

Our recent past as a road map for the future

-By Sam Goan-

Since the dawn of the industrial revolution, modern economies have been in a perpetual state of transition. From the first telephone call by Alexander Graham Bell in New York in 1876 to the first message sent over the ARPANET (later to become the internet) in 1969, modern societies have been both enlightened and challenged due to technological advancement. The progress of the digital age is changing the way we interact with those we know, how we accumulate information and perhaps most significantly, the way we work.

It is at this point the question may be asked, will technology still be used as a tool to enhance our productivity, or will it be one that will increasingly cause disruption amongst our daily lives? Predictions are never easy, nor are they ever entirely accurate. The great twentieth century economist John Maynard Keynes predicted that because of rapid increases in technology, people beyond the year 2000 will have reached the “fifteen hour work week”, with a large amount of time left over for leisurely activities.¹ Sadly, Keynes utopian workplace has not yet come to pass (we’re now working more than ever) but the way in which we engage in our organizations is continually changing.

While we are continuing a down a path of increased collaboration, sophisticated data analytics and almost instantaneous access to information it seems we are getting ever closer to Peter Drucker’s idea of the comprehensive knowledge worker. Despite this however, it is my contention that the fundamental role of management will remain the same.

Much speculation abounds about how exactly a convergent society of knowledge workers would play out. While we are free to envision a future of what should happen, I preferred to take a pragmatic approach to the problem and look at our past to see where innovation has happened and how it has happened. I took the view that if we are at the forefront of the digital transformation; it stands to reason that our recent past must speak volumes about how we got here in the first place. There must have been a certain managerial culture, a specific motive or a distinct structure for these innovations to occur, and such a framework could serve as a blueprint for how we carry out knowledge work in the future.

¹ <http://www.theguardian.com/business/2008/sep/01/economics>

Bell labs as the cradle of innovation

“When one comes upon it in its surprisingly rural setting, the Bell Telephone Laboratories’ main New Jersey site looks like a large and up-to-date factory, which in a sense it is. But it is a factory for ideas, and so its production lines are invisible.” –Arthur C Clarke (Science Fiction novelist)²

It seems prescient that the starting date for this digital transformation can be dated the 23rd of December 1949, the date Bell Labs physicist’s William Shockley, Walter Brattain and John Bardeen demonstrated the first Transistor to AT&T executives.³ The realisation of the Transistor is arguably the most important invention of the 20th century. As the essential building block of the computer processor, it is impossible to imagine our digital landscape today without it. While the Transistor may have been Bells Labs most noteworthy invention, the Labs cultivated a myriad of incredible innovations, from the first solar cell, the laser, C and C++ programming language’s (which underlies most modern software), to radio astronomy and statistical quality control. However it is by no great irony that an organization that gave rise to such amazing technological developments can also serve as a template for how I envision knowledge work will be carried out in the future.

The purpose of Bell Labs was simple enough, investigate technologies and enhance the growing development of telecommunications on behalf of its monopolistic parent company AT&T, but its actual work was more varied. While the discipline of telecommunications was mostly the abode of electrical engineers and physicist’s, creating a network large enough for the entire United States would take the work of a much larger cohort of disciplines, Metallurgists, Chemists, Accountants, Mechanics, Psychologists, Sociologists and many more.

But it was how Bell Labs organized such a large workforce that was ground breaking for its time. The labs New Jersey Campus’ floor plan was designed so that different disciplines would have laboratories in one area, but their offices at an opposite end, such that employees’ from all disciplines were diffused throughout the building. The corridors were long and the work spaces open plan so every employee and manager knew what was happening, who was responsible for it and where it was. This was intentional on behalf of the Bell Labs executives, who oversaw the planning and construction of the Holmdel New Jersey site. In the words of the Labs president Oliver Buckley “all buildings have been connected so as to avoid fixed geographical delineation between departments and to encourage free interchange and close contact among them”.⁴ Ironically, communication by telephone was mostly overlooked in favour of face to face conversation. The scientists and researchers saw the telephone as a fantastic tool for communicating over long distances, but serious innovative thinking was best done in the presence of colleagues in an open ended discussion on the floor.

What was less overt was the way in which the Labs managers exerted control. It was clear that many of the Labs employees were leaders in their respective fields and by extension meant that

² Gertner, John, *The idea Factory*, Penguin press 2012

³ <http://www.pbs.org/transistor/album1/>

⁴ http://www.nytimes.com/2013/03/11/opinion/working-at-home-pros-and-cons.html?_r=0

they worked best when left to their own devices. Most projects started with an initial breakthrough that had been made theoretically by a group of researchers, and from there, management sought to sustain that idea from theory right through to practical application using every resource available to them. While the managers were also technically brilliant and usually developed a deep understanding of their teams work, they rarely got involved in the projects personally. In most cases, they would simply offer advice. Phil Anderson, a physicist at the Labs noted “the management style was, and remained for many years, to use the lightest touch possible”.⁵

These practices were way ahead of their time, and given the Labs long list of achievements, highly effective in what they sought to achieve. While a complete treatise on the Labs management could span many more pages (at the detriment to the rest of my essay), the Labs can serve as a full scale pilot plan of how innovation has been allowed to flourish in a workplace setting.

The digital transformation

"If you try to improve the performance of a system of people, machines, and procedures by setting numerical goals for the improvement of individual parts of the system, the system will defeat your efforts and you will pay a price where you least expect it." - Myron Tribus (MIT professor, organizational theorist)⁶

What is certain is that the coming age will have transformative effects on industries and organizations like never before. What isn't exactly certain is the effect this transformation will have on how organizations are run. I'd contend that management in the digital transformation should still revolve around the old axioms of leadership, trust and team work, but with a careful approach to how technology is handled its impact on the workplace.

There can be no doubt that big data, real time collaboration, “the internet of things” and increased automation can help us to be more productive, but it is essential to recognize that these developments should be used primarily as tools to increase our productivity, and not as a substitute for managerial acumen.

As an example, when I was in high school I worked for a restaurant chain that was fast paced and time dependent. A new system was introduced as an attempt to measure the speed of production whereby when an order was placed, the employee would press a button when they had acknowledged the order and had begun to make its contents. Pressing the button meant the order had been completed. A good time was under 30 seconds, anything over was questioned by the manager. In reality, an employee could have taken 20 minutes to make one meal, but so long as he had pressed the button within 30 seconds, his performance was good, his manager was happy, and the store kept to its numerical targets. The customers on the other hand may have been far less impressed. This led me to believe that some systems can be fundamentally flawed in what they are trying to achieve, and a more salient approach is for managers to look at the qualitative aspects. Are customers' expectations being met in regards to

⁵ Gertner, John, *The idea Factory*, Penguin press 2012

⁶ Myron Tribus, *Quality First*, Washington, D.C.: National Society of Professional Engineers (#1459), 1992

delivery? What more can be done to enhance the speed of delivery/quality/experience for the end user?

Seen in this light, the digital transformation will require leaders to take a prudent approach to how they deploy technology in the workplace. For instance, much fanfare has been made in regards to teleworking (working from home), with video conferencing and access to employee intranets promising a virtual workplace in the comfort and ease of your own home, yet the results have been far less convincing. In 2013, Yahoo's new CEO Marissa Mayer announced a surprising backflip of their celebrated work from home policy. As Mayer stated in an e-mail to employees "We need to be one Yahoo!, and that starts with physically being together. Speed and quality are often sacrificed when we work from home".⁷ It's easy to see the parallels that could be drawn with Bell Labs' own attitudes towards open face to face discussion in favour of telephones, but the fact remains that technology should be used primarily for enhancing employees' ability to do their job, with a cautious view about how it affects the company's culture and its ability to meet its goals. In contrast, an engineering company that held a demonstration at my university showed the multiple benefits of using their own in-house 3D printer. Not only were production cycle times dramatically reduced, but the Engineers found they now had significantly more time to be able to tinker and refine the product with colleagues before its final manufacture. The advantages were not just that they could get the product to market faster, but that the 3D printer acted as an enabler for the engineers to innovate more than they could have before, and manufacture better quality products as a result.

Further, there needs to be a fundamental redress of management's function in the future. In this sense, I see management acting as more of a support mechanism than a command and control style hierarchy. It seems to be that our younger generation is more concerned with engagement of work we enjoy rather than playing workplace politics, and while some of this may eventually be tempered by reality, an organization that pushes intellectual servitude on its workforce will result in contempt, disunity and poor productivity amongst its employees. As Drucker stated in *Management Challenges for the 21st Century* "More and more people in the workforce, and mostly knowledge workers, will have to manage themselves". As with the Bell Labs, a manager's task should be to let them do what they do best without hindering them, track progress and be ready to step in at a moment's notice if things go wrong.

⁷ http://www.huffingtonpost.com/2013/04/19/marissa-mayer-work-from-home_n_3117352.html

Management By Objectives – The Druckerian perspective

“Objectives are not fate; they are direction. They are not commands; they are commitments. They do not determine the future; they are means to mobilize the resources and energies of the business for the making of the future.” –Peter Drucker ⁸

Drucker was well aware that as technology increasingly replaced manual labour, knowledge work would become the primary mode of how the labour force was to be employed into the future. While he had accurately illustrated the role knowledge workers would play in future enterprise, he introduced the concept of MBO (Management By Objectives) as the framework within which they would participate. MBO was first laid out in Drucker’s *The practice of management* (now widely regarded as his Magnum Opus). In essence, he laid out MBO’s key practices as

1. Management and subordinates were to conceptualise and thus agree on common goals
2. Define each participants area of responsibility best suited to meet that goal
3. Management to monitor progress of the group and make adjustments/offer help to see that the goal is met

Like most management concepts, it was widely open to interpretation. Sadly, this sometimes resulted in a misapplication of the concept, when the objectives often became about quarterly profits and purely numerical goals (usually with a performance bonus attached). But at it’s core, when applied as Drucker had intended, MBO as a workplace culture is as relevant today as it was in the 1950’s when it was first popularized. I would argue it will become even more important to younger generations who seek fulfilment in the roles they acquire, as Druckers main purpose of MBO was to open dialogue between employee’s and management.

I earlier mentioned that Generation Y is often characterized by its disinterest in authoritative figures. One of the main tenets of MBO was to break down the barriers between superiors and subordinates, with management being seen as a collaborative force to support and sustain the teams they lead. When seen in this light, it seems as if Drucker’s concept was in fact more suited to todays generation than those of the respective time period.

Management by Objectives has largely fallen by the wayside in recent years, but as a framework for company culture, when correctly deployed, it is a sound one, and it works. David Packard, co-founder of Hewlett-Packard remarked that “No operating policy has contributed more to Hewlett-Packard's success ... MBO ... is the antithesis of management by control”.⁹ It is telling that, as HP has moved away from management by objectives after its founders passing, it has long lost its position as a market leader.

⁸ http://thinkexist.com/quotation/objectives_are_not_fate-they_are_direction-they/294600.html

⁹ Hindle, Tom, *The Economist Guide to Management Ideas and Gurus*, Bloomberg press, 2008

Education and training for a future workforce

If our future is to increasingly rely on knowledge work, it would be remiss to not include the fundamental importance of education and training of the future labour force. Drucker knew the importance that continuous learning had on the development of the knowledge worker. If one is to be knowledge worker, it follows that one must first be knowledgeable!

Yet, a common problem today is that organizations have extricated themselves of the cost and effort of developing their employee's. Where most workplaces had development programs/mentorship/training in house, a lot have replaced it with Credentialism or a requirement for a specific amount of skills (many of which are vague). Recently in the US, an engineering firm had over 25,000 applications for a position that went unfilled.¹⁰ I find it incredibly unlikely that out of several thousand qualified candidates, not a single one was suitable for the role. Perhaps it was a recruitment error, but the issue raised a more sinister problem. Employers often expect, out of thin air, that employees will have all the skills and experience to do their jobs perfectly.

I look at it from another perspective. Peter Drucker argued that "knowledge workers must be considered a capital asset".¹¹ Seeing as one of managements goals is to seek a return on capital assets, does it not follow that investment in the organizations knowledge workers is crucial to the growth and sustainability of that organization? This may seem obvious, but workplace learning is a crucial development tool often lost on organizations. As Drucker put more prosaically "It is precisely the obvious which needs to be pointed out since it is so often overlooked".

As roles into the future will require more advanced skills and expertise, neglecting workplace education and training will be doing a great disservice to the upcoming knowledge workers (and by extension, the organizations themselves) whose labour will rely primarily on their intellect. An oft quoted anecdote on the value of workplace development is one that involves a CFO talking to his CEO about costs of training. The CFO asks "but what happens if we spend all this money on training them and they just leave?" to which the CEO calmly replies "What happens if we don't train them, and they stay?".

¹⁰ Capelli, Peter, *Skills gap: Why good people can't get jobs*, Wharton digital press, 2012

¹¹ Drucker, Peter, *Management Challenges for the 21st century*, Harper Business, 2001

The road ahead...

The digital transformation is indeed one that promises both prosperity and enormous challenges in equal measure. As technology rapidly advances at an exponential rate, it is understandable that a cautious unease abounds in regards to the future of the workplace. But it needn't be this way. There are already established methods of organizing both people and resources for the prosperity of all. While at first it may seem counter intuitive, I'd argue that the road ahead will in fact require us to go back to look at methods that have worked, and those that haven't. In that sense, there is so much for us to learn (or re-learn). It seems ironic that, as our society becomes more technologically inclined, organizations are beginning to look like giant algorithms for maximising profit, much unlike Drucker's ideal of a "people-centred" workplace working together for the success of all of the enterprises constituents.

But the digital transformation will be unkind to those who refuse to adjust their sails to the winds of change. With a younger generation that is increasingly more connected and thus more empowered, organizations that fail in seeing people as their most important asset will fall further behind as those they lead will become disenchanted and detached from those who lead them. If history is to be our guide, our future lays in the ability for leaders to bring both management and the workforce together to galvanize the increasing power of technology for the goal of continued prosperity. It seems only then will we realize Peter Drucker's notion that "great organizations can stand amongst mankind's noblest inventions".¹²

¹² Drucker, Peter F., *The Five Most Important Questions You Will Ever Ask About Your Organization*, p.54, (2008)