

Not just about merging bits and bytes: Developing an analytical framework for the post merger integration of information and communication systems

by
 Alexis Papathanassis
 Working Paper: Hannover University,
 Germany
 Email: a.papathanassis@gmx.de

Abstract:

In terms of merger success, management action in general, and post merger integration (abbr. PMI) in particular, are of primary importance. Here, the successful integration of the merging parties' information and communication systems (abbr. ICS) have a key role to play. Both the smooth operation of the merged organisation and the realisation of synergistic value are dependent on it. Within the context of post-merger integration, information and communication systems tend to be perceived as 'technical components' or even as 'departments' that need to get integrated. The discussion revolves mainly around technical issues and the restructuring of the IT-function(s). This view of ICS prevails in literature and practice alike, while supporting and reinforcing the 'fit'-obsession; just like cultural-fit, structural-fit, and strategic-fit. In contrast, within the context of post merger integration, the integration of ICS ought to be treated as a complex and demanding management process, whilst being acknowledged as a key enabler of merger value realisation. Practising ICS integration during mergers requires a holistic consideration (i.e. normative, strategic, operational levels of analysis) and a systemic understanding. This is the very purpose behind introducing the 'Post-merger information and communication systems' framework (abbr. POMICS); namely, as a conceptual tool aiding the analysis effort required to achieve a sufficient depth of understanding. For it is the very lack of sufficient understanding which could lead to ineffective, and often destructive, actions during integration.

Main Text:

The Post Merger Challenge

Within the realm of M&A literature, the word 'failure' seems to attract a lot of attention¹. Questions regarding 'merger failure' tend to evolve between semantics and empiricism. Regardless how merger failure is defined and measured, and despite the number of studies and statistics based on such definition, mergers still take place².

“Despite 30 years of evidence demonstrating that most acquisitions don't create value for the acquiring company's shareholders, executives continue to make more deals, and bigger deals, every year.”
 (Eccles, Lanes & Wilson 1999, p.46)

Companies continuously seek growth, their strategies call for M&A, and executives are still willing to bet against the odds. For some the 'merger glass' is half-full, for others it is half-empty. Maybe the real question should not relate to how full the glass is, but to what is the glass full of! More relevant for practitioners is the question of how to make mergers work, rather than whether they generally do or not. Setting aside the empirical or historical results of mergers and the motives behind them, there is strong imperative for their effective management. Within the realm of mergers and merger value, ICS hold a key position. As it is hard to imagine an organisation operating without any kind of ICS support, it is also hard to envision merging operations and processes without dependencies on the ICS landscape of the merging companies.

¹ See for example: Bekier, Bogardus & Oldham (2001), Fischer & Wirtgen (2000), Beer & Nohria (2000), Barkema & Vermeulen (1998)

² Empirical and / or quantitative studies on mergers (and merger failure) and their results are very relevant and valuable, serving as guidance for more specific and quantitative research efforts. Using an analogy: If one is to 'shed light somewhere', quantitative research in this context helps pointing the flashlight at the right direction before turning it on

Failing to successfully integrate ICS within PMI can have a detrimental impact on the realisation of synergies, becoming a bottleneck for the entire merger effort. In light of the above and despite the extensive literature and research on mergers, post-merger integration management of ICS is a domain still offering ample space for value-adding and practice-relevant research.

The Significance of Post Merger Integration

Post merger integration has a prominent role in both merger management and merger success. Competent integration management can salvage poor deals and can turn a well-perceived merger into success³. PMI is in a sense ‘the moment of truth’ for the entire merger management effort. Indeed it is during PMI where:

- The strategic rationale and decisions related to the acquisition decision are tested and realised
- The planning and reality face each other
- The positive and negative synergies are realised
- The majority of internal stakeholders are involved

PMI can be described as a phase, or as a capability. Accepting the phase paradigm, it is also during PMI that most pre-deal and / or transaction shortcomings manifest themselves. Thus, the PMI phase is highly dependent on the ‘previous’ phases. Seen as a capability, PMI competence is a contributing factor to the overall merger success, but does not ensure it⁴. Nevertheless, accepting that PMI has indeed a role to play in merger success, implicitly assumes that mergers can be successful, providing that they are appropriately planned and managed. In which case, the intimidating failure statistics are neither viewed as a deterrent for mergers, nor as evidence indicating that mergers by nature destroy value; rather they are taken as an invitation, a challenge, to improve the management of mergers in general and PMI in particular.

Key ICS Role in Post-Merger Integration

When referring to ICS, within the context of PMI, the tendency is to focus on the functional aspects of the IT department and on technological issues. Organisational restructuring, network consolidation, and reduction of technical staff are frequently encountered in the M&A literature. Moreover, in a number of comprehensive M&A textbooks⁵, ICS enjoy small, if any, coverage. ICS is equated to IT and is primarily seen as a technical support function. This lack of attention is not just evident in textbooks, but also in practice. Bender, Ammann, and Meitner (2000) claim that, in most sectors, 30% of technical resources are utilised for projects, which have no direct synergy benefits. They propose functional analysis, promising a saving of 10-15% on overall systems costs. Such savings are not to be underestimated. Nevertheless, a mere restructuring of the IT function and a re-allocation of ICS projects and resources does not capture the full potential and risks of ICS integration during a merger.

Baring in mind the importance of ICS, especially in information-intensive service sectors like tourism or financial services⁶, one can infer that closer attention is deserved. In a McKinsey study of the financial services sector, Berensmann & Spang (1998) conclude that without professional management of systems integration, the merger could potentially become a ‘never-ending story’, lasting more than 5 years. This risk is particularly relevant during ‘mergers of equals’. According to the experience of the authors, drawing their evidence from a variety of other case studies in various sectors:

³ Pritchett (1997)

⁴ Fubini (2000)

⁵ See for example: Pritchett (1997), LaJoux (1998), Galpin & Herndon (2000)

⁶ Both those sectors have experienced heavy M&A activity during the past couple of decades

- 50% of the projects within the typical portfolio of a merger are related to ICS integration,
- costing on average 1000 person-years or €200 million,
- and lasting between 2 and 6 years
- Moreover, 30-50% of all operational synergies can only be successfully realised after successful ICS integration

In a similar light, Meier & Spang (2000) claim that in every merger, 50% of synergies, both cost- and revenue-related, are dependent on ICS integration. This picture is also supported by Lauritzen (2000), who defines integration as the harmonisation of the core business processes, of the applications, of the IT-infrastructure, and of cultures. The author claims that ICS-merger projects are often the first common projects to take place.

Placing the emphasis on information and communication rather than on technology, it can be easily argued that ICS are more than merely a function to be integrated. ICS potentially enable, or even prevent, the overall success of a merger. In the context of PMI, apart from restructuring the IT function or department, new systems need to be created and maintained, while existing systems need to be catered for and adapted. New and existing processes, which serve customers and affect business partners, need to be supported.

Bearing in mind all the above, the core question we are concerned with here is: “How should ICS integration be managed in order to maximally contribute to the entire PMI effort and thus towards the overall success of a merger?”

Post Merger ICS Integration (POMICS7): Analytical Framework

The analytical framework illustrated on the next page (figure 1) aims at shedding some light on the above question. Here, ICS are treated as a key subset of PMI. In addition, for a large number of organisations, a merger belongs outside their mainstream activities. In a similar manner, ICS management within mergers is seen more as a management instance, as opposed to an ongoing task. Accordingly, the focus here is on systems development and not on systems operation / maintenance; on project organisation and not on IT department organisation; PMI visualisation rather than the overall and pertaining company vision⁸. Worth noting is that, it being a unique event whilst involving a variety of parties within an ever-changing business environment, post-merger ICS integration is an area highly unsuitable for the development of comprehensive and standardised solutions. Instead, the proposition here involves the provision of a conceptual framework, aiming at enabling solutions to emerge.

Before proceeding with detailing the proposed analytical framework (i.e. POMICS), it is important to briefly comment on its origins; the ideas and research forming its basis and leading to its construction. Accepting systemic complexity and the uniqueness of situational factors, Wiedmann & Kreuzer (1989) argue for the advantages of opting for a situational adaptation of a general-purpose concept. In line with that argument, the POMICS concept borrows and adapts the logic of Gomez’s general purpose ‘VIP Concept’⁹ and is compatible with Ulrich’s (1972) claim for integration between all ‘three levels’¹⁰ of management analysis as a basis for a systems-

⁷ Abbr. **PO**st **M**erger **I**nformation & **C**ommunication **S**ystems

⁸ Focus, however, does not mean absolute exclusion. In any case, the significance and relevance of those ongoing, day-to-day activities need to be taken into account

⁹ An overview of the model is provided by Spikers (2002). The model involves a successive consideration of: vision → rules → competence → strategy → process → organisation, maintaining the focus on value and the impact on value generators

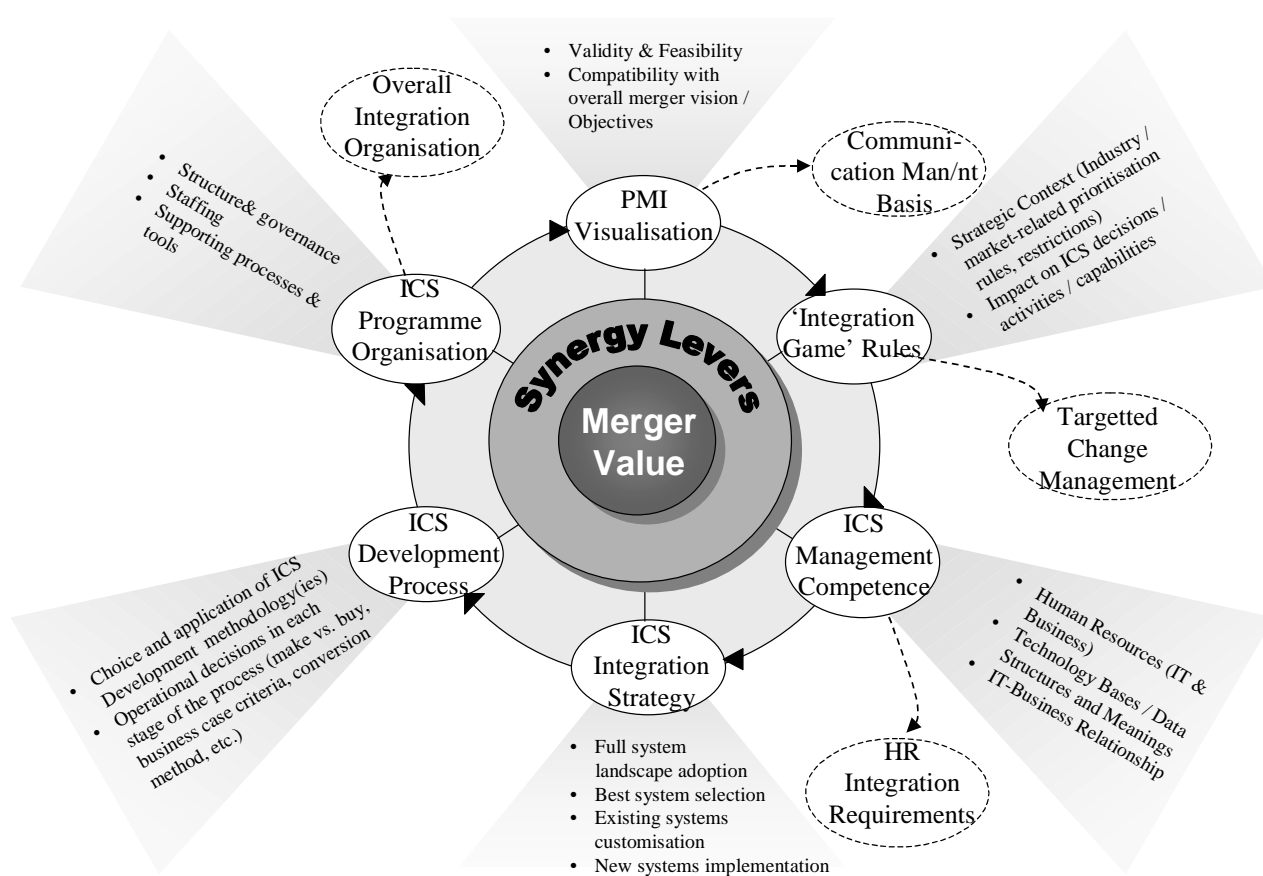
¹⁰ St.Galler Management Model – Ulrich & Krieg (1972), Schwaninger (2000), Rüegg-Stürm (2002)

oriented approach to action: The normative level refers to the ‘search for meaning’ and its mediation to organisation. Management at the strategic level is mainly concerned about building-up future performance potential. Operational management involves determining and keeping under control what is being (and needs to be) executed.

In accordance to its origins, POMICS has two key characteristics:

- In the core of the framework lies a strong orientation towards value generation, which happens to be the main aim and challenge of merger management.
- The framework is illustrated as a cyclical set of successive activities leading from vision to process. In other words, gradually leading from the expression of a desired state to its realisation and then repeating the circle.

Figure 1: Post Merger ICS Management Concept (abbr. POMICS – *PO*st *ME*rger *ICS*)



Seen from a slightly general angle, the POMICS framework involves a gradual movement through each of the ‘three management levels’ keeping the lens focused on optimal value management. The cycle reiterates itself in order to cope with the dynamic nature of organisations and their environment. This notion of movement underlines the action orientation of the concept. The framework’s elements are elaborated upon in the following pages¹¹.

¹¹ Starting point is the centre - i.e. merger value, moving up to PMI Visualisation and then clockwise up to ICS Programme Organisation

The dynamic nature of merger-value creation

Successful ICS management, being a part of PMI, is concerned with enabling the maximisation of the net potential merger value, within a minimum amount of time. More specifically, this implies enabling the realisation of positive synergies, while at the same time minimising the impact of negative synergies. The degree to which this is attainable depends on the limitations set by inherited or historical factors (i.e. events taken place during the pre-merger and deal-making phase). For example, a poorly performed due diligence and subsequent deal, may result to an exaggerated premium, which reduces the impact of any potential synergies.

It is also important to mention that identifying and ‘pulling’ synergy levers is neither a one-off task nor does it necessarily produce the desired end result. Unexpected changes in macro-economic conditions, legal framework, and other unforeseen events (e.g. unanticipated competitor reactions), confront the organisation with a new reality. Such events may well lead towards a reshuffling of priorities and ultimately alter the impact of particular synergy levers. A change in legislation for example, may allow for an additional acquisition, not previously thought possible, redirecting the focus of the organisation, away from the current, long-running and cumbersome integration efforts. The core focus of the entire post merger ICS management effort is indeed a ‘moving target’. It follows that the entire spectrum of ICS management activities, from PMI visualisation to project organisation, need to be coupled with a continuous monitoring of the relevance / impact of the defined synergy levers. This could form the basis of an integration-related risk assessment and management. One needs to assess and monitor the risk of both integration activity outcome (“Will integration be completed?”), as well as the impact of this outcome (“What if it does?”).

As a closing note regarding value in mergers, it is important to consider more carefully what is exactly meant by value. Even though the notion of synergy has been extensively discussed in literature, and its definition has expanded beyond the strictly measurable financial / economic sense, there is still something left to be desired. Aside from the maxim of shareholder value maximisation, merger value can, and ought to, be viewed from a variety of perspectives¹². The potential value of the merger for end-customers, suppliers / partners, employees and for society as a whole is by no means trivial, since it can arguably affect the medium-term profitability and ultimately the long-term survival of the organisation. Stakeholder and shareholder value are much closer to being synonymous than they are being antonymous.

PMI visualisation

“Corporate strategists formulate a strategy and vision that enables a merger to get started. However, that strategy acquires force and resonance when people are given the opportunity to deepen or refine the thinking and assumption underpinning the strategy... They begin to invest energy and emotion into making the deal work.”

(Devine 2002, p.17)

As mentioned, the value-proposition of a merger is not limited to short-term or medium-term financial benefits. Often a merger is part of a long-term vision, and the corresponding strategy. A simplistic assertion would be to equalise PMI vision with paraphrases of standardised PMI definitions. Those include statements such as: “To harmonise processes and systems’, etc... as to maximise synergistic value”. In order to serve as an orientation for PMI, a vision needs to be clear and situation-specific. Otherwise, there is a danger of it being nothing more than an oversimplified concept (‘Back-of-the-envelope’) or a hyped statement (‘ego visions’)¹³.

¹² Rieser (1999) for example, emphasises the importance of assessing merger value in terms of its impact on the all the elements of the organisation’s marketing mix

¹³ Habeck, Kröger, & Träm (2000) argue that lack of a clear vision and a misplaced focus on ‘fit’, is one of the primary reasons for integration problems and subsequently merger failures. ‘Fit’ does not constitute vision.

Following a similar argumentation, Gomez (2000) defines vision as a ‘dream with a deadline’, highlighting in that way the need for a certain degree of specificity¹⁴.

The PMI objectives and the related ICS management activities are part of this larger picture, with which alignment is necessary¹⁵. Such an alignment usually results in an array of high-level decisions consolidated into an integration visualisation. Although there is no standard form or way to create it, its existence is vital since it serves as a connection point to the overall merger vision, while at the same time defining the general direction and frame of PMI / ICS management activities. As such, it must be more than a traditional mission statement. This is the very reason the term ‘visualisation’ is preferred instead of ‘vision’. Stated differently it must be a ‘fairly well-defined vision’¹⁶; a vision tailored for a specific or unique, time-boxed organisational endeavour. Apart from supplying meaning and a general direction for the post-merger ICS management effort, a concrete and meaningful PMI visualisation can serve as a solid basis for the overall internal communication efforts required during a merger¹⁷. The desired and optimum balance between specificity and generality of the visualisation is what will ultimately initiate the constructive dialogue necessary to facilitate commitment and give the integration effort some early critical mass. It is this very dialogue on the purpose(s) of the merger / integration that engages people, and not written statements. ‘Writing it down’ is necessary, but not enough. Axelrod (2000), claims that without dialogue, such written statements are nothing but silent testimonies of a failed organisational change process. In this light, aligning the PMI visualisation with the merger vision, as well as assessing its validity and feasibility, are both not sufficient. The visualisation ought to be acknowledged, internalised and accepted by the involved stakeholders via a process of participative communication.

Rules of the ‘Integration Game’

Following the definition of a well-conceived PMI visualisation, a number of explicit, as well as implicit, ‘game rules’ are to be extracted. Those rules ought to provide a point of reference for ICS management decisions and for prioritisation. It may be argued that PMI / ICS management is a balancing act; a series of choices between a number of trade-offs, required to realise the defined vision and objectives. Defining the integration game and the rules that govern it can be seen as the prelude for making the most appropriate choices; for making the optimal trade-offs¹⁸, from a value-generation point of view. It is in way, supplementary to the integration visualisation, enabling its practical realisation. A PMI visualisation for example, generates questions related to the acceptable degree of integration impact on particular business areas, or the internal distribution of integration costs and benefits. But in isolation, it does not adequately address them. Integration rules ought to! For lack of clarity on such basic and overriding questions will consistently hinder agreement and coordinated activity in the strategic and operational levels of ICS integration management. Metaphorically speaking, one needs a board to plot and communicate a strategy. Integration rules play the role of such a board!

¹⁴ In Gomez & Habann (2001), p.368. Bereszewski, Kloss & Keßler (2002) use the term ‘integration roadmap’, which lies between the generality of a vision and the specificity of a plan

¹⁵ There are a number of frameworks seeking to align generic PMI visualisations with different combinations of strategic variables (see for example Haspeslagh & Jemison 1991 – ‘2x2 Degree of Integration’, Wall & Wall 2000 – Integration Strategy Framework)

¹⁶ Clear and targeted communication is generally considered a preferred approach, as it minimises the risk of ‘attention deficit disorder’ (Davenport & Beck 2000) caused by a ‘bombardment’ of vague, general-purpose, PR messages within the organisation. A clear and concrete concept is easily understood and facilitates constructive feedback, which is also a characteristic of effective communication

¹⁷ Bender, Ammann & Meitner (2000) state that ‘concept acceptance’ is key for successful ICS management during a merger

¹⁸ Within the context of ICS in post merger integration such trade-offs may include: resource allocation between ongoing operations and integration effort, acceptability of operational information risk and the degree of systems change necessary, etc. The listing of such trade-offs is avoided at this stage, since it should be situation-specific

- *Integration rules & targeted change management*

Finally, integration rules should take into account the core business realities characterising the industry and the market it operates in. Understanding the essentials of the business(es), as obvious as it may seem, still remains crucial for understanding corporate cultures¹⁹. Integration rules may, or may not, coincide with the existing corporate cultures involved²⁰. With regard to cultural integration, the question does not lie on whether (or how) the cultures can be amalgamated into one. Diversity is often advantageous and vital to value creation. Defining the rules of the ‘integration game’ and subsequently determining the areas where those rules clash with any of the involved cultures, reflects a selective approach which is sensible starting point for an effectively targeted change management approach in PMI.

ICS management competence

The next logical step concerns the implied competencies for supporting the overall PMI visualisation within the defined integration rules²¹. Hamel & Prahalad (1990) define core competencies as the ability to coordinate diverse production skills and integrate multiple streams of technologies. With regard to post-merger ICS management, core competencies can be defined as: the ability of the organisation to undertake and coordinate diverse ICS development activities; the capacity of integrating them into the existing system landscapes; all in a way which maximises the overall synergistic value while complying with the strategic intent of the merger. Amongst others, Ross, Beath & Goodhue (1996) define this as a function of the following interdependent key elements²²: IT human resources, technology base & data structures, relationship between IT and business:

- *IT human resource assets*

IT staff are examined in terms of their technical skills, business understanding and problem-solving orientation. Within PMI (due to synergy realisation requirements), one can expect increased ICS-related activity. Increased activity, combined with the likely ICS-relevant knowledge gap between the merger partners underlines the significance of those skills being readily available. Here it also important to consider that maintaining existing systems requires different skills than creating new ones²³. So it is not just IT skill availability that is key, but also the availability of the appropriate mix of IT skills.

- *Technology base & data structures*²⁴:

Conventional wisdom advocates that standard technological bases are preferable to proprietary ones. Within the context of PMI, one could argue that the existence of standardised technological bases simplifies the integration / alignment of the existing IT-landscapes, as well as the development of new common systems. The existence of proprietary technological bases on the other hand, apart from the high costs it implies, may also represent a serious obstacle to integration. Ironically, there may be a very valid business rationale behind it being so²⁵ (e.g. historical reasons, competitive environment, market characteristics)! Having mentioned that, proprietary architectures are not necessarily disadvantageous. In fact, in a number of situations

¹⁹ Eisenhardt & Galunic (2000)

²⁰ Theoretically speaking, cultures are also to a certain degree determined by market / industry characteristics / realities. Inasmuch as this assumption holds, the extent to which ‘integration rules’ conflict with ‘culture’ should be limited

²¹ Broadbent & Weill (1997) use the term ‘maxims’ instead of ‘Game rules’, which derive from the company’s strategic context ought to guide investment decisions and determine the necessary capabilities

²² An almost identical listing of key elements, is also provided by Luftman & Brier (1999)

²³ Kiely (1996)

²⁴ Even though it could be argued that the technological components and structures alone do not constitute a competence, the architecture, logic, and shared meaning behind them do

²⁵ Minz & Strobel (1997), Bereszewski, Kloss & Keßler (2002)

and/or industries they may an essential determinant of competitive advantage, providing that they are open and capable of evolution²⁶ (i.e. scalability).

The current advent of EAI²⁷ technologies and applications can potentially reduce the technological and architectural challenges to system integration. There are a number of commonplace arguments warning against adopting EAI technology: complexity, limited product selection and high maintenance / operational costs. A related, and perhaps not so obvious challenge is the task of harmonising data structures and data meanings²⁸. Moving from data to information and from information to communication necessitates the standardisation or translation of data as to convey the same meaning to the involved parties (users of the information). Semantics are important! It follows that integrating systems landscapes with the help of EAI ought to be easier in industries already characterised by a high degree of standardisation in terms of both production and product / service description.

- *Relationship between IT and business:*

Seen as the degree to which business and IT share system accountability and risk. In turn this is defined as the ability to communicate, coordinate, and to decide effectively and efficiently. It follows that for integration purposes, both the importance and the related challenges of this relationship are accentuated. The role of an intermediary / facilitator could prove useful in this aspect²⁹.

ICS integration strategy

Having examined the previous POMICS elements, one should have a fairly good idea on the overall direction, objectives and limitations governing the ICS integration effort. Knowing where one wants to go and assuming that it is possible and sensible to head there, the next step is to decide on how! In other words, deciding at a high-level on how to reach the desired state from an ICS perspective: “*How is the required functionality to be delivered?*”

Nowadays, one can expect that merging partners will enter integration with their own, and often incompatible, constellation of systems and platforms. Changing historically-developed systems is a challenge in its own right. More so is the case in PMI³⁰. High-level decisions need to be made in relation to the necessary adaptations to the existing system landscapes in order to enable the realisation of the PMI visualisation and synergies. Handschuh & Buchta (2000) identify the following generic possibilities:

- *Leading system landscape adoption* (‘*Leading System*’³¹): One of the partners’ system landscapes dominates and is ultimately adopted by the others. This approach is likely to make sense when a relatively large and technologically advanced organisation acquires a

²⁶ See for example Morris & Ferguson (1993)

²⁷ EAI stands for Enterprise Application Integration (Generic term is ‘middleware’) and holds the promise of easing platform and system integration

²⁸ Fritsch (2002), Fritsch (2001), Gonsalves (2003) – This is gradually reducing corporate preference for large-scale deployments of EAI technology (Yankee Group Market Research)

²⁹ Markus & Benjamin (1997) stress the need for IT facilitators / IT advocates, as specialised change management role. The urgency of newly establishing this as a separate role, depends of course on the present skills of the IT and business resources involved, as well as on the degree of complexity dictated by existing technological bases and their differences

³⁰ Berensmann & Spang (1998)

³¹ Bereszewski, Kloss & Keßler (2002) graphically name this approach: the ‘Highlander approach’ (i.e. there can only be one!)

smaller one, with the intention of fully absorbing it. High degree of political friction and organisational resistance are potential shortcomings of such an approach

- *Best system selection ('Cherry Picking')*: A selection of the best systems from the pre-existing landscapes forms the new landscape of the merged organisation. Amongst others, Viner et al. (2000) warn against this approach, advising for the adoption of one system landscape. Bi-directional transplantation of systems in differing system landscapes is not as straightforward as it may seem. Inevitably, there are technical (e.g. interface reconfiguration) and organisational challenges (e.g. process changes) involved
- *Existing systems customisation ('Separate Systems')*: Partners get to keep their own systems and integrate them where necessary through interfaces and customisation. Dean, Dvorak & Holen (1994) coin the term 'supplemental approach' referring to the adaptation / expansion of existing systems³². They argue that this approach is preferable over new development due to milder time, risk and cost implications. The extent to which this argument holds is questionable. Highly complex, inflexible system landscapes, combined with lack of sufficient technical knowledge³³, may prove to be excessively risky and costly to adapt and / or expand³⁴
- *New systems implementation ('New Development')*: In some cases, the only sensible way to integrate is a 'white sheet approach'³⁵. With regard to this option, Dvorak & Dean (1995) distinguish between developing new custom-made systems and adopting standard 'off-the-shelf' systems. They argue that using standard packages, apart from being cheaper, present an opportunity for the merged organisation to adopt 'state-of-the-art' processes at a minimum cost. Standard systems equal standard software plus standard processes. Viewed from a different angle, standard systems may also lead to loss of competitive advantage by corroding process-related sources of differentiation³⁶

The above generic approaches are not mutually exclusive. In practice, a combination of approaches is likely to be necessary. It could be for example that, the entire merged organisation adopts a company's systems, and then new systems are jointly developed. Alternatively, it may make sense to 'transplant' an existing system in one area, while adapting and connecting existing systems in another. Regardless the approach or combination of approaches, their advantages and disadvantages demand serious consideration and need to be set against the overall vision, objectives and limitations of the PMI effort at hand.

ICS development process

Once the high-level approach has been determined, existing ICS integration and / or new ICS creation need to take place. Developing ICS is a very challenging task in its own right. It would be reasonable to expect that the characteristics of a post merger situation significantly accentuate this challenge. Yourdon (1999), referring to ICS development projects, states:

³² See also Kiely (1996)

³³ A number of companies' core systems, aside being developed a long time ago, may also have a long history of adaptations and expansions, while sharing interfaces with a number of other newer systems. Considering the rapid technological advances, programming skills and knowledge become quickly out of date and are hence difficult to acquire. Legacy systems, especially the ones developed during the early days of the information revolution are likely to lack documentation, rendering them 'alien code'. In addition, a large number of interfaces and interrelationships between systems increase complexity and risk. Changes in one of the systems may cause a 'chain reaction' of unexpected catastrophic events for the entire landscape

³⁴ Meier & Spang (2000)

³⁵ LaJoux (1998)

³⁶ Davenport (1998)

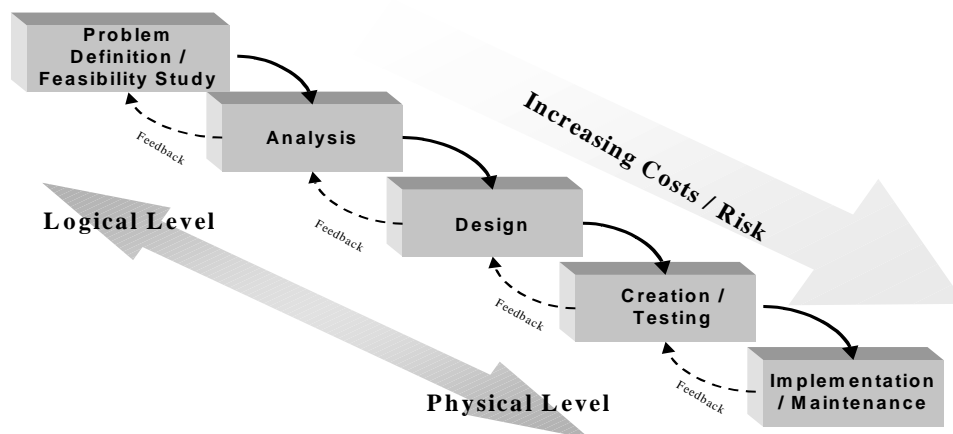
“A death-march project is one for which an unbiased, objective assessment (which includes an assessment of technical risks, personal risks, legal risks, political risks, etc.) determines that the likelihood of success is smaller than 50%)... Death-march projects are the norm, not the exception”
(Yourdon 1999, p.05 & ix)

ICS development usually takes place in project-form. The process of systems development, reflecting a methodology, lies in the core of such projects. Indeed, especially for ICS development projects, the corresponding project plan is often nothing more than the operational reflection of a certain methodology. During the last couple of decades, structured methods have transformed ICS development from a dubious art to a formalised process, facilitating in this way the transition to the information age³⁷.

- *Linear approaches: The ‘traditional’ systems development life cycle model*

One way or another, the vast majority of them are variations of the so-called ‘systems development life cycle (abbr. SDLC)’. Otherwise referred to as the “waterfall approach”, the SDLC consists of a series of successive steps, each of which ends with a clear, measurable set of criteria³⁸.

Figure 2: Systems Development Life Cycle – “Waterfall Approach”



Despite their relatively low cost, the initial phases are habitually inadequately performed in practice, even though the many of the defects or user acceptance issues of the final system can be often traced back to the analysis and design phases. It is during those, where effective communication, organisational experience and business expertise are mostly required. As it seems the ‘dubious arts’ of human communication, of political perception and of compromise, remain essential, even within the ‘formalised process’ of the SDLC! Hence, it is likely that analysis and design are more challenging during the dynamic and unpredictable environment of PMI. Setting aside all its empirically-proven value and long tradition, the SDLC model has also been the target of significant criticism due to its linearity and rigid form³⁹. The SDLC may be appropriate in non-complex situations where significant experience with developing a certain type of system already exists, and where requirements are relatively easy to define and stable over time. Unfortunately, the contrary is often the case. Little experience may exist, and

³⁷ University of Albany Center for Technology in Government (1998)

³⁸ Davis & Yen (1999)

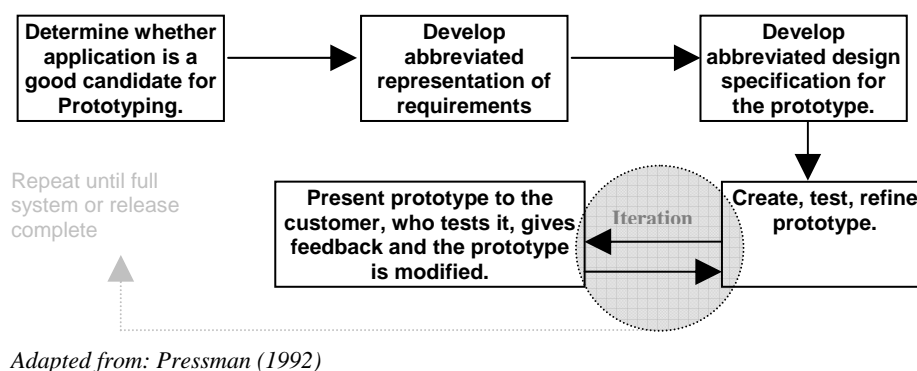
³⁹ Avison & Fitzgerald (1995), Avgerou & Cornford (1993), Cotterman & Senn (1992)

requirements may be unclear and change over time. Another frequently cited criticism of the traditional SDLC is the relatively large amount of time and cost involved.

- *Iterative approaches: Prototyping and its variations*

As a response to the basic shortcomings of the SDLC, and enabled by modern techniques⁴⁰ and tools⁴¹, the use of prototyping has become an attractive alternative. Prototyping and its variations⁴², involve an acceleration of the analysis and design stages and focus on the creation of a prototype, a framework of the proposed system, with the intention to iteratively refine it until an acceptable working system is available⁴³.

Figure 3: Systems Development – Generic Prototyping Approach



Generally speaking, a prototype is a valuable tool for understanding, eliciting, and agreeing on system requirements, since it is not subject to the abstraction of technical documentation: “what you see is what you get”. This particular characteristic renders prototyping approaches recommendable for the communication-dependent integration process. A visible, tangible, and interactive point of reference, such as a prototype reduces the risk for misunderstanding and misinterpretation and can ultimately lead to more efficient and effective communication (at least where systems analysis and design are concerned). On the other hand, a prototype might create false expectations by giving impression that the system is ready when there is still a lot of background work to be done. The strength of iterative approaches lies in their organic nature. Systems are not ‘built’ but ‘grown’. As such, they offer significantly more flexibility than linear methods with regard to meeting today’s and future business requirements. After a merger, like in any other turbulent, uncertain, and unknown business environment, one can expect that requirements are more likely to change over time. Ironically, this very advantage presents simultaneously a major risk. Namely, leading to poorly-designed systems, due to the latent shortage of global consideration related to integrating all iterations/layers⁴⁴.

- *Hybrid approaches: Combinations of linear and iterative approaches*

Last but not least, there is also the possibility of combining linear and iterative / incremental approaches to optimally meet the demands of a specific situation. A typical example of a combinatory approach is the “*Spiral Model*”⁴⁵. The spiral model is a risk-driven approach, based on the experience gained from various refinements to the waterfall model. It begins with a hypothesis that software can improve a particular operational mission, and ends when the

⁴⁰ E.g. Object-oriented analysis and design, information engineering

⁴¹ E.g. CASE tools

⁴² E.g. rapid application development (RAD), joint application development (JAD)

⁴³ Cabral (2001), Dean & Dvorak (1995)

⁴⁴ Davis & Yen (1999), University of Albany Center for Technology in Government (1998)

⁴⁵ University of Albany Center for Technology in Government (1998) – originally suggested by Boehm (1988)

hypothesis ceases to be true, or when the software is ready. Each cycle involves a strong element risk assessment, which determines the type of methodology to be utilised (i.e. linear or iterative). Only after rigorously ensuring commitment (conduct review) can a cycle be completed and a new one initiated. Another example is the hybrid model proposed by Denis & Wixom (2000), advocating the combination of traditional SDLC with a 'throwaway prototype'⁴⁶. In that respect, a rudimentary prototype is used to assist the requirements extraction during the analysis and design phases. Once the requirements and specifications are documented, the prototype is discarded and coding begins.

The development of ICS systems within the challenging context of PMI, involves determining and successfully applying the appropriate methodology. Each methodology comes with a set of advantages and disadvantages, which need to be considered when making a choice. Interestingly enough, there are those who claim that system development problems are, more often than not, attributed to the way it is being practiced and not to the wrong choice of methodology *per se*⁴⁷. This assertion could be justified on the grounds that adhering to a methodology, whichever it may be, imposes a certain degree of discipline, standardisation and continuity in the development process.

ICS programme organisation

A large number of authors emphasise the importance of the project / programme organisations for the success of ICS integration⁴⁸. This is especially true when PMI has led to the initiation of a number of simultaneous ICS integration-development projects, which is often the case⁴⁹. Hence, one usually uses the term 'programme'⁵⁰ instead of 'project'.

According to Reiss (1996) organising projects under a programme is advantageous when:

- Many projects exist simultaneously,
- When there is a high degree of interdependence between them,
- When skilled human resources are involved and their effective usage is required,
- And when there is a direct relationship between those projects the attainment of a specific set of corporate objectives

Baring in mind those conditions, and referring back to the need for an integrated / holistic management approach and to the concept elements defined so far, it becomes clear that a programme organisation is not just desirable but rather an absolute necessity.

From the ICS integration / development perspective, within PMI, the following key elements call for contemplation: structure and governance, staffing, supporting processes and tools.

⁴⁶ Turner (2001)

⁴⁷ See for example: Avison & Fitzgerald (1995), Avgerou & Cornford (1993)

⁴⁸ Galpin & Herndon (2000), Bender, Ammann & Meitner (2000), Berensmann & Spang (1998)

⁴⁹ Reiss (1996)

⁵⁰ The Association for Project Management defines a programme as a broad effort encompassing a number of projects and / or functional activities with a common purpose (Definition extracted from www.apm.org.uk/pub/glossary on the 16.07.2002)

- *Structure and governance*: Defining an organisational structure is not limited to drawing up an organisational chart. Lines of communication and reporting, as well distribution of responsibility and authority call for clarification and formalisation. This is a necessity for any kind of well-coordinated effort. Without it, staffing can end up being very difficult, while secondary / support processes are rendered ineffective
- *Staffing*: Decisions regarding the optimal balance between business and IT staff, internal and external staff, part-time and full-time staff and merger-partner representation within the programme need to be taken and implemented. “*Equal representation*”, “*neutrality*”, and “*recruiting the best and most experienced*” may well be desirable, but in reality extremely difficult to achieve. One cannot take for granted that the required internal human resources are existent, available, or even willing to participate in the integration effort⁵¹. Similarly, hiring external resources to supplement missing internal resources or knowledge is not free of risks and costs⁵². According to Wall & Wall (2000), “*filling the boxes on the organisational chart with actual people*”, has proven to be a very difficult task in practice. Significant obstacles or deficiencies in this area call for a reconsideration and re-evaluation of the integration planning parameters (e.g. deadlines, costs, expected synergies)
- *Supporting tools and secondary processes*: ICS management is not just about delivering systems. It is also about ensuring that the desired results are achieved within time and within budget. Indeed it is hard to imagine any kind of project / programme not being subject to some form of project controlling and monitoring. Apart from controlling, a number of other operating procedures (e.g. problem/issue escalation, information exchange rules) are usually defined and employed. There is an array of tools (e.g. groupware, multi-project-controlling databases, project management software), which can be utilised for smooth and efficient operation of a programme or a project. Constantly keeping in perspective the overriding purpose for employing those procedures and tools, can help avoid the inherent risk of the procedures and tools becoming a purpose in their own right, and hence counter-productive⁵³

Framework application

Having described the proposed analysis framework, its applicability comes in question. What is the framework’s value for practitioners? How can the resulting analysis be translated into effective action?

The framework’s elements can be extracted and organised in a high-level phased action plan, adjustable to a variety of post-merger situations. Moreover, POMICS can be employed as a ‘thinking tool’, giving birth to valuable, and perhaps critical, integration-related questions in the pre-merger phase. By addressing and integrating normative, strategic, and operational issues the POMICS concept can help ensure that important considerations are not overlooked due to situational pressure or convenience. During the pre-merger phase for example, the lack of information about merger candidates may create a tendency to focus on high-level vision and strategy, while unwillingly ignoring the detrimental operational realities or problems of the actual integration task. Alternatively, the urgency and ‘fire-fighting’ inherent in post-merger situations

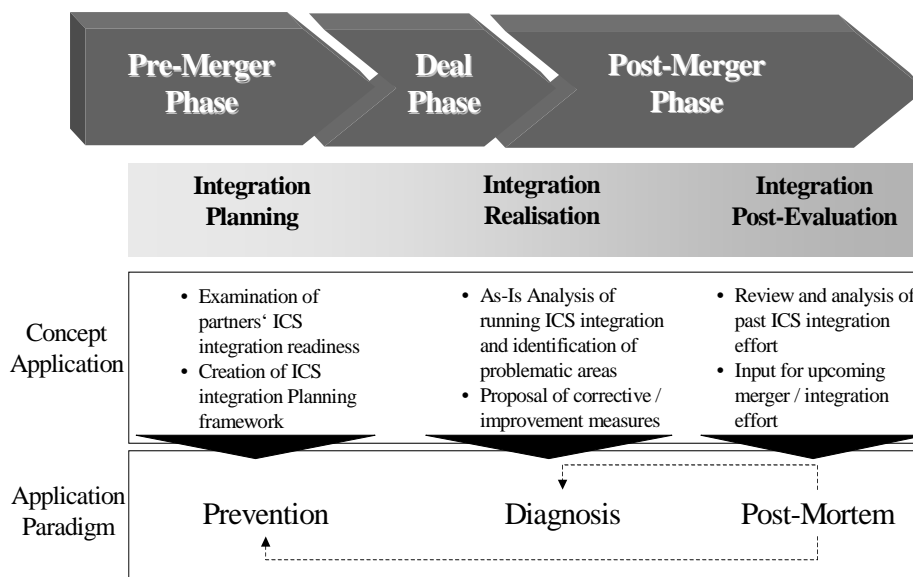
⁵¹ Lauritzen (2000)

⁵² Generally speaking, it is safe to assume that external human resources (i.e. consultants) tend to cost significantly more than internal ones. The risks associated with information and knowledge ‘leakage’ are also to be considered seriously in the sensitive environment surrounding a merger

⁵³ Over-formalising procedures implies loss of flexibility which can be detrimental for the success of a project (delays, frustration / tension, time-wasting, etc.). Hallowell (1999) warns against the uncontrolled and exaggerated usage of technological tools (especially electronic communication tools). The ‘human moment’ (i.e. psychological encounter when two or more people share the same physical space) is indispensable; its absence having consequences such as: anxiety, over-sensitivity, self-doubt, alienation, and aggression

may lead to ‘fading of the big picture’, which could in turn lead to misaligned activity and waste of effort and time.

Figure 4: Merger-phase applications of the POMICS concept



Initiation - merger feasibility and integration planning

Seeking all kinds of high-level ‘fits’ (i.e. strategic fit, cultural fit, etc.) before an eventual acquisition or merger does not ensure successful integration. The same applies for ICS-fit. Compatibility is not a guarantee for success, nor does incompatibility necessarily mean failure. Perhaps the real question to be asked is not: “*Is there a fit?*” but: “*Is integration feasible in a way that produces value?*”. Is not whether the information and communication systems are compatible in a technical sense, but if they can be integrated, expanded, and created as to support the intents of the merger.

- *POMICS and due diligence:* Before departing in the integration journey, it may prove valuable to critically examine the ‘ICS integration readiness’ of the merger partners. Even a high-level consideration of the identified elements (e.g. complexity of architectures, existence and status of programme management-related supporting processes and structures, etc.) in the pre-merger phase can help identify issues that may bring the entire integration process into a halt and ultimately provide with a more realistic estimation of costs and benefits
- *POMICS and integration master-plan:* It is widely believed that, integration should begin before the deal has been signed. In the previous chapter it has been argued that integration, or at least it’s planning, needs to start as early as possible in the process. Simply verbalising the concept’s elements (e.g. Evaluate ICS feasibility of the PMI visualisation) could form the basis for the post-merger ICS integration-planning framework. This planning framework can be phased, time-boxed and detailed as to form a usable ICS integration plan

Mid-way - during integration

Utilised as an analytical framework during the integration effort, POMICS may, due to its holistic nature, assist in identifying the causes of problems. The real causes of operational problems often classified under the descriptions: “irrational politics” or “cultural differences”, may well have their origins on decisions / actions in the normative or strategic level. A holistic approach

reduces the risk of corrective measures ending up to be nothing more than a short-term treatment of symptoms. For example, the replacing an uncooperative project manager or sponsor with someone new could cause delays and result to a negative atmosphere, and may not deal with the real problem.

“If business unit managers choose not to cooperate in a synergy initiative, they usually have good reasons.”
(Goold & Cambell 1998, p.69)

After being worked-in, the replacement person may also become uncooperative for exactly the same reasons his / her predecessor did. At the worst case, dealing with ‘symptoms’, employing a series of ‘quick fixes’, may create other problems or risks (knock-on effect). For example, heavy usage of consultants to substitute for lack of internal resources, may deal with short-term staffing deficiencies, but on the other hand it is usually a too expensive option for the long-term and could result to a knowledge gap. Nor does it alone solve the resourcing problem in the medium- or long-term. Once the consultants have left, the lack of internal resources still remains. The application of an integrated framework, and the holistic approach it induces, improves the visibility of non-obvious symptom origins⁵⁴, thus allowing for more effective and lasting corrective measures⁵⁵.

After - from integration experience to knowledge

Even though post-merger integration has been primarily viewed as a unique event (or series of events) in a company’s history, there are those who claim that it is on the way of becoming the norm⁵⁶. Conducting ‘post-mortems’ of integration programmes and efforts is not just of value at the level of the academic / practitioner’s community as a whole, but also at the level of the individual organisation. Successful acquirers and integrators such as GE Capital and CISCO Systems, have this practice deeply embedded into their merger methods and practices. The POMICS framework can be used for a systematic post-evaluation of an ICS integration programme, hence facilitating organisational learning.

Framework limitations

The systemic complexity of cause and effect in merger-related activities cannot in principle be dealt with in its entirety. More specifically:

- *High dependence on quality of input:* It follows that the proposed concept is not meant as a panacea, but rather as a help medium. Whether or not it proves of any value to both research and practice depends entirely on the input’s quality and depth of understanding. It can be strongly argued that, there is indeed no management approach, framework, concept, or methodology that can substitute for human creativity and intellect⁵⁷. This practically dogmatic belief applies to the entirety of management endeavour, including mergers. The abilities, capacities, and experience of the people involved are the largest determinant of success or failure. Propositions, such as the newly introduced concept / framework, can nevertheless augment those human inputs
- *More to PMI than ICS integration:* It has been argued that successful integration of ICS is often a major prerequisite for the creation of synergy value in mergers. But it is not the only

⁵⁴ With hindsight they might indeed be obvious. However, the pressures present during integration may often prevent the participants from seeing the obvious

⁵⁵ The term ‘counter-measures’ is avoided here, because the focus is on dealing with the problem in its root and not just counter-acting. To illustrate the difference, an analogy from medicine might be useful. Taking an aspirin to deal with a headache is a counter-measure. Establishing that the headache(s) is due to de-hydration, and subsequently increasing water-intake is a corrective measure

⁵⁶ Komus & Reiter (2000), Wall & Wall (2000)

⁵⁷ Goold & Cambell (2000)

one! Integrating organisational structures, human resources and their management, financial assets, markets and brands, and corporate responsibilities are all elements of a successful and complete integration effort. Even though there are potential interfaces between the POMICS framework and those areas, the framework does not cover them in their entirety. Nor is it intended to! The intention here is to avoid creating yet another all-encompassing integration manual or to-do list

- *Consideration of socio-psychological aspects:* Within the elaboration of the framework's elements, it may appear that cultural and other soft factors enjoy limited coverage. This is not meant to reduce their significance or relevance. Arguably, organisational change is an integral part of any kind of PMI effort and hence highly relevant. Moreover, information and communication systems are perceived as primarily social systems, depending on technology for their function⁵⁸. Nonetheless, the purpose of the proposed analytical framework is ICS-related action, ultimately aiming at the timely realisation of merger value. Strictly speaking, full-scale cultural integration is too sizeable and time-consuming to be of practical value in the time-pressured PMI context. Such an effort involves a process potentially lasting more than a couple of years (or even decades!). A selective approach is preferable here. Change management and communication ought to be targeted to the problematic areas of the specific situation at hand, always being directly linked to the creation of value

Further research

The proposed framework is by no means exempt from improvement and / or expansion. More specifically:

- *POMICS-content improvement through practical application:* Baring in mind our starting point (i.e. need for a holistic consideration), it is neither realistic nor useful to further specify or detail the framework at this point. Nonetheless, it is also a fact that each POMICS element is subject to a relatively vast area of research. Thus their contents can certainly be detailed to meet context-specific analytical requirements (e.g. POMICS for research / analysis of service sector mergers). Along with evaluating the applicability and usefulness of the framework, experience with utilising it could reveal potential insights and meaningful improvements on its contents (i.e. within the POMICS elements or on their dependencies to one another). In other words POMICS, as presented here, can be perceived as a starting point to be gradually refined through its utilisation in various contexts or case-studies
- *Structural logic transplantation in other PMI areas of interest and subsequent synthesis:* Assuming that the first three POMICS elements are valid and remain applicable for indeed all areas to be integrated, adaptations of the remaining elements could be also applied to areas such as HR⁵⁹ or brand consolidation for example. In other words, accepting a widely - applicable level of normative analysis (value, visualisation, and integration rules elements), one could conduct strategic and operational analysis on other integration areas, following an analogous logic to POMICS. By applying the same principles of analysis to other integration areas, one could, after synthesising them, possibly end up with a comprehensive analytical framework for PMI as a whole. The advantage would be a consistent analytical logic applied to the different integration areas / domains, plus an overview of the interrelationships between them.

⁵⁸ Land & Hirschheim (1983)

⁵⁹ Following Gomez's value-centric approach, a framework for post merger HR integration, could for example contain the following elements: Merger value, PMI visualisation, integration rules, HRM competence, HR integration strategy, HR development/selection/retention process, HR project organisation

Conclusion

Instead of following the ‘recipe book’ tradition of merger literature, an attempt has been made to enhance the process of understanding each and every PMI context, with particular emphasis on ICS integration. The uniqueness characterising every merger renders generalised advice impracticable at best, and harmful at most. For example, it would be risky to assert that iterative development methods are always preferable for post-merger ICS integration. For it may well be that the qualifications and experience of the development staff, combined with a simple system landscape and relatively stable business requirements, support the adoption of a linear development approach. Similarly, there is no best ICS strategy. Each of the generic strategies mentioned, have advantages and disadvantages, their weight varying according to the particularities of ICS management competence and perceived integration rules.

Effective management is not limited to the optimum choices within each of the POMICS elements, but also on the harmony between the different elements. The proposed framework offers a possibility to capture and mentally structure various levels or analysis, providing a holistic understanding of the integration-related systemic dependencies. Moreover, it provides a basis for continuously evaluating those dependencies through time⁶⁰. Given the evident action-orientation characterising integration activity, such an effort can only be beneficial. Haphazard and stress-induced measures and counter-actions, based more on dogma than on understanding, could do more harm than good; especially in the crucial area of ICS.

At this point, one is reminded of the ‘speed trap’ anecdote⁶¹: A farmer on his way to the market, with a full-cart of apples, asks a villager how long it would take to get into town. The villager’s cryptic reply is: “An hour if you go slowly or a day if you go fast!”. Running fast on a bumpy road, would cause apples to fall off the cart, leading to a waste of time collecting them. Ancient Romans would advice: *festina lente*, which advocates the importance of ‘hurrying slowly’. Post merger ICS integration is indeed a ‘bumpy road’, and there is a lot of pressure to reach the ‘market’ in time. Armed with a conceptual tool, assisting towards a reasonable appreciation of a (post)merger context in a structured manner, enables those involved to hurry... slowly!

⁶⁰ This is the reason the framework is illustrated as a cycle. The status of the framework elements and their interaction is likely to develop / change over time (during the integration effort). Therefore, a continuous re-visiting is necessary throughout the entire integration effort

⁶¹ Perlow & Williams (2003), p.56

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