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# Modelling new directions with product-based planning

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**Abstract:** This paper and the accompanying workshop propose the adaptation of a product-based planning model to assist higher education strategists in developing their responses to external and internal change. Traditional change management techniques, primarily designed for the commercial sector, have provided limited help. 'Product-based Planning' is well established in UK commercial and public sector project management through its use in the government standard for project management, PRINCE (PRojects IN Controlled Environments). This methodology supports the user in identifying their ultimate aim and to concretize this as a 'product'. Other wishes, desires, challenges and pressures are similarly de-personalized and a model is developed which expresses the logical flow from key change-drivers to the target situation. A model of this type provides a basis for debate and critical reflection, whilst assisting in the clarification of the views of different stakeholders. The potential of this approach is explored through its 'speculative' application to the strategic evolution of a pedagogical research and development centre within a UK university. The effectiveness of the approach is considered through the reflective use of 'personal inquiry'.

**Keywords:** Change management, product flow diagram, higher education strategy

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## Introduction

It is widely accepted that universities and higher education are in a state of turmoil: the HERDSA Conference itself is premised on statement that "Higher education faces many challenges as it moves toward many potential and possibly conflicting futures" (HERDSA, 2006a). However, the view that this is a beneficial situation is less common. "Complexity Theory suggests that the 'edge of chaos' (the dynamic between stability and instability...) can be the most effective and most creative place to operate", (Tosey quoted in King, 2003, p1). Perhaps universities will be enabled to profit from 'chaos' by embracing such creativity or perhaps this is just another example of the commercialisation of the sector (Denman, 2005): Tom Peters, the 'management guru', promoted a similar view in 1987 when his *Thriving on Chaos* provided managers around the world with a justification for much instability in business. The results of this 'New Capitalism', according to Sennett (2006), are negatively demonstrated in 'dysfunctional organizations' and 'change fatigue' amongst employees. In order to "optimize future higher education outcomes" (HERDSA, 2006b), it may be helpful to explore new, objective approaches which can model strategy and directions dispassionately.

This paper and the accompanying workshop present a 'product-based' approach to modeling alternative versions of the future. It is argued that this technique could assist higher education strategists in developing their responses to external and internal change. The approach has been used for many years in project planning; however, here it is presented as an analysis tool to enable participants to understand their own and others' conceptions of a change situation and to define its potential outcome(s). Product-based planning provides a means to help control 'messy' situations. It enables the user to identify the key issues and their inter-relationships. Most importantly, it requires the user to de-personalise these elements and

hence to gain a clearer understanding of the aspects of the situation which they can influence, while acknowledging those that are outside their direct control.

## **Managing change in higher education**

Introducing a new organizational culture, a new organizational focus, new markets, new job roles, new reactive or proactive responses to outside influences – all these may be classified as change management. To succeed, such projects require the staff concerned to adjust their views of themselves and of the organization for which they work. It is these human aspects which make change so difficult to manage successfully because those affected may resist, undermine or slow the proposed change (Kerzner, 2006) if they have not been persuaded of its benefit; and such persuasion takes time. In considering academics' responses to change, Trowler (1998) highlighted the impact that staff on the ground could have in undermining new university policies. He considered that this behaviour could be motivated through discontent, through a proactive desire to 'work around' apparent barriers, or a combination of these. Handy also acknowledges these human factor difficulties and suggests that a collaborative, rather than prescriptive approach is necessary to effect change:

To 'manage change' is wishful thinking, implying as it does that one knows not only where to go and how to get there but can persuade everyone else to travel there. To 'cultivate change' is something different, suggesting an attitude of growth, of channelling rather than controlling, of learning not instruction (Handy, 1993, p292).

Trowler, Saunders and Knight (2003, p6) argue that "even the best management seldom delivers complex, educational changes as per specification". They see this evolution as normal: "changes develop as they are created, applied and practiced" (2003, p31). Rothblatt (1968, 1976) has also argued (from an historical perspective) that universities may change, but not as intended.

Change management has become a well-established discipline with websites, journals and even academic courses devoted to it. Standard techniques which they recommend for understanding and managing a change work best in hierarchical organizations where changes can be imposed if necessary. These include SMART Goal setting and Project Planning (PERT; Milestone-setting; Checklists;). Separate techniques are used to analyse the human issues involved:

- Force-field analysis
- SWOT analysis (Strengths, Weaknesses, Opportunities, Threats)
- Stakeholder analysis; Responsibility analysis; Role analysis

The peculiar networks of responsibility, co-dependence and independence represented in higher education staffing structures present particular difficulties in managing change. Hence there is scope for an approach which unpicks a vision into altered human values; which allows progress towards that vision to be monitored and which enables interim goals to be adjusted on the way. Product-based Planning could provide these benefits.

## **Product-based planning**

### ***The PRINCE methodology***

Product-based planning is an important element of the PRINCE project management methodology. PRINCE (PProjects IN Controlled Environments) was originally developed in

1989 for use in large-scale UK government information technology projects and represents agreed best practice in project management. The methodology has been revised and developed over the years. Adapted for use both nationally and internationally, it is now known as PRINCE2 (i.e. Version 2) and is no longer restricted to IT projects. It can also now be scaled to suit projects of almost any size (OGC, 2002; OGC, 2006).

Adoption of the full methodology is a non-trivial project in itself, requiring training of all participants and the support of management at the highest level in an organisation. However, the product-based planning element of PRINCE can be adopted independently of the rest of the methodology.

### **Products**

The concept of ‘products’ lies at the heart of PRINCE and is the essence of what has made this approach to project planning attractive to commercial and governmental organisations. Rather than simply plan the activities required to reach a change goal, the goal itself is defined as a product. The significant steps on the way to that goal are also defined as products rather than as tasks. This allows the various aspects of a situation to be both abstracted and clarified.

A traditional project plan will list activities and tasks. Such a plan could, for example, include the task ‘*Increase Applied Research*’. A product-based approach would instead define the creation of the product ‘*Achieved Applied Research Target*’. PRINCE practitioners would contend that the identification of this product implies that the applied research target must be known and must be agreed by (or communicated to) those who must achieve it; that their progress towards the target will be measured; that action must be taken to remove hurdles preventing achievement of the target as well as actions being put in place to facilitate achievement of the target. Thus the identification of a product generates probing and unbiased questions amongst those affected, which are helpful in revealing the implications of a particular strategic direction.

A product may be something tangible, such as a document, or something intangible, such as a culture change. Some may feel that the word ‘outcome’ better describes this concept.

Full product definition lies beyond the scope of this paper, but is an interesting area in itself. It entails the careful construction of quality criteria for each product together with the measures that would be employed to establish whether the desired product has actually been created by the project team (King, 2003b).

### **The Product Flow Diagram (PFD)**

Product-based planning results in the creation of a diagram called a Product Flow Diagram (PFD). For clarity, a PFD is best restricted to one sheet of paper – any more and it becomes a hindrance rather than a help to discussion. The notation is not complex. Two types of product are represented, as shown in the table below.

The direction of flow, that is, the sequence in which internal products are created, is shown within the diagram by the use of arrows. Normally arrows are only allowed to flow **out** of external products (since, by definition, they are outside the control of participants). More than one arrow may flow in or out of internal products.

The diagram as a whole may flow from left to right across the page, or from top to bottom down the page. The ‘ultimate product’ to which all other products lead is shown at the end of the diagram.

|                                                                                                                                                                                                                                                                     |                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| 1. <u>Internal Products</u> are created by and for the situation under review and are under the control of participants. These are shown as a rectangle and named using a noun (normally singular). For example:                                                    | <div>Achieved<br/>Applied<br/>Research<br/>Target</div> |
| 2. <u>External Products</u> are the drivers implicated in the situation under review but which either pre-existed the situation and/or are outside the control of participants. These are shown as an oval and named using a noun (normally singular). For example: | <div>New<br/>University<br/>Mission</div>               |

**Figure 1: Product Flow Diagram (PFD) notation**

### ***The role of product-based planning***

Product-based planning begins with the end: that is with identification of the ultimate product. When applying the technique to analyse the past or the present, the user must first identify the **result** of all the drivers in the situation under review. From there, the user can work back through interim changed elements to the external driver(s) which initiated the process of change. The resultant diagram can be used as the focus for debate and reflection.

When applying the technique to help master the future, the user must identify both the desired target situation (the goal) and the current external drivers. The interim change elements can then be identified and their logical sequence mapped. The diagram thus generated provides the basis for discussing, planning and controlling the desired change process.

When used retrospectively, product-based planning facilitates critical evaluation of a completed project. For example, to identify the achievements and short-comings of a strategic change such as the implementation of organization-wide virtual learning environment (King, 2003b). When used as a means of critically reflecting on a complex current situation, such as local student experience informed by national initiatives (King, 2003a), it aids debate amongst stakeholders. Finally, when used to model a strategic direction, it enables the strengths and weaknesses of the proposal to be revealed (King, 2004). It this last approach which is the concern of this paper.

### **An applied example**

#### ***Context and analysis***

The Centre for Higher Education Development (CHED) at Coventry University came to prominence through its hosting of a Teaching, Learning and Assessment Taskforce which introduced the first institution-wide implementation of eLearning in the UK in 1999 (Deepwell and Beaty, 2005). Much of the activity of CHED up to now has focused on pedagogical development; however, pressure from many quarters now requires CHED to demonstrate pedagogical research outcomes and to re-model itself, particularly in the light of the university’s new mission statement:

We are a dynamic, enterprising, and creative university committed to providing an excellent education enriched by our focus on applied research (Coventry University Internal Documents, 2005).

The ultimate product, therefore, placed at the bottom of the diagram, is '*Fulfilled University Mission*'. This is the goal towards which we are working.

After much debate, the mission has been unpacked into several sub-products, each of which must be created for the University's mission to be fulfilled:

- satisfied and employable student
- dynamic, enterprising & creative staff
- achieved applied research target
- other mission-related products which CHED cannot directly affect.

The key external driver for CHED's strategic change has already been identified as the new mission statement, and this appears as an oval at the top left of the diagram. This mirroring of the start and end of the diagram is common but not ubiquitous in PFDs. Other drivers to which CHED must respond are also represented, for example, the new framework for continuing professional development (CPD) and the new employability agenda for students.

CHED's new strategy must also take account of its past reputation and role – this is classified as an external product, because it is not something which the current stakeholders can influence. Similarly, the pre-existing Virtual Learning Environment has some influence on decision making and is shown as an external product.

### ***Proposed PFD***

The diagram given on the next page represents the third iteration of the PFD modeling process. It has been developed as a 'speculative' example of how the approach could be used and has been circulated to colleagues for informal comment. The model will continue to evolve alongside CHED's strategy, in response to input from stakeholders and could provide a 'map' for managing the change if adopted.

## **Reflections**

### ***Background to personal inquiry***

The personal inquiry approach to critical reflection (Mann 2003) has been selected to review the effectiveness of product-based modeling in representing strategic outcome optimization in the higher education arena. Personal inquiry is a 'light-touch' process which enables one to move between low-level and high-level issues. It can also be used as a framework through which to generate theoretical explanations from personal observations. Rather than attempting to generate widely applicable conclusions, this process endeavors to provide illuminating insights into a particular situation from an individual's own standpoint. For reasons of space, this section has necessarily been limited.

### ***Application of personal inquiry***

I have used the product-based planning technique for many years and fully appreciate its advantages over traditional task-based planning. However, teaching the technique to students has made me aware that it can be seen as troublesome and over-technical. Applying the technique in my research over the last few years has proved useful, and enabled me to analyse complex situations effectively.



encouraging as I had suspected that pedagogical researchers would prefer the detail of the text-based strategy document to the ‘simplicity’ of the diagram. It seems though, that both elements are useful and complementary.

I feel that my model has proved helpful to myself, my department and, perhaps, the larger organization. As a result of my analysis, CHED’s strategy has evolved, and the PFD has been revised to represent these changes. It remains a personal document rather than an adopted, ‘official’ strategy.

## Conclusion

“Higher Education is changing rapidly to accommodate new ways of thinking, learning and researching” (HERDSA, 2006a). These changes need to be better understood by decision makers in higher education. A product-based modeling approach can be of assistance as part of a range of analytical tools and processes.

Some have commented that a PFD is rather like other types of diagram they have used previously in developing a business strategy. This may be part of its power, since its purpose is to assist users in re-focusing and review of their current understanding. “Strategy making is most critical in times of change and in unfamiliar environments ... Managers with experience may be capable of seeing through surface features of the current context to deeper truths that underlie it.”(Gavetti et al, 2005).

Given that the global pressures changes we face involve “deinstitutionalization of [our] rooted policy and values frameworks and the parallel institutionalization of new ones” (Vaira, 2004), perhaps nothing would be lost in trialling the product-based planning approach.

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