Motivations

- Major impact
- Vested interests
- Hype/scepticism
- Gaps in research *(too little)*
- Timing *(too late)*

Aims

- To offer an independent view of e-business
- To focus on human and organisational issues
- To present some propositions and predictions

Structure

- Definition
- Review
- ‘Building Blocks’
- Performance
- Interpretation – a systems perspective
- Predictions
- Summary

Preamble

- Speculative – feedback
- Organisational Psychologist
- Focus on existing businesses
- Abstract
Definition

b2b
b2c

Review

Massive uptake
Fundamental changes
b2b > b2c
USA > Europe
UK = European average
New skills
New opportunities
Dispersed/virtual working
Changing relationships
New business models and way of working
Re-alignment (tech., process and supply chains)
Empowered employees
Co-ordinated change

Building blocks

New information and communications technologies
New relationships and ways of working in supply chains
New business processes
Empowered employees

Core proposition

To be effective and successful at e-business working, organisations will need to be able to understand and manage these four areas effectively

Performance

ICTs
SCP
BPR
Empowerment

ICTs

OASIG, DTI and ESRC
94-96
45 experts (research and consultancy)
14,000 organisations
40% outright failures
10%-20% outright successes
Rest partial successes
Clegg et al., (1997)
Supply chains

Detailed study of three chains in the packaging supply
Focus on immediate links
No evidence of managing complete chain
No evidence of any ‘supply chain management’
Icasati-Johanson et al., (2000)

Business Process Thinking and re-design

Survey of 168 UK-based organisations
Only 18% of users of BPR achieved ‘breakthrough’ results
Most companies had ‘aimed low and hit low’
Willocks (1995)

Empowerment

Difficult to assess
Study of 101 SMEs
Richness, variety and responsibility of shopfloor jobs
Moderate degree or more on these were 34%, 27% and 32% respectively
Around 1/3rd of these companies were using some degree of employee empowerment
Overestimate?
Patterson (2001)

"Despite all the talk and the change programs, empowerment is still mostly an illusion"
Argyris (1998)

UK Manufacturing Companies

Telephone survey
Random stratified sample all UK manufacturing companies (150 or more employees)
By size and by sector
564 completed responses
A sample of 10% of the population
Rates of use and effectiveness of 12 modern manufacturing practices
Waterson et al., (1999)
Conclusions

Not claiming no instances of success

Evidence from surveys, expert panels and case studies

Rates of substantial uptake are lower than one might expect

Rates of effectiveness of the practices are also relatively low

Very few companies have substantial experience of using all four of these practices at the same time (around 2% of the sample)

Track record (experience and success) in the UK in designing, implementing and managing new technologies, supply chains, business process thinking and employee empowerment is not good

Interpretations

Many organisations are not good at understanding and managing complex systems

Number of organisation that routinely adopt a systems view of their products, but do not extend this perspective to their processes
Interpretations Cont.

E-business will require a systemic understanding of the new enabling technologies, the supply chain partnerships, the new business processes, empowered employees, and the relationships between them.

Grounds for scepticism

If currently poor at systemic thinking with their internal workings, what chance do they stand when they are trying to understand and manage more extended and networked relationships and processes?

Predictions

Current rates of use and success with them do not bode well

New developments of the kind made possible by e-business will be subject to the same difficulties

Why should it be any different?

Getting harder?

Systemic thinking will get more difficult as systems:

Become more inter-organisational and international (i.e., potentially, become more complex);

Come under more pressure to reduce lead-times (i.e., become more tightly coupled);

Involve more complex interactions between people and technology;

The majority of companies are going to experience considerable difficulty in achieving their goals with e-business.
Remarks

Predictions = risk

Await outcomes?

Legitimate – research-based and reasoned?

Clear

Why wait?

Propositions

Proposition 1

Success at e-business working will require the effective management of new technology, supply chains, business processes and empowered employees

Proposition 2

There is little (or no) evidence that UK companies are strong in these areas

Proposition 3

Effectiveness in these areas requires a systemic view

Proposition 4

Unfortunately, companies find this way of thinking and managing difficult, even within their own organisational boundaries

Predictions

Prediction 1

Many companies will experience great difficulty co-ordinating and managing these core building blocks of e-business effectively

Prediction 2

Managing e-business will be more difficult than traditional management activities, as the systems become potentially more complex, more tightly coupled, and increasingly involve complex interrelations between people, organisations and technology

Prediction 3

Based on the above, the vast majority of e-business ventures will fail to meet their objectives, at least in the short to medium term
e-Business:  
Boom or Gloom?

Boom in usage  
Gloom in effectiveness

Retort

"Ok, let’s assume you are right in your analysis and in your predictions – what do we do about it?"

Ideas

New ways of working  
Integrated system design  
Multi-disciplinary design  
User ownership  
Evaluation/learning  
Sociotechnical venture

**e-business: boom or gloom?**

**No more bets**

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**Abstract.**

In this essay we offer some propositions and predictions about the future conduct and effectiveness of e-business. We argue that successful e-business activity will require the effective management of certain core ‘building blocks’. These are concerned with new technology, supply chain relationships, business processes and empowered employees. We argue that our track record in the UK is poor in these areas, in large part because many organisations lack a systemic understanding of these issues and the relationships between them. We predict that such systemic understanding will get harder for organisations (as systems get more complex and tightly coupled) and that the majority of e-business ventures, in the short to medium term, will fail to meet their objectives.

1. **Introduction**

Our purpose in this short polemic is to make some propositions and predictions regarding the future of e-business. In this, we are motivated by five main considerations.

First, e-business seems set to have a major impact on how organisations and the people in them work. Whilst the extent of uptake of e-business remains an open question, and the nature of its impact remains largely uncharted territory, most
commentators and practitioners appear to believe there is scope for substantial and radical change.

Second, it is apparent that much of the activity in this field is being led and shaped by organisations with a vested interest in its development. Whilst this is not unusual, it heightens the need for other impartial, and potentially more critical, perspectives.

Third, and in part for the two reasons above, the area is attracting considerable interest, carrying with it the dangers of hyperbole. For example, Andy Grove, the chairman of Intel, predicted in 1999 that, within five years, all companies will be Internet companies, or they won’t exist. Others remain somewhat sceptical about this apparent imperative, in part based on experiences of the hype that surrounded earlier fads and fashions. For example, we ourselves recall earlier predictions of paper-less offices and people-less factories which have proved to be largely unfounded.

Fourth, whilst some early research is being undertaken, most, to date, has examined technological, economic and market issues (for example, see Timmers, 1999; Shaw, Blanning, Strader & Whinston, 2000; Dedman, 1998; Hendry, 1995; Ody, 1998; Stewart, 1998; Herman, 1996; Thompson, 1997). There has been relatively little work undertaken on the human and organisational aspects of e-business.

And fifth, we are keenly aware that the work of social scientists often arrives on the scene too late to make a difference. Quite properly, our empirical work typically involves the study of existing phenomena. But the lead times of research, development and exploitation (technology transfer) are such that our suggestions for new phenomena can arrive 5 years or more after the introduction of the first wave.

As such our aims in this essay are:

- to offer a view of e-business, independent of any commercial interest;
- to focus explicitly on some of the human and organisational issues so often neglected in new fields of endeavour;
- to offer a prospective view, presenting some propositions and predictions regarding the conduct and effectiveness of e-business.

Our essay is organised in seven short sections. First, we offer a definition of e-business. Second, we review the research that so far has examined e-business. Third, we use this evidence, along with our own experiences, to identify a set of ‘building blocks’ that we believe will be significant for the future conduct of e-business working. Fourth, we then review how well we in the UK perform in these areas at present. We argue the evidence is not encouraging. Fifth, we argue the need to adopt a systems perspective and, we then use this perspective to make some predictions about the future success of e-business. We close with a summary of our argument.

2. **Definition of e-business**

This field of activity is relatively immature and evolving rapidly, and as such no single definition of the term has become accepted as the universal norm. For the purposes of this essay, we are including both business to business (B2B), and business to consumer (B2C) transactions and relationships. We define e-business as the transaction of commercial activities on global open networks, such as the internet and intranets, between an ever-increasing number of corporate and individual participants (Richmond, Power & O’Sullivan, 1998, p. 8).
3. Review

A wide range of business and government sources are predicting that a massive uptake of e-business, particularly of B2B, will result in fundamental changes to the ways in which companies conduct their business (Andersen Consulting and Investors in People UK, 1998; KPMG, 1998; Coyle, 1999; Leadbetter, 1999; Economist Intelligence Unit, 2000; Cairncross, 2000). For example, Merrill Lynch (2000) report that by 1999 there were approximately 250 million users of the internet world-wide. Although approximately one quarter of these made purchases on-line, e-commerce transactions (B2C) only account for tiny proportions of GDP. Whilst the total global e-business market in 2000 was estimated to be of the value of around $660 billion, 90% of this comprised B2B, the remainder B2C. Uptake in Europe for B2B is approximately 20% of that in the US, though with some catching up predicted. UK levels are close to the European average.

Some early research has approached the subject from a more human and organisational perspective, and predicted a number of effects as listed below. These include:

- The need for a whole new set of employee skills (Andersen Consulting and Investors in People UK, 1998);

- The opportunity for companies to increase the numbers of potential suppliers, and for smaller companies to reach a larger transnational client base (Leadbetter, 1999);

- Changes in job content, away from burdensome clerical labour, along with the creation of new kinds of work, such as call centres (IRS, 2000);

- A reduction in face-to-face contact and an increase in the opportunities for dispersed or virtual teams (Franklin, 1997; Andersen Consulting and Investors in People UK, 1998; PriceWaterhouseCoopers, 1999);

- Changes in the quality and quantity of intra- and inter-company communication (Andersen Consulting and Investors in People UK, 1998; PriceWaterhouseCoopers, 1999);

- Changes in inter-organisational relationships (O'Connor & Galvin, 1998; PriceWaterhouseCoopers, 1999). In particular, an increase in information-sharing, co-operation and integration across members of a supply chain (Donington, 1995; O'Connor & Galvin, 1998), and the need for trust as the basis of enduring collaborative relationships (Donington, 1995; Richmond, Power & O'Sullivan, 1998);

- The development of a new business model and new ways of thinking about doing business (Coyle, 1999);

- A re-alignment of technology, business processes and supply chain relationships (PriceWaterhouseCoopers, 1999; Timmers, 1999; Richmond, Power & O'Sullivan, 1998);

- A recognition that the economic benefits from investment in new technology only occur when combined with organisational changes (Merrill Lynch, 2000). More
specifically, recognition of the need to harmonise technology and process (Bray, 2000), that “business practices may need as much attention as technology” (Bray, 2000, p. 13) and that companies need more than good technology to make the most of the internet. They need to make a host of other human and organisational changes in a co-ordinated fashion (Cairncross, 2000). This includes the need for intelligent and empowered employees.

4. **Building blocks**

Our interpretation of the above early work is that it enables us to identify a set of critical building blocks that need to be in place for the successful conduct of e-business. E-business will require that the organisations attempting to work in this way will be able to manage certain critical areas well. These include:

- new information and communications technologies
- new relationships and ways of working in their supply chains
- new business processes (that cut across organisations)
- empowered employees.

The core proposition then is simple. To be effective and successful at e-business working, organisations will need to be able to understand and manage these four areas effectively.

5. **Performance to date**

In this section, we briefly consider the evidence on how well organisations manage these areas, with particular focus on the UK. Unfortunately, the evidence from surveys, expert panels and case studies reveals that our track record in the UK in designing, implementing and managing new technologies, supply chains, business process thinking and employee empowerment is not good. (See for example, Holman, Axtell, Clegg, Pepper, Waterson, Cantista & Older-Gray, 2000; Cairncross, 1998; Hanson, Voss, Blackmon & Claxton, 1994; Gibbs, 1997; Icasati-Johanson, Axtell & Clegg, 2000; Richmond, Power & O'Sullivan, 1998; Mumford & Hendricks, 1996).

We illustrate this argument by reference to studies with which we are familiar, but the evidence is much broader. Looking first at the effectiveness of new technology, Clegg et al (1997) used an expert panel approach and interviewed 45 leading experts in the UK, drawn from research and consultancy communities, regarding the performance of information and communications technology (ICTs). These experts drew on their experiences with over 14,000 organisations. The key findings were that:

- around 40% of investments can be classified as outright failures
- around 10-20% can be counted as outright successes
- the remainder can be seen as partial successes.

Turning now to supply chains, Icasati-Johanson et al (2000) undertook a detailed study of 3 supply chains in the packaging supply industry. Their key finding was that in every case, each company limited its interest to attempting to manage their relationships with their immediate links (i.e., with their immediate suppliers and customers). There was no evidence of any attempt to understand and manage a
complete chain as a single system of work. As such, there was no evidence of any genuine ‘supply chain management’. These particular case studies are supported more widely in the literature (Spekman et al, 1998; Richmond et al, 1998).

With regard to business process thinking and re-design, there is also evidence of disappointing performance. For example, a study by Willcocks (1995) involved a survey of 168 UK-based organisations. He found that only 18% of those that had completed exercises in business process re-engineering had achieved ‘breakthrough’ results, and that most companies had ‘aimed low and hit low’. (See also Mumford & Hendricks, 1996).

Examining the empowerment of employees, the picture is more difficult to assess, though there are some findings that appear to indicate relatively low uptake. For example, in a study of 101 small and medium sized enterprises in the UK by Patterson and colleagues, researchers visited each company and rated the nature of shopfloor work on a number of dimensions, including the richness, variety and responsibility of the jobs (Patterson, 2001, personal communication). The number of companies in which shopfloor jobs incorporated a moderate degree or more of richness, variety and responsibility was 34%, 27% and 32% respectively. We conclude that around one third of these companies were using some degree of employee empowerment, though we acknowledge this is likely to be an overestimate. From a more international perspective, Argyris (1998), an accepted authority in this field, argues that “despite all the talk and the change programs, empowerment is still mostly an illusion” (Argyris, 1998, p. 98).

We stress, this is not to argue that there are no instances of successful management in these areas – clearly that would be misleading. But the evidence is clear -- in these areas, uptake is low and performance is disappointing. In general, we do not manage these issues well.

To illustrate the point, we draw on one final study here in which all four of these initiatives were considered. Waterson et al (1999) undertook a telephone survey, randomly sampling all UK manufacturing companies with 150 or more employees by size and by sector. They achieved 546 completed responses, representing a sample of 10% of the population. Of particular interest here, they asked the companies about their rates of use and effectiveness of 12 modern management practices, including the four that form the focus of this essay, namely ICTs, supply chain partnering, business process thinking and empowerment.

The results in table 1, show the rates of use of the four practices, and the extent to which they met three company objectives concerned with reducing costs, improving quality, and improving the responsiveness to customers. For each practice the table shows the percent of companies using the practices “a lot” or “entirely”, and the percent meeting particular company objectives “a lot” or “entirely”.

<table>
<thead>
<tr>
<th></th>
<th>% using</th>
<th>% reducing costs</th>
<th>% improving quality</th>
<th>% improving responsiveness</th>
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<tbody>
<tr>
<td>ICT</td>
<td>34</td>
<td>40</td>
<td>41</td>
<td>52</td>
</tr>
<tr>
<td>SCP</td>
<td>44</td>
<td>38</td>
<td>43</td>
<td>55</td>
</tr>
<tr>
<td>BPR</td>
<td>26</td>
<td>53</td>
<td>37</td>
<td>48</td>
</tr>
<tr>
<td>Empower</td>
<td>23</td>
<td>35</td>
<td>35</td>
<td>47</td>
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</tbody>
</table>

Table 1: Rates of use and effectiveness
We draw three main conclusions from these findings. First, the rates of substantial uptake are lower than one might expect. At the end of 1996 (when the survey was undertaken) considerably less than 50% of companies in the UK had substantial experience of these practices and ways of working. Second, the rates of effectiveness of the practices (amongst users) were also relatively low: on most criteria less than 50% of companies report substantial success. And third, very few companies had substantial experience of using all four of these practices at the same time (around 2% of the sample).

The evidence is clear. There is a consistent set of results from which we can conclude that UK companies are not experienced in these areas, and are not effective at managing the introduction and use of these practices and ways of working.

6. Interpretations

We believe that the successful conduct of e-business will, in part, depend on the successful use of four critical practices, namely new technology, supply chains, business process thinking, and employee empowerment. And yet, our overall performance in these areas has been poor. Let us now extend the argument one step further to make it more specific.

Our interpretation is that many organisations are not good at understanding and managing complex systems. To draw on the example of ICTs to make the argument, our experience is that many companies fail because they focus too much on the technology. They fail to consider the ways in which the new technology interacts with working practices, work organisation and job design, and work processes. Put more succinctly, they do not analyse, understand or manage the total system of working. Indeed we are currently working with a number of organisation that routinely adopt a systems view of their products, but do not extend this perspective to their processes.

Our next proposition then, is that e-business will require a systemic understanding of the new enabling technologies, the supply chain partnerships, the new business processes, empowered employees, and the relationships between them.

We would also argue that there are considerable grounds for scepticism here. Put very crudely, if most organisations are currently poor at systemic thinking with their internal workings, what chance do they stand when they are trying to understand and manage more extended and networked relationships and processes?

7. Predictions

If these practices do prove to be the essential building blocks of e-business, our current rates of use and success with them do not bode well. Furthermore, if the origins of the difficulties that companies have with these practices are located in how our companies manage themselves, then our prediction is that new developments of the kind made possible by e-business will be subject to the same difficulties. Put the other way round, there is no obvious reason why it should be any different.
Indeed, we would go further and predict that systemic thinking, of the kind that will be required in the area of e-business, will get more difficult as systems:

- become more inter-organisational and international (i.e., potentially, become more complex);
- come under more pressure to reduce lead-times (i.e., become more tightly coupled);
- involve more complex interactions between people and technology.

If our argument is correct, then our further prediction is that the majority of companies are going to experience considerable difficulty in achieving their goals with e-business.

8. Summary

We have been trying to develop some ideas about the conduct of e-business that we have extrapolated from previous experiences and findings. There is clearly a risk in such an endeavour that we have got it wrong. Furthermore, work of this kind does invite the potential response that we should await the outcomes.

Our defence is twofold. First, we believe that it is legitimate to make propositions and predictions of this kind, providing they are based on findings from rigorous research and on sound reasoning. The reader will be the arbiter of this. And second, we believe it is important for social scientists (and indeed, others) to engage in predictive work of this kind. Put bluntly, why wait for 5 years to attempt to prove (or indeed disprove) what we are thinking now? Providing we are clear regarding the basis on which we are making our propositions and predictions, this seems to us a valid and worthwhile exercise.

For the sake of clarity, we summarise our propositions and predictions below.

**Proposition 1:** Success at e-business working will require the effective management of new technology, supply chains, business processes and empowered employees.

**Proposition 2:** There is little (or no) evidence that UK companies are strong in these areas.

**Proposition 3:** Effectiveness in these areas requires a systemic view.

**Proposition 4:** Unfortunately, companies find this way of thinking and managing difficult, even within their own organisational boundaries.

**Prediction 1:** Many companies will experience great difficulty co-ordinating and managing these core building blocks of e-business effectively.

**Prediction 2:** Managing e-business will be more difficult than traditional management activities, as the systems become potentially more complex, more tightly coupled, and increasingly involve complex interrelations between people, organisations and technology.

**Prediction 3:** Based on the above, the majority of e-business ventures will fail to meet their objectives, at least in the short to medium term. Unfortunately, the likely boom in usage will be accompanied by gloom in effectiveness.
Managers, system designers, consultants and others might offer an obvious retort at this juncture, along the lines: “OK, let’s assume you are right in your analysis and in your predictions - what do we do about it?” We hope to return to this topic in a future issue.
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