

INTERNAL WORK-PACKAGE HANDOVERS AND EFFECTIVE KNOWLEDGE TRANSFER

'A Reflection on Failed Project Actions and Lost Internal knowledge'

By Russell Dunn

ABSTRACT

Work-packages are often handed over or transferred internally peer-to-peer within the project team, such as when team members leave the project, or when management re-shuffles responsibilities. This paper reflects on the apparent shortcomings experienced by the author when using traditional dot-point style handovers, by identifying and analysing the knowledge transfer process at play. The distinction is made between *information* and *knowledge* when considering the underlying importance of harvesting the team member's *tacit* knowledge obtained from in-depth involvement and association with a particular work-package. When attempting a smooth transition or handover of a complex work-package, context and purpose are found to be key elements required to be explicitly conveyed in order for the receiving peer to achieve empowerment with *actionable knowledge* and the capacity to act. A pragmatic approach is taken to develop high level tools and recommendations that could be implemented within a project team environment when aiming to optimise a smooth and effective transition while mitigating the adverse effects of lost project knowledge due to poor knowledge transfer practices.

Keywords: reflection, knowledge, transfer, handover, work-packages

INTRODUCTION

For project team members, construction site offices often contain a fast-paced mixture of detailed planning along with last-minute changes. We have complex and dynamic interactions between clients, contractors and subcontractors often with intense time pressures, last-minute design clashes, material and product lead times, operational legalities, safety considerations, client/authorities red-tape, and the list goes on..

So what happens when a key project team member is about to leave the project, right in a critical stage!?

The focus of this paper is the transfer of knowledge, peer to peer, within a site-based construction project team. Specifically, when a 'key knowledge bearer', (the person holding

knowledge and information to be transferred), aka ‘the Passer’, who has been working on complex designs, contracts or work-packages often for many months prior, is to leave the project indefinitely yet the work must be carried out, and the package must continue to evolve from concept to reality on site.

What usually happens when they leave? Where does it leave the remaining team members who are left to decipher the codes and pick up the pieces? What are the consequences to the project? Most importantly, is there a way to better prepare for a smooth transition?

To assist with this discussion, sporting term analogies may be used (sporting code can be of the reader’s choice) when reflecting on the ‘players’ and events faced by the team. Terms will be referred to such as:

- **Key Players:** Anyone involved that may influence the desired outcome, or provide input to assist information/knowledge development while the game is in play.
- **The Passer:** The person currently with the knowledge, who needs to ‘off-load’ their work package through hand-over (Passing knowledge).
- **The Receiver(s):** The person or persons chosen to be responsible for the work package about to be passed on to them.
- **The Goal:** The purpose of putting this knowledge into action. The desired outcome.
- **The ball:** *Knowledge* – both Tacit and explicit, being passed from player to player.

Where this paper was written with construction projects specifically in mind, it is easy to relate these concepts to the generic underlying issues across many workplace sectors when faced with hand-over of complex and critical work packages within a project team environment.

Reflection on past handovers.

The typical scenario of pre-handover events.

In the majority of circumstances, while best intentions may be present to achieve an optimal transition point for handover in the weeks leading up to departure to document and explain events unfolding, the last day always comes sooner than expected and priorities start to change. With future events on his/her mind, the ‘passer’ needs to race through as much work as possible, across various work fronts and responsibilities to get each to a suitable level that another team member, the ‘receiver(s)’ often yet to be chosen, can simply pick up where the passer left off.

On the passer’s final day on-site, a ‘remaining works list’ is usually typed up in dot points and emailed around to relevant team members with each item having the intended receiver’s initials against the work they will soon become responsible for.

This is followed up by a face-to-face meeting, call it a hand-over or briefing, where verbal explanation aims to highlight task necessities, required actions, critical issues and possibly when critical or key dates occur.

The receiver takes notes, feels slightly overwhelmed, but figures they'll sort it out when the time comes.

While the theory and intentions of hand-overs may be to achieve a smooth and seamless transition, in the author's experience things are never quite so smooth, and while you may arrive at the end result eventually, those involved may later find they've come at a cost. (Refer outcomes and discussion below)

Reflection On Lessons Learned.

Common outcomes relating to the 'Dot-Point Briefing' style of hand-over

Upon reflection on the outcome and effects of the aforementioned 'dot-point' style of work-package handover, or information transfer, some common set-backs on the project and staff were found to be:

- Missed key deadlines often for both progressive stages of intended actions, or final outcome due to the dates not being known or managed properly
- Lost direction or momentum associated with the activity, which could ultimately affect the entire project.
- Stressed and frustrated staff with increased pressure on other project areas.
- Hindered decision making, assumptions are made to replace missing information.
- Poorly allocated project resources to catch-up once the newly discovered delivery date is realised.
- Repetition of work/problem solving previously completed yet lost, adding further resource costs to the project
- Following trade workers are delayed due to incomplete prior works, adding delay costs.
- Lost information or lost quality documentation leading to warranty or traceability issues.
- Ad-hoc and reactive style of management
- Compromised safety due to poorly planned activities completed last-minute.

What are some common reasons for ‘dropping the ball’?

For these negative impacts to be avoided on future projects, we need to analyse *why* this is such a common theme when handovers occur on projects. The following are just some of the reasons we may experience ‘ball dropping’ on our projects.

- The receiver misunderstood the scope of works that required their actions.
- Long duration between time of handover meeting/briefing, and time of required action resulting in a lost urgency or forgotten importance.
- The urgency or importance might not have been explained in the first place, or possibly just quite not understood by the receiver in the context that was clear to the passer.
- The purpose and context were not clearly explained or understood
- Verbally communicated knowledge, which may have been understood at the time, was later forgotten.
- Responsibilities were unclear, or not agreed at the time of hand-over. The receiver may already be overwhelmed with a heavy workload and thought someone else should take responsibility.
- Last minute nomination of receiver leaves insufficient time for questions/answers.
- No time was allowed over-lap of roles for a true understanding to be grasped by the receiver
- No easily accessible ‘knowledge storing space’ (ie, folders, database, noticeboard, intranet or files etc) was set-up or pre-agreed that the receiver could look to for help, or turn to find explicit knowledge or information related to the activity.

While each of the above points could be considered easy to manage individually, it should be reflected on as it occurs in reality, which is often found to be a complex combination of many interdependent events occurring and impacting simultaneously. This soon results in a chaotic and uncontrollable situation on the project when the vital work-package starts affecting your critical path activities.

How are we failing from a ‘knowledge transfer’ perspective?

In order to clarify the downfalls experienced above, we need to make a clear distinction about what we’re passing on. While a dot point email is quick and easy to generate, at best you are producing *information* or *data* for the receiver to decipher. While this may be useful to an extent, what it lacks is the ability to create a true understanding in the receiver’s mind.

‘Context is the pre-requisite for successful knowledge outcomes.’ (Bourne, 2003) Therefore, to effectively hand-over to the receiver, we need draw out or ‘harvest’ all associated context,

purpose and *tacit knowledge* of the work package. That is, capturing and transferring the individual's personal experience of the entire work package including the 'know-what' (facts), 'know-why' (science or mechanisms), the 'know-who' (networking) and the 'know-how' (tacit) (Garud, 1997) to pass on what has been coined by Peter F. Drucker as *actionable knowledge*.

So how can we tap into and explicitly harvest the passer's tacit knowledge?

Unfortunately, it is a lot harder to impart knowledge than to pass on information (Lurie, 2012). 'Knowledge', a familiarity or conversance (Dictionary, 2009), is found to be gained through individual experience and familiarisation which deepens over time.

Hungarian Medical doctor turned philosopher Michael Polanyi speaks of *tacit* knowledge as 'a backdrop against which all actions are understood' (Stenmark, 2002). But the difficulties as observed, is when it comes to tacit knowledge he found that often "we can know more than we can tell" (Polanyi, 1983).

This sets a challenge to both the passer and receiver. While we may not be able to pass on a full and complete understanding as experienced by the Passer, who's spent the past weeks or months engorged in the topic or situation, we must attempt to draw out key aspects which will affect decision making and enable the receiver to build at least a basic understanding, which can later transform into actionable knowledge.

What are our goals for effective knowledge transfer?

Ultimately, we want the receiver to have the same decision making ability as that which has been built up over the previous months in the mind of the passer. We need to empower the receiver with the capacity to act.

The challenge now is how to achieve this outcome effectively and practically, considering all the barriers and time constraints within the project environment.

Harvesting tacit knowledge and developing Knowledge transfer tools

While the theory of transferring tacit to explicit knowledge is not new, (see works by Nonaka and Takeuchi re: The 4 modes of knowledge conversion (Nonaka & Takeuchi, 1995)) what we do need to find is what works best in our current situation and environment.

If a standard tick box form or process is developed, then we risk losing the complexity and uniqueness of each situation as a tick-box won't allow expression of an individual's personal experience.

What we need is for the passer to reflect on what it is about their situation that is critical, and how their own tacit knowledge, which they might take for granted or not actively be aware of, needs to be made explicit and communicated to the receiver along with the obvious information as before. We can however help this ‘externalisation’ process along (refer the SECI spiral process model (Nonaka, Toyoma, & Konno, SECI, Ba and Leadership: a Unified Model of Dynamic Knowledge Creation, 1997) by developing high level questions aimed at drawing out relevant background information and knowledge to build a story around events and scenarios in the past in an attempt to lend vision to what is required in the future. This would then need to be documented and communicated by creating a space to capture knowledge and enable a single point of storage for future reference or reflection.

This storage space for knowledge creation could be in the form of a template or guide developed to suit the organisation or specific project by harvesting and documenting the context, purpose, meaning and associated information such as by asking the passer to reflect on:

- What is the required end outcome? (*know-what*)
- Why are we doing it, and why must it be done? (*Know-why*)
- What are the critical milestones and key dates? (*Know-what*)
- What drawings and specifications are relevant? (*Know-what*)
- What barriers are we still facing? Are there outstanding design or constructability issues? (*Know-how*)
- Who are the key players? Client, stakeholders, subcontractors, suppliers? (*Know-who*)
- What is the relationship history with key players? (*Know-how*)
- If nothing is done and no action is taken, how will this impact surrounding works or the project? (*know-why*)
- Who else within our project team has been involved, or can assist with progression? (*know-who*)

Can you transfer actionable knowledge in a short period of time?

We have seen that information and knowledge are paramount to our discussion, however *time* is the critical element that allows the receiver to build their own experience with the activity or item that is required to be transferred. Since time is limited both for the passer and receiver, how can we assist to expedite this process?

It is commonly known that a picture paints a thousand words, luckily in construction we have ‘pictures’ all around us. Architectural and structural drawings can be used to highlight items to be procured, or issues still to be resolved that impact on our progression. Thought should be given by the passer as to how this could assist their hand-over.

Combining marked-up drawings with the knowledge templates mentioned above, a *story* could be created to bring meaning and relevance to our information by introducing basic flow

diagrams or brief statements to help paint a picture of the direction in which the work package needs to continue.

This further assists with shedding light to the receiver on the 'know-why and know-how', rather than simply 'know-what'. As again, it is the know-why and know-how which brings experiences, insights and cause-effect knowledge to the scenario (Schindler & Eppler, 2003, p. 220).

Therefore, we continue with our goal to enable and empower the receiver with the capacity to act appropriately and steer the complex inherited work package in the right direction rather than follow predetermined linear steps which would inevitably change in the course of a dynamic project.

Conclusion with recommendations for an improved outcome

Through reflection on past project experiences where internal knowledge transfer has been required for the continuation of complex work-packages, we have identified apparent shortcomings when poor knowledge management is permitted.

Potential for an improved project outcome has been demonstrated by developing a greater understanding of the knowledge creation and transfer process apparent in peer-to-peer work-package hand-overs in a construction site based project team environment.

We have found that effective knowledge transfer can be achieved through a combination of knowledge harvesting templates and forms, along with pictures, drawings, flow-charts and storytelling.

For recommendations to mitigate the time constraint issues, players should be aware that the more time provided to overlap the passer's current activities with the receiver the better. This gives the receiver time to ask questions and absorb the work-package by building their own tacit knowledge. Consider agreeing on the intended receiver(s) early on, and include them in correspondence and progress.

The knowledge harvesting forms and templates were introduced to document the *why* and *what* with the *how* and *who*. We found that if the receiver understands the context and purpose, plus all associated information and data, then they have a better chance of continuing with the urgency and direction intended, making informed decisions.

While our findings may assist our future project outcomes, we must continue to adopt a reflective practice towards knowledge transfer events within our projects. Review and reflect on the progress and outcome of the work-package handover implemented. Consider what went well, what was missing, what could be improved, how it impacted the project, for this is a critical aspect of the knowledge management process ensuring the success of your project or organisation.

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