

THE TFV THEORY OF PRODUCTION: NEW DEVELOPMENTS

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The TFV framework

- We can and should conceptualize production from three angles
 - Transformation
 - Flow
 - Value generation
- How to use in practice?
 - balancing the prescriptions from all three viewpoints
 - taking care of interactions between phenomena covered by the three viewpoints
 - using the three viewpoints successively

Unified theory of production

- Is it possible to have a unified theory of production, instead of three separate theories?
- Or more modestly, is it possible to bring more coherence to the three theories?

One angle of attack

- Are T, F and V metaphysically coherent?
- Metaphysics: study on what there is
- Two views focused on:
 - Thing metaphysics
 - Process metaphysics
- T subscribes to thing metaphysics, F and V to process metaphysics – no coherence
- Let's create coherence!

Thing based understanding of TFV

- In business process re-engineering literature, a process is
 - set of activities, with input and output, as suggested by the transformation model
 - temporal, that is, activities across time, as suggested by the flow model
 - adding value to customers, as suggested by the value generation model.

Assessment

- Integration is achieved here by superimposing features deriving from F and V to T
- Inherent contradiction:
 - Transformation model is linear, additive
 - Flow phenomena are non-linear
 - Value generation phenomena are emergent

Deming

- Production as non-decomposable, dynamic process (Deming 1982):
 - “Every activity, every job is part of the process. A flow diagram of any process will divide the work into stages. The stages as a whole form the process. The stages are not individual entities...”

Process based understanding of TFV

- Reinterpretation: There are three essential entities in production, subject, object and cause
 - What does the subject do?
 - What does happen to the object?
 - What does happen in relation to the cause of production?
- Transformation has to be replaced by a processual concept:
 - Work, the outcome of which is transformation
- Thus, production is made up by
 - Work
 - Flow
 - Value generation

Thing based control

- Traditional control resonates with thing based understanding
 - Management-as-planning
 - Execution as commanding
 - Control as correction
- All features found to be problematic
- Even in military thinking, a movement away from this!

Process based control: some basis

Thing assumptions

- Transformations as black boxes
- Tasks are mutually similar
- Decomposed tasks are independent

Processual extensions

- Theories of phenomena inside the box, skills needed
- Differences between tasks
- Interdependencies between tasks

What does it mean for T, F and V?

- Let us focus on the issue of theory inside the box (and a bit on skills and competence)

Work

- Theory based control of work
 - Example: *Flow* of Csikszentmihalyi
- Externalization of competence
 - Visual management

Flow

- Theory based control of flow
 - Queueing theory based mathematical modelling
 - Beware of implicit presuppositions –making-do!

Value generation

- Theory based control of value generation
 - Analysis and synthesis as a proto-theory of designing and production
 - Related practical tool: Vee model

Conclusions

- Basing flow and value generation process conceptualization on thing metaphysics is problematic
- WFV is more coherent than TFV
- Control depends on your metaphysical commitment
- Work does not exhaust the concept of production
- Landscape of the evolution of management is metaphysical