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Designing a New Organisation: A Complexity Approach

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Abstract: Organisations often assume that it is possible to ‘design’ an organisation in the same way that engineers can design a new product, but this is an erroneous assumption and the repeated failure of organisational restructuring provides significant evidence that a different approach is required. The paper will describe an alternative approach based on the logic of complexity, with reference to a specific case. It will also describe the different qualitative and quantitative tools and methods used that helped to identify the social, cultural, technical and political conditions that together led to the co-creation of an enabling framework as the basis for the ‘design’ of a new organisation.

Key words: complexity, organisational design, enabling framework, new ways of organising, distributed leadership.

Introduction

Human systems are complex in the sense that they are able to self-organise, to influence each other and be influenced in turn, and this reciprocal influence can change ideas, behaviour, ways of thinking, working and relating - that is, humans are able to co-evolve, to self-organise and to create something new that is emergent in the sense that it could not have been predicted at the outset. They create intricate networks of relationships sustained through communication and other forms of feedback, with varying degrees of inter-dependence. Although heavily influenced by their history and culture they can transcend both when necessary. When they meet a constraint they are able to explore the space of possibilities and find a different way of doing things, i.e. they are creative and innovative. However, they can also develop patterns of behaviour that when repeated over and over again, become very difficult to change; yet when that pattern finally collapses they are able to start something totally new - but not always!

Organisational restructuring often attempts to create a new organisational form or way of organising by merely changing the structure, while repeating old dysfunctional patterns of

behaviour. An alternative approach might be to identify the conditions that both enabled and constrained the attainment of objectives in the 'old' organisation, and to co-create a new environment that may help to avoid the repetition of dysfunctional patterns of behaviour, while building on the enablers. The paper will describe a process, as part of an integrated methodology, which helped an organisation in the Public Sector in the UK, to design a new organisation that would facilitate creativity and innovation and become agile and robust.

The old organisation (OldOrg) was part of a very large public sector service provider. It had been set up to help the parent become more innovative by identifying and sharing new ideas, procedures and processes throughout the parent organisation. OldOrg had grown from 50 to 850 employees in two years; it did so by taking over the activities of several disparate projects that already existed within the parent organisation. One of the consequences of this growth by acquisition was a lack of clarity of identity. Individuals felt greater allegiance to their project than to OldOrg as an entity. This was characterised by a lack of coherence in its policies and lack of communication between the projects; it was also evident in the interaction of its 70 senior managers when meeting as a management team.

The research project with the LSE Complexity Research Group started in September 2003. At that time the LSE team was asked to work with the senior management group and to reflect back to them the characteristics that enabled and constrained the aims of OldOrg, using the principles of complexity. However, at the same time that the work was taking place the Government decided to restructure OldOrg. The LSE team then worked with a small core group from OldOrg to help them identify the **social, cultural, technical, economic and political conditions of an enabling framework, that would help them achieve the aims and objectives of NewOrg**. An enabling framework provides a different approach to 'designing' organisations, based on the theory of complexity. It is a dual bottom-up and top-down approach, based on the co-creation of an enabling environment with significant involvement from employees. It provides clarity of direction but allows the organisational form to co-evolve with its changing environment.

The logic is that if organisations can grow organically, then they can explore possible alternatives and find the most appropriate ways of working suitable to the task; this is not an argument for total lack of structure or accountability or leadership. All those are necessary, but this approach suggests that structure needs to be sufficiently flexible to allow for self-organisation, emergence and co-evolution. Organisations, both in the private and public sectors that have adopted this approach found that individual responsibility increased to a significant degree and accountability became clearer and stronger. They also found that they developed true distributed leadership, as everyone acted as a responsible agent working towards a shared vision, exploring possibilities and taking initiatives that nevertheless fitted well into the overall strategic direction. They achieved this through a strong network of relationships and peer support (rather than pressure).

The official 'leader' then became a person who held that space for them, negotiated with other stakeholders and was free to scan the horizon for new patterns and to influence the overall direction; as well as to facilitate new partnerships with others in the same and related industries.

The paper is in 4 parts. The first describes the various tools and methods used in the OldOrg case, the second describes the contribution of complexity, the third outlines the benefits and the fourth describes some of the findings in terms of the Enabling Framework.

1. METHODOLOGY

The tools and methods used in the OldOrg case were the following (for a fuller discussion on the methodology and a description of all the tools and methods used in the Integrated Methodology, please see two papers by Mitleton-Kelly E.¹):

- a. **In-depth semi-structured interviews** with 22 members of the senior management group. The transcripts were analysed by four researchers to identify common themes, key questions, dilemmas (equally desirable objectives that cannot apparently be achieved at the same time) and underlying assumptions. Individual respondents are seen as fractal representatives of the whole, not as a statistical sample. This approach, as well as the power of the interviewing method and the analysis mean that relatively small numbers are needed.
- b. Diagnosis of preference profiles based on an email questionnaire (60 questionnaires were returned, giving a response rate of 70%) - the tool used is known as the **Landscape of the Mind (LoM)**² This provided a group profile as well as individual profiles.
- c. **Individual feedback sessions on LoM profiles**. This provided individuals with a fuller understanding of the tool as well as discussing individual profiles. These sessions are confidential.
- d. **Reflect Back Workshop** with the interviewees and others to validate the findings both from the interviews and LoM.
- e. **Mapping of email connectivity**, to show formal and informal networks within and across teams and projects - the tool is known as **NetMap**³. It had access to a server that covered at least half of the 850 employees within the organisation.
- f. Four LSE researchers were involved in the project and the analysis; they also **attended meetings** of the senior management group and one conference. This provided significant understanding of the issues in different working settings.
- g. Three meetings of a **Core Group** to identify the conditions for an enabling framework that will contribute to the design of the new organisation. Based on the report from the interview findings and their own experience, the Core Group identified patterns of behaviour that proved generative and could be further developed in the new organisation and those patterns that should be avoided. They also identified the social, cultural, technical and political conditions for an enabling environment for the new organisation, as well as those conditions that might facilitate or inhibit the enabling environment.
- h. A professional **facilitator**⁴ facilitated the Reflect Back Workshop and Core Group meetings.

¹ **Mitleton-Kelly E. 2003** 'Complexity Research - Approaches and Methods: The LSE Complexity Group Integrated Methodology' in Keskinen A, Aaltonen M, Mitleton-Kelly E "Organisational Complexity". Foreword by Stuart Kauffman. Scientific Papers 1/2003, TUTU Publications, Finland Futures Research Centre, Helsinki
Mitleton-Kelly E., Puszczynski L.R. 2005 (in print) 'An Integrated Methodology to Facilitate The Emergence of New Ways of Organising' in Unifying Themes in Complex Systems, Vol. V, NECSI Knowledge Press
Both papers are available on <http://www.lse.ac.uk/complexity>

² LoM has been developed by Kate Hopkinson [hopkinson@innerskills.co.uk]

³ NetMap was developed by Prof. John Galloway [JGalloway@netmap.com.au]

⁴ The facilitator was Nazreen A. Subhan [nazreen_phoenix@hotmail.com] who is also a change agent

- i. **Complexity Thinking** Workshops to introduce the theory (Mitleton-Kelly E. 2003⁵) to OldOrg members and to discuss its application in day-to-day operations. The application of the theory has been tested with several organisations including Rolls-Royce, Shell, BT, Humberside Training & Enterprise Council, the World Bank (Washington DC), Citibank (New York), and many others. It provides a rigorous and robust theoretical underpinning to strategy, the re-design of organisations, leadership, innovation, etc.

The methodology provided significant **weight of evidence** using different methods and tools that complemented each other; and **validated** the findings through the Reflect-Back Workshop, the 3 Core Group meetings and discussions with individuals.

2. CONTRIBUTION OF COMPLEXITY

Complex behaviour of systems arises from the *inter-relationship*, *interaction*, and *inter-connectivity* of elements within a system and between a system and its environment. These relationships also create intricate *interdependencies* throughout a system. In a human system, connectivity and interdependence mean that a decision or action by any individual (group, organisation, institution, or human system) may affect related individuals and systems. When this influence is in one direction we may see *adaptation* of one entity as a response to the influence of other entities (or collectively, the influence of the environment or ecosystem). When the influence and response are reciprocal we may see *co-evolution* or change in all interacting entities. Both Netmap and Agent Based Modelling (ABM was not used with OldOrg.) show the interaction of individuals and the *emergent* properties (e.g. patterns of connectivity, informal groups, etc) that arise as a result of that interaction. The connections are also good indicators of feedback; Netmap in particular acts as an indicator of feedback as it depends on an exchange of emails (or other media) and information (we are aware however that no such tool can provide an exhaustive picture on all feedback processes). Both tools also show *self-organisation* and when repeated they can show the *evolution of relationships* over time. Landscape of the Mind (LoM) also looks at individuals and the way they relate within a group, in other words LoM can show *epistatic interactions* — i.e. the extent to which the fitness contribution made by one individual depends on related individuals. Complexity principles are scale invariant and apply to all scales from the individual, to the group and the whole organisation. All three tools can show characteristics at different scales. Working with these tools an organisation is also able to look at alternatives and thus *explore its spaces of possibilities*.

Connectivity and interdependence is one aspect of how complex behaviour arises. Another important and closely related aspect is that complex systems are *multidimensional*, and all the dimensions interact and influence each other. In a human context the social, cultural, technical, economic, political and global dimensions may impinge upon and influence each other. The narrative analysis based on the interviews can identify these multiple dimensions as well as the connectivities, interdependencies, self-organisation, co-evolution, far-from-equilibrium conditions, historicity and time, feedback, emergence, path-dependence and the creation of new order. In the later stages of the methodology, when the

⁵ Mitleton-Kelly, E. Chapter 2 'Ten Principles of Complexity & Enabling Infrastructures' in 'Complex Systems and Evolutionary Perspectives on Organisations: The Application of Complexity Theory to Organisations' Elsevier 2003, ISBN: 0-08-043957-8

research team works closely with a core group from the organisation to identify the conditions for the enabling framework and finally when the organisation co-creates an enabling environment, all the principles come into play. This process is supported by the Complexity Thinking Workshops when members of the organisation are introduced to complexity thinking and its language. It continues throughout a project as the theory is constantly exemplified through practical examples from the organisation, thus making the theory tangible and accessible.

Complexity, however, is not a methodology or a set of tools. Complexity theory provides a conceptual framework, **a way of thinking**, and **a way of seeing the world**. The way it has been articulated and used by the LSE Complexity Group is that any complex evolving system has a set of characteristics or principles. When all of these characteristics are evident and the system is able to create new order, then it may be called ‘complex’ otherwise it is ‘complicated’. Any methodology that purports to be based on complexity must therefore be based on those principles.

Why So Many Tools?

We use so many tools because they triangulate the data and provide robust and rigorous findings. But that is not the only reason. They each provide different but complementary information about the organisation. So when several tools and methods are used the organisation ends up with a very rich and deep understanding of itself. The findings can then be used as an informed basis for building the enabling infrastructure. This last part is a **co-creation** activity. We work with a core team of ‘volunteers who can make a difference’ to identify the social, cultural and technical conditions (within a political and economic context) that together will help the organisation co-create the kind of environment conducive to change and the emergence of new ways of organising (ways of working and relating). But this is not a one-off process, the new ways of thinking based on complexity, the new relationships, procedures, processes, structures, etc need to become embedded in the business culture if they are to be sustainable. Ideally, the organisation will build the capacity to continue the process of *co-evolutionary sustainability*.

When the tools are used a second or third time in a longitudinal study, they show organisational evolution over time. However, the emphasis on co-creation and collaboration keeps the research team in close touch with the business partner and helps to monitor these changes. To facilitate reflection on organisational evolution, we also hold regular reflecting meetings within the team as well as with our business partners.

It is not necessary to use all the tools and we may choose the most appropriate 2-3 to use in each case. In addition, there are regular **inter-organisational workshops** and meetings with the **business and academic Advisors**. These help learning between partners.

We use these specific tools and methods because at present we find them relevant and appropriate to a methodology using the logic of complexity. Individual tools and methods may be familiar to our business partners (some are well established) and their familiarity is an advantage as it provides a useful transition from the known and familiar towards the new and unfamiliar concepts of complexity. There could also be other tools that could be used and we are constantly exploring new ideas. The methodology is not, and cannot be, static. It has to evolve and to co-evolve with the needs of our business partners and the requirements of sound research. **In addition the methodology is NOT just a set of tools - it is about connectivity,**

collaboration and co-creation - but also about enabling individuals and teams to self-organise, and about being open to a significant degree of emergence and innovation.

3. THE BENEFITS

Organisations want to perform efficiently and effectively. But if organisations are complex evolving systems with a specific purpose, we need new ways such as those based on complexity theory to review and understand areas in which organisational performance can be improved. In the case under discussion, the project was influential in evaluating the change process in the OldOrg and in designing the NewOrg. Our business partners describe the contribution of the research project thus:

“An enabling framework for the new organisation

This work has assisted in ensuring that a wide variety of lessons were learned from the setting up and operation of the ‘OldOrg’ to ensure that they were not replicated in the ‘NewOrg’. This has been of substantial benefit, and much of the research has been built into, for example, new business processes as part of the enabling framework.

Co-creation and co-development: our learning about complex adaptive systems has been extensive. A feature of complexity has been the notion of co-evolution and co-creation with our systems partners. This has influenced our strategy to develop the new organisation and its products. A key design feature of the systems and processes of the new organisation has been the explicit design-in of the voice of our customers and stakeholders.

Evaluation: The outcomes from this work are being used as part of the evaluation of the overall Change Process within the MA over the past 18 months.”

4. THE ENABLING FRAMEWORK

The following conditions for an enabling framework are based on all the findings and on work done with the Core Group. The social, cultural, technical and political conditions have to be seen as a whole and cannot be separated. A complex organisation exists within a complex social ecosystem where all the conditions interact and influence each other. When conditions are isolated then they become unrealistic as they are taken out of their rich co-evolving context. Some 23 recommendations were made to help facilitate this.

The following section is an edited extract (to protect the identity of the organisation) from the Findings Report and outlines both the conditions and the relevant recommendations for designing the enabling framework of the NewOrg. Most of the conditions given, however, would also be relevant to other organisations.

a. Cultural Conditions

Clear vision and clear scope: the new organisation needed to be clear about its purpose and function, about what the organisation was tasked to do and what did not come within its remit. This was unclear for the OldOrg and created a great deal of uncertainty.

When the scope is clear then demonstrating the impact and the implications of actions and initiatives will also become easier.

Corporate identity and brand: OldOrg felt fragmented and did not have an overall **corporate identity**. This was one of the main themes repeated by most interviewees. It felt like a conglomerate of disparate parts. Having a strong corporate identity does not, however, mean uniformity. On the contrary a clear overarching identity provides the space for diversity and for the variety of skills, competences, ways of working and thinking that will be necessary for the new organisation.

Brand is different. This is the product that the organisation delivers. It can be one brand identified with the new organisation, giving it visibility and building its credibility.

Need to do things differently: “*everything we do will need to be focussed on impact, adoption and sustainability*”. There were many issues packed in these three themes, summarised by a Core Group member. Demonstrating impact was a weakness; but impact does not mean just measuring the *quantifiable* outcomes, it also means evaluating the *qualitative* impact on employees and others. **The new organisation will need to learn how to evaluate both quantitative and qualitative impact and to demonstrate that value.**

Adoption and sustainability are implicated with sharing the learning. The OldOrg placed a great deal of emphasis on the building and development of relationships, which should have facilitated the identification, capture and dissemination of learning, but this was patchy, excellent in some contexts, but poor in others. Successful sharing of learning involved a **sharing of values, trust, knowledge and experience**. The new organisation will need to **develop the skills to capture and disseminate learning**. Part of that skill development will involve **transferring the learning from successful experiments or initiatives**. It is impossible to precisely copy or to replicate a set of activities in a complex human system. Actions and decisions as well as initial conditions are always different when the context and the individuals involved change. But what can be done is to identify generaliseable principles, gather insights, and learn from the process that was undertaken, the mistakes and successes. **Identify the enabling and inhibiting conditions and offer them as a framework that others can adopt and adapt to their specific context.**

When the transfer of learning was successful in OldOrg, **three Cs** were always present: **communication, collaboration** and **co-creation**. It was not enough just to write about the case or to put it on a website, it needed a great deal more and OldOrg’s strength in developing good relationships was used to its maximum and produced the desired benefit.

Sustainability, however, means the continuing development of such an approach and makes learning an active process that feeds into making an organisation flexible and responsive to a changing environment. This does not mean blind adaptation to external changes, but active reciprocal influence or co-evolution with that environment. A clear vision is essential - but no vision is immutable. The argument here is for a balance between adaptation and influence. The two processes working to reciprocal advantage. This is called **co-evolutionary sustainability** and allows an organisation to change with a changing environment without constant restructuring, which has a high cost in terms of effort, resources and morale. Co-evolutionary sustainability does not always mean gradual change, but includes significant step changes, when necessary. Nor does it mean a loss of identity but an

evolution of that identity over time. Co-evolutionary sustainability could be seen as a primary objective for the new organisation.

Needing to do things differently may also mean looking afresh at how the job is done by **exploring** alternatives or the **space-of-possibilities**. However, exploring alternative solutions often means that not every experiment will work and those that do not succeed cannot be seen as failures, they are part of the exploration process. This process cannot happen within a blame-culture, it can only be effective in a culture that welcomes responsible experimentation.

A lack of readiness to improve or even active resistance to improvement within the parent organisation, created a great deal of tension in OldOrg, called the ‘burden of help’. OldOrg was expected to hold two incompatible roles: being invited in to help versus imposing improvement. This in turn led to a further tension or **dilemma**, which was **using a creative versus a directive style**. One way to resolve the tension or dilemma would be to demonstrate success through a supporting approach - by facilitating an enabling environment for those in the field to make the changes, rather than imposing change. Then creating the right climate for those that are weak and need to improve to *want* to change. Resistance is not always bloody mindedness - it often has an underlying rationale that needs to be understood and worked with. One example identified by OldOrg members was using incentives rather than performance management. Performance-based management, using inappropriate measurement, which was in turn based on what could easily be measured, exacerbated the tension. Seen from another perspective, OldOrg was asked to performance-manage the wrong things, which created the dilemma of pleasing one set of stakeholder versus meeting targets. The latter were quantitative measures that took priority and ignored both the positive and negative qualitative effects on employees and others.

One of the inhibitors to effective working within OldOrg was **fragmentation** of the teams and projects. Staff talked about “*working in silos*” and longed for greater integration. Fragmentation, by not treating all the stakeholders as a whole, gave different messages, which was confusing and often led to disenfranchised staff. Greater integration on the other hand facilitates cross-linkages and learning and increases the benefits exponentially. The new organisation will have to be very aware of this pattern of working and focus on greater integration, by involving all stakeholders and by improving the links between teams.

Another possibility to explore would be **distributed leadership and distributed power**. Large global corporates, are learning that distributed local power and leadership is the only way to manage large and diverse organisations. **Centralised control no longer works**. The parent organisation is a large employer; at its best it exemplifies the move to distributed leadership and power, but the pull towards centralised control is a constant counter force negating some of the benefits.

Finally the new organisation could provide a **reflective space for sense making**, for re-evaluating what needs to be done and how; for the **exploration of new possibilities**, facilitating **self organisation**, identifying **new patterns as they emerge** and pro-actively preparing the parent organisation to address new changes.

b. Social or Organisational Conditions

Many of the conditions discussed under culture above would also apply to this section. In addition, the new organisation will need appropriate **business and management systems** (i.e. ways of organizing time, money, people, bureaucratic dimension, project management), which are **continuously evaluated for appropriateness and relevance and are fit for purpose**. One of the weaknesses of OldOrg was lack of effective management systems and an effective cost model that could be used to justify its activities. In addition the strategic fit of the business systems was not questioned, since the strategic direction was not clear.

This was often confused with structure and much time and effort was expended in discussing the structure of the organisation, which became more cumbersome as OldOrg grew.

Both management systems and structure were identified with bureaucracy - but a small agile organisation should not need a bureaucratic structure. Once the new organisation knows what it needs to do it will need relevant systems to support it, to facilitate its work and to provide the necessary checks and balances required in a public body, but without a heavy bureaucratic overload.

“**Valuing staff**”, acknowledging their contribution and honouring their time was a weakness in OldOrg that will need to be addressed by the new organisation. Other examples were a need to improve **diary and time management** and to respect other peoples’ time.

Co-ordination of objectives would also be necessary. The OldOrg suffered from objectives agreed at different levels, by different people with little overall co-ordination. The new organisation will need to develop a **good governance model** that will be appropriate to its scope, function and size within a clear strategic direction. It will be a question of getting the balance right - and this cannot be a once for all time action. **In a constantly changing complex social ecosystem there is no single universal optimum, but many changing local optima.**

c. Technical Conditions

An **integrated IT system** to support staff would be essential for the new organisation, perhaps based on the current proposal for integration and the provision of a single IT system. The OldOrg had incompatible legacy IT systems and email that made life on the road extremely difficult, as the different systems did not ‘talk to each other’; files could often not be attached and access to certain information was awkward. In addition the system would often crash and much time was wasted trying to restart it. Technical problems absorbed too much valuable time, from the job at hand.

A better understanding of the use of technology and how it can contribute to improvement would also be essential. Technological innovation would need to co-evolve with organisational improvement innovation. The lack of alignment of understanding of (a) what the technology can offer and (b) what the organisation needs currently and in the future, is a problem faced by many organisations. Some have resolved it through greater interaction between the IT technologists and the users and the new organisation will need to build in this type of continuing interaction. Technology could also be utilised to demonstrate success, impact and ROI in a robust way.

The different systems also meant different standards were used and OldOrg members asked for agreement on best practice. Furthermore, ensuring that the back-end (infrastructure) was correct and stayed constant would allow the front-end (applications) to remain flexible and to respond to changes in the organisation. Furthermore an appropriate and effective technology infrastructure would help with information management, to connect and capture both internal and external knowledge.

Another issue was retaining the experience and knowledge when people leave. One way to retain it would be to migrate the information to a good IT system and this would certainly help. However it is worth noting that this would not capture the experiential learning of each individual. So other ways will need to be found to share the experience and knowledge.

d. Political Conditions

The political environment of the new organisation is changing and the following issues will therefore need to be addressed.

Clarity of vision with clear agreement from the parent organisation, to ensure adherence to the vision, purpose and function of the new organisation.

Strong leadership with political awareness to help position the new organisation effectively in the changing political environment. Identifying those who set the agenda would be part of the job, ensuring that the new organisation will be agile within the political system. The new organisation should be able to both influence and be influenced in the appropriate way - i.e. **to co-evolve effectively within the political environment.**

Clarity on who will be the new organisation's sponsors, paymasters and customers. These roles were not always clear for the OldOrg and adversely influenced the way the work and its impact were evaluated.

CONCLUSION

If organisations are seen as complex evolving systems that need to co-evolve with a constantly changing environment, then the 'design' of a new organisation, needs to be considered from a new perspective. Organisational restructuring, when it focuses primarily on the structure of the organisation is not enough. All the key conditions need to be seen as a whole, with dimensions that interact and influence each other. Therefore the social, cultural, technical, political, economic (and other relevant) conditions need to be considered. This includes ways of thinking and relating, as the old mental models also need to change. It is therefore a process of constant learning and reciprocal influence creating new structures, procedures, processes, relationships and ways of thinking.

Working collaboratively with organisations in both the private and public sectors in the UK and USA over a period of ten years to apply the principles of complexity has led to some insights. One is that true collaborative working, with genuine involvement of staff at all levels, helps to co-create a flexible and responsive culture and an organisational form that becomes very responsive to needed changes. Another is that distributed leadership, distributed intelligence and distributed power throughout the organisation contributes significantly to its survival through engagement and constant innovation. Innovation is also enhanced by

facilitating self-organisation and the exploration of alternative solutions. But such exploration needs to be done within a 'no-blame' culture. That does not mean that individuals have free rein; when they are trusted to look after the interests of the organisation they develop a strong sense of accountability and responsibility and they do work within self-imposed boundaries. Furthermore, any 'mistakes' or 'misjudgements' tend to be corrected through peer support.

As in the case of OldOrg, clarity of vision and direction are essential. This allows for local exploration of alternative solutions to achieve the vision and thus provides the organisation with multiple micro-strategies for attaining its goals. So when external conditions change it is prepared and is not hampered by a single and no longer appropriate strategy. But exploration by itself is not enough, as with OldOrg, it worked best when the 3 'Cs' were present: communication, collaboration and co-creation. This ensured that good ideas were shared and one part learned from the other. It also meant that when working collaboratively across silos (whether functions or different projects) they were able to co-create something new and innovative and finally to co-create a new organisational form for NewOrg.

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