THE MOMENTUM OF SUCCESS:

THE ROLE OF CONSTRUCTION IN THE THAILAND ECONOMIC BOOM

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Abstract

Construction freezes the ratio of industrial to housing area (Forrester, 1969), becoming visible, measurable, evidence of structural change. The Momentum of Success documents economic activities of the construction sector during the Thailand economic boom. An important research protocol was the gathering of both quantitative and qualitative data, with interviews of 75 leaders of industry and government concerning decision-making factors experienced during the boom. The database was analyzed by three system dynamicists as well as by the disciplines of psychology, construction economics, and statistics. The results reveal three patterns of strategic action, with suggested future competencies for business and government in regions undergoing rapid development.

Introduction

Economic booms are the aggregate result of thousands of individual decisions. The social context (Kotz, McDonough, and Reich 1994) influences the length and direction of a boom, but more fundamental is the "system of interacting industries, housing, and people" (Forrester, 1969). Construction determines and freezes the ratio of industrial to housing area (Forrester, 1969) Active in economic booms, the construction industry is visible, measurable evidence of structural change (Bon, 1989).

Asia is in the midst of an economic boom, causing rapid change in the region. The changes will affect economies, social structures, natural and human resources significantly, perhaps permanently. Bangkok is an example of the forces at work throughout Asia. The Centre for the Study of Success of The Purrington Foundation conducted this study of the economic boom in Thailand, utilizing system dynamics and other disciplines to determine strategic options for engineering and construction in environments of rapid economic change.

Study Description -- Data Collection and Analysis

Data Gathering

This study was conducted over two years' duration with a research protocol contrasting quantitative and qualitative data.

Nested levels of the database document the regional economy, the industry group (banking, architecture, design, engineering, construction, real estate development, transportation and infrastructure), the project, and the individual decision-maker (Sterman 1987; Leontief, 1971). These data were sorted according to four categories:

A. What Started The Boom? (Fertility or Feasibility Factors)

B. What Kept The Boom Going? (Acceleration Factors)

C. What Stopped The Boom? (Limits To Growth)

D. What Are The Implications For Business And Government? (Learning)

Analysis

Data were analyzed by an academic board composed of three system dynamicists (Saeed, Hines, Genta 1994) whose models brought forth views of Thailand from three time horizons: the years 2003, 2023, and 2043. It is rare to have the benefit of three distinct models using the same database, therefore, we include an overview of the differences and agreements among these system dynamics studies. In addition, the data were analyzed by a construction economist (Bon, 1994), a system dynamics transportation specialist (Davidson, 1994), a psychologist (Litwin, 1994), and a statistician and economist (Lusk and Behrman, 1994).

Learning

Booms are the result of thousands of individual decisions, yet the velocity of the experience creates a shared mental environment or climate. Can we develop a means of industrial learning to harness the forces that produce booms, perhaps also harnessing their direction and the structural change they produce? We believe this study has value not only because of the richness of academic analysis from the same database, but also because the data are brought to life by the insights of those who made the boom happen.

Summary of Findings

A -- What Got The Boom Going?

The classic fertility factors of good human resources, an alternation in agricultural institutions and techniques, growing trade at home and abroad, expansion of cities in the area, increasing industrial output, and friendly political climate (Rostow, 1963) were certainly present. But common expectations were for gradual progress; both the World Bank and the Bank of Thailand estimated only modest growth (World Bank 6% per year 1983-1990; Bank of Thailand 4.5% GDP growth in 1986). In fact, **GDP grew 9.5% in 1987; in 1988, GDP accelerated to 13.2%.**

B -- What Kept The Boom Going?

The influx of investment capital, especially from Japan (Japanese applications to the Thai Board of Investment increased from 54 projects worth BBB,729 in 1986 to 389 projects worth B148,221 by 1988) but also from Korea (in 1990, the Korean government allowed capital for investment outside for the first time), Hong Kong, Taiwan, The US and Europe). According to Bangkok's Governor, Professor Krisda Arunvongse, foreign entry created jobs and spawned industry. Manufacturing exploded. Savings soared -- net personal savings increased and tax incentives multiplied business savings at growth rates of 74%. A new middle class was born (Saeed,1992; Saeed and Webster, 1992) evidenced by the rise in the number of **credit card holders (only 66,000 in 1984 to 1,176,000 by 1992)**. Many realized wealth through land which rose in value by 600%.

The Focus Industry: Decision-Factors For The Construction Industry

Construction experienced tremendous changes during the boom. Commercial banking loans and **overdrafts to construction rose almost 300%** (from, in millions of Baht, B30,555 in 1986 to B88,372 in 1992). While manufacturing rose to a peak in 1988 (16.8% change), with the GDP rising 13.2% in that same peak year, construction continued to climb from 13.3% in 1987 to 21.3% in 1988, continuing on to 22.7% in 1990. Finance and real estate showed a similar build-up, with a jump start from 1.5% in 1985 to 32.1% in 1987. In 1990, this late-boom sector continued to grow, showing a change of 33.8%.

Speculation was fueled by shortages (Kornai, 1992) as resource reallocation pitted producers, consumers, and economic agents against each other in a volatile market (Kelly, Sanderson, and Williamson, 1983; Guha, 1981).

The Focus Industry: Construction At The Level Of the Firm

The market was rife with reactive behaviour, even (or especially) from some of the biggest:

- Following World Bank predictions for moderate growth, EGAT (the Electricity Generating Board of Thailand -- the major utility) decided not to increase capacity, only later did brownouts over Bangkok revamp the plan;

- Entrepreneurs developed condo towers, with units selling out at the presentation in a rented hotel suite. Condominium units often changed hands 10 times before construction was completed.

- Siam Cement, the largest cement producer in Thailand with 60% of the market (Siam City 30% and Jalprathan 10%), added two facilities in the north of Thailand, just as the market crested. By November of 1993, Siam Cement's profits had declined 49%.

C -- What Stopped The Boom?

When it no longer became attractive to compete in the market, entrepreneurial activity fizzled. About the same time, traffic became the source of an increase in blood pressure problems among Thais. The limits to growth can be summed up in two juxtaposed consumer statistics:

1. Bangkok's biggest advertising spend was real estate;

2. Bangkok's biggest selling product was automobile tires.

The net result of all this activity, however, lay dormant in a statistic especially troubling. Before the boom, the ratio of the highest income Thai to lowest was 12 to 1; after the boom, the gap widened to 16 to 1.

D -- Implications for Business and Government (Learning)

Construction is integral to economic booms. But, despite the rampant opportunities, it is difficult to make money while racing the curve of shortages and resultant delays. Three approaches might be of benefit. Firstly, businesses can use competitive frameworks (Porter, 1985) to determine boom cycle point of entry and relevant action. For example, early in a boom, labor supply is adequate and businesses can hire as needed, while at peak, worker availability is tight and companies may need to offer special incentives like training to attract people while switching to labor-saving technologies to minimize need. Thus, a peak-boom strategy might lead to certifying local labor in new technology, something of benefit both to business and government. Similar strategic positions can be drawn for the other inputs of construction: (labor) materials, equipment, land, financing.

Secondly, businesses and government can consult Input-Output tables to determine where the industry trends will go, and prepare themselves accordingly. For example, in the construction sector, manufacturing activity was 50% of the market in 1985 but had decreased to 40% in 1993, tending perhaps to just 25% by 2000 (Bon, 1994), while maintenance and repair were minimal in 1985 but will rise as construction ages. The Thailand Input-Output tables might suggest that construction firms engaged in manufacturing begin to integrate repair in their capability training and in their sales and service plans.

Finally, consulting the customer to find latent delay points can significantly change the flow of work. For example, when the Thailand Board of Investment country head for Japan conducted a customer survey in 1985, it was learned that delays in business visa and project proposal processes were among the seven major obstacles to developing Japanese investment in Thailand. Accordingly, the processes were re-engineered to telescope visa time by holding screening and recommendation interviews right in Tokyo, and to offer project pre-application consultation, completing every line item in the proposal to the needed level of detail before submission, thereby collapsing the normal seven-month period of back and forth negotiating down to a one-month turn-around. The result? In 1988, Japanese investment in Thailand totalled more than the previous 25 years combined.

But even with the above strategic actions, the limits to growth come quickly. Business and government can institute practices that will extend market sustainability. (Saeed, 1994) It may be that while competitive strategies stimulate success in the short-term, cooperative strategies are also needed.

The Future

Competencies for Sustainable Success
The Momentum of Success shows three common limits to growth that raise suggestions for future competencies.

1. Future Competency for Sustainable Success: Alliance
We noticed a high number of alliances, joint ventures, and public-private arrangements such as Build-Operate-Transfer in Thailand (Friedman and Kalmanoff, 1961) How do alliances operate at each stage of a boom?

At the start of a boom, the entry of foreign investment, if other factors are already present in an economy (Rostow, 1963) can ignite activity. Laws concerning joint ventures and Build-Operate-Transfer agreements need to be strategically engineered.

In the mature phase of a boom, many businesses seek foreign partners in who can offer advanced technology to speed up processes. For example, in Thailand, high rises became an important way to realize profit on escalating land values. (Hines, 1994) But high-rise building techniques were not indigenous. Both government and business need to decide on who owns profit, the most common agreement policy, but who owns know-how.

In the post-boom era, local businesses need to utilize capacity added during the boom. Becoming part of global or regional delivery networks means working in alliance in yet a different way.

If the roles change, the rules for being a good alliance partner do not. Seven key alliance competencies suggest ways to sustain market and organizational success:

Alliance Competencies

1. Test ideas against the whole team;
2. Analyze the network;
3. Agree upon common goals;
4. Tackle multiple interventions simultaneously;
5. Increase capacity to learn;
6. Use combined power;
7. Develop methods to convene and disband.

2. Competencies for Natural Resources Sustainability

Booms create structural change. Likened to Boulding's catastrophe theory (Boulding, 1981), booms can affect natural resources in three ways.

Catastrophes and Structural Change

Level	Post-Catastrophe Reaction
Class I: Slight damage	Former order restored.
Class II: Major damage	Former order destroyed. Something new must be created.
Class III: Totalled	No one around to discuss action.

The Thailand economic boom has moved beyond Class I. Whether Thailand can hold to class II is now the question. In Bangkok, a good deal of government time and an increasing amount of business activity will concentrate on retrofitting cleansing systems for environmental problems. In an interview in 1993, Governor Krisda of Bangkok cited restorative actions government is now taking to heal the problems of success (Lusk Brooke et al, 1994). In the future, governments may see it worthwhile to legislate environmentally recharging systems be installed along with, instead of after, initial construction. Businesses will achieve preferred advantage if they offer corrective systems in simul-fit. Natural resources sustainability suggests these competencies:

Natural Resources Sustainability Competencies

1. Consider long-term consequences;
2. Gather independent opinions;
3. Consult people affected;
4. Assess present value of resources;
5. Pre-fit environmental renewal systems;
6. Form alliances with businesses in corrective technologies.

3. Competencies for Human Resources Development

According to the largest producer of cement in Thailand, the Siam Cement Company, human resources turned out to be the ultimate limit to the Bangkok Boom. Materials were scarce but Siam Cement was able to add capacity to keep up with demand. Equipment was a scarce but foreign firms with equipment seemed to be a plentiful option, if an expensive one. The only absolutely impossible scarcity to fill was skilled human resources. This limiter proved difficult for industry, as labor scouts recruited workers from the North country in Thailand, bringing them down to Bangkok in ever-increasing cost, and with detriment to the agrarian areas they were abandoning. But for government, costs grew to an even greater alarm widening the gap from high-income to lowest to 16 to 1.

Booms are opportunities for human resource development; foreign firms with foreign knowledge are a chance to transfer learning. But most government policies on technology transfer have been unsuccessful, and programs intended to help have not. (Forrester, 1988) Taking a business-centered approach (Senge, 1990; Hamel, Doz, Prahalad 1989), businesses can institute continuous improvement and learning processes that are integrated in human resource

development. Training can lead to human resource availability only by determining the strategic competencies needed for future (Hamel and Prahalad, 1994).

Human Resources Development Competencies

1. Anticipate future skills needed;
2. Choose alliance partners who teach;
3. Invest in core knowledge;
4. Seek business that develops strategic knowledge;
5. Institute organizational learning processes;
6. Transfer know-how to the region.

Conclusion

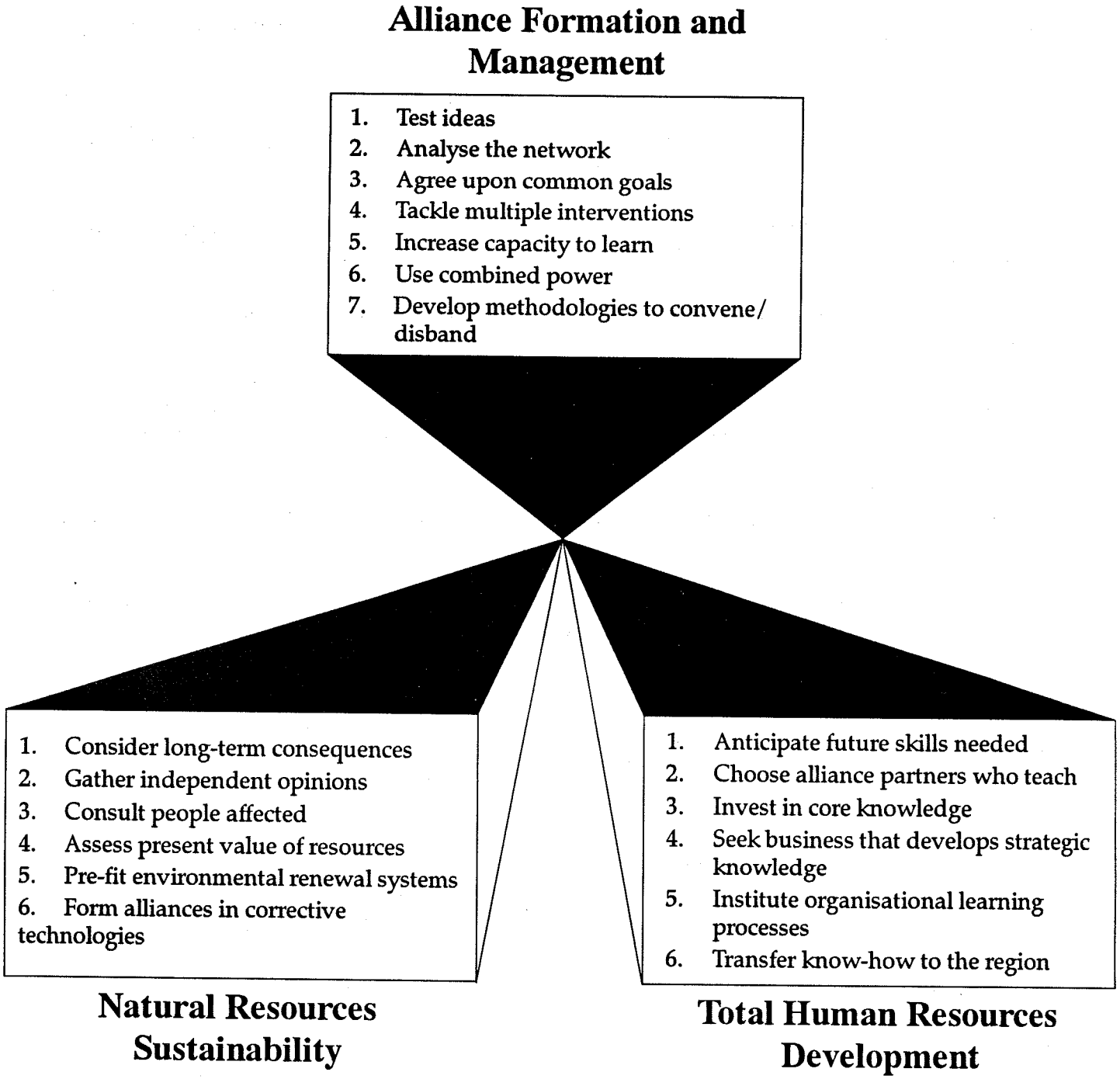
Booms as Opportunities for Change

Whatever else they do, booms create change. The physical plant is the most visible sign of transformation, but the psychological changes may be even more profound. Moreover, booms quickly alter natural resource patterns for a long time to come.

Booms will always be an important area of activity for the construction sector. (Lusk Brooke, 1994) Because booms create the need for connector systems, they trigger plenty of infrastructure development. Asia will spend over three trillion dollars on infrastructure in the next five years (excluding Japan). In developing areas such as parts of Asia, are there opportunities to bypass outmoded technologies and institute state-of-the-art systems such as vacuum tubes for rapid transit? (Davidson, 1983) The quick adaption of the cellular telephone from Hong Kong to Bangkok is evidence of such quantum leaps.

Are booms the current means of economic growth because globalism now makes foreign participation possible? We will prosper by understanding as much as possible about these aggregate swirls of futurism that seem to take over regions like a virus. Learning from booms, especially through qualitative interviews with industry and government leaders of boom economies conducted while the experience is still vivid, may be a new kind of learning (Senge, 1990; Paich and Sterman, 1992). Understanding the relationship of macroeconomic climates, industrial cycles, and individual entrepreneurial decision-making -- a kind of understanding that system dynamics is particularly well-suited to -- we may find ways to harness the velocity and momentum of evolution while directing its course.

Cooperative Advantage: Essential Strategic Competencies



(*Mobilizing The Organization: Bringing Strategy to Life* by Litwin, Bray and Lusk Brooke, 1995)

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