The Crumbling Cement Company

A role play activity around innovation strategy

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JOHN BESSANT
Managing Innovation

Logo Name

The Crumbling Cement Company

Overview

This is a role-play based around a typical problem in innovation management. CCI (Crumbling Cement Industries) are a large but somewhat traditional manufacturer of cement and related products for domestic and overseas markets. With rising material and energy prices and with falling cement prices the company is being forced to look at ways of improving efficiency and also diversifying out of cement and into new businesses. A key resource in this will be technology, and in recognition of this the company spends a significant proportion of its turnover on a wide-ranging R&D programme. However the organisation of this resource and its relationship to the various operating divisions is a source of concern to many people and has regularly been discussed at board level and in the wider forum of the annual management conference.

CCI is now in a difficult position. A once-proud and famous name, it now languishes at a low point in the eyes of shareholders and industry analysts alike. Profitability is minimal and there is little apparent scope for growth except through mergers and acquisitions – and little cash to fund those. The downward drift is symptomatic of the industry as a whole as it moves into a classic commodity position. One option is to look at more radical technology-based alternatives – maybe even doing the unthinkable and getting out of cement altogether and into newer business areas. Perhaps it is time for discontinuous change?

The company now faces a crisis. Recent activity by a major competitor and buying of a substantial stake suggests that the company is the target of a take-over bid. You have been summoned to an emergency meeting to discuss technology-based options for the short and long-term future of the business.

During the next 45 minutes you will meet with colleagues from across the various parts of the company and explore options in technology strategy. You need to be sure that you represent not only your own views but those of people who work in your area, and that you are satisfied that the future plan is one which you could support and commit to.

After 45 minutes your rapporteur will present a brief outline of the options discussed, the agreed strategy (if there is one!) and the key problem issues which still need to be resolved.

Crumbling Cement Company

Role play exercise

Instructions

Each member of your group has been assigned a role in the fictitious organisation Crumbling Cement Industries (CCI). In addition the group has an observer/rapporteur who will try and capture the essence of the discussions and observe the process and interactions amongst different roles. He/she will report back on behalf of your group to the plenary group at the end of the exercise.

You will have 15 minutes to read and absorb your character (!) and then 45 minutes for the role play itself – an emergency board meeting.

Try and 'get inside' your character and see the situation from his/her perspective. In particular remember that people are not purely rational in their thinking or their behaviour – and this is a highly charged situation with much at stake.

Remember that there are no 'right' answers to this exercise. It is designed to help us focus our thinking on the issues raised when an organisation confronts a time of technological discontinuity, and to give us some sense of how it *feels* to be in such a situation.

Roles

The following roles are used during the exercise:

- Human Resources Director of CCI
- Technology Strategy Development Manager for CCI
- Director, Crumbling Cement Ltd - the UK cement manufacturing operations
- Director, Crumbling Cement Enterprises - the UK non-cement activities
- Director, Crumbling Cement Overseas - the overseas cement and non-cement business
- Director CC Technical – the company's R&D and related activities (representing the following

  Head, Research Department, CC Technical

Head, Geology Department, CCT
Head, Commercial Development Department, CCT
Head, Technical Applications Department, CCT

- Observer/ rapporteur

Background to the company

Crumbling Cement Industries (CCI) was formed over 150 years ago and has grown through the gradual amalgamation of cement making activities in the UK and latterly overseas. Its core business remains cement manufacture which it does in 6 plants in the UK. The low value high weight characteristics of cement mean that it is non-exportable and so overseas growth has come through setting up plants and (mostly) joint venture operations. The market for cement has become increasingly difficult in recent years; a decline in key markets like construction is reinforced by the trend towards the use of substitute materials. At the same time many low cost producers have entered the field in overseas markets so that prices have fallen and margins are very low. One consequence of this has been a gradual rationalisation of capacity, especially in the UK where the original 18 cement works have been cut to just 6 and where further cuts may be possible. On several occasions the financial press has reported rumoured mergers and acquisitions of CCI as other players in a similar position seek to rationalise in the face of global competition.

Technology has always played a key role in cement manufacturing - mainly in terms of improvements in raw material and energy usage and in process engineering - but recent pressures in the marketplace have forced ever greater attention to specialist products based on cement. If CCI is to stay competitive it must build on its specialist knowledge of cement making and exploit the advantages it holds through accumulated technological competence in the business. Already most of its overseas business is on the basis of technology transfer and turnkey cement plant contracting rather than actual cement production, and its UK plants remain competitive through deploying advanced energy saving and tight kiln control technology, and through a high level of home-grown process automation.

CCI also has some non-cement businesses, operated through CC Enterprises. These range from traditional spin-offs from cement production (such as landfill sites and aggregates) to more exotic and apparently unconnected businesses such as eel farming and control engineering consultancy. These rely to varying degrees on technology; the aggregates/ landfill business is largely about digging holes and then filling them in and so requires relatively little technical support, but some of the newer businesses are vehicles for exploiting technology developed in house.

In order to provide the various kinds of R&D and technical support CCI needs the CC Technical Division was established in the 1970s. Prior to that technical work was dispersed throughout the company - for example, each cement plant had its own technical team and developed its own resources and projects. The logic behind creating CCT was to build up a core competence on which the various operating divisions could draw. CCT now has four main departments:

- Research concentrates on fundamental research , exploring new mineral properties, trying to understand the science of adhesion, structures, etc., as well as providing a sophisticated test and analysis service for CCI divisions. It is also involved in new product development, working with key customers to develop new cements and formulations.

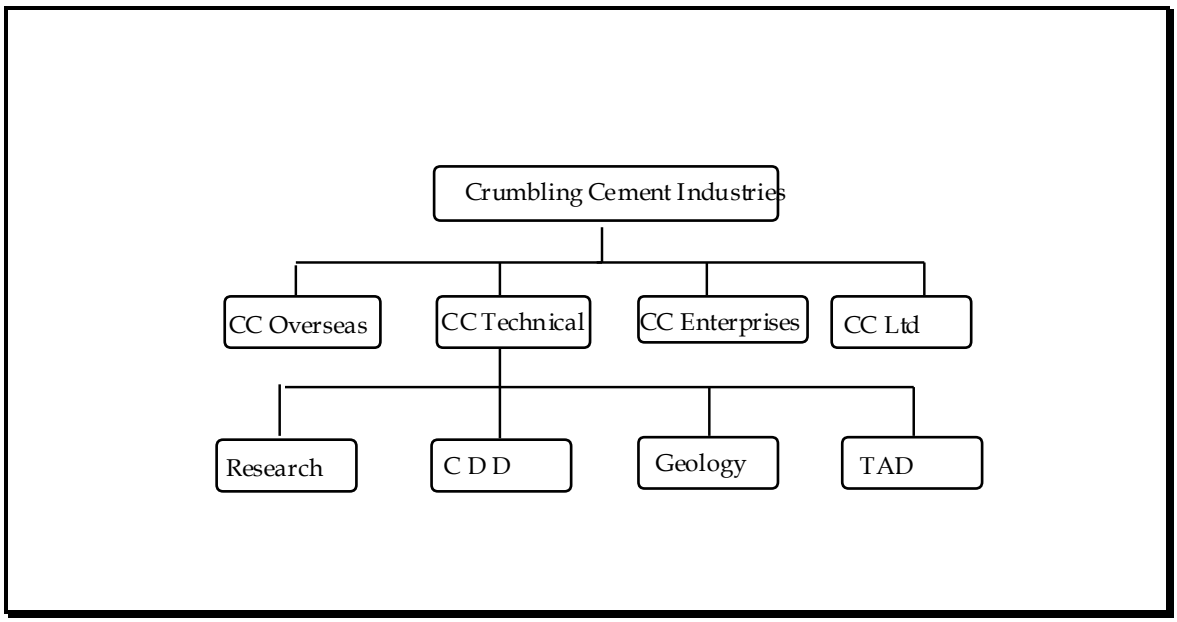
- Geology department , as the name implies, provides the on-site and backup services for the cement and aggregates extraction business. This is a small but highly specialised team with considerable experience and sophisticated equipment for surveying and analysis. Since CCI is cutting back on cement production and the aggregates business is also weak, there is over capacity in this area and so Geology has been actively trying to market its services outside on a consultancy basis.

- Commercial Developments Department (CDD) is concerned with trying to set up and grow new businesses from spin-offs from CCI activities. This can be close to the core - for example, exploiting the software competence of process engineers to develop controls for other industrial applications - or further out - such as diversifying into eel and other fish farming, using the waste heat from cement works to achieve the higher water temperatures required for this kind of business. It is trying to be 'intrapreneurial' and has access to a small amount of internal venture funding to back up new ideas - but it faces the problem of living within a traditional , old-style company which is not noted for entrepreneurial flair.

- Technical Applications Department are essentially where the traditional experience in cement works technical support has ended up. Here there s considerable accumulated competence in cement making and the relevant process engineering to support it, especially in areas like energy saving and materials conservation. This group provide a service to all cement works in the UK and an increasing amount of technology transfer and updating to overseas plants, including design and turnkey project management of new cement works.

The structure of the company is given below.

Crumbling Cement Industries - Organisation structure



Director, CC Enterprises

Like the other senior managers, you've spent a long time in the cement business. You have an odd set of activities to manage, ranging from property development, landfill operations, aggregates processing to opening up new ventures to reduce CCI's dependence on minerals. For much of this technology is of only marginal importance, but there are also areas - for example, the development of new ventures which require often sophisticated capability. In addition there is a growing trend towards more sophistication in the core business - customers wanting higher specification products, more specialised compounds, more technical support in applications, etc. So your views about CCT are ambivalent - it *is* a high cost overhead on your business but it also offers the depth of research and technical capability which you need. The problem is that getting access to those services is not always easy - and when you do, CCT often don't understand the nature of the business or the particular needs.

The context

CC Enterprises is a strange business, having grown up through exploiting the by-products of cement operations it is increasingly becoming an important player in the business. Where the company used to make very little out of its Enterprises and most from cement the balance is shifting and several areas - such as waste management logistics(managing landfill sites as refuse dumps) - are looking increasingly attractive. The new, service-based nature of the operation is reflected in the growing consultancy work which CCE gets - especially for technical support in developing aggregates to suit customer applications.

All this has meant that Cinderella is rapidly becoming at least a regularly invited participant at the ball - and may well turn out to be its belle in years to come. This has an impact on its relationship with CCT - in the past this was very occasional and arms' length - but now the increasing demand for technical underpinning to their operations means that CCE <u>needs</u> CCT; the real question is how to communicate those specific needs to CCT and to obtain a service that suits the CCE business.

Director, Crumbling Cement Ltd.

You are the senior manager responsible for all cement production in the company's UK plants; you have come up the hard way, having worked on most jobs in the business over a 23 year period. Amongst other things you spent time in the laboratory in the times when each works had its own technical resources. You can't understand why there is any need to have an organisation like CCT - for the technical needs of a cement business it's far better to have a small group on site who can get to know and develop the plant themselves. (For that matter, you're not entirely convinced that the company should be messing around with things like eel farming either - but that's another matter).

As things have got tighter in the business you have become increasingly annoyed at having to pay the overhead charges to support CCT - especially when the service you get is less than you would like. What you need are on-the-spot problem solvers *when* the problem happens, not a week later or in response to some formal requisition process. Occasionally the CCT people have not understood the particular problems of a site and have failed to fix a problem, resulting in further lost production, poor yields, etc. - they're simply out of touch. Equally they want to spend time experimenting with new technologies - like an expert system for kiln control, for example. New technology is fine but not when it disrupts the job of making the cement which pays everyones' salaries - you're running a group of plants to make cement not a pilot plant facility for experiments and R and D.

Most of the operating managers share your view and you have begun to implement a counter-strategy which involves gradually developing on-site technical support capabilities, obviating the need for CCT services. If you had your way, CCT would be split up again and the good engineers (mostly in Technical Applications Department) would be spread around the sites; in the short term your own site teams will have to fill this gap. In the short term you can also rely on old colleagues who may be able to help you out - including a few who are now in CCT.

Director, CC Overseas

Like almost everyone on the senior management echelons of this traditional business, you have been in cement for a long, long time and know many of the key figures in the company. You spent some time running one of the cement plants in the past and have a fairly good understanding of the operating needs and the technology requirements. However you have been in marketing for most of your career and recently have been overseeing the expansion of overseas operations. This is frustrating for you; although you have an office in London, much of your time is spent all over the world and especially in developing countries where construction activity (and thus demand for cement) is still increasing. Your colleagues don't really appreciate the needs of an international business, nor how much that has been changing. Whereas in the old days operating plants was broadly similar whether they were in Derbyshire or Delhi, things have changed dramatically. CCI no longer own any plants outright but are involved in a series of joint ventures, where their main contribution is experience and technical expertise about building and operating plants. So you need to be able to offer increasing amounts of technical assistance - and to offer this in the form of a highly professional service, competing on value for money and quality of advice. The old colonial days of CCI being the only source of technology are long gone (although many colleagues don't yet recognise that) and the only way CCO can maintain its position is by offering a better service.

Part of the frustration comes from knowing that overall CCI has a lot to offer technologically but it is hard to get hold of. CCO could build a business selling expertise and technology in emerging overseas markets – but it seems to come low down on CCT's list of priorities and when it does come through it is too expensive a service. The other frustration is the lack of awareness of operating conditions overseas - CCT as the R&D group and CCI generally are very parochial. You often think it would be better if you had your own team of specialised technical service engineers .....

The context

CCO is still one of the more profitable bits of the company, but the basis has shifted from earnings through sales of cement to earnings through sales of technology. So CCT is a critical resource for CCO to use - and the emphasis needs to be on swift, customer-related service. Projects range in size from simple problem-solving and troubleshooting work through to turnkey plant design and construction; generally CCT are good when you can get them but hard to get at the price and in the time scale you want. They also seem to be preoccupied with other activities - including what seems to be an excessive amount of research work rather than applications oriented activity.

Director CC Technical

You are responsible for all the R&D and related activities within CC Industries. Specifically you have four groups:

- Research
- Geology
- Technical Applications
- Commercial Development

With an R&D budget constantly under threat and battles with your boardroom colleagues as to whether they need you at all and what they need from you, your life is not an easy one. But you are convinced that the only way forward for a company of this type and size is through its knowledge base – anyone can make cement but to do it well and profitably requires knowledge. And that comes from R&D activity of the kind you run and which you see could be developed much further.

You are also trying to balance different interests within your organisation; each group – see below – has its own concerns.

(a) Research

This activity involves a group of 30 staff skilled in a variety of areas related to the CCI businesses. Formal R and D is a relatively recent addition to the CCI portfolio. Its core business of cement-making had a long tradition of technical activity but this was at the site level and involved problem-solving and incremental innovation rather than the more long-term scientific approach being practised in CCT. The nature of the business world-wide is requiring much more in the way of technology - in product and process support, in product innovation and in long-term technical service, advising users on different applications, etc. The scientific underpinning of the field is still relatively weak, although there are some universities and research centres which have been working on things like formulations, physical chemistry, etc. Thus the accumulated knowledge and competence which CCT has would be very hard to source outside and even harder to rebuild should it become lost. The trouble is that it is a passive knowledge base, available to be drawn upon by a wide variety of users but not necessarily suggesting new applications or solutions.

(b) Geology

This is a small (15 staff) team of highly experienced geologists providing a technical support function to the rest of CCI. In the past its role was clear - without it there was no cement to be dug out and processed, and its survey and geological skills were in high demand. But since there is no growth,

only severe contraction in the UK business, this role has become reduced to providing technical support of a short-term troubleshooting kind to those few remaining cement works. There is still some work for CC Enterprises in the quarrying and landfill operations, but most of their projects are similar in nature and do not require either the capacity of your group, nor its high level of geological skill. The blunt fact of the matter is that the basis of the CCI business is shifting away from the physical product and towards making greater use of the knowledge base in technology and other competencies such as the sales and distribution network into the construction industry. Thus demand for geological services is likely to decline further and it can only be a matter of time before the maintenance of a specialist department becomes untenable.

(c) Technical Applications Division

This group (of 35 engineers and technicians) is responsible for most of the process development and support work in the company. Many of your team were originally on-site technical support staff and there is still a high level of informal contact between the UK cement works and TAD; this is important because the nature of your work requires regular contact and updating of the kinds of problems the works are experiencing.

TAD is seen as the 'bread and butter' part of CCT, providing a level of service which is respected at the technical level throughout the company. But it is beginning to suffer the problems which emerge from a growing concentration on technology rather than cement in CCI's operations. The company has enormous skill and experience in cement making technology and this is increasingly in demand; the problem is partly one of managing the expansion and transition. Unlike Geology, for example, the opportunities for TAD to grow are considerable - through more overseas work or through selling technical consultancy or software/control products via Commercial Development Division, for example - and the difficulty will be to maintain a suitable level of support for old clients like the UK operating divisions. In addition the balance between technical service and technology development is getting harder to maintain and some form of long-term strategy is needed to ensure that both receive the attention they deserve.

(d) Commercial Developments Department

The 10 staff working here have the brief to identify and pursue opportunities in non-cement applications of CCI competencies and assets; in practice it means trying to come up with new products and/or markets and requires a high degree of creativity. This group is unconventional by CCI standards – involving several non-cement people and also some of the technically skilled staff who didn't really fit in to the mainstream CCT operations.

You have invested a lot of time and effort in building up an infrastructure to enable a business like CDD to function - inevitably much of this has been outside, with links to finance, development agencies and a variety of inventors and entrepreneurs. Spinning off businesses is a skill which CCI lacks and there is still much misunderstanding of what business development is all about. CCI is not a risk-taking business by nature and so setting up some of the systems necessary to enable effective new venture growth has been very difficult. The track record is not impressive - although there are many opportunities within CCI which could be spun off, the process of making it happen is like swimming through treacle!

CDD suffers from several major constraints - it is under-funded and has to make formal investment proposals to the CCT and CCI boards to begin new ventures. This process is cumbersome and risks 'not invented here' thinking - if the connection to cement is not clear it may well get a less than favourable hearing.

Human Resources Director

You have been increasingly frustrated in recent years as the role of your group becomes more and more one of managing decline – helping with redundancy planning following plant closures, dealing with an incentive scheme which can offer little reward because growth and profitability are both sluggish, etc. Increasingly the role is one of personnel administration and the chance to undertake strategic development of staff is limited.

For this reason the new plan is attractive since it poses a big challenge – how to build a strong entrepreneurial and broadly skilled new management team without alienating the existing management and staff? And how to create the structures and processes which will enable this very different business to operate. (The metaphor of teaching an elephant to dance seems appropriate here!)

Moving from what you term 'damage limitation' personnel management to proactive staff and organisational development is exciting but you are aware that you will need all your skills and understanding of the context plus some outside help to plan and implement the kinds of changes needed to turn the 'supertanker' of CCI around and point it in a new direction. You are not convinced that it will be possible to change the culture of the company so dramatically – but you're excited by the challenge of trying!

Technology strategy development manager

You are the leader of a new group which has been hand-picked and which reports to the CEO directly. Your team has a mix of experience – some come from CCI's various operating divisions but others are new outsiders with MBA skills in finance, operations, marketing, etc. Although there is a group with similar objectives within CCT – Commercial Developments Division – its success record has been poor and it is not taken seriously by the rest of the organisation.

Your brief is simple – to explore and come up with a development plan which will ensure the viable long-term future of CCI. The scope is as wide as you want to make it but the underlying driver is the CEO's recognition that cement and related products are essentially a commodity business and the company needs a radical shift into new technology-enabled business areas. What those are, where you will find them and how they will be acquired and absorbed is again up to you to explore but the challenge is to 'think the unthinkable' and come up with a viable strategy for CCI over the next 50 years which might possibly see it at the end of that time out of the cement business altogether.

The task is essentially one which requires new ' out of the box' thinking – but the implementation of your plan will be tricky. In the first place the company is still profitable and needs to be kept that way in order to continue to fund your development activities in new areas. You are also aware of the huge knowledge base which 100 plus years of working in cement have given the company – and to throw that away on a simple change of direction would not necessarily be well received. In essence you are looking outwards to find new knowledge-based business areas which can leverage existing competence if possible.

You have the support of the CEO – but for various reasons he does not want to show his hand too soon since many of the other board members are not convinced of the strategy and see consolidation – perhaps via mergers and acquisitions – as the way forward. He is prepared to commit up to 20% of the R&D budget to fund your development work and will defend this approach against the inevitable complaints from existing divisions, especially in the CCTechnical area. But you know that your biggest challenge will probably be in trying to find ways of changing the 100-year-old cement culture into something very different – without changing the people in the company.

A tall order – but then Nokia began life as a paper-maker….

Observer/rapporteur

You have two tasks to carry out during this role play. The first is to try and capture the essence of the discussions around the boardroom table and present a short report to the rest of the class in a final plenary session. There are no 'right' answers in this exercise but it will be useful to see what conclusions – if any – the groups come up with.

More important will be to report back on the key issues which emerge when this kind of challenge confronts a company. What kinds of problems emerge, where are the 'fault-lines' across which divisions open up? What management and organisational issues will need to be reslved in order to take the strategy forward? Your observations about this – again part of your report - will be valuable for discussion during the rest of the course.