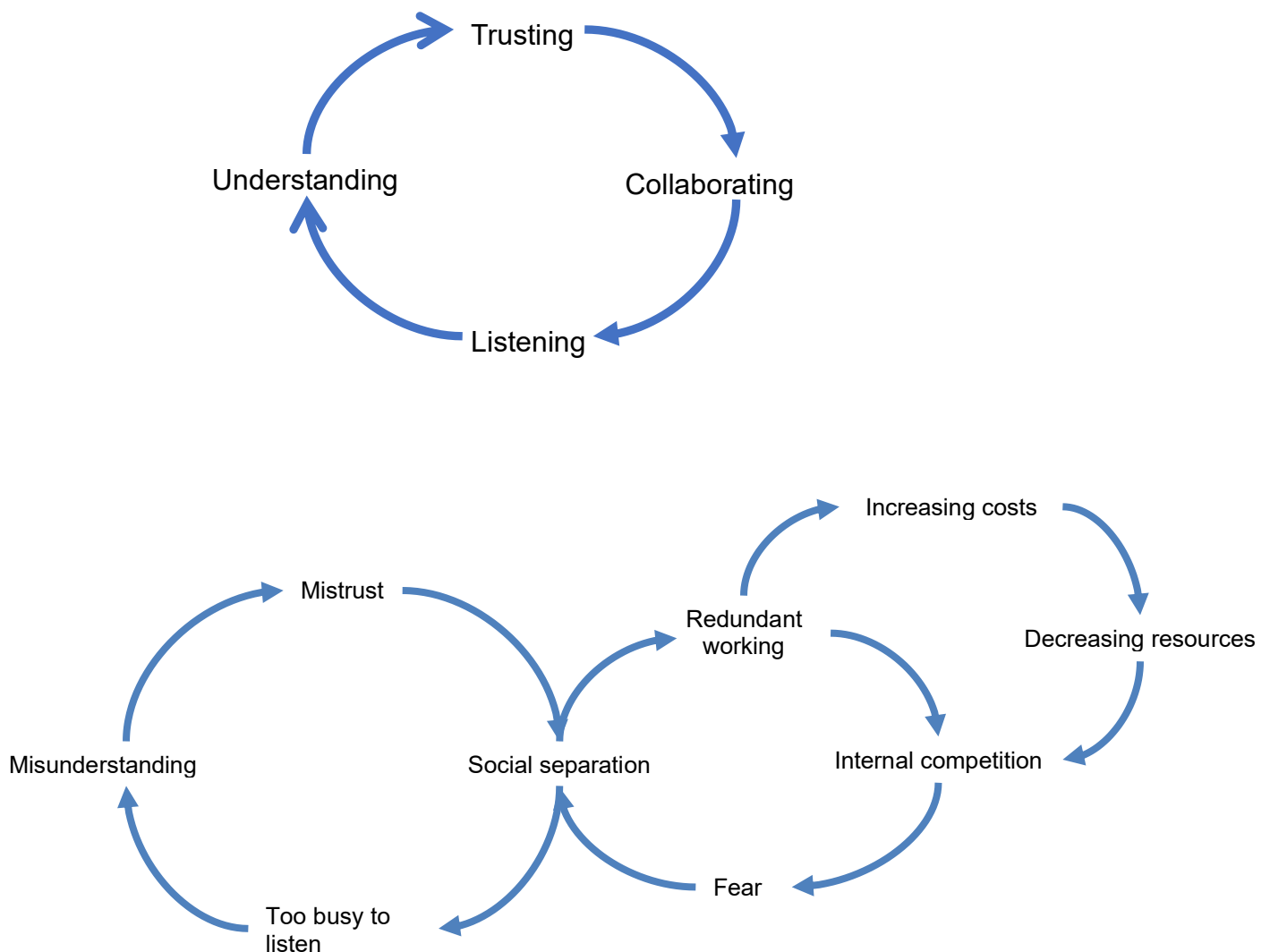
Steve Jewell-Larsen, HP Inkjet Business Unit & Dennis Sandow, Reflexus Company

The culture the founders called the [HP way](#) has a way of bringing out the best in people. I learned this at Dynatron. Our data-based decision making, studied our accomplishments with the same rigor we studied our problems. This became a continuous improvement process as we met weekly with HP to constantly improve upon how we worked well together. I was fortunate to bring my understanding of wellbeing at work to HP's Inkjet Business Unit during its accelerated growth days. In 1999, I published "[Personal Development: The key to change acceleration in global operations](#)" [12] with Steve Jewell-Larsen from HP's inkjet Business Unit in Corvallis, Oregon. My social action research showed how HP's Corvallis Division supply chain was a collaborative knowledge creating social network. The social network structure was cohesive with two HP employees collaborating with two suppliers. As a result of the collaboration, new insights into inkjet cartridge materials compatibility was immediately applied, reducing new product development by 15 weeks.



Summarizing the supply chain study, I drew a cycle of social collaboration. It begins with listening which generates a particular understanding. From this perspective, understanding is not a claim the listener makes about those they have listened to, but the feeling the person listened to has about the quality of the listener's listening. When those being listened to understand the listener only wishes to understand them and how they work well together, trust emerges leading to a social network of collaboration.

I also drew a contrary cycle of social separation showing how being too busy to listen to others creates misunderstanding leading to mistrust, social separation, redundant work, internal competition, and fear. The cycles impact on productivity and costs can be devastating and explains decades of research on illbeing at work.



Creating a system of social, biological, and financial wellbeing in Puerto Rico during the big bang

2000 Hewlett-Packard's Inkjet Business Unit, Puerto Rico

"The relationships were so structured that we couldn't do anything. There was little confidence in our ability. George Foo came on board and helped out by taking the handcuffs off us. Then we whole heartedly took on the initiative. From then on it was history,"

Sammy Cruz, Engineering, Nypro, PR

In 1998, HP inkjet cartridges were assembled using automated machinery in Corvallis, San Diego, Singapore, Ireland, and Puerto Rico. During HP's "big bang" all five manufacturing sites needed to increase production by ten-fold. This required a new approach at the Puerto Rico site with limited space— an innovation in supply chain relations between HP and their plastics vendor, Nypro.

Inkjet cartridge production consists of a dry and wet phase. The dry cartridge is assembled and then filled with ink. To solve the limited space problem created by the 10x increase in volume, HP transferred the dry phase of their inkjet cartridge assembly line to Nypro, while HP continued to operate the wet phase of the line. Nypro focused on quality and productivity with exemplary results, cutting unit costs by more than half.

HP - Nypro dry cartridge performance

	HP	Nypro
Output	12,000	20,000
Quality	96%	99.2%
PPM	4000	54
Unit cost	\$.15	\$.06

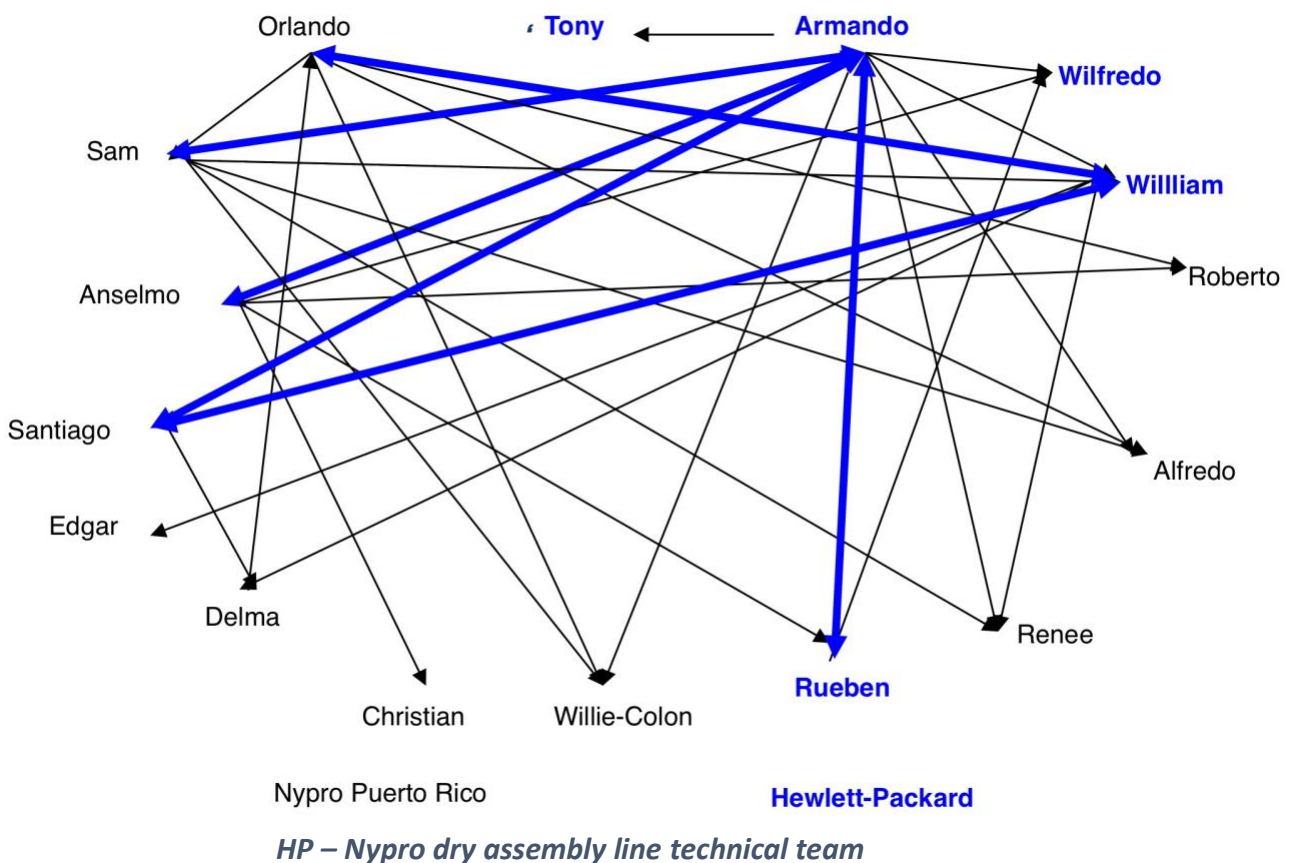
In the first year of the project, Nypro's performance improvements saved HP over \$336,000. When I discussed this with HP and Nypro, I learned Nypro changed HP's maintenance procedures on the high-speed assembly line. Before Nypro began the dry cartridge assembly, HP discarded worn parts from the assembly line in Puerto Rico's waste stream. Nypro, on the other hand, decided to re-furbish the worn assembly line components and reuse them, decreasing the industrial waste going into the landfill.

From a systems perspective, the HP-Nypro network became a social system creating social, biological, and financial wellbeing. The social wellbeing could be seen in the relations between HP and Nypro. Before Nypro assumed operations of the dry assembly line, the relations were traditional command-control relations but once Nypro's performance capacity became clear to HP, Nypro was empowered to make improvements.

The lesson was clear. Performance data that is timely, actionable, relevant, and accessible creates freedom and wellbeing.

- **Social wellbeing** arose when HP empowered Nypro to develop the dry line and workers were free to constantly improve their performance in quality and productivity.
- **Financial wellbeing** was the result of continuous quality improvement and cost savings of \$360,000/year while meeting the big bang's rigorous production demands.
- **Biological wellbeing** was the result of decreasing the flow of assembly line components being discarded into Puerto Rico's waste stream.

Just as we discovered in the HP plastics vendor network study, the HP-Nypro social network was collaborative (workers were connected in bidirectional relations shown in bold blue lines) and constantly changing while it conserved social, financial, and biological wellbeing.



2003 Hewlett-Packard's Inkjet Business Unit Corvallis, Oregon

"Collaboration in expanded social networks inside the existing organization creates hundreds of millions of dollars of value within IPG. This has been so much fun! It's a marvelous way to spend the day, working with friends on serious issues and having success. You couldn't pay me enough to go back to the old way of managing."

George Greenfield, Program Manager, Imaging and Printing Business, Hewlett-Packard

The title of George's, slide set summarizes the elimination of quality escalations during the acceleration in inkjet cartridge production. George's sub-title read – *"Self-organizing, knowledge-creating network generates 15X quality improvement within a 10X increase in inkjet cartridge manufacturing during the "big bang".* We were applying the lessons we learned about collaboration in social networks to solve a chronic and costly quality problem **saving HP \$200 million.**

From over ten years of productivity research, I learned that productivity improves when people live and work well together, and that living and working well together is our natural human preference. Creating value feels good and being together creating value feels even better. Here is how George Greenfield described it.

"The business results were stunning. Equally important, however, was the way employees and vendors felt about their role in the work. A feeling of well-being and accomplishment permeated the organization. Being at work was a joy. We were happy with each other.

And best of all, we knew we had made – and could continue to make – a difference to the business through a new way of getting our work done."

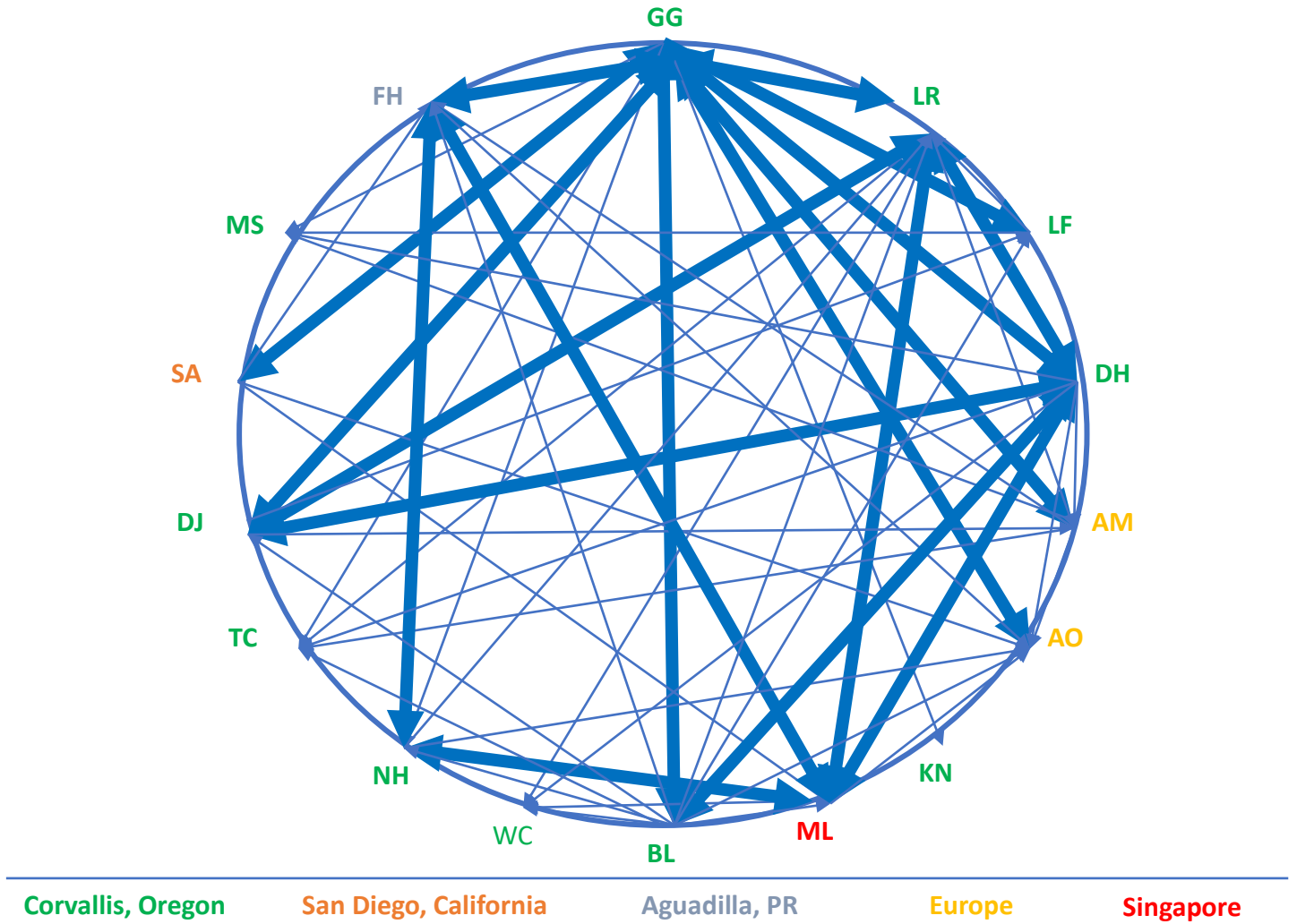
George Greenfield Program Manager, Imaging and Printing Business, Hewlett-Packard Company [1]

The social network data of the quality escalation was fascinating and not quite the same as the organizational chart we often attribute to organizational structure.

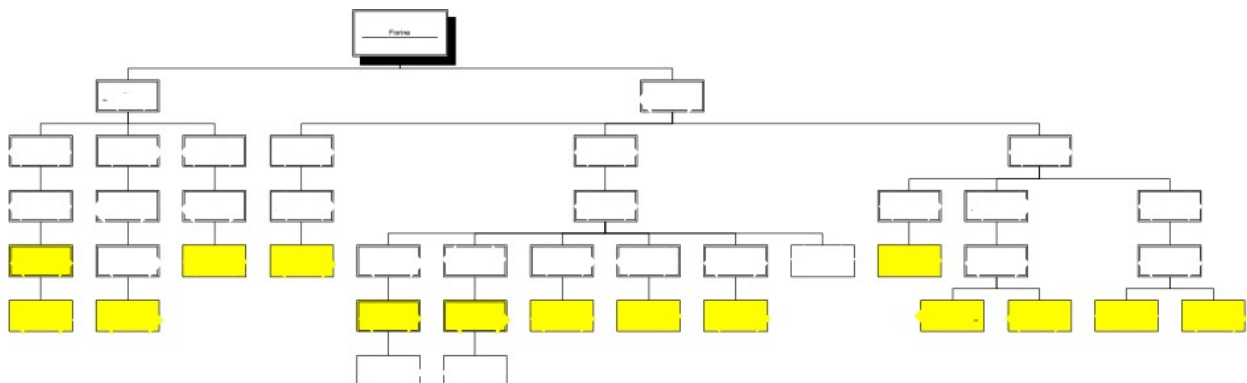
The network was very large. This map included those identified by George Greenfield (GG) was but a small subset of the whole network.

The network was cohesive (bold blue lines) with everyone in the network accepting everyone else in the network as a collaborator studying quality escalations.

The network was global with operations running around the clock.



The collaborative social network spanned HP's organization chart (contributors shaded in yellow).



I think that in the end our fundamental resource is the fact that we are the kind of animal that we are. We are the kind of animal that can enjoy beauty, that can reflect on what we do, and act in accord to whether we like it or not. We are a loving animal for whom aesthetics and ethics are a fundament of our well-being.

Humberto Maturana, Chilean biologist and philosopher

2000 Hewlett-Packard Inkjet Business Unit, Corvallis, Oregon

Talk about fortunate. While we were applying our learning from my social action research, we had the world's leading systems thinkers join us at HPs' Corvallis, Oregon site. Peter Senge, MIT Senior Lecturer and author of the [Fifth Discipline](#) [13] and Chilean biologist and philosopher, Humberto Maturana visited us in Corvallis when Maturana gave two days of lectures in 2000 explaining his biology of cognition, theory of autopoiesis, and biology of love, a lecture he had brought to Amherst earlier in the year [14, 15].

"The problems of Shell Oil were solved through love, not through competition, not through fighting, not through authority. They were solved through something very, very different. They were solved through the only emotion that expands intelligent behavior. They were solved through the only emotion that expands creativity as in this emotion there is freedom for creativity. The emotion is love. Love expands intelligence and enables creativity. Love returns autonomy, and as it returns autonomy, it returns responsibility and freedom in us." [14]

MIT's Peter Senge commented on a paper about the quality escalations I published with HP's Director of Knowledge and Internet Management, Anne Murray Allen – ["The Nature of Social Collaboration"](#).

"In my judgment, the research on social collaboration that Sandow and Allen, along with many colleagues at Hewlett-Packard (HP), have done represents a landmark accomplishment in the emerging philosophy and practice of knowledge- based management. I first learned about this work when I attended a two-day workshop that HP hosted for Humberto Maturana, the Chilean biologist cited in the article. The fact that a company would get together almost one hundred engineers and managers, including Anne's boss, the "Ink Supply" division general manager, for two days with an eminent scientist of living systems was itself surprising. But what was even more surprising was that the participants were there to learn how to deepen work many were already doing. For some years, Dennis had been listening and learning from several engineering teams in this division, seeing first-hand how they did their work and who they depended upon to do it." [1]

“Dennis got everyone in this big division of HP living two questions. ‘How do we accomplish work we are really proud of?’, and, ‘How do we generate wellbeing in the accomplishing?’ and he started to see them as more and more inseparable.

Eventually, they summarized all this in a very beautiful, kind of to me one sentence articulation of the guiding spirit of what’s always been there in all the work we really had the pleasure to be involved with and that’s the statement that all examples of sustained high performance are achieved only through creating social wellbeing. All examples of sustained high performance are achieved only through creating high levels of wellbeing. When I first saw this I thought – Wow!” [16]

I’ve continued to practice social action research using social network mapping to understand social network structure, and qualitative research to understand the group’s experiences creating valued accomplishments and social wellbeing. Social action research is person centric and everyone participating is invited to review and validate the data (see Appendix 1).

Our human nature and the HP way

When I ask knowledge workers how they live and work well together, I hear a common response. They prefer to collaborate and be free from micro-management, and, when they have this freedom, they support each other, recognize each other’s accomplishments, and collaborate in an open and transparent culture. My research reveals how our human nature follows these and other preferences for living and working well together. **Leaders who understand this can learn to coordinate collaborative actions in very large social networks.**

Insights into our human nature do not necessarily require evidenced-based methods such as social action research. Exemplary leaders have always had insights into our human nature and Bill Hewlett and Dave Packard were no exception. In HP’s first company newsletter, Dave Packard wrote:

“All of us, I’m sure, are aware of the importance of communication in our everyday lives, Whether we’re on the job, at home with our families, or engaged in some outside activity, our effectiveness as Individuals is helped immeasurably by the free and frequent exchange of information and ideas among ourselves and those around us.

The best communication, of course, is personal and informal. This is why Bill Hewlett and I, throughout the history of the company, have avoided setting up rigid channels of communication and instead have attempted to foster group meetings, coffee breaks, and other informal gatherings where people can get things done through face-to-face, personal contact.” [17]

Packard understood our human preference for sharing knowledge and encouraged all HP employees to do so regardless of their position.

“We can enhance our progress and strength by innovation in new products. Similarly, we can enhance our progress and strength by innovation in every other function of our company-in manufacturing processes and techniques, quality control, sales and service, office procedures – literally everywhere. This can best be done by teamwork and the free exchange of information and assistance at all levels. The job of the specialist is to expand our know-how in his particular area. The job of everyone else is to make frequent and effective use of this know-how for the over-all betterment of the individual and the company.” [18]

Throughout my 30-year history of practicing social action research the data is clear -**high performance is the result of social wellbeing and person centricity is key**. Social action research does just what HP’s Work Relationship Index report calls for – prioritizing individual wellbeing throughout the workday. It does this by listening to one person at a time explain how they live and work well together in collaborative social networks that are good for business and good for people.

From this historical perspective and with the accumulation of knowledge from years of studying high performance outcomes from social wellbeing, I’ll return to HP’s President and CEO Lores’ three domains of action.

Rethinking culture, productivity, technology and KPI’s

WE HAVE TO RETHINK PRODUCTIVITY

Lores is right. Between 1979-1990 I studied productivity using motion time management on a daily basis [19-21]. To his point, we need to rethink our theories that productivity is the result of obsolete command-control management practices, useful during the Industrial Era, that are now having a negative impact on the health and wellbeing of knowledge workers. Using the motion time management practices developed during the Industrial Era are no longer applicable in the Knowledge Era.

Performance is a function of individual and collective behaviors creating valued accomplishments, so $\text{Performance} = \text{Behavior} + \text{Valued Accomplishment}$. As my studies have evolved, I have replaced studying productivity with studying valued accomplishments, by asking *“How do you work well together?”* I have found teams consistently explain how high performance and social wellbeing arise when workers are free from micro-management, free to support each other, and recognize others’ contributions while their knowledge is shared in an open and transparent culture.

COMPANY CULTURES MUST EVOLVE

When I study high performance accomplishments, I study the organizations culture. Companies whose cultural values align with our human nature accelerate high performance and social

wellbeing. The good news is that this is happening in organizations like Portland, Oregon based Hyphn.

Hyphn designs and builds workspaces worthy of peoples' time and is a good example of creating a high-performance culture by bringing its values to work to achieve its mission.

Hyphn's mission:

"At Hyphn, we enhance our community's potential one workspace at a time. Using research, data, and experience, together we design and deliver inspiring workplace solutions that enable you to do your best, feel your best, and achieve your best."

Hyphns' values are alive in the workplace and include:

We're One Team – "Our best results are not created by a lone team member, but by a well-practiced and aligned team - one team, one dream!"

We've Got You – "Bring us the most complex or delicate project you have, and we'll collectively say, 'on it.'"

We Never Settle – "We will never stop learning, growing and getting better, because we know success doesn't stand still."

We Love to Laugh – "Work can be hard, deadlines can be stressful, patience can run short, but don't worry we can count on each other to keep perspective and bring the fun (bucket) to work."

We Build Community – "We are impelled to give of our time, energy, and resources to improve the world we are a part of, knowing we make a difference."

Inclusion, Diversity, Equity & Accessibility – "At Hyphn, we have put wheels in motion to self-assess, learn, and create a more diverse, equitable, and inclusive workplace."

In bringing these values to life in the workplace, Hyphn has aligned its company culture with our human nature. This is key to sustaining high performance and wellbeing at work and it is not surprising the company was recognized by the Portland Business Journal in 2023 as one of Oregon's best places to work.

TECHNOLOGY NEEDS AN UPGRADE

Humans follow a biological and developmental history by conserving our natural preference to live and work well together. The relational dynamics at work reported in HP's Work Relationship Index will improve when knowledge workers are empowered to discover how they are living and working well together. This is our human and social nature. This may sound trite but

nothing could be further from the truth. Once leaders, as Bill and Dave illustrate, understand our human nature is to live well at home and at work and how this creates extraordinary productivity and innovation, they begin to become students of our human nature. It's somewhat like crossing a river with a fast-moving current – one discovers its best to swim with instead of against the current. Leaders that understand our human nature is to collaborate, be empowered, and, support each other, will see that all results of exemplary performance and wellbeing are a matter of following our preferences for living well together at work. Those leaders swimming against the stream will micro-manage employees and try to change their behavior. These leaders will incur great financial and productivity losses stemming from creating a culture of illbeing at work.

Now what does this mean for technologists? Think of our human nature as a large network of collaboration in which all other networks are embedded. Now think of writing code for a new platform. You know that all will proceed seamlessly if your code is written with the operating system in mind. You also know, that if your code is not written this way you will experience set back after set back until eventually you learn you need to write code that is coherent with the operating system. Now think of our human nature as the operating system. Technology that is developed in harmony with our human nature and especially our social nature to collaborate in self-organizing social systems, will contribute to high performance and wellbeing and HP has a history developing such technologies.

Halo

I was a social scientist on HP's Halo development team. The Halo Collaboration Studio brought people together from different locations around the world in such a way that they felt they were in the same room together. HP's attention to detail was stunning. The wall color, table shape and chairs in all the Halo studios matched. Looking into the monitors felt more like looking at the folks across the table from you. Halos' audio/visual signal latency was so low it was imperceptible, so when we used Halo it was spontaneous and natural to the point that people would get up to walk out together only to remember they were thousands of miles apart.

Because Halo's audio and visual signal latency created a user experience where the technology was imperceptible, it created a feeling of naturally being together. When technology is out of balance with our human nature, it is the technology, not our human nature, that stands out. Socio-technical experiences such as Halo, bring our social nature to the forefront by creating a technological background aligned with our human nature.



HP's Halo Collaborative Studio

MISTO

Imagine walking into a Starbucks and instead of lining up to wait to place your order, you and your friends sit down at a unique table. You touch the table's surface, and it comes alive. Swiping through the Starbucks menu you and your friends place your order, yours' a caramel latte. While waiting for your order, you travel about Google Earth, look into concert tickets for you and your friends, and browse newspapers from around the world. Now that your order has arrived your friends and you talk about a camping trip you are planning together. One friend touches the tabletop to open a file of photos from last year's camping trip while another friend taps the screen to open new innovations in camping GPS technology.

MISTO was a classic "skunk works" project. The development team met in a small, secluded room with couches and easy chairs. White boards hung on the walls, included notes from brainstorming sessions that led to over 80 disclosures and 30 patent applications over a two-year period. Much of the innovation was in touch screen technology, as MISTO developed as a "social computing" device. MISTO's R&D Project Manager, Greg Blythe, led 10 engineers/designers, who used their free time to develop the tabletop. I was invited as a social scientist to join the MISTO team. Specifically, my role was to connect the MISTO team to potential users. This user-centric approach resulted in the team inventing tabletop touch screen

technology for Starbucks, Ford dealerships, the National Security Agency, and home use. What fun it was to join the team in delivering a MISTO table to homes for trial use. Setting MISTO up in the family room, the team came back a week later to gather user feedback.



HP's Misto Table

The lesson for technologists is subtle and fundamental to wellbeing. Innovations in technology and product development made while employees are collaborating and working well together are far superior to those innovations and products developed under the stress of command-control management methods. The lesson being, applications designed to contribute to wellbeing at work function best when the designers are living and working well together.

Post-pandemic research shows that relying solely on virtual meetings; decreases the likelihood of breakthroughs in innovation [22], are not nearly as effective as being together in the workplace sharing tacit knowledge and mentoring new employees [23], and makes it more difficult for workers to establish connections at work [24]. The challenge for technology and office space design is to begin with our human nature. The workplace design that uses technology to **create informal meetings spaces** should not be seen as trivial but core to organizational performance and wellbeing.

RETHINKING KPI'S

Rethinking productivity, culture and technology begins by practicing people centric social action research and leads us to rethinking how we measure and develop KPI's (knowledge and performance indicators).

KPI's were invented and developed as Industrial Age tools. Now that we know we know we live in an Knowledge Age [25] our rethinking of KPI's begins by contrasting the differences between Industrial Age thinking dominated by the physical engineering sciences and the Knowledge Age grounded in biology, systems and behavioral sciences [26].

	<i>Industrial organization</i>	<i>Knowledge organization</i>
<i>Source of capital</i>	Physical	Knowledge
<i>Source of productivity</i>	Command and control	Collaborative-cohesive
<i>Organizational structure</i>	Static	Dynamic
<i>Method of organizing</i>	Re-organization	Self-organization
<i>Organizational functions</i>	Segregated	Integrated
<i>Job control</i>	Low	High
<i>Operating processes</i>	Linear sequential	Circular continuous improvement cycles
<i>How mistakes are treated</i>	Hidden and punished	Acknowledged and corrected

When looked at from this perspective, a new discernment led me to invent a new evidenced based planning and performance improvement tool I refer to as a KPS, or, Knowledge Performance Systems that I first successfully applied in my business employing people with developmental disabilities. My KPS resulted in exemplary quality and on time delivery, constantly improved productivity and the wellbeing of our employees.

Knowledge vs knowing

KPI's treat knowledge as an innate and individual property. As an example, the UN's Human Development Report measures being knowledgeable as the "mean years of schooling for adults aged 25 years and more and expected years of schooling for children of school entering age" [27]. My social action research looks at knowledge from a biological perspective. As neuro-scientists, Humberto Maturana and Francisco Varela, explain "All doing is knowing and all knowing is doing." [28]. From this view knowledge is social – the coordination of collective actions.

Being knowledgeable is the result of reflecting upon how we do what we do as individuals and groups. Knowing how we live and work well together is the result of individuals and groups reflecting upon how we do what we do when we live and work well together.

Performance and performing

While KPI's are used to evaluate and align strategic business goals, their greater impact is on individual worker's because KPI's are used to rank workers in performance reviews. This is an extension of command-control management practices that very well could be the cause of the poor relations knowledge workers have with work. (Remember Gallup's 2023 research showing how employees are managed has about four times as much influence on employee engagement and wellbeing as their work location.)

In the HP examples I have shared, and throughout the 30-year history of social action research, high performance is created in collaborative social networks. In collaboration, knowledge workers are empowered and follow their natural preferences to live and work well together.

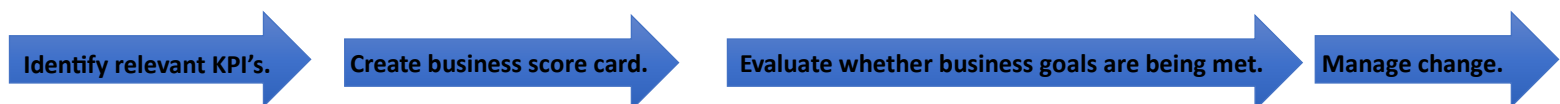
Knowledge and performance systems (KPS)

KPS' are the result of new thinking that begins with defining performance from a behavioral perspective [29]. As I have mentioned earlier in this report, performance is individual and collective behaviors that produce valued accomplishments (Performance = Behavior + Valued Accomplishment). Most organizations focus on worker behavior. The obvious problem here is that this approach to managing worker behavior occurs without sufficient expertise in the behavioral sciences and is led by the judgement and opinions of supervisors and managers.

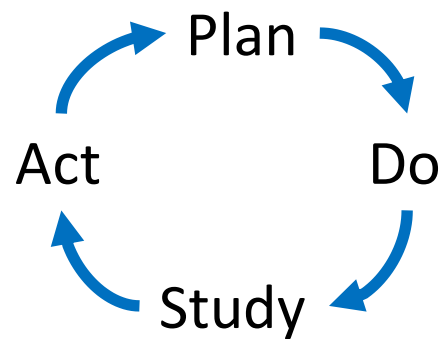
Its important to understand a fundamental difference between KPI's and KPS'. One purpose of KPI's is to rank workers, rarely, if ever a joyful process. The purpose of KPS' is to recognize and reward workers individual and collective performance and learn how high performance is the result of empowerment, collaboration and workers supporting workers in an open and transparent culture.

KPI's data criteria is defined in SMART - Specific, Measurable, Achievable, Relevant, and Time-Bound. This is used in a linear-sequential process:

1. Identify relevant KPI's.
2. Create business score card.
3. Evaluate whether business goals are being met.
4. Manage change.



My KPS' data criteria are evidenced based, and data must be timely, relevant, actionable and accessible. This is used in a continuous quality improvement process:



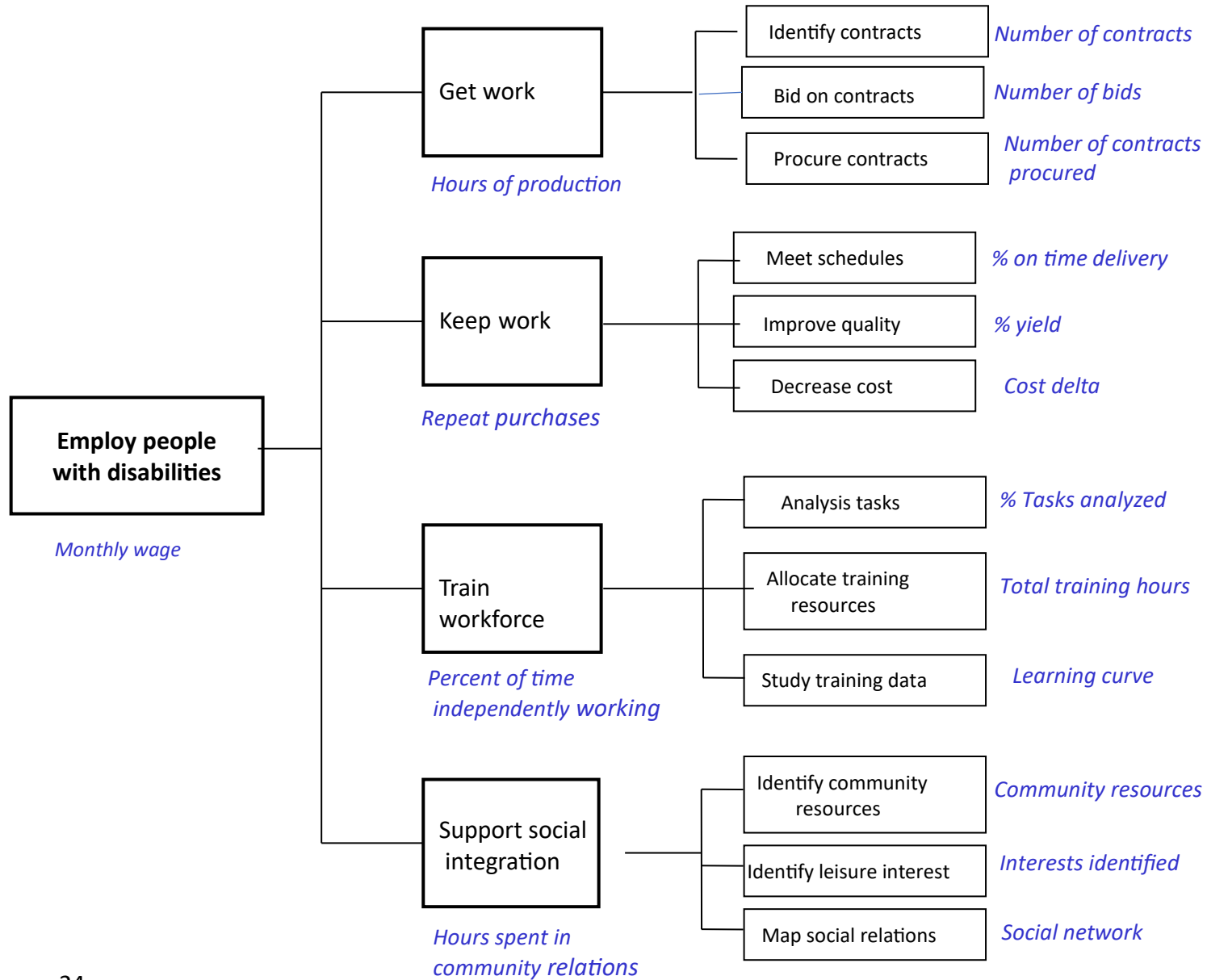
Whereby, the purpose of KPI's is to support management hierarchies, the purpose of KPS' is to support collaborative social networks. In a recent conversation, George Greenfield put it this way – KPI's treat value as one dimensional while using the KPS' Accomplishment Model uses a multi-dimensional view of value. An Accomplishment Model of my business employing people with developmental disabilities shows.

The data criteria for KPS is much simpler and far more effective than SMART. KPS data criteria is defined in four dimensions seen in my Accomplishment Model.

1. Timely – data is collected on a daily basis and used by teams in checkins during the study phase of the cycle of improvement.
2. Actionable – the daily checkins use data from the daily checkins to coordinate individual and collective actions in the act phase of the cycle.
3. Accessible – data must be accessible to all employees (we never know where the next breakthrough might be coming from!). My Accomplishment Model data is publically posted for all to see.
4. Relevant – Irrelevant or unnecessary data leads to confusion and distracts the organization resulting in unhealthy work relations.

Using KPI's and KPS' is not an “either or” but a “both and” proposition. If this sounds daunting, it is not. For example, a sports team measures individual knowledge and performance and team knowledge and performance at the same time.

Perpetual ← *Monthly* ← *Daily*



The path forward: To create a culture of high performance and wellbeing follow the data

Living and working well together happens when:

- Our supervisor and co-workers tell us they appreciate the contributions we are making.
- We end a project with our co-workers and celebrate how we completed the project in half the time we anticipated.
- Together we solve a problem we thought was insurmountable.
- A co-worker gives us a ride to work and on the way our conversation turns to brainstorming as we invent a breakthrough we hadn't planned for.
- A customer tells us how much they appreciate doing business with us.
- We throw a party for a coworker returning from medical leave.

Living and working well together happens in the present tense. It feels good when it is happening, and we look forward to coming to work. This is not the result of a new theory or model but in being free at work to live well together, our natural human preference.

This brings up a compelling question. If informal networks form naturally from our preferences to live and work well together, why are we experiencing the illbeing reported in over two decades of research studies including the HP Work Relationship Index? I contend the answer to this question is that management strategies that proved to be effective in Industrial Era are not effective in the Knowledge Era.

Its most important to understand that my approach to high performance and social wellbeing is not a theory, but **a management practice**.

You can see for yourself. Use social action research (see Appendix 1) to ask employees how they work well together. If you hear a common theme of being micro-managed, not supporting each other, and not being recognized for one's contributions – by all means continue to use KPI's.

If however, your social action research data confirms our preference is to be empowered, support each other and be recognized for our contributions – try using KPS' and the Accomplishment Model.

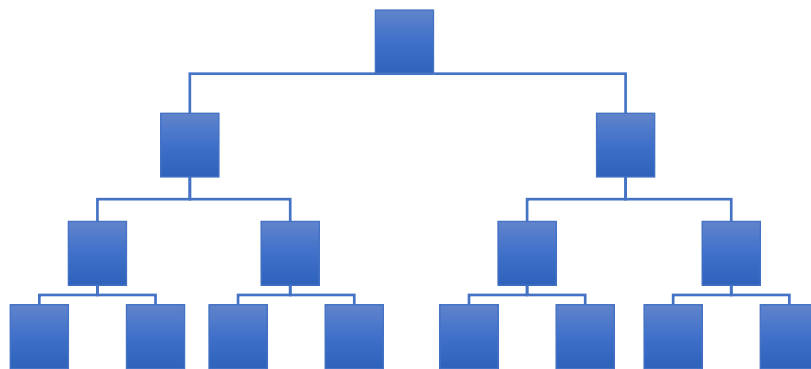
This will begin a wonderful learning and development opportunity that benefits both business and employees as we learn to understand performance by following joy and understanding joy at work by studying high performance.

Appendix 1 Social action research.

Social action research studies the *structure* and *organization* at work that results in high performance and social wellbeing. The results show us how we do what we do when we are living and working well together from a systems perspective advocated for by management theorists [13] and quality improvement leaders [25].

Structure

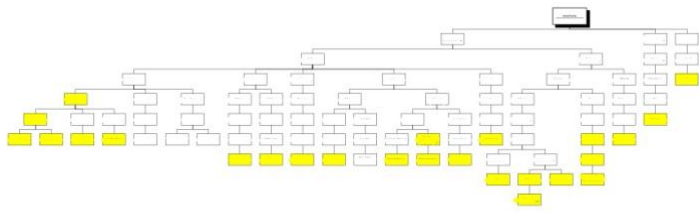
The organization chart is perhaps the most prolific systemic image of the Industrial Era. The hypothesis being that rank and function optimize business performance.



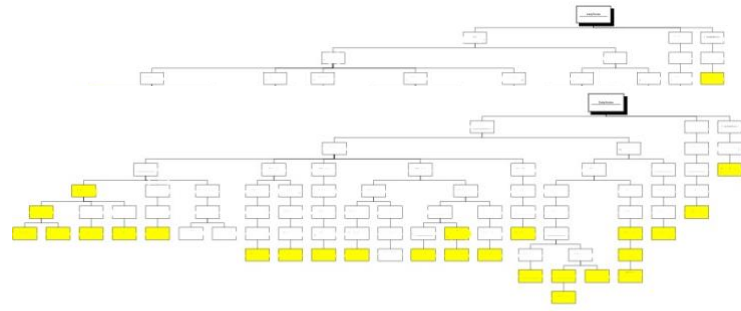
The organization chart is static, changing only when someone's rank changes through promotion or demotion, or, when there is a change in functional leadership (finance, human resources, R&D, etc.)

In 2003, a plastics engineer working for HP's Imaging and Printing Group invented a health-related use of HP's expertise in micro-fluidics. Like MISTO, this new product development was the work of a network of HP volunteers.

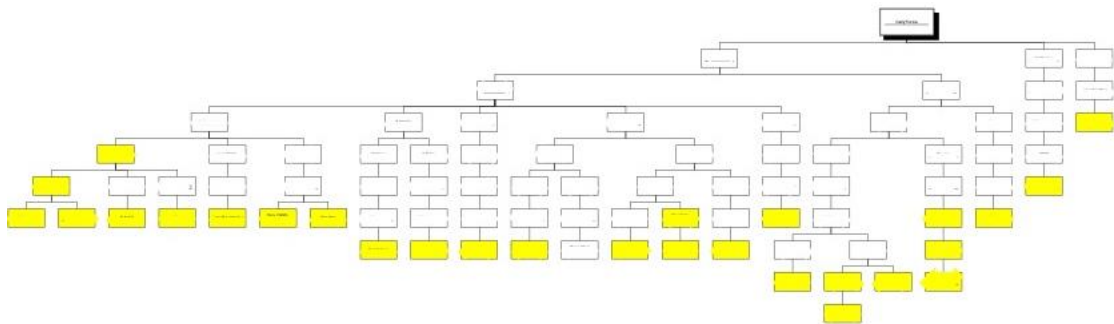
We mapped the social network of HP employees developing "HealthJet" with the volunteer collaborators shaded in yellow.



HealthJet Network 4/01/03



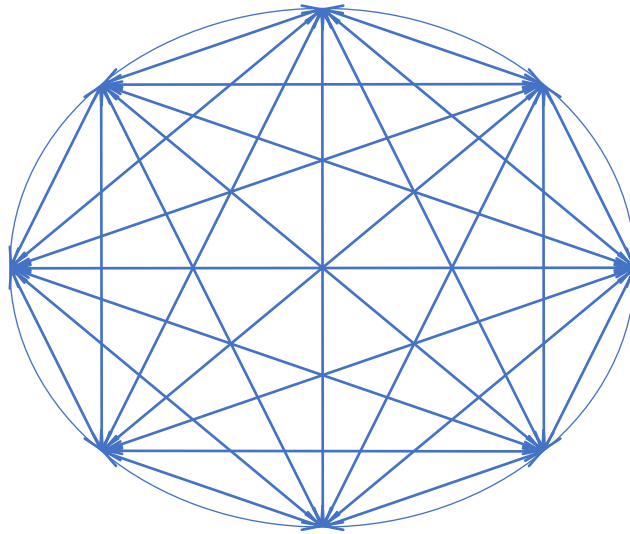
HealthJet Network 4/07/03



HealthJet Network 4/23/03

This data shows us that the only HP manager with span of control over the network was HP's CEO. It also shows that social network structure is dynamic, constantly changing as a self-organizing social system where employees are free to do their best work.

All social action research studies of high performance and social wellbeing show us that the structure of the social system is collaborative not hierarchical with everyone in the network seeing everyone else in the network as a collaborator.



From a systems perspective, the data reveals the disconnect between Industrial Era management and Knowledge Era management practices. The asymmetry in structure contributes to the unhealthy relationship with work reported by HP.

Organization

Systems are best understood by studying *structure* and *organization* [30, 31]. A simple example illustrates this point. Think about the plumbing in your home. The structure consists of connected pipes. Some pipes bring in safe drinking water, while others remove wastewater. Mixing the two together would be a disaster. To understand what runs through structure I study *organization*. In the case of plumbing this is quite simple but in the case of social systems, understanding organization it requires listening to one person at a time to understand the group or social network. This is qualitative research [32-34]. Notes are taken while listening to each person. When everyone has been listened to, the interview notes are studied and re-occurring comments or themes are identified, only after every employee interviewed validates the interview data.

Organization- common themes on wellbeing

During the pandemic, I used social action research at Hyphn, an office space design and installation business located in Portland, Oregon and Cascade Medical Center, a rural hospital in Cascade, Idaho. At first glance, the organizations couldn't be more different. But the qualitative research data from studying *organization* was surprising similar.

I asked the same question in both organizations. *How do you work well together?* Both Hyphn and Cascade Medical Center shared common themes shown in bold font.

Cascade Medical Center

Freedom.
Trust.
Cohesion.
Help and Support.
Communication.
Family.
Wellbeing at work.
Openness.
Community and care.
People are not numbers.
Amazing.

Hyphn

Freedom.
Trust.
Help and Support.
Communication.
Family.
Wellbeing at work.
Openness and transparency.
Collaboration.
Mutual respect.
Improvement, success, and respect.
Positivity.
Values.
Relationships.
Culture.
Authentic full self.
Ops/ds divide.
Clarity around roles and responsibilities.

These common themes reveal our human nature and our preferences for living and working well together.

In Santiago, Chile three of us brought social action research to Atlas Copco, a Swedish multinational industrial company building heavy mining equipment, and to, CasaCo, a lovely old home in Santiago, dedicated to the development of new businesses through collaboration and co-inspiration.

Common themes from Atlas Copco and CasaCo

[Atlas Copco](#)

"I am astonished and at the same time happy of the treatment that the company has had with us, as you go from the company to greet and return the greeting, it is a comforting sensation"

"People are super familiar, people help you a lot, I do not get nervous but I'm afraid of failure, but I realized that you have to be able to move forward, to follow this path, to open my mind, it's a very nice company. Come and not just in this area. Since they went

to high school it shows, from there I realized that the people were very nice and this draws attention, I do not imagine that the companies were so "

"Here they are more careful with people. Also what helps is the availability of people, ask for help and here can always, help you "

"Being here and in high school I feel safe, they care enough as people, not as workers. Relationships here are super good "

"They feel confident in me and in my companions. It's a good place for them to learn, so I'm going from scratch "

CasaCo

"The human quality is super important, it brings out the best of one, the best version ... and that's what I think it is.

The companies themselves are quite friendly and help each other, there is no rivalry, there is more willingness to help than to be rival. The atmosphere is very good, there are people who greet you and smile, you incorporate, you feel in a big family.

Finally more than the institutions that are here, we are the people that we are able to collaborate.

If there is a company that needs something, everyone tries to help from their possibilities, from what each can contribute with their bit.

About the dynamics of the house itself as a place of collaboration is a spectacular place, they are all very open. All companies have this dynamic of wanting to help and give way.

Here the most great thing you feel is that there is genuine generosity and genuine enthusiasm for the success of others; That life is not only advancing winning only me, but winning all together. That shared success is greater than individual success.

If there is a company that needs something, everyone tries to help from their possibilities, from what each can contribute with their bit.

Then they are all open to help, collaborate and that generates positive sum. This generates synergy."

Learning by doing

Social action research was born during my student teaching practicum at the University of Idaho's Developmental Preschool. My master teachers taught me that the best way to teach

was to teach while teaching. They would observe my teaching and I would observe theirs while we were teaching. It is very effective. In Chile, the Director of CasaCo, a HR manager at Atlas Copco, and an employee with Matriztica learned social action research by doing social action research with me. Within 3-5 days, the students were independently practicing social action research. Here are their reflections on learning social action research.

First student – Atlas Copco HR

"It was a great experience and very pleasant for me. The experience helped me realize the benefit of focusing my attention on the positive things. It is a very good way to be more efficient because we already know what we do well and making this visible reinforces, maintains and expands our performance. The process itself is an intervention because it allows you to generate a space where people feel listened to and recognized for how they do what they do. With help from the co-authors, it gave me the opportunity to listen more from the "outside, " and I was amazed by what we do here. Because in my case, well-being had become like the free lunch we serve in our cafeteria, meaning that something had become so habitual that it passes unnoticed. Now I can appreciate it with new eyes. I consider it a very good tool for organizing information and presenting it to managers in a systematic way. Like I said, the same time you are doing social action research you are creating an intervention in the organization by listening to and recognizing people. I really enjoyed the process and the company of the team. Thanks a lot for this amazing opportunity."

Second student – Director CasaCo

"During the process, the focus was on the people and their knowledge and emotions. So the information that you can recover was really powerful because you have a lot of information that you can systematize and also you had information that you can't standardize through other tools because it covers an emotional area that it appears in the flow of the research. It's amazing to see during the process how you interview one person but then you realize that you're interviewing all of the community and these people are like the "messengers" of this collective thinking, of the collective transformation. For CasaCo, it was a really important process."

Third student – Employee Matriztica

"In my experience learning how to understand social impact and well-being using Social Action Research, was a significant discovery in several dimensions.

First of all, it was really moving to see how this practice invites practitioners to "Quiet things down" and put yourself in a "meditative" disposition of acceptance and openness to feel the relational dynamics and energies that

occur in the daily living of an organization. Personally, I had never approached a research process from this domain.

Second, it was really amazing to see the power of an inductive scientific process, and how represented the people who participated felt when we presented the results. They validated our results because the data we showed arises from the coherences of their daily living, and there was no inference, theory or interpretation that influenced the process. There was nothing to "believe" it was just a matter of reflecting on what they themselves told us and showed us, during the week.

Finally I think the most significant learning I had during this past two weeks, was the importance of having a systemic understanding of organizations and communities, as these are made by human beings. Through Social Action Research, I had the opportunity to see how emotions, relational dynamics and energies between the ones that form the organization may be observed and measured in a valid and rigorous scientific process. Seeing during the presentation of results how participants reflected on the conservation and expansion of how they do what they do, was the evidence for me that our job made sense to them and the information we were presenting was totally valid and significant for the organizations."

Social action research: Practice not theory

When I have asked workers in Chile, Mexico, Puerto Rico, China, Sweden, US, and UK, *How do you do what you do when you are working well together?* I have discovered that we share the same preferences for living and working well together. This question, when answered, leads to another question that arises so naturally it does not require a formal conversation or meeting. Many of those participating in the social action research who review our discoveries with their managers, quietly formulate variations of this question while reflecting upon what they have learned about wellbeing in social networks— *Now that we know we know how we do what we do when we are working well together, how will we do what we do while working together?*

This is the process of understanding how employee's relationship with work is a continuous process of reflecting upon valid, holistic evidence of how we live and work well together. As a continuous improvement process studying high performance and wellbeing leads to improving high performance accomplishments and living and working well together. As a process, social action research accelerates productivity and wellbeing and decreases cost by transforming the process of understanding knowledge workers performance using KPS' while mitigating the pernicious ill effects of work.



CasaCo Santiago Chile

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