Productivity of Knowledge Workers in the Singapore Public Service

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PRODUCTIVITY OF KNOWLEDGE WORKERS IN THE SINGAPORE PUBLIC SERVICE

The Public Service is operating in the era of the knowledge economy, where growth is dependent on the quantity, quality, and accessibility of the information available, rather than the means of production. An organisation’s core assets are not its building and machinery, but rather are the experience, intelligence, and skills of its employees (Manville and Ober, 2003). For organisations to succeed, they have to be able to create new knowledge and apply that knowledge to improve products, services and working processes (Drucker, 1993, 1999; Kessels, 1996) and this work is done by knowledge workers. ‘Knowledge worker’ is a term coined by Peter Drucker to describe employees whose main capital or product is knowledge, these are individuals who ‘think for a living’ (Davenport, 2005). Their work has been described as ‘non-routine’, problem solving, requiring divergent, convergent and creative thinking (Reinhardt, Schmidt, Sloep and Draschsler, 2011). The technological revolution has meant that much of the routine work in organisations is becoming automated or being outsourced, which has meant that the type of employees in organisations has been changing. As a result, the number of public officers who could be described as knowledge workers is increasing.

It has been asserted that the key to organisations survival and growth in the future is to understand how to make knowledge workers more productive, this is also true for the Singapore Public Service. Peter Drucker stated that knowledge worker productivity will be the biggest management challenge in the 21st century (Drucker, 1993, 1999). The quest to improve productivity has its roots in the manual economy. An improved understanding of productivity in relation to how we work, saw economies around the world flourish in the 19th and 20th century. The way work was transformed saw the standardisation of routine work which aimed at making procedures as efficient as possible and while reducing cost or increasing output. However, we cannot apply the productivity techniques of manual workers to the mainly knowledge workers of the Singapore Public Service. Knowledge workers are different to manual workers; knowledge workers do not typically produce a physical output, their work is non-routine, and their performance cannot be measured in units produced. The difference between manual workers and knowledge workers also means that the way organisations manages their workers for productivity also needs to be different.

This report focuses on the human aspects of productivity in the knowledge economy – the intra personal, interpersonal, and leadership factors. There has already been much work done on business process engineering or techno-digital advancement and how these can be accessed to improve productivity. Typically, when looking to improve productivity in a public service setting, it is approached from a structural or organisational perspective, the public service’s human capital is often a secondary consideration (Dagilo, Gerson and Kitchen, 2015). This report explores how intrinsic motivation, information sharing, social cohesion and trust, connectedness to the external context, and the courage to innovate, affect knowledge worker productivity and how managers can utilize these factors to promote the productivity of the knowledge workers they supervise.

WHAT AFFECTS KNOWLEDGE WORKER PRODUCTIVITY?

Intrinsic Motivation and Engagement

One of the key factors in the productivity of knowledge worker is motivation and engagement at work. Drucker (1993) suggested that knowledge workers are motivated by satisfying their values, gaining social recognition, and social power. Rather than extrinsic forms of motivations (such as financial rewards), knowledge workers are more motivated by intrinsic motivations, such as having a sense of self-direction, and finding interest and purpose in their work (Pink, 2009). Organisations have found that salary alone is not enough to retain knowledge workers, they need to be challenged and engaged by work (Jamrog, 2004). When an employee is more engaged, they ‘bring more of themselves to work’, by putting more effort in their work but also being more proactive, looking for new approaches and solutions.
Employees’ disengagement can be disastrous for an organisation, as these employees tend to be less committed to their organisation and less likely to put more effort in their work, which can result in a decrease in their productivity (PwC, 2014).

**Information Sharing**

Knowledge is a critical resource that can give organisations a competitive advantage in these dynamic times (Davenport and Prusak, 1998; Grant, 1996). Due to the nature of their work, knowledge workers are faced with complex and novel problems, problems that do not have one solution and typically require input from a diverse range of expertise (Drucker, 1993, 1999). Knowledge workers possess unique information and for organisations to gain that competitive advantage, that knowledge has to be shared. Knowledge work is not about how an individual knowledge worker operates but how knowledge workers work together to use and synthesize their combined knowledge and capabilities (Kessels, 2001). For that reason, information sharing is crucial to knowledge worker productivity. Many organisations invest a lot of time and resources to tapping into the benefits from improving knowledge sharing, by creating technology or developing processes to facilitate the transfer of knowledge (Wang and Noe, 2010). Despite the efforts to encourage information sharing knowledge, workers may not be sharing the unique information they hold. When information is shared between knowledge workers, it allows organisations to exploit and capitalise on the knowledge resources they possess (Cabrera and Cabrera, 2005; Davenport and Prusak, 1998). Research has found that information sharing was related to improvements in team performance, decision making, innovation, the time it took for projects to be completed, and organisational performance (Wang and Noe, 2010; Arthur and Huntly, 2005; Collins and Smith, 2006; Cummings, 2004; Hackman, 1990). As a result, the ability and willingness of knowledge workers to share the unique information they possess can have profound effects on the productivity of an organisation.

**Level of Social Cohesion and Trust**

Social cohesion is the level of commitment and attraction that an individual feels towards a team based on the positive relationships within the group (Yuhyung and Kyojik, 2011). Studies have found that social cohesion is a common characteristic of high performance teams; when a team is highly cohesive they will be more cooperative and effective in achieving their goals (Bray & Whaley, 2001; Brawley, Carron, and Widmeyer, 1993). When a team of knowledge workers have a high level of social cohesion, they are more likely to be happy to share their knowledge and ideas with each other for the good of the team or organisation. Trust is often a by-product of socially cohesive teams and is also an important factor in knowledge workers’ productivity. Knowledge workers need to feel that they can trust the people they work with, trust that they will act in their best interest, that information they are given will be used appropriately, and that the knowledge they provide is reliable and valid (Johnson, Mawson and Plum, 2015; Advanced Workplace Associates, 2015).

When there is a lack of trust, there will be reluctance to cooperate, use information provided to the team or share information they hold. When a team is high in social cohesion and trust, it creates a psychological safe environment for knowledge workers to operate in, where they feel free to take risks, share ideas, innovate and explore new ways of doing things. Without trust and social cohesion knowledge workers, individually or in a team, will find that their knowledge becomes ‘landlocked’ and that information is denied to the organisation and subsequently decreases productivity (Advanced Workplace Associates, 2015).

**Connectedness with External Context**

In the knowledge economy, it is not only crucial that information is sought and shared with others within the internal environment but workers must also span boundaries and seek information and resources from the external environment.
The external environment for a knowledge worker means not only going beyond their boundaries within their organisation, but also external to their organisation (Johnson, Mawson and Plum, 2015). The ability to span boundaries and seek knowledge and resources from the external environment has been found to influence knowledge worker productivity (Johnson, Mawson and Plum, 2015; Advanced Workplace Associates, 2015). Without connecting with the external environment, the knowledge workers can end up operating in an echo chamber, where the same information gets repeated. Knowledge workers need to expose themselves to diverse views and experiences, outside of their own team or organisation, to bring new ideas and insights to stimulate innovation in the organisation.

Organisations are in danger of ‘group think’ when a disproportionate percentage of their information and understanding comes from within their organisation. Knowledge workers operating within the organisation can become comfortable with the idea that the organisation is operating the right way, they become wedded to ‘their ideas’ and ‘their way of doing things’ and reject anything from the external environment (Johnson, Mawson and Plum, 2015; Advanced Workplace Associates, 2015). When knowledge workers are connected to the external environment, they gain access to more diverse knowledge and connection to people with different expertise and capabilities; this can spark new ideas, allow the implementation of new ideas or processes, and allow knowledge workers to be more responsive to the external environment (Johnson, Mawson and Plum, 2015; Advanced Workplace Associates, 2015). While we know that connection to the external environment is crucial for productivity, it does not come without psychological risks. Making that connection with the external environment can involve asking for help or resources and seeking feedback. Stepping out for this information can make an individual feel incompetent or risks them feeling humiliated (Edmondson, 1999a). Without support, knowledge workers may not be willing to take risks and make connections outside the safety of their own environment.

**Courage to Take Risks to Innovate**

Maintaining the status quo will not improve the productivity of knowledge workers or the Singapore Public Service. However, going against the status quo, even if it improves outcomes, can be risky for employees. The Public Service is traditionally thought of as being extremely risk averse (Borins, 2001). The actions of the Public Service are associated with high levels of accountability and this is understandable because their actions are publicly scrutinized. Because of the potential for public scrutiny, knowledge workers may feel that engaging in innovative behaviour carries risk. For public officers, the dangers of failure from risk taking is often far more apparent than the potential benefits from successful risk taking. Even when the public service acknowledges the value of improving the way we operate through innovation, often employees can be reluctant to engage in change orientated behaviour. To remain competitive, organisations need to innovate. When knowledge workers feel that they are not constrained by negative personal consequences or the disapproval of others, they will be able to take calculated risks (Nembhard and Edmondson, 2006). This could come in the form of new opportunities for improvements, ideas to benefit the organisation, or identifying problems and room for improvement (Edmondson and Lei, 2014).

**WHAT CAN MANAGERS DO TO BOOST PRODUCTIVITY?**

Managers have a major role to play in creating an environment that is conducive to knowledge worker productivity. It has been argued a manager’s behaviour and attitudes determine the productivity and ability to innovate of knowledge workers (Carleton, 2011). As we have already covered, intrinsic motivation and engagement, information sharing, social cohesion and trust, connectedness to the external context, and the courage to take risks and innovate, are major factors in knowledge worker productivity. Knowledge workers’ managers can be the catalyst by creating these conditions in
their supervisees by creating a clarity of organisational purpose and mission, providing knowledge workers with autonomy, being supportive, providing the conditions for psychological safety, and creating a culture of risk taking.

**Clarity of Organisational Purpose and Mission**

Understanding and ownership of an organisation’s purpose is a fundamental condition in creating intrinsic motivation and employee engagement. Purpose answers the question why we (the department, the organisation, the public service) exist. If we do not have agreement on the point of a department or organisation, the case for being productive seems meaningless. You need to have an understanding of the objectives and successes you are striving for, to unlock more efficient and effective ways to achieve it.

When there is a clear understanding of an organisation’s mission, then productivity aims can be set that are aligned with the organisation’s mission. Understanding the organisation’s mission and purpose can help employees better connect to the work they are doing and aid them in defining their tasks. Having clarity in purpose can help knowledge workers more efficiently define their task, as they understand what the desired outcome for their task is (Baldoni, 2013). They create reference points for the calibration of work of each department, unit, and individual. Clarity of purpose needs to happen at all levels—at the department level, unit level, and individual level.

But simply having clarity of purpose is not enough to elicit the conditions needed to improve productivity, employees must not only understand the organisation’s purpose and mission but also buy into and own that purpose. Knowledge workers need to see how their own work contributes to the organisation’s mission, providing a rationale for their work. When an employee is able to connect with the organisation’s mission and purpose they will ‘own’ the results of their work and that of the organisation, and they will be more attentive to the needs of their co-workers and the organisation (Harter, as cited in Baldoni, 2013). In this way, the knowledge worker is intrinsically motivated by their work and engaged to their work and the organisation.

In addition, clarity of purpose is not static, that once gained never has to be returned to again. It has to be addressed in the here and now, at each point of the work, the question of purpose needs to be framed in relation to the work. Not just a statement in the annual report or communicated in the town hall, but as constant inquiry about what are we trying to achieve here—in this meeting, with this research, with this policy, with this conversation, or with this engagement. Without this clarity and ownership of the purpose and mission it is unlikely that employees will be drawn into the process of productivity and continuous improvement, and it is the manager’s duty to help create this clarity and connection for their knowledge workers.

**Supervisory Support**

Knowledge workers are highly educated, they are more mobile, and technology has always been part of their working lives. Drucker stated that knowledge workers are not subordinates but rather associates and that once they have moved beyond the ‘apprentice stage’ they should know more about their job than their bosses (Frick and Drucker, 2011). A knowledge worker does not need to be micromanaged by their supervisor and told what to do; they do, however, need to feel that their supervisor supports them. They need to perceive that their supervisor is there for them when they need them, that they will support them if things go wrong, will recognise them for a job well done, value their opinion, and give them the freedom to do their job (Nembhard and Edmondson, 2006).

**Knowledge Worker Autonomy**

Today’s knowledge workers want to feel in control of their own destiny, they want to be self-directed. Daniel Pink (2011) suggested, if an organisation wants higher performance they have to push autonomy down into the organisation. Autonomy is defined as “the amount of discretion the worker is expected to exercise in carrying out assigned work activities” (Turner and Lawrence, 1965). It has been found that employees who believe they have autonomy are more
likely to be satisfied and committed to their work (Wang, 2015) and it has been found to be a critical job characteristic to knowledge workers (Chaney, 1984; Goldstein and Rockart, 1984). Without a sense of autonomy, employees can feel powerless, which leads to disengagement and feeling helpless (Van Den Broeck, Vansteenkiste, De Witte, Lens, 2008).

Pink highlighted that knowledge workers will accept being told what goal they should strive for but they will not accept being told how to achieve those goals (Pink, 2011). Knowledge workers should have a say in how they mould and shape their work to meet the goals of the organisation. Drucker (1985) suggested that managers should consult with their knowledge workers to see if they have any suggestions on how to better utilise their ‘intelligent intangibles’ that are central to knowledge worker productivity, giving them a say in how they operate. Managers do not need to define the task or how it should be completed, rather they should set clear objectives, facilitate the autonomy of their employees, and facilitate their development (PwC, 2014).

Reduction of Power Distance

The ‘command and control’ style of leadership can increase the power distance between the knowledge worker and their supervisor. Organisations with a high power distance between superiors and employees can hinder the flow of information. When there is a lack of formal distance between superiors and employees, information flows better in both directions. High power distance organisation cultures are more likely to have a top-down flow of knowledge than cultures that are low on power distance (Ford and Chan, 2002). In these high power distance cultures there can be a reluctance for employees to share ideas with the organisation (Rivera-Vazques, Ortiz-Fournier and Rogelio Flores, 2014).

Managers need to practise leader inclusiveness, in which they attempt to include others in discussions and decision making (Nembhard and Edmondson, 2006). If a manager takes an authoritarian approach to leadership with an emphasis on power distance, employees can feel like their thoughts and opinions are not welcomed. However, if a leader is supportive and welcoming to others views, the more likely employees will share their unique knowledge (Nembhard and Edmondson, 2006). Upward communication can be vital in keeping organisations competitive and productive, speaking up can challenge the status quo and bring problems or opportunities for improvement to the attention of management (Edmondson and Lei, 2014). But often individuals will withdraw or not take part in conversations in which they believe that their contributions will not be acknowledge (Ford, 1999) or they feel that it could have negative consequences for themselves (Edmondson, 1999b, 2003). Employees must feel their manager listens to their suggestions, this does not mean that their manager has to act on every suggestion made but rather that they actively listen to suggestions. Having discussions about the merits of an idea, working to refine the idea, supporting them in its development, allowing experimentation and pilot schemes, all make the employee feel like their ideas are taken seriously and therefore it is worthwhile to share their thoughts.

Provide Conditions for Psychological Safety

Team work often requires individuals with a diverse range of expertise to come together and coordinate and collaborate. Psychological safety has been identified as an important factor in encouraging knowledge worker collaboration, and in addition, the building the conditions that have been identified to effect knowledge worker productivity. Psychological safety refers to a shared belief that an environment is safe to take interpersonal risks (Edmondson, 2003). This includes belief of how others will respond when an individual puts themselves at risk, such as by reporting a mistake, asking a question, or proposing a new idea (Edmondson, 2003). Research into psychological safety has been found to be associated with information sharing (Collins and Smith, 2006), speaking up with suggestions for improvements or taking the initiative to create new products, services or processes (Detert and Buriris, 2007; Liang, Farh and Farh, 2012; Baer and Freese, 2003). In a psychologically safe environment, employees are more likely to focus less on protecting themselves, and are more likely to share information, and encourage innovation. Without psychological safety, employees feel that they are at risk of being hurt, embarrassed, criticized, or punished (Edmondson, 2003). As a result,
employees may withhold information about problems or inefficiencies related to work, withhold solutions to problems or innovative new approaches, or cover up mistakes—all of which leave the organisation vulnerable to operating ineffectively and being maladapted to the dynamic environment, all because the employees feel that speaking up on these issues will be too risky.

Leaders play a key role in whether employees feel psychologically safe or not in their work environment. Managers have to be aware and intentional regarding the behaviours they display to their followers. Managers can promote psychological safety in their teams by being available and approachable, explicitly inviting input and feedback, and modelling openness and fallibility (Edmondson, 2003). Managers need make sure that their supervisees know they are available and that they are open to discussion. They should consult with team members, seeking their input and opinions, thereby suggesting to team members that their opinions are respected and welcomed. Managers can also demonstrate that they are fallible or show vulnerability, as this can reduce the power distance between themselves and their supervisees and increase perceptions of psychological safety.

Creating a Culture of Risk Taking

The Public Service needs its officers to take risks, this can mean pointing out problems, suggesting new processes or opportunities for improvement, sharing information, boundary spanning, or experimentation. But some knowledge workers can feel reluctant to engage in these behaviours as they believe they can have potentially negative consequences. These negative consequences range from being misunderstood, embarrassed, ridiculed, or penalized (Morrison and Miliken, 2000; West, 1990). This fear of the repercussion can be due to past behaviour and actions witnessed by the employee, for example, employees may have been negatively sanctioned by their manager for going against the established status quo.

Supervisors of knowledge workers can create a culture and the conditions in their team that encourages knowledge workers to take risks. Supervisors need to be aware that their leadership styles and behaviour convey messages to their knowledge workers regarding the consequences of taking interpersonal risks. The creation of psychological safety, as mentioned in the previous section, helps create the psychological conditions that can make the knowledge workers feel safe. Managers can also enact processes that can help support their knowledge workers in risk taking. Managers can make room for their employees to fail; while no one likes failing, failing often plays an important role in iterative learning, innovation and productivity improvement. Nembhard and Edmondson (2006) suggested that managers can engage in ‘learn-how’ activities such as dry runs, pilot projects, and problem solving cycles, which provides their employees the processes to take appropriate risks in a more protected environment. These activities make room for failure and allow those involved to extract the learning from the situation; with managers emphasising that success is built on failure and that failure is a learning opportunity (Rummel, 2017). ‘Blameless post-mortems’ could be built into the process, which creates an acceptance that failures happen and they can be learnt from them, without recriminations (Rummel, 2017). On top of legitimizing the making of mistakes, leaders should also reward innovative thinking, even if the outcome was not a success (Pearson and Ellis, 2011; Schein, 1993).

CONCLUSION

While productivity can be gained through business process engineering and techno-digital advancement, a great deal can be gained through harnessing workers to be part of the push for productivity. With an increasing number of knowledge workers in the public service, we need managers to be aware of the role they play in improve the productivity of these officers.
Supervisors of knowledge workers can use the questions below to explore the conditions present in their teams and if they are enabling productivity in their teams.

**What conditions are present in your team?**

- **Do members of your team understand the mission of your organisation?**
  Team members should understand and buy into the organisation’s mission, this can contribute towards intrinsic motivation but also help define what is productivity in your organisation's context.

- **Do they understand how their work connects to the organisation’s mission?**
  If they understand how their work contributes to the mission, they can ensure alignment between their tasks and the mission objectives.

- **Are team members able to bring up problems and tough issues?**
  Do your supervisees highlight issues and problems to you and the rest of the team? If they don’t or only do so when they have to, this could be a symptom of a lack of psychological safety.

- **Is it safe to take risks in this team?**
  Is risk taking encouraged? What happens when innovation initiatives fail? Do you encourage supervisees to take risks and try new approaches?

- **Are team members encouraged to innovate?**
  What are you doing to encourage and support innovation in your knowledge workers? Is what you are doing translating into innovation?

- **Is it difficult for team members to ask others for help?**
  Who do your supervisees go to when they need help? Are they able to go to you or their co-workers for support?

- **Do your team members feel able to share information?**
  Do your team members share the unique information they hold with other team members or with others in the external network? When making decisions are you missing relevant information?

- **Is your team connected to the external environment? Are they tapped into the relevant external networks?**
  Do the knowledge workers you supervise cross boundaries to stay connected and share relevant information? Do they make connections beyond their own teams?

**Are you enabling productivity through your leadership?**

- **Do you allow your team members to define the tasks they perform to achieve their goals?**
  The supervisor of a knowledge workers should define the goals and aims of their supervisee but the supervisee should be able to decide how they define their tasks to achieve those goals. If they are given autonomy and freedom it can improve their engagement and intrinsic motivation.
- **Do you make yourself accessible to your team members?**
  When a leader communicates he has ‘an open door policy’, it signals to employees that their thoughts and problems are welcome for discussion. However, when a leader is inaccessible, it gives employees the impression that discussion is not welcomed.

- **Do you encourage all members of the team to give their input?**
  The whole point of having a team is to bring different experiences, perspectives, and expertise together. Leaders should invite questions and feedback, with non-defensive responses.

- **Do you model openness and fallibility to your team members? Do you let them know when you make a mistake?**
  Team members who hear their leaders admit to the group they made a mistake are likely to remember this the next time they make mistakes and feel more comfortable bringing this up. Let nothing be sacred. We all have blind spots. Encourage team members to give you honest feedback about your performance.

- **When something goes wrong, how do you respond? Do you seek out who was to blame? Or do you approach it as a learning opportunity?**
  Conduct blameless post-mortems/after-action reviews, explore what happened, what went wrong, and how we can improve in the future.

- **Do you make room for experimentation and taking risks? Do you give your team members a safety-net to give them the space to innovate (e.g., allow pilot projects, budget for innovation)?**
  Create processes to allow experimentation (such as pilot programmes) to mitigate risk while innovating. When people know there are processes in place to act as a ‘safety net,’ to minimise risk, they will feel more comfortable taking appropriate risks to improve products and the organisation.

- **Do you reward innovative thinking and ideas, even if they fail?**
  Attempts at innovation, whether they succeed or fail, should be acknowledged and celebrated. This helps encourage people to share their innovation ideas and be less likely to let fear of failure be a barrier to innovation.
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