

Processes as crux for perpetual flexibility. (Money does not buy flexibility)

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"Human work can be made infinitely more productive, not by working harder, but by working smarter" (Peter F. Drucker)

Abstract. This paper describes a new way of thinking. Traditionally organising is based on the allocation of people and resources to departments. Whereas the environment is becoming more complex, the increase of flexibility comes to a halt. Many scholars attempted to overcome problems originated by the gap between market demand and performance criteria in relation to flexibility. The Just-In-Time principle is leading in the new crux. This principle can be used for people as well as it is working for resources. This idea offers possibilities to renew the view of organising. To be really flexible and make flexibility perpetual, the current view of allocating needs to be unlearned, so the static view of departments as tangible organs to which people and resources are allocated can be replaced by the new process view. So, departments no longer can be the crux of organising. Processes are the perpetual flexible way of organising. People are a resource for a firm, and therefore can be organised Just in Time. The separation of management and execution is rejected and translated into multilevel operation. But what went wrong? Why are we still organising in a traditional way? What can we do to change?

"To encourage economic change, it is not enough to call on business leaders to be more innovative. Policymakers must themselves be willing to experiment with new institutional arrangements" (Paul Romer)

What has ameliorated since the second industrial revolution?

Since Taylor introduced "The Principles of Scientific Management" nearing the end of the second industrial revolution (1871-1914), many things have changed. Organising work changed from implicit to explicit. Efficiency was the new spearhead by using explicit tasks based on scientific studies, using explicitly selected and trained people, cooperating with the workers and the separation of management and execution (Taylor 1911). The result was enormous; efficiency improved spectacularly, which resulted in mass-production. The downside of the desire to improve efficiency was a significant diminution of differentiation of product choice for customers. This is best summarized by the famous statement of Henry Ford: "Whatever colour you want, as long as it is black". But, there were more losses resulting the urge to efficiency, workers found their work monotonous, the most efficient way of work by one person did not necessarily stem with other's way of working. So, different methods for work occurred at the same time and workers felt discouraged by their monotonous work. The economic interests of workers and management were rarely identical. During this second industrial revolution the views of management changed.

Attempts to overcome these disadvantages resulted in many new ideas and views of management. Schumpeter (1934) introduced the Entrepreneurial school of thought in which he stated that entrepreneurs could determine the environment with vision and thus the profit. By this, good plans were crucial to firm and its environment. The gap between workers and management increased significantly. Lindblom (1939) introduced the Learning school though as opposite to the possibility of environmental control of management. This school viewed environment as too comprehended to manage. Management should not take policy decisions and so evolve by the movements of its environment. The environment will decide which way the firm will go in the future, evolution is to be followed, not to be devised. In 1965 Andrews oscillated back to possibility of complete control by proclaiming grand strategy (by the hand of the entrepreneur) to be the answer. The grand strategy

should be based on perspectives using SWOT-analysis to devise strategic options, which is called the Design school of thought. In the same year Ansoff (1965) added the necessity to make this grand design more formal and explicit on paper, thereby forecasting planning and control, resulting in the Planning school of thought. Perrow (1970) and Allison (1971) changed this twist of schools into the Political school of thought which consisted of concepts, such as power & coalitions, based on political science. They approached strategy through thinking in moves and countermoves like playing chess. Simon (1976) introduced the Cognitive school of thought, proclaiming that decisions are emotional and irrational which he called 'bounded rationality'. Mental maps influences cognitive thinking, so strategy should come incremental and emerging, thereby contrasting amongst others Schumpeter (1934), Andrews (1965) and Ansoff (1965). Following the Cognitive school, Hannan & Freeman (1977) introduced the Environmental school of thought, also contrasting Schumpeter's ideas. Hannan & Freeman (1965) stated that strategy depends largely on the favourable conditions of the environment, thereby leaving no room for management to formulate strategies. Norman (1977) introduced the Cultural school of thought, also stating there is little influence on environment. In this school strategy is not the content, but the way it is rooted in the company's culture. A statement inclining towards implementation of strategy, hence broadening the focus of utilization of strategy. In 1980 Quinn re-invented the Learning school which Lindblom already described in 1939. Back in the Learning school the environment was difficult to comprehend and policy decisions were difficult to be made by the management. In the same year one of the most respected management scientist came with a breaking view. Porter (1980) introduced the Positioning school of thought, by devising three generic strategies. By this, entrepreneurs were forced to focus on *one* specific strategy. This view contrasted the ideas of Schumpeter (1934) and most other scholars mentioned by not planning or designing the environment, but implement and use it. Porter forced entrepreneurs to make a choice between one of three possible generic strategies, either cost-leadership, differentiation or focus. This idea divided the market in to multiple layers and possible niche markets. Porter recognised the 'stuck in the middle effect' of not making choices and handed a new insight for strategic planning. By the way the schools of thought oscillated in the time, from complete environmental control to complete environmental dependence, a conclusion can be drawn that no best practice has ever been found. Though this seems a simple conclusion, time proves us that in 80 years no new insights of strategic planning or organising was found.

In the more recent history (after 1980) also many changes have occurred. The focus on environment slowly changed by views on management by again Porter. From his new perspective in 1985 he noted the market can be viewed as a chain, which he called the value chain. The value chain interprets firms as one chain of cyclical production units. This view broadened the perspective of the level of analysis. This 'helicopter view' showed connections between different firms and started the discussion to focus on ones core business versus outsourcing. Further research into environmental influences resulted in new thoughts of national competitive advantages, proclaiming the environment being of great influence on the strategic results of a firm (Porter 1990). Though Hannan & Freeman (1977) already stated this in their school of thought, Porter renewed this idea and broadened the environmental perspective. Clearly Porter was trying to find new insights by studying the environment.

Meanwhile others were also looking for answers within the organisation. Mintzberg (1983), for example, devised five configurations of organising people in a firm. The first configuration he called Simple structure, based on direct supervision, the strategic apex had the key position. Vertically as well as horizontally there was centralisation. The second configuration he called Machine bureaucracy, based on standardisation of working processes and formal structures; large staffs and limited horizontal decentralisation. The third configuration he called Professional organisation, based on standardisation of skills. The operating core had the key position, vertically and horizontally decentralisation. Fourth configuration he called Division organisation, based on standardisation of output. Key role for the middle line and so limited vertical decentralisation. The fifth configuration he called Adhocracy, based on mutual adjustment. Key role for the support structure, sometimes

together with operating core, and so selective vertical and horizontal decentralisation. In 1989 Mintzberg added a sixth configuration which he called Idealistic organisation, based on standardisation of norms and values. These configurations are largely accepted to be the best way describing differences of types of organisations. These management scholars and many others tried to find the perfect way of organising. Multidisciplinary studies were done, to find the missing link in management. While multidisciplinary studies were done into the resource allocation process of strategy (Bower 1970), human resource management (Bérnard & Versluis 1974), (Fombrun, Davana and Tichy 1984) and Finance (Dewing 1953), Mintzberg (1994) tried to turn around the Planning school of thought (Ansoff 1965). Mintzberg stated that planning may be the very cause of the problem by proclaiming strategic planning to be an oxymoron. In his view planning is by definition static, and not dynamic.

While Porter was looking for an answer in the direct environments of firms and Mintzberg was searching the solution in planning, more and more other scholars came with ideas stemming from various areas. In 2001 Fuller and Moran introduced their thought on adaptive systems to enterprises. They stated that a focus on ontology can develop a framework. The dynamical concepts of agency (adaption, evolution, fitness and interdependence) coupled with the theory of the evolution of individual agents generate a plausible field for the study of enterprise dynamics. This ontology resulted in a system of layers of agents sharing considerations and doings. The six layers consist of:

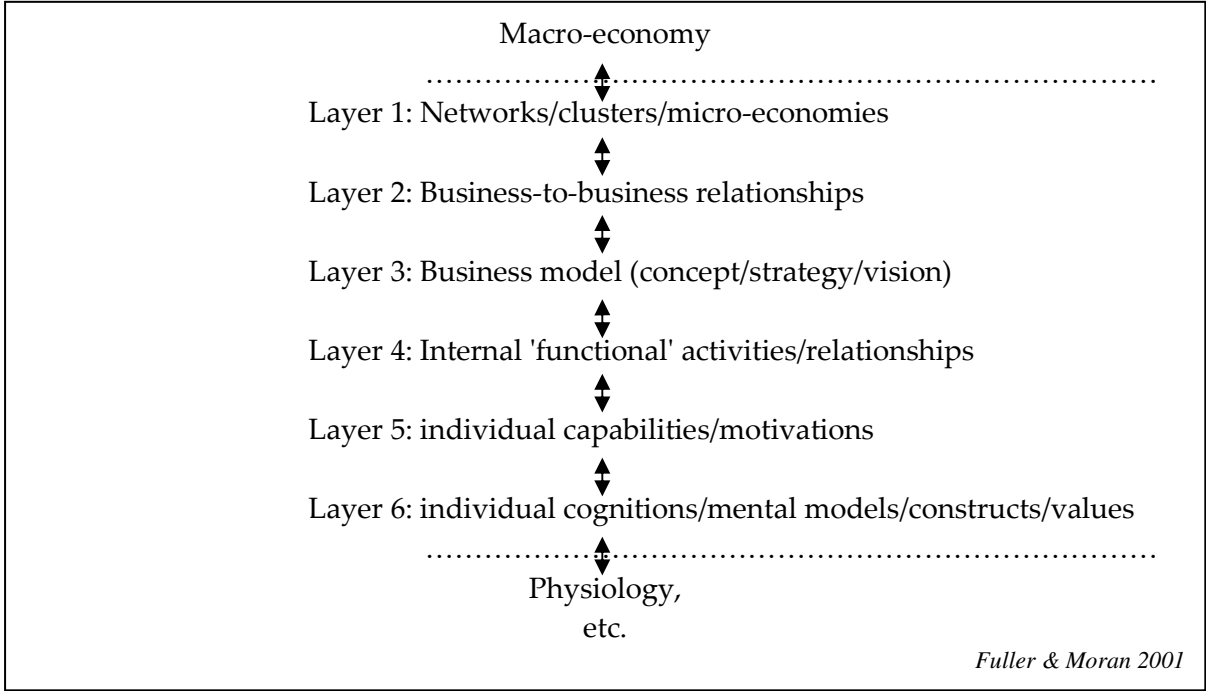


Figure 1: Posited ontological layers.

If the layers are seen hierarchically, from individual to network, the model “[...] implies a succession of systems, each one dependent upon the lower one for its existence. At the same time, each system behaves differently from the lower levels, and is understood by different models or theories (hence the idea of separate [ontology’s])” (Fuller & Moran 2001). Though at first site this approach has no direct relation with the best strategic way of organising, this insight makes the way in which people work more explicit. This knowledge can also be viewed in relation with Porter’s value chain (1985) and so predict the behaviour of agents (individuals or individuals as representatives of firms or networks). In the 20th century several schools of thought on quality management emerged. Two dominant schools started, one in Japan and one in the USA. In Japan the Union of Japanese Scientists and Engineers (JUSE) arose existing of names as Ishikawa, Mizuno and Asaka. Ishikawa (1962), famous by his Ishikawa diagram (1982), was the first to proclaim the quality circles and stated that using these circles

facilitates a continuous quality improvement. The Japanese school of quality mainly focused on the improvement of technical quality improving handling speed per activity, lead time or time to market, best described in the book "The new manufacturing challenge" (Suzaki 1987). The members of the quality school from the USA, amongst others, members as Deming, Juran and Feigenbaum, concluded differently, in spite of many members spending excessive times in Japan. Feigenbaum (1961) introduced the Total Quality Control (TQC) in which quality is a responsibility of everyone in a firm. In this view Crosby (1980) introduced the Cost of Quality (COQ) by stating that quality reduces costs and therefore increasing the operating profit. The purpose of this search to quality improvement is best described by Kano (1993) stating that the purpose of Japanese TQC is to increase customer satisfaction and quality assurance, thus more a managerial perspective than a technical perspective. More in line with the Japanese quality school, JUSE, Deming broadened the view by introducing his more managerial perspective on quality. Though it was Juran (1964) first introducing the need for management involvement in quality improvement and it was Shewhart (1939) introducing the "Shewhart Cycle" (Specification, Production, Inspection), it was Deming (1982) renewing the use of the quality cycle and apply it to all executive activities, processes and managerial activities with the emphasis on learning and improvement. This renewed insight is known as the Quality Circle 'Plan-Do-Check-Act' (PDCA) or the 'Deming-circle'. With the broadening view on quality management Deming contrasted the idea of Juran (1964) concerning the responsibility of quality. Juran supported the idea of *one* person being responsible, Deming (1982) stated that quality is something for everyone in a firm at all levels of analysis. Since the introduction of conscious quality improvement, best progress is made by improving technical quality of products at production level (i.e. execution). One of the biggest milestones during the years is Just in Time (JIT) as part of Lean Production (Taiichi Ohno, a production manager at Toyota), stating that stock is a waste and interpreting the production as one flow. Later Just in Time became more popular by Womack & Jones, also stating that incoming goods into the firm and outgoing finished product are also a waste when they are in stock, therefore linking firm into networks, corresponding Porter's value chain (1985) and Fuller & Moran's adaptive systems (2001). Other famous quality improving tools as Material Requirements Planning (MRP1), Manufacturing Resource Planning (MRP2), Enterprise Resource Planning (ERP), Kaizen, Business Process Reengineering (BPR), etc. contributed to quality improvement at production level and technical specifications. Please note that the MRP1 to MRP2 to ERP is a incremental improvement of broadening the focus on quality in a firm.

What went wrong?

The changes initiated by the second industrial revolution (1871 – 1914) triggered a rapid change in market demand. When Henry Ford offered low priced cars conform the ideas of Taylor (1911), the market (i.e. customers/consumers) demanded products of low costs (see graphic 1). Since the large part of the industrial world was held back by WO II, low costs as main market demand lasted up to the 70s. Since the focus of firms was mainly on efficiency, large amounts of products were produced. The market demand changed when the market was repleted with low cost products and when the disposable income increased. The market demand changed from cost focus to a cost *and* quality focus. Quality was therefore a new focus (performance criteria) of firms, cumulated with efficiency. Though this is a logical and good step for firms and its market, this is start of the Slough of Despond (later more).

Market demands	Costs	Quality	Choice	Uniqueness	Reproducibility	Function-junction	Influence	Experience	Market demands
ca. 1960									ca. 1960
ca. 1970									ca. 1970
ca. 1980									ca. 1980
ca. 1990									ca. 1990
ca. 2000									ca. 2000
ca. 2002									ca. 2002
ca. 2005									ca. 2005
ca. 2010									ca. 2010
Performance criteria	Efficiency	Quality	Flexibility	Innovatory	Traceability	Value chaining	Prosumer ¹	Brand diverting ²	Performance criteria

Figure 2: Evolution of market demand and performance criteria.

Following the cost and quality demand, the market demanded more choice of products and service, remaining the demand of cost and quality. As firms had an answer to cost by increasing efficiency and acted on the quality demand by improving the production quality (and efficiency and costs) the new challenge was to find a solution for the demand for choice. The solution to a problem contrasting as this, seems difficult to implement. Low prices (according to the current way of work) needed mass production, having quality needs internal quality checks. Choice as market demand forced firms to think and act more flexible. In theory mass-single unit production, with the same quality checks. Unfortunately this was not as easy as in theory. A complete new view on organising was needed, to be able to become flexible. And, sadly, in stead of devising a plan like that and implement it, small adjustments were implemented resulting in more rigidity and (illegal) creativity directly smothered by new laws. More recent market demand as uniqueness (needing innovativeness), reproducibility (needing traceability of resources), product function junction -the integration of multiple product functions into one product- (needing value chaining), product influence –consumer influence in design & production– (needing ‘prosumer’¹) and product experience (needing brand diverting²) is irrelevant for this discussion.

Please note: that ‘Product reproducibility’ and ‘Product function-junction’ are personal perceptions. ‘Prosumer’ is a term of the futurist Alvin Toffler (1980), ‘Product experience’ stems from the book ‘Experience Economy’ (II Pine & Gilmore 1999).

¹ An idiomatic compound of ‘product’ and ‘consumer’, a consumer becomes involved in the design process and the production process of products, so it can be produced with individual specification.

² It is not about the product, but about the consumer’s total experience of the product and it’s brand; firms need to change their perspectives of selling products into selling experience through divertissement of their brand.

Quality as stagnation.

In line with the quality demand of markets, reformations in legislation emerged and expected to fit the quality and protection of citizens. This closed the discussions about styles of organising, because standards of handling activities and normalised procedures became norm and rule. The International Organisation for Standardisation (ISO), founded in 1947, managed to obtain an important deviser of 'the norm', called ISO-standards. These norms were embedded during the reformation in legislation, so that safety (also seen as part of quality), governmental supervision (also seen as part of quality), transparency (also seen as part of quality), controllability (also seen as part of quality) and managerial influences (also seen as part of quality), can be obtained, stimulated or obstructed. Accepting the theory of Mintzberg (1983) concerning the configuration of organising people, firms automatically started to interpret firms as systems of three layers: strategic apex, middle line and operating core, assisted by techno structure and support staff. By this the results of the scientific management of Taylor (1911), the separation of interests of management and workers was prolonged. To prevent this unnecessary distance, formal influences were given to workers and other stakeholders by laws. Unions, representatives of stakeholders, governmental controls, social responsibility demands, NGO's, boards, inspection teams, etc. were introduced to close the gap between the interests of management and workers, and of the management and its stakeholders. For many people a good thing, but seen from a higher level than that of individuals a deathblow for flexibility, not to mention innovativeness. If the distance of management and workers is such a big deal, why than is quality the bottleneck of change? It is the concept of quality we adopted and institutionalised, as well in firms as in laws. Concrete and tangible grip on things became culture. Formal reports, official inspections, permissions, examinations, permits, social commitment, liability, restraint of traits, governance, codes, considerations with work councils and other stakeholders, quality marks, norms, health services, local government rules, commissions, etc. were needed before a decision could be formed, let alone been implemented. The perception of doing good is by culture a feeling of safety and security satisfying only complete omniscience. Within firms the same culture is applicable, people are seen as most important and therefore not a part of the resources of the firm. People in firms are allocated to departments, so it seemed easy to point out the responsibility. Logically, choosing this way of organising, work is organised around these departments because having the responsibility means controlling. The department and its highest function is the crux of work. It is redundant to say that in a simple structure and simplified world this is the best way of organising. Unfortunately we do not live in a simple world, and firm environments are far from simple. Most people understand that complex issues are to be discussed in more than one department, and therefore by more than one function (i.e. person). In line with the quality culture of increasing concreteness and tangibility, the techno structure and support staff (Mintzberg 1983) grew linear with the complexity.

Firms organise like flocks follow the bell-wether, submitted by classical conditioning (Pavlov 1924), better known as the Pavlov-reaction. Although many realised organising in this way is like Don Quichotte fighting windmills (de Cervantes Saavedra 1605), firms were still managed according to the best known way. New research focused (and still focuses) on specific fields of studies. Culturally seen as most important, scholars studied people and money, i.e. the Finance and Human Resource (HR), later Human Resource Management (HRM). Besides those two 'most important departments' all firms also recognise the importance of production and management, thereby distancing the overall focus by fragmenting study in, amongst others, Finance, HRM, Theoretical Management and Technical Production. Considering that nowadays firms are organised in a way that disciplines are departments, responsibility for work matches the design of departments and hierarchy exists only within departments. Formalised quality, embedded in legislation, limited the flexibility and innovativeness of firms by using a dated nation strategy. Fuller & Moran (2001) mentioned six layers in their system of layers. It is my opinion that the formal quality culture prevented firms to take *all* rungs of this system of layers when emerging. Therefore firms are forced to fit the "Business Model" too quick, failing to fully utilise the "internal 'functional' activities" (one of the layers of Fuller & Moran, 2001). In accordance with the 'evolution theory' of Darwin (1859) skipping rungs is not a sustainable

approach. Demanding efficiency and quality and flexibility (and innovativeness) of firms, but not facilitating them to do so, led to a paradox of firm goals and rules, resulting in bureaucracy. This paradox caused bureaucracy not to be an exclusive problem of large MNE's but is a diminution for all types and sizes of firms. Mintzberg (1983) called this bureaucratic way of organizing 'Machine bureaucracy'.

Towards the answer

Since the 90s, when it became clear to most scholars and practitioners that the next market demand was too difficult to meet, many did research to ways of overcoming the paradox of bureaucracy and formal quality versus, from an evolutionary point of view necessary, flexibility. Practitioners mainly focused on quick (and dirty) solutions. Most solutions were impossible to employ elsewhere because of the specific problem solving findings. Other solutions were directly banned by legislation at either firm level, network regulations (governance) or national legislation. Experienced problem solvers became popular and created a new market boom of business consultants. Every respected solution became a hype on which the consulting business prospered. By far most solutions were a temporarily provision of a part of the problem, creating sub-optimalisation and therefore creating new problems.

Contrary to many others, Galbraith (1989) concluded that the necessity of tuning and coordinating is depending on the amount of exceptions in routines and the capacity to anticipate on these exceptions. He stated that if the coordination is too complicated (e.g. span of control is too large) there is a need for more autonomy. In 1994 he introduced the lateral capabilities as one of his most important organisation capabilities. In the book he describes different methods of improving communication to overcome the complications of departments and responsibility.

Unfortunately most frequent found solutions on the problem of tuning departments and responsibility is merging departments and/or creating an extra hierarchical level, i.e. roof-over the responsibility. Covering the responsibility issues in this way enhances the lack of flexibility opportunities.

Scholars mainly focused on describing the problem in different ways, and focus their research for answers on the long run. Results were mostly too theoretical to be utilised by practitioners. Inspired by many scholars Volberda became one of the leading scholars in researching the flexibility of firms. In his book "Building the Flexible Firm" (Volberda 1999) he sheds new light on the flexibility of strategies. One idea of a more flexible way of organising is the multiunit corporation. This is a trend more scholars have described. Volberda acknowledges problems in seeing firms as functional parts. "... dividing a corporation into its functional parts can result in dysfunctional tensions and a fragmented organisation that has lost its synergies" (Volberda 1999). In his book this condition is called 'schismogenesis'. Preventing this schismogenesis the conclusion is: "[t]o keep a divided company together, management has to develop strong cross-functional and cross-value capabilities." Practitioners interpret these findings mostly (incorrectly) as validation of their own findings, namely the roof-over solutions. Reading this book practitioners also gain new insights on trajectories of routinisation related to the controllability of firms. Following this trajectory incrementally, the extensiveness of the flexibility mix and the controllability increases. From this we can conclude that the flexible organisation is the most controllable way of organising. By this we now understand the trajectory toward a flexible firm. Unfortunately there is no answer in *how* to follow this trajectory or to become a flexible firm. In his last chapter Volberda offers four ways to reconfigure firms to improve their overall flexibility in a network firm, dual firm, oscillating firm or balanced firm. Though clear insights are given, the focus of the flexibility is a strategic choice; no concrete solution is given in organising firms in a flexible way. One of the possible answers he offers for more flexibility is the 'Network Corporation'. Although I can not imagine this being an answer to flexibility, the separation of competition outside of the organisation from cooperation inside the organisation, stresses something of outstanding importance. When the market demand shifted from efficiency and quality to *also* choice and uniqueness, firms found themselves trapped in regulations and lack of knowledge.

To overcome these problems alternatives rose in attempt to meet the market demands. The easiest way to meet the market demand was power. If firms can control parts of their environment, including legislation, they improve their position towards meeting the market demands. Therefore it is largely assumed that currently power is the dominant performance criteria. Looking to current business activities in all fields, the imperialistic movements of mergers and acquisitions corroborate this semblance of truth.

Scholars and practitioners studied little into uniqueness (and possible reproducibility, function-junctioning and consumer design & production), because firms started to find ways to overcome the barriers by (partly) controlling their environments. Firms use their gained influence and power to change opinions or rules and other restraints of incremental evolution, so they can skip this evolutionary restraint and still meet the market demand. Though power can be used in many other ways, it is my firm belief that the neurotic need of power of firms is largely influenced by the evolutionary constraint of the quality culture. Needless to give examples of firms like Enron, Ahold, etc, questionable relations between CEO's, CFO's and politicians were results of this power issue. The more power gained by firms, the more discussion emerges in controlling the environment by participation of stakeholders and legislation, thereby increasing rigidity which calls for more power and so on, and so on. Proceeding this, forces our (western) economy to compete purely on costs as generic strategy (Porter 1980) resulting in a severe competition with low-wage countries, therefore answering to a previous market demand, namely costs in stead of costs *and* quality *and* choice *and* uniqueness *and*.... It took a while for 'us' to recognise China as emerging market, now we need to try to remain our competitive advantage as 'first mover in evolution', because China is overtaking this advantage within an inconsiderable period, leaving us to compete strictly on costs. Needless to say this will be a lost race.

It is time we open the 'black box' of flexible organising and study the *inside* of organising, trying to make it flexible by reacting on the environment of firms in stead of trying to overcome the effects of barriers caused by the need of power. Therefore we have to fight the axioms of bureaucratic solutions on flexibility such as changing legislation, merging responsibilities or tossing in money; money does not buy flexibility! Remaining one solution, a different way of organising the work at all levels of the firm, discharging old ideas of quality as crux and breaking into a new dogma on organising. To achieve this, first we need to find a *new* crux for flexible organising to be able to meet all market demands, i.e. creating perpetual flexibility.

Processes as new crux

First we have to accept that we have to take a step back, back to the time whereas 'costs' was the only market demand. The change of organising work at this point of time shifted from single-unit production (series of activities per cycle, as in projects), to mass production (a batch of cycles per activity, as in processes) to decrease lead-time. Second we have to change the mindset of people. We need to understand that from a firm-perspective, employees are part of the resources needed to generate a product or service. We need to let go of the feeling that *all resources are equal, but some are more equal than others*. More about harmoniously organising can be read in "Animal farm" (Orwell 1945). At the same time, contrary to Taylor (1911), we have to acknowledge that people are individuals with their own cognitions and motivations (Fuller & Moran 2001). Contrasting the results of the ideas of Taylor (1911) we need to keep in mind that people are not robots, and want to be utilised fitting their capabilities and/or their ambitions. This makes organising a complex job. Cognitions (knowledge) and motivations (capabilities) of individuals can either be useful or a restraint for a firm. Generally speaking firms tend to utilise this knowledge and capabilities of individuals by deploying them into the business model (concepts/strategy/vision). Upwards the layers (from 6 to 1) agents cluster, improving their individual position. The price for this improvement is behavioural conditioning by committing to joint beliefs (Fuller & Moran 2001). By utilising resources at layer 3

(business model), the business (i.e. firm) is the crux. By this, people and other resources are organised in (i.e. allocated to and implemented/assigned for) departments of firms. Organising in this way is the foundation for rigidity. For optimal flexibility it should be the other way around. First define work, than pick the right structure. The configurations of Mintzberg (1983) led to a parochial view of practitioners on organising, choosing either one of the described configurations in stead of looking for the best fit of structure for the situation of their firm. Thereby practitioners curbed their own distinctiveness and thus their flexibility by utilising these configurations as set of norms to find the perfect way of organising. Besides this problem an other problem came on top of this. Over time, many firms have procured different types of work within one organisation. The organisation is mostly based on one of the configurations of Mintzberg (1983). This hampers the flexibility even more.

So it is important that we let go of the standardised way of interpreting structure, and provide a fit between firm and its environment. Galbraith, Downey and Kates (2002) exhaustively describe this need for the right structure in their book "Designing dynamic organizations" but fail to come up with an answer other than stopgaps. Now the need for a good structure is clear, and it still will be improbable that firms will (re)build their buildings around their work, we have to stop accepting that there is no alternative.

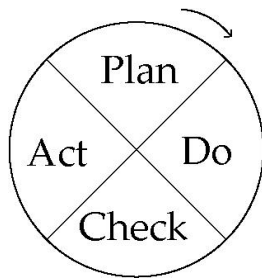
Many scholars and some practitioners agree that firms should organise their resources around activities without submitting to existing structures. The same mistake has been made with organising people. Seeing people as more important resource than resources, work is organised around people as well. This is one of the most important stipulations we have to let go. Now, if neither people nor structure (departments/division) is the crux, than what is?

Back to Fuller & Moran (2001) the "internal-'functional'-activities/relationships-layer" is a rung we missed in our enthusiasm to organising firms. Looking into this layer, activities are the crux. Work is what we need for generating a product or service; therefore it is important to study work. Without proclaiming people are the most important resources, work is the same as the behaviour of employees, as far as relevant to the position of the firm. To be able to organise in an optimal way, we need to scrutinise work in relation to activities in firms. Activities are executions of shared knowledge and capabilities (Fuller & Moran 2001). To organise activities we need to manage those activities. This means that activities should be linked to other activities to be able to generate a product or service. This product or service is an output of a firm. Firms need to have predefined outputs in a way that the output is made cheap (low costs needing efficiency) and good (quality needing quality) and in a great variety (choice, needing flexibility) and.... Here we discuss the flexibility of firms so uniqueness (needing innovativeness) and other market demands or performance criteria are ignored. Linked activities are the crux we are looking for to organise work. These linked activities are called processes. A process is a series of activities executed in a specific sequence, in order to generate a predefined output. One might think that firms in current time already organise in this way. Though it seems so, it is not completely true. After the first activity of a Greenfield, a firm grows, managers tend to oscillate their focus allocating to and implementing towards/assigning for departments or people which Pavlov (1924) described as classical conditioning. We need a way to organise resources every time in the most optimal way per specific situation per specific moment. To be able to do this, we need to let go of the classical institutionalised way of organising in structures and find a way to organise work, and group resources and activities in a more abstract way.

How than can we organise all work around activities (in processes) without falling into the pitfall of organising in departments and around people? The first reaction, often heard, is to start organising in projects. Specially when focussing on the market demand choice (needing flexibility) and uniqueness (needing innovativeness) working in projects seems a good thing. Truly, it is a good solution, since every series of activities can be viewed as new project and therefore be unique which gives plenty of

choice. This reaction is the opposite reaction of the ideas of scientific management of Taylor (1911) and therefore contrasting the market demand of costs (needing efficiency) and quality (here in a sense of learning by doing, i.e. single loop learning). Following the ideas of departments, the R&D department is an outsider concerning the firm's way of organisation. R&D departments are nearly always organised in projects. This maverick department researching and developing new ideas are good case study for different styles of organising. Also already well studied and embraced by practitioners is the idea of combining these two ways of organising. A standard in departments (i.e. divisions) and in projects is called the matrix-structure. Here the traditional divisional hierarchy is crossed by projects with their own responsibilities. The matrix-structure actually is the first real attempt to tilt the way we organise firms. Fortunately this structure was not adopted widely because dual management appeared not to be efficient. Managers claim authority over 'their' people (and other resources) thereby making project work impossible, and therefore making this structure impracticable. This taught us an important lesson, there can only be one person formally responsible for one (or more) resource(s). Since this is widely known, most firms either organise in divisions or in projects. Some firms still combine the divisions and project structure in the matrix structure, others simultaneously use projects (like the people in R&D do) and divisions of hierarchy. Tuning departments and projects in one firm is a major challenge and gives fractions in most firms. The best way of organising in a flexible way, preserving efficiency and quality is to organise in standards of projects, i.e. repeat projects in exactly the same way until change is necessary. If projects are repeated in the same way multiple times, there has to be a predefined output, a start and an (expected) ending, so we can allocate and assign resources (including people) long-lasting. There are still two significant differences between standard projects and processes. A reproducible standard project is organised and executed in a different way than processes are. The characteristic of a project is that it is executed in series of activities per cycle, i.e. single unit production. This means that the plan consisting of multiple episodes of activities is executed per episode, each activity following the previous activity per episode and each episode is following the previous episode, until the last activity of the last episode is finished. It is not hard to imagine that changing ones activities time after time is less efficient than the idea of mass production (Taylor 1911) when executing a batch of cycles per activity.

To overcome this hurdle, we need to go deeper in the way projects and processes are organised. We already separated management and execution, conform Taylor (1911), which we will now further describe as managerial processes and executive processes (i.e. series of managerial activities executed in a specific sequence, in order to generate a predefined output, and series of executive activities executed in a specific sequence, in order to generate a predefined output). First we have to go back in to the real meaning of the circles of Deming (Deming 1982), often interpreted different than was intended. The Deming circle consists of Plan (P), Do (D), Check (C) and Act (A). This quality cycle was meant as managerial quality tool and largely adopted (and incorrectly used) by many scholars and practitioners. Most frequently incorrect interpretation is assuming this cycle tends to improve technical quality of products. Although it certainly can help, the original Deming cycle (stemming from Shewhart (1939)) was purely a managerial tool.



Plan: devise a plan of series of activities to generate a predefined output;
Do: assign the plan for execution (i.e. implement the plan);
Check: monitor and evaluate the plan for compliance and fitness;
Act: apply the necessary actions and (re)set for execution of PDCA.

Figure 3: Deming cycle Plan Do Check Act.

This cycle is applicable at all layers Fuller and Moran (2001) mention. At layer 3 (Business model) firm plans are planned, assigned for execution, monitored and evaluated for compliance and fitness, and necessary action is applied followed by (re)setting the plan for execution. At layer 4 (Internal 'functional' activities/relationships) activity plans are planned, assigned for execution, monitored and evaluated for compliance and fitness, and necessary action is applied followed by (re)setting the plan for execution.

One important layer is missing. The missing layer of processes: layer 3½. PDCA should also apply at process level. For this process-view of perpetual flexible organising, PDCA is defined at three levels:

- PDCA at firm level
- PDCA at process level
- PDCA at activity level

All these levels have their own independent PDCA cycle, but they are linked.

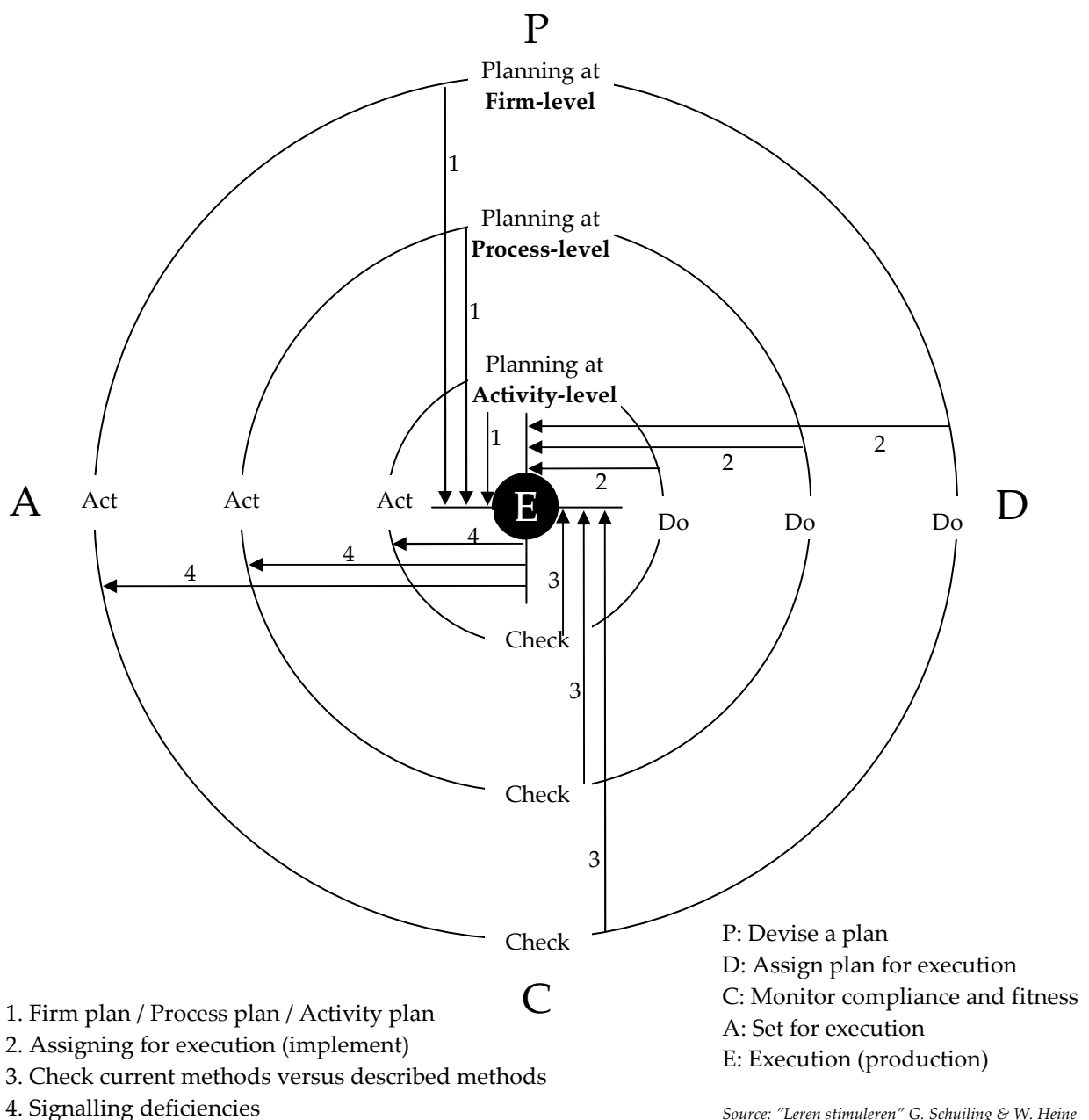


Figure 4: Deming circles at Fuller & Moran's different levels of analysis.

To understand the concept and link of these three layers of PDCA, a short illustration is given. To fit the environment with the goals of the firm, a 'grand plan' is necessary. This is mostly called the strategy of the firm, which is a long term-plan stating firm's long term goals. Derived from this plan an annual plan is devised stating the plans for one year, of which can be derived what people have to do to obtain the planned goals in the annual plan conform the strategy. This same exercise is done by plans being more and more detailed until activities are described. A plan at firm level describes the route the complete firm is planning to go; plans at process level describe per process the route that has to be taken to finish the series of activities in a specific sequence, in order to generate a predefined output, matching the plans at firm level. And a plan at activity level describes the activities to be executed to cumulative result in the predefined output of a process, matching the plans at firm level.

The layers are linked by the subordination whereas the firm level is the highest, the process level is derived from the firm level and the activity level is derived from the process level. The PDCA activities within each circle at each level can be executed at the same time, and therefore not be seen as a linked spiral. Besides this, the actual execution of work signals deficiencies in plans at activity level, deficiencies in plans at process level and deficiencies in plans at firm level directly to Act of the corresponding level where the deficiency is flagged. Signalling these deficiencies is executed through initiatives so that Act (the only responsible trigger of PDCA) can decide whether to act upon the received deficiency. The decision whether to act is made corresponding higher level plans, i.e. conform behavioural conditioning (Fuller & Moran 2001).

Figure 5 shows three levels of PDCA seen from above depicting the relations concerning planning, assigning for execution (implementation), checking the way of work, flagging deficiencies at the different levels. Each circle represents the action that has to be taken (A) to adjust plans (P), assign plans for execution / implement plans (D) and check execution (C) for each level of analysis.



Source: "Leren stimuleren" G. Schuiling & W. Heine

Figure 5: Deming circle at firm level, process level and activity level.

Now we accept that three ontological layers are relevant for a firm (Firm, Process and Activity); PDCA operates at (all) managerial levels; processes are the crux (not divisions or people); people are a resource (seen from a firm-perspective); the way we interpret quality makes us more rigid; agents (and there fore also firms) cluster by improving their position in return of behavioural conditioning; firms are liable to the theory of evolution (they adapt, evolve over time, must have fit with its environment and are dependent on their environment) and therefore can not be seen separately from their environment; firms should organise all resources (including people) Just In Time; only one person can be responsible for setting the execution (to trigger) of the PDCA circle (Act); and power is not one of the responds to the market demands of costs *and* quality *and* choice *and* uniqueness *and* reproducibility *and* function-junctioning *and* influence *and* experience, we can start to focus on organising in processes in a perpetual flexible way.

To be able to organise in a perpetual flexible way, we also need to let go of the idea that planning is per definition static as Mintzberg (1994) proclaims. Interpreting planning at different ontological levels, planning can be dynamic within each layer of these levels. This opens a new world for flexibility at firm level, process level and activity level. As Rakos (1988) puts it, planning is one of the most important reasons why success is obtained, due to the increase of controllability and manageability.

Organising in a perpetual flexible way

Now we speak of organising in a flexible way, we first need to define the exact meaning of flexible organising. In the many definitions of organising in dictionaries, management books and on internet, 'people', 'unions' and 'planning' form important elements of the definition of organising. We define flexible organising as an activity to *'commit people to a set of values, and enlisting all scarce resources (including people) to activities, in a functioning whole according to one principle or idea; in order to generate a predefined output'*.

At first this definition seems no different from other definitions of organising, but here scarce recourses are enlisted to *activities* and not to people or disciplines. Resources that are not scarce do not have to be organised, a climate control is needless to organise when the activity is executed outside, the same applies for air in an office building, etc. Also *one principle or idea* is important. No definition of organising restricts to *one principle or idea*, and therefore automatically accepts the segmentation of organising (e.g. people and other resources). Finally the predefined output stresses the importance of planning (at all ontological layers, i.e. levels of the organisation).

Practising this way of flexible organising requires again a theoretical insight on firms. First we need to scrutinise the executive activities. Executive activities are more than just 'production activities' as frequently referred to; production is only a part of the executive activities.

There are two types of executive activities:

- *Push activities* are activities that acquire/create, maintain and discharge resources (including people) in order to supply other activities;
- *Pull activities* are activities to supply customers with a product or service.

Note: Push activities are more capacious than Building-To-Stock (BTS) activities as described in the field of logistics.

Within the executive processes (consisting of a series of push activities and a series of pull activities executed in a specific sequence, in order to generate a predefined output) there is a point of switch-over from Push to Pull.

The Push processes acquire/create, maintain and discharge resources, as people (e.g. *hire, train, deploy, nurse and fire*), tools and machines (e.g. *buy, maintain, deploy and discharge*), (non-)durables (*acquire/create, maintain, deploy and discharge*), finance (i.e. money) (e.g. *collect, administer and spend*), customer relations

(e.g. build, maintain, send Christmas cards and add/remove from a list), stock (e.g. acquire or create products, maintain and dispose of decayed products), etc, to supply other processes (as well as other Push processes as Pull processes) enabling them to work efficiently.

The Pull processes produce products or services to supply customers with their specific requested solution on their demand, as the production of product 'A', the production of product 'B', the service activities for service 'C', etc.

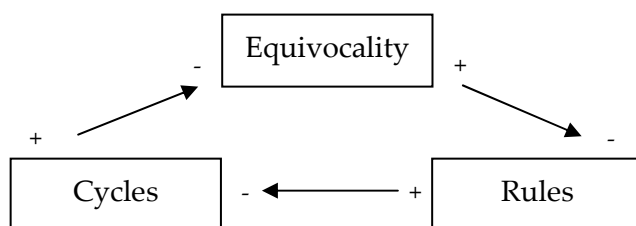
Besides the executive processes, there must be other processes to harmonize all executive processes. These processes are called managerial processes. These processes are the Plan, Do, Check and Act at different managerial levels. There are six managerial processes:

- Strategy
 - Budget
 - Methods
 - Assignment
 - Correction
 - Report
- } Adaptive processes
- } Directive processes

Adaptive processes:

The three adaptive processes form the translation from the environmental fit of the firm through plans at firm-level, plans at process-level and plans at activity-level into useful information applicable for all workers. Strategy is the first and most visional document making providing the long-term perspective of the management in relation to the environment. Budget (also Annual plan, containing more than only financial information) makes the managerial vision more concrete by planning the need for all resources (including people) necessary for the predefined output of one year. Methods are descriptions of *the way in which people work* (as in a series of activities, i.e. a process), so that all employees know *how* they should be a part of Budget and Strategy. Most firms already implemented (part of) these three managerial processes explicitly, often enforced by the quality standards such as ISO 9001. The way it is deployed in the current view of organising results in a static planning process of organising resources to functions and departments.

Here Methods is meant to be described in a more general way. This general way of describing stems from the idea of Weick (1979).



The more Equivocality, the lesser rules;
 The more Rules, the lesser Cycles;
 The more Cycles, the lesser Equivocality;

Figure 6: Systems theory of Weick..

Weick found a relation between cycles (processes), rules and equivocality. The more equivocality the less rules are necessary; and the more rules the less cycles (processes) necessary; and the more cycles (processes) the less equivocality. To put it simply: there is a relation between the amount of described

Methods (processes) and the need for rules in a firm; and therefore increasing or decreasing the equivocality within the firm. Unequivocality helps improving communication and the way in which people work, Weick's states reducing equivocality means organising, therefore organising consists of balancing cycles and rules.

Following this theory it is important describe as less processes as possible, but enough to prevent equivocality. At the level of activities the same theory holds: describe as less activities as possible, but enough to prevent equivocality.

Less is more (preventing over organising), but too less will bring chaos (no organising), still we need a way to *plan* in a *flexible* way, since, at least according to Mintzberg (1994), planning is per definition static. Planning should be made perpetual flexible. Though this sounds complex, the solution is as simple as that. Nonetheless is part of the complete changeover of the mind, discharging old ideas of organising and accepting new. Making a plan should consist of only picking predefined options of activities. Therefore a plan can be separately made for each process, without the necessity of inventing the wheel over and over again. All possible options of activities are shown on the planning. This makes planning not only extremely easy, but also perpetual flexible, since changing the order of the planning or reacting on deficiency signals from execution is surveyable and simple. If during the execution of a process a plan needs to be changed 'Act' should decide to set execution for a new (revised) plan.

Directive processes:

Now the plans are devised, there are still some activities needed to make the plans flexible. Two directive processes are important for making the execution of plans flexible. First of all devised plans need to be documented and implemented. This is captured in the word Assign. Assign as in "put in specific use" or "place at someone's disposal" and Assign as in "record into a (digital) document". In the theory, as in this article, 'assign for execution' is used. Thus Assign is the process in which activities are executed to effectuate plans (also known as implementing or allocating) *and* record the plan. Which comes first is the problem of the chicken or the egg. Plans stemming from execution (through deficiency signals) mostly are implemented first, and than documented. Devised plans mostly follow the reverse trajectory. Placing documents to someone's disposal can either be done through a person (e.g. by telling others about the plans) or through supplying a (digital) document (e.g. intranet, instruction manual, plan boards, large screens). The method of recording documents follows the way of implementation, form follows function.

Secondly plans need to be monitored and evaluated for compliance and fitness. This is called Correction. While execution of plans, situations can change. Therefore sometimes it is necessary to re-adjust plans, or to decide to stick to the plan, and do not act on the deficiency signals received. When a plan needs re-adjustment, a new plan will be devised and assigned for execution...

There is still one managerial directive process left. It is a little complex process, concerning daily work, but in theory a simple one. As stated in the theory before, Act can only be done by one person, namely the one being responsible for that specific process. If any change should be made in a plan (at either firm-level, process-level or activity-level) the responsible person for Act decides to take action or not. For example: if a person executing a plan signals a deficiency Act will *decide* to either change the plan and therefore set execution of making a new plan; which than will be devised, Assigned and Corrected, which will be infinitely repeated.

Please note that *all* managerial processes follow one of the parts of the Deming circle.

Plan: Strategy, Budget and Methods.

Do: Assigning

Check: Correction

Act: Report

Here *all* work possible in any firm can be described on one piece of paper.

There are only eight different types of processes:



Figure 7: All processes possible of a firm.

For every process the only thing to be documented is the activity plan of all processes.

For example a series of activities executed in a specific sequence, in order to generate a predefined output of: Strategy (output: Strategy document with vision of coming 3 – 5 year)



Figure 8: Example of describing a process activity.

1. Decide whom to ask as participants.
2. Make people available at a specific date.
3. Arrange location, date and necessary resources and invite all participants.
4. Arrange fun-element for all participants.
5. Plan time for external consultants (e.g. futurologist, etc)
6. Open discussion with all participants.
7. Make mission statement, SWOT-analysis, long term goals, etc.
8. Make document of the outcome.
9. Present Strategy document to the Management Team.
- ... Etc.

This way of describing the processes Strategy, Budget, Methods, Assigning, Correction, Report and *all* Push processes (e.g. concerning the care for people, tools and machines, (non-)durables, finance (i.e. money), customer relations, stock, etc.) and *all* Pull processes (e.g. production of product 'A', the production of product 'B', the service activities for service 'C', etc.).

When a plan is to be devised, an employee can use the 'checklist' of possible activities from the standard plan, and use the activities necessary for this specific process. In this way neglecting an activity by accident is less likely and for planning purposes this, if completely implemented in the organisation, is a perfect way of planning, and therefore, organising in a perpetual way. Please note, that this way of organising is only possible when *all* resources (including people!) are organised according to the Just in Time principle. Therefore functions and departments are a sin! Employees should be flexible just like a hammer is, at the right moment at the right place, and the planner should know for what period of time this person (or other resource) is available, i.e. allocated for this specific activity. People (and other resources) are now able to be deployed in multiple processes and therefore much more flexible than the traditional view of organising.

Although it sounds very simple, and it even is a simple idea, current mindsets of people make it very hard to switch. A precondition for a complete and perfect perpetual flexible way of organising is a good planning system on which planning can be made at all levels of the organisation. Though most systems are build according to the traditional perception of organising, the software for a planning system for flexible organising is significant more simple, and therefore certainly less expensive.

How to assign people without using functions?

First forbid the word 'functions' because this will create a pitfall to fall back into old habits. Than, map *all* capabilities of all employees. This will give an orderly insight into all capabilities within the firm, which is much more than one can possibly see when looking at functions. A simple tool to use to map all capabilities is the employee-role-matrix.

Role Employee	Role 1	Role 2	Role 3	Role 4	Role 5	Role 6	Role 7	Role 8	Role 9	Role 10	Role ...
Employee A	X		X	X	X		X	X			X
Employee B		X					X				
Employee C							X	X			
Employee D						X	X	X			
Employee E							X		X		
Employee F									X		
Employee G									X	X	
Employee ...										X	

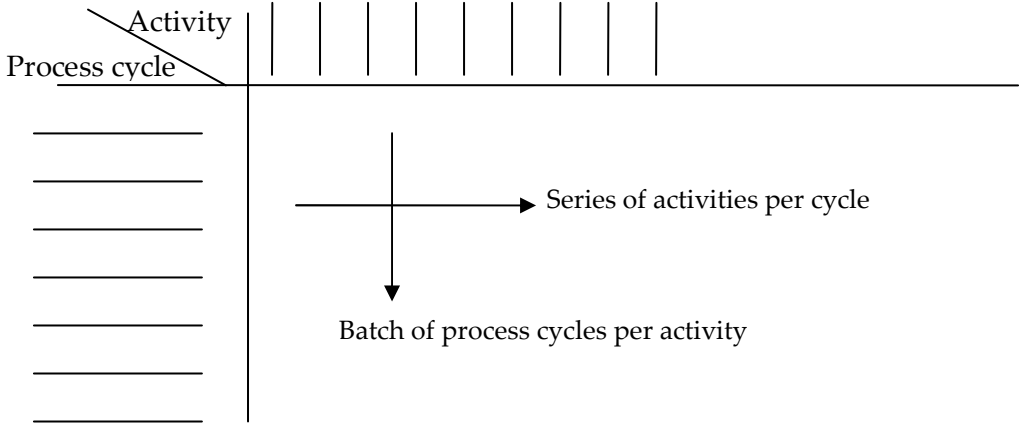
Figure 9: Example of a employee-role-matrix.

When using this tool it is easy to see all capabilities of all individual employees, which also helps with evaluation of the individual, planning training and makes it clear what type of person to look for when recruiting a new person (i.e. what the firm is lacking or in need of when one is resigning).

For flexible planning, this matrix is crucial. For assigning (i.e. allocate to) employees to processes, the 'planner' (either a computer or a human) needs to know which employee can do what activities. This matrix forms the basis for the plans of the Push process 'people'. Process plans for 'people' consist of a matrix with the names of all employees and all processes to allocate to. In this way the planner can see which employee is allocated to which process and can switch people with the same capabilities whenever needed, for example when an employee is in training, sick, has vacation or is needed in another process. To be able to allocate the right people, the employee-role-matrix is necessary in order to know which person is able to be assigned to what process(es).

There are multiple options to organise work. In the literature there are basically two forms; mass production and single unit production. Mass production is the production of a batch of one single activity. This way of producing fits the scientific management of Taylor (1911), whereas cost is the most important focus. It is an efficient way of producing multiple products of one kind. There is only need for one plan. The downside is the boredom which the employees will feel after repeating the same activity over and over again.

Single unit production is the production of one series of activities. It is a useful way or producing when the output can not be standardised, therefore all output can be unique. The downside is the huge amount of planning and 'reinventing the wheel' for every cycle. A project is a typical example of single unit production.

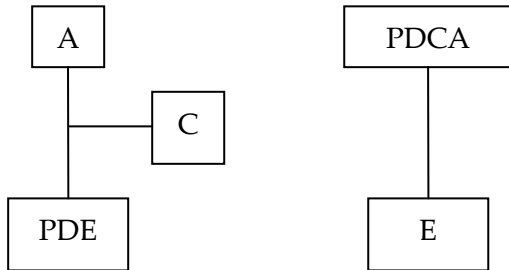


Per series: single unit production
 Per batch: mass production

Source: Course Operation Research, J.M. van de Wiel MSc.

Figure 10: Example of a standard for assigning selections for execution.

To be able to organise in a perpetual flexible way, there is no *one* option always best. In order to be flexible every process will have to find their best fit with a way to assign selection for execution. The process Strategy for example is mostly bet organised as series of activities per cycle, i.e. single unit production. The repetition frequency of the process has great influence. If there is a repetition of once in five years, than production in batches is impracticable. Of the many combinations of assigning selections for execution the most frequent used and most known are:



Mass production

Single unit production

Source: Course Operation Research, J.M. van de Wiel MSc.

Figure 11. Examples of standards for allocation.

From all different options of assigning selections for execution, mass production can be seen as the most efficient (in terms of costs and time-to-order) and single unit production as best in creativity, currently used for projects. When the single unit production method is used for projects, there is a danger for reinventing the wheel over and over again for every new project. Also, when executing the project there is no form of flexibility within the execution. Every possible change of methods in execution needs to be tuned within PDCA. The focus is on the complete controllability. When organising activities conform the mass production method, flexibility is increased at the execution, so the responsible manager (Act) can concentrate on its own activities of tuning the firm with its environment (internal and external). This enables Act to develop new, different, more efficient, etc, methods to improve the fit of the firm with the environment (market demand). The more flexible the firm is, the more employees (of all levels) can be used for the development of new and better methods. Contrary to what most managers think, empirical studies prove that less employees working in a process helps improving the efficiency. This, though not as often as with employees, can also be true concerning money. More money does not always makes the organisation more efficient or flexible.

Scarcity makes people creative!

The more standardised way of working helps the flexibility within the process, but also enables to increase the total flexibility of processes of the same sort. At firm-level and at process-level planning can be done in a more or less general way, enabling flexibility of assigning resources (including people) to processes. At activity-level plans can be made more specific and detailed, enabling a short-plan-period, which also helps the flexibility of the process, and therefore of the firm. Thus flexibility is created by allocating and assigning resources to activities in the execution level itself.

For the controllability Check is placed separately to view the process but also enabling to be assigned to multiple processes, since check does not have to be a continuous activity. A form of Check is always needed. Das and Teng (1998) explain the need for a good balance of trust and control in strategic alliances. This balance is also needed within a firm. Too much control makes the organisation rigid, and too much trust enables the firm to drift of into different operational units. Having said this, I argue that currently trust is (mis)used to preserve personal positions (i.e. functions) within a firm or department. Many managers try remaining or improve their position without willingly pay the price of behavioural conditioning. This way of resistance is, together with the general understanding of organising, one of the biggest problems in shifting people's views of organising within firms.

Please note that Act always has to be at the top. Report (giving account for the actions of the firm) is a formal activity, claimed by the owner(s) and legislation.

In recap

Currently firms organise people in functions and allocate them to departments. Recourses (excluding people) are organised either in the same way, or sometimes Just in Time. Therefore firms are organised in a rigid way. To overcome the problem of rigidity, and at the same time fulfil the ever increasing market demand, firms became creative. The reformation of government interference (around the sixties) caused new legislations, formalising the way of organising. This stopped firms from naturally following the evolutionary path shown by market demand.

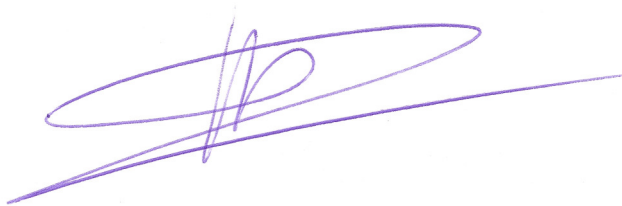
We need a dogma-breaking new insight in organising firms in a perpetual flexible way. If we let go of the idea of functions and departments, and start organising activities in processes in stead of the departments and functions, a flexible way of organising emerges. The way how to do that is remarkably simple, and therefore extremely difficult to write down. Functions should be substituted by roles, people should be seen as resources, departments should be disappear replaced by processes and the way of assigning and allocation of resource (including people) differs per process. To prevent

the rigidity of the influence of quality, the quality manual should be replaced by a flexibility manual, in which the processes are described only in a basic way according to only the eight different processes of a firm. When this is truly implemented and further developed, firms are able to maintain the fast pace of the market demand, i.e. flexible with a sound fit with their environment.

Innovation is a booming business in all industries, promoted by firms, support groups and even government, while there is great need for more people developing new methods for organising in a flexible way, most research, money and time is spent on some kind of technical (product) innovation. Without stating this is useless, because technical innovation also helps facilitating businesses to fulfil the market demand, the focus of the innovation on organising should increase. After all, the development of a new product does not end with a model, it needs to be produced before it has a function...

Acknowledgement

I would like to take this opportunity to thank Mr. J.M. van de Wiel for his 30 years of struggle and study into this subject. Though many practitioners and researchers are still trying to find an answer to organising in a more flexible way, Van de Wiel managed to come up with an unequivocal solution, applicable to *all* firms and *all* institutions. Since this way of perpetual flexible organising has proved itself just recently, and is very hard to explain on paper, this article focuses mostly on the problem of our current behaviour and only sheds light on the solution. Theoretically speaking all information for enabling organising in a perpetual flexible way is described in this article.

A handwritten signature in purple ink, consisting of a large, stylized 'M' followed by a horizontal line extending to the right.

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