Since the end of the Second World War the British construction industry has been subjected to numerous reports in response to dissatisfaction with the construction procurement process (Simon Report, 1944; Emmerson Report, 1962; Banwell Report, 1964, NEDC Report, 1970; Wood Report, 1975, NEDO Reports 1983 & 1988; Latham Report 1994, Egan Report 1998). The Latham and Egan reports both emphasized the need for the industry and its clients to change their practices if the performance of the construction industry which was well behind other industries were to increase.

The Latham Report put the stress on the need for greater partnering in the industry and on the damaging effect of the adversarial attitudes existing between main contractors and their suppliers. The Egan report recommended improvements in terms of reducing construction costs, delays and accidents. It suggested the creation of a ‘movement for change’ gathering people from the industry who were willing to drive change. It also recommended the industry to introduce partnering, supply chain management and benchmarking. More recently, a new report *Accelerating Change* recommended integration of the supply chain to deliver better value.

The government committed itself to becoming a best practice client by accepting the conclusions of these reports. Over the last two decades, changes in procurement and project management have resulted in new relations between the different parties in the construction industry, together with new employment conditions and a demand for new skills. As a matter of fact, standard contracting, which had been the main form of contract and of building organisation in the UK in the 1960s and 1970s has been replaced by Design and Build contracts, partnering arrangements and Public-Private Partnership (PPP), PPP taking the form of the Public Finance Initiative (PFI).

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The Public Private Initiative was introduced in 1992 by the conservative Chancellor of the Exchequer Norman Lamont. Since 1997 it has been central in the policy of the various New Labour governments as regard public sector investment. In fact during the 1980s and the 1990s the UK suffered from under-investment in new assets in public services accompanied by an enormous backlog of repairs and maintenance. Public Sector Net Investment (PSNI) fell every year by more than 15% between year 1991-1992 and year 1996-1997 and amounted to only 0.6% of GDP in 1997 when the first New Labour government came to power.

PFI should not be considered as a way of organising construction but rather as a way of using private funding to finance public works. Since 1997 New Labour has been able to increase public investment dramatically together with complying with its fiscal rules. However, PFI has consequences on the way construction parties interact. In the UK PFI projects involve roads, infrastructure and airport projects, schools, hospitals, prisons and Ministry of Defence facilities. The UK PFI model is now used as a reference around the world and EU countries are adapting this model to their own needs.

Figures show that more than 510 PFI projects have been completed and are in operation in the UK:
- 70 hospitals with a further 27 facilities under construction
- 94 projects in education covering more than 800 schools
- 43 transport projects
- over 300 projects in defence, culture etc.

The aim of this paper is to investigate transactions and interactions that took place or are taking place in the infrastructure projects awarded to Balfour Beatty along PFI lines.

It is argued that PFI together with the other new contractual arrangements have reshaped or are still reshaping the relations between the different parties in the construction industry: clients, contractors, suppliers and labour.

2. Balfour Beatty a leader on the British PFI/PPP market

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3 In 1997 the backlog of repairs in schools and the back log in maintenance in National Health Service (NHS) buildings were estimated respectively at around £ 7 billion and over 3 billion.
5 Ibidem, p. 8.
Balfour Betty was founded in 1909 by George Balfour, a Scottish mechanical engineer, and Andrew Beatty an English accountant. To begin with, its main activity was concerned with tramway systems. With World War I the company expanded into civil engineering and its activity focused on the building of power facilities in the UK and abroad. Its overseas activities were curtailed during World War II. But Balfour Beatty got involved in many wartime projects. With the nationalization of the British power industry after the end of the war, the company was compelled to increase the construction side of its activity and to diversify into new areas of construction. It acquired Kilpatrick & Son in 1949, an electrical contracting firm. During the 1950s and 1960s, Balfour Beatty completed major construction projects at home (ie the largest rail tunnel under the Pennines in Scotland, the development of the London underground, a tunnel under the Thames) and abroad (ie. three large irrigation projects in Iraq, one project in the Great Lakes in Canada, power systems in Malaysia, Kenya, Nigeria etc). In 1969 Balfour Beatty was acquired by British Insulated Callendar’s Cables (BICC), the British giant for cables. It became a subsidiary of BICC Plc which merged its construction activity into Balfour Beatty. From then on and till the end of the 1990s the history of Balfour Beatty was intertwined with that of BICC Plc. Very rapidly Balfour Beatty became the most profitable subsidiary of the group. It was involved in many construction projects in Scotland and abroad. Among them there was the construction of offshore oil platforms in the North Sea. BICC went on expanding its cable activity in the Telecoms and the power industry. At the end of the 1980s it had acquired cable companies in the US, in Italy and Spain. It penetrated the German market in 1993 with the acquisition of KWO Kabel, the largest cable maker located in ex East Germany. But by the mid 1990s, BICC got into severe problems. Balfour Beatty’s construction activity was first hit by the recession in the British housing market. Then, it suffered from decreasing demand in infrastructure projects both in the UK and abroad. During that period it tried to stop its decline by expanding in rail maintenance (acquisition of three privatized units of British Rail) and by penetrating the PFI market6. However, its profits fell dramatically in 1995 and it hardly made any profit in 1996. Meanwhile the cable activity of the group was severely hurt due to high raw material prices and above all by the deregulation of European utilities which started to reduce their demand for cables dramatically. BICC had to close down cable plants. 2,000 workers were laid off in Europe in 1997 and 1998. By 1998, it was obvious that BICC was no longer capable to compete with the leaders in the industry such as Alcatel and Siemens AG. As for Balfour

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Beatty it was showing signs of recovery thanks to large contracts overseas. As a result, the CEO took drastic measures in 1999. He decided to divest all BICC’s cable operations and to refocus the company on Balfour Beatty’s activities. This being done BICC changed its name to Balfour Beatty Plc in May 2002.

Since mid 1990s Balfour Beatty has embarked on a clear strategy: investing in services by tendering for PFI/PPP contracts or for facility management contracts. Since 2000 the group has been organised in four operating units: Building, building Management and Services; Civil and Specialist Engineering and Services; Rail Engineering and Services; Investment and Development. With its four divisions Balfour Beatty Plc operates on the national and international markets for building, engineering and rail (95% of its activity). The rest of its revenues derives from Investments and Developments in privately funded infrastructure projects. The activity of the four division is clearly service oriented and has been on the increase since year 2000. In 2007 69% (£5,155 m.) of the group’s revenue derived from the home market, 20% (£1,180 m) from the US, 5% (£342 m) from South Asia, 3% (£263) from Europe, 3% (£247) from the Middle East and 61m from South America7. The group ranked 20 in the Top 225 International Contractors in 2007 in terms of contracting revenues both in the UK and abroad8 and 9 in the Top European contractors’ ranking. Its main competitors include AMEC and Carillion (UK), Bouygues (France), Skanska (Sweden) Ferrovial (Spain).

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8 ENR, ENR Top 225 International Contractors, August 20, 2007, p. 3.
Balfour Beatty was one of the first group to break onto the British Public Private Initiative Market (PFI market). It was awarded the first project in 1994 and it has established itself as a leader in this market which has been growing dramatically under New Labour. Recently, it has used its expertise to penetrate developing PPP markets in the USA, the Far East and continental Europe.

2.1 Balfour companies involved in PFI/PPP market

On the PFI market Balfour Beatty Group is a leading investor in infrastructure projects through its operating company Balfour Beatty Capital which was set up in the mid-1990s following the launch of the government’s Private Finance Initiative. This company is part of the Investments and Developments Division. It invests and operates schools, hospitals, roads throughout the UK, transportation systems, airports and other infrastructure. Balfour Beatty Capital is penetrating new PPP markets abroad and has established businesses in the USA, Germany, and South-East Asia. It operates as Gammon Capital in South East Asia, Balfour Beatty Capital Inc in the US and Balfour Beatty Capital GmbH in Germany.

The other companies of the group that are involved in the UK PFI/PPP market are those of the Building, Building Management and Services Division together with three businesses belonging to the Civil and Specialist Engineering and Services Division. The first division is specialized in the design, construction, equipping, maintaining and management of buildings. It entered this segment in the 1970s and is well positioned in infrastructure markets. It works mainly for the public sector. It is committed both to traditional building and design and to partnering contracting (such as PFI/PPP, Prime, Building Schools for the Future, LIFT and procure 21). Thanks to the Civil and Specialist Engineering and Services Division Balfour Beatty is the UK's leading domestic and international civil engineering company not only in the UK, but also in the USA, Hong Kong and the Middle East.

In 2005-2006 the Group strengthened its service-oriented strategy by creating a brand name for each segment of the market: Connect (roads), Consort (health), Metronet (underground), Transform (schools) and Infrastructure (electricity, water infrastructure). The

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9 Information on Balfour Beatty was found on Balfour Beatty’s various websites consulted in May 2008.
10 It was awarded a $368 million 30-year public-private partnership (PPP) project to operate Powerlink, the London Underground high-voltage power system. Since 31 December 2005, it has invested $ 8 million on a total of $ 14 million.
11 http://production.investis.com/bbeatty/businesses/investments/
12 Details on the companies involved in PFI can be found in Appendix 1.
Group is building strong partnerships with “sophisticated customers who value the highest levels of quality, safety and technical expertise”\textsuperscript{13}, such as utilities (i.e., National Grid, BAA), regulatory agencies (i.e., Highway agency), the NHS, London Underground, British telecom, Royal Mail etc.

Thanks to the PFI/PPP programme, Balfour Beatty has a large investment portfolio. At the end of 2007, it had 27 concessions in hand (2006: 23) including\textsuperscript{14}:

- Connect: 8 projects
- Consort: 9 projects
- Transform: 7 projects
- Other: 3 projects

The portfolio valuation at the end of December 2007 was estimated at £299m (2006: £341m)\textsuperscript{15}.

2.2 Case studies

The interactions taking place between the different parties can be shown thanks to four examples. Two are in the education sector and two in the National Health Service sector.

1) Stoke schools

- The client is Stoke-on-Trent City Council
- Balfour companies involved are: Balfour Beatty Capital, Balfour Beatty Construction (UK), Balfour Kilpatrick and Haden Building Management.
- The project company is Balfour Beatty Capital’s concession company Transform Schools (Stoke) was awarded the 25-year contract for the schools located in the city of Stoke-on-Trent (80 primary schools, 17 secondary schools and 5 special schools). It reached financial close in October 2000. The contract amounts to £77 million. Balfour Beatty’s shareholding is 50%. The other 50 % stakeholder partner is Innisfree PFI Fund 2.
- Balfour Beatty invested £5 million of equity in the project in 2006.
- Construction work is done by Balfour Beatty Construction (UK), Balfour Kilpatrick. Facilities management is provided by Haden Building Management.

\textsuperscript{13} Balfour Beatty Plc, \textit{Annual Report and Accounts 2005}.
\textsuperscript{14} Balfour Beatty Plc, \textit{Annual Report and Accounts 2007}.
\textsuperscript{15} \textit{Ibidem}. 
2) Birmingham Hospital

- The client is University Hospital Birmingham NHS Foundation Trust and the Birmingham and Solihull Mental Health NHS Trust
- Balfour companies involved are: Balfour Beatty Capital, Balfour Beatty Construction (UK), Haden Young, Balfour Beatty Construction Plant and Fleet Services and Haden Building Management.
- Balfour Beatty Capital was awarded the 40-year, £553 million contract, for the new Birmingham Acute and Adult Psychiatric Hospitals. The construction period will last 5 years and 2 months. Mental health facilities are due to open in 2008 and the Birmingham Acute hospital in 2012
- Its Public Private Partnership (PPP) concession company, Consort Healthcare (Birmingham), reached financial close in June 2006. Balfour Beatty’s shareholding is 40%. The other two shareholder partners are Royal Bank Projects 30% and HSBC Investment Management 30%.
- Balfour Beatty will invest £23 million of equity in the project between 2009 & 2010.
- The construction work is made by a joint venture between Balfour Beatty Construction and Haden Young. Balfour Beatty Construction Plant and Fleet Services are providing temporary offices and welfare facilities. Facilities management services will be provided by Haden Building Management.

3) University College London Hospital (UCLH)

- The client is University College London Hospitals NHS Foundation Trust
- Balfour companies involved are: Balfour Beatty Capital, Balfour Beatty Construction (UK) and Haden Young
- Health Management UCLH (HMU) is the concession company awarded the £282 million contract to design and build the new hospital and to provide non-clinical services associated with the hospital for 40 years. The project reached close in July 2000. Balfour Beatty’s shareholding is 33.3%. The other two shareholders are Amec Investments and Interserve also holding 33.3% each
- Balfour Beatty invested all its £9 million of equity in the project in December 2005.
- The construction work was made by a joint venture between Balfour Beatty which holds a 50% interest. The other two partners are Haden Young and Balfour Beatty Construction. The project is being built in two phases. The first phase is completed and part of the hospital could open in June 2005. The second phase is under construction.
4) Knowsley Schools
- The client is Knowsley Metropolitan Borough Council
- Balfour companies involved are: Balfour Beatty Capital, Balfour Beatty Construction, Balfour Kilpatrick and Haden building Management. It is Balfour Beatty’s sixth major schools PFI project.
- In December 2006, Balfour Beatty capital’s education PPP concession, Transform Schools, was awarded the 25-year, £157 million Knowsley Schools contract
- Construction and building services work will be carried out by Balfour Beatty Construction and Balfour Kilpatrick; The maintenance of the schools will be undertaken by Haden Building Management
- Balfour Beatty’s shareholding is 100%
- Balfour Beatty will invest £19 million of equity in the project. As a result, its overall equity commitment to the education sector will amount to £50 million.

2. How does PFI/PPP work?

PFI/PPP was introduced to improve public sector procurement technique. A construction project can be considered as a network of transactions. In graph 1 the resource flows are represented in the PFI governance structure.

A PFI contract creates a special purpose vehicle (SPV) also called project company. It is a private consortium which finances, designs, contracts, operates and maintains a public facility typically during 25 to 30 years or even during a longer period. It is the legal owner of the concession that is granted by the public sector. It defines the roles of the different parties and the mechanism of dispute resolution. The equity of the SPV is owned by the consortium (prime contractor, service providers and banks involved in the financing). The public sector gives specifications for the service it needs and pays for the capital asset and the service provision. The private sector amortizes the cost of constructing the asset over its life-time, which require the raising of long-term finance. As a result, the risk inherent in the project is transferred from the public to the private sector via the concession contract. The SPV can raise extra financing through subordinated debt from the participants in the consortium or senior secured debt from capital markets and banks. The capacity to raise long-term finance is due to the predictability of income revenues. Debt capital being cheaper than equity financing it is not surprising that long-term debt financing gets the lion’s share. For instance in the UK,
the ratio between equity + subordinated debt and long-term senior secured debt is 1:9. The average rating of PFI project is in the BBB category. At the end of the concession period the asset returns to public ownership. Because of changes in government procurement policy that were introduced in 1995, “the picking the lowest bidder” principle has been abandoned. The government now considers “value for money” “whole life costs” and “quality” as the criteria for awarding contracts. “Contracts breaks” are possible during the life time of a FPI contract in order to introduce the necessary flexibility to deal with the uncertainties of providing a service over a 30 year period.

As shown in graph 1, the industry participants include: 1) project sponsors (shareholders), that is to say the initial providers of equity. In the four examples the equity stake provided by Balfour Beatty and is less than 10%. Balfour Beatty ha a 100% stake only in one project. Royal Bank Projects and HSBC Investment Management are involved in two projects and Amec, one of Balfour Beatty competitors, has also a stake in one project; 2) contractors (construction contractors ; hard facilities management (FM) contractors and soft management contractors). The companies involved here are : Balfour Beatty Capital, Balfour Beatty Construction, Balfour Kilpatrick and Haden building Management; Haden Young ; 3) lenders (debtholders) ; 4) third parties including advisers (financial, legal and technical advisers).

At the end of 2007, Balfour Beatty had a shareholding in 5 PFI/PPP projects and ranked 5 in terms of the capital value of the projects (Skanska the Swedish competitor was just ahead). As construction constructor it ranked 2nd by capital value of the projects with 11 projects (just after Carillion). As hard FM contractor it ranked 2nd by capital value of the projects with 7 projects (Skanska first) and as soft FM contractor it ranked 2nd by capital value of the projects with 7 projects (Mitri first). Balfour Betty’s behaviour in the PFI procurement route

- creates partnership with companies within the Group
- offers strong expertise in bidding and integrated expertise across the supply chain
- tries to develop long-term relationships with suppliers and embeds key suppliers in the procurement route as early as possible
- together with retaining control on the whole process.

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16 Standard & Poors, PFI projects Reshape the Credit Profile of Europe’s Construction Companies, 2 February 2004.
Graph 1: PFI concession structure

- **Government Public sector bodies**
  - Concession Payments
  - Interest payments
- **Shareholders**
  - Dividends
  - Equity
- **Constructor**
  - Construction Costs
- **Maintenance Company**
  - Maintenance Costs
- **Third Parties**
  - Overheads Tax
  - Loans
- **Debt holders**
3. PFI/PPP’s impact in the industry structure

PFI/PPP is bringing major changes in the British construction industry.

- It is becoming less vulnerable to the economic cycle. This is due to the fact that 1) cash flows linked to maintenance are more predictable and diminish earnings’ volatility and 2) the 30 year-lifecycle of PFI projects exceeds the 7 to 10 year duration of business cycles and is consequently less dependent on cyclical influences.\(^1\)

- Until recently the construction sector in the UK and other EU countries was characterised by intense competition and low barriers to entry. PFI is bringing about changes. High project values, the level of inherent risk, the amount of capital (initial requirements and sunk costs) and the expertise that are required in the bidding process create barriers to entry. This is resulting in takeovers and acquisitions. Good examples of this new trend are UK-based Balfour Beatty’s acquisition of the building business Mansell Plc in October 2003, followed by the acquisition of Birse Group plc in March 2006, the acquisition of Cowlin, the leading regional contractor based in the South West of England in August 2007 and the acquisition of Dean & Dyball Ltd a leading UK regional civil engineering in the South East in March 2008.\(^2\) The last three acquisitions are part of Balfour Beatty’s strategy to build leading positions in regional UK civil engineering and building markets. Moreover, by acquiring elements of its supply chain, Balfour Beatty is in a position of better control and can also put in place integrated project teams through the whole of the supply chain from conception through production to support as recommended by the Egan Report. As a result, key suppliers are more embedded in the procurement process.

A two-tier construction market is emerging in the UK and the EU with one group of big firms providing the full range of services (Amec plc, Balfour Beatty and Carillion plc in the UK; Hochtief AG and Bilfinger Berger AG in Germany; Skanska AB in Sweden; and Grupo Ferrovial and Grupo Gradagos SA in Spain) and smaller companies acting as subcontractors.\(^3\)

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\(^1\) Standard & Poors, PFI projects Reshape the Credit Profile of Europe’s Construction Companies, 2 February 2004.

\(^2\) Another example of this new trend is Spanish Grupo Ferrovial’s takeover of Amey in April 2003. Other firms have bought big consulting firms.

\(^3\) Ibidem.
New players are entering the construction market, namely law firms and financial institutions. Nevertheless, the British construction sector still remains less concentrated at the aggregate level than the British manufacturing industry. The largest 100 private contractors account for approximately 20% of construction activity whereas the largest 100 manufacturing firms account for 30-35% of their sector output.

**Conclusion**

The example of Balfour Betty shows that the new procurement method under the Public Private Initiative is reshaping contractual relations in the construction industry and having important consequences on the British construction market. Further research could try to investigate if the new governance structure resulting from PFI is performing better than other governance structures.

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Balfour Beatty utility solutions
  <http://www.bbusl.com/>

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**Appendix 1 : Balfour Beatty’s businesses engaged in PFI/PPP activity**

- **Investment and Development Division**

1) **Balfour Beatty Capital**: founded in mid 1990s following the launching of the Private Finance Initiative.

- **Building, Building Management and Services Division**

2) **Balfour Beatty Construction (UK)**23 which operates from 3 regional centres – Edinburgh, Sale (near Manchester) and Walton on Thames – supported by a network of local offices. It also operates Balfour Beatty Refurbishment, a specialist of the refurbishment of public and private buildings in the Greater London Area. The acquisition of Cowlin in August 2007 for £52 million, a building and refurbishing contractor located in Bristol which operates through 4 regional offices (Bristol, Cardiff, Plymouth and Yeovil), extended its regional presence South West of England.

3) **Balfour Kilpatrick** is one of the largest British service organisations which operates essentially on the multi-services market and on the power systems market. It execute large projects in the nuclear, power, petrochemical, pharmaceutical and infrastructure sectors. It is a leading provider in the nuclear energy sector. Concerning Power Systems it operates through two specialist companies : Cruickshanks and Loundsdale Electric.

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23 Balfour Beatty Construction (US) operates on the US market.
4) **Haden Building Management** was created in the 19th century and since then it has developed into an organisation which is one of the market leaders in outsourced business services. More recently, it has become a market leader in the in PFI service management within the health and education sectors.

5) **Haden Young** is involved in non-construction related activities. It is one of the UK's largest mechanical and electrical (M&E) services contractors specialised in the design, supply, installation and commissioning of building engineering services. It focus on heating, ventilation and air-conditioning (HVAC), electrical, plumbing, fire protection, and information technology design, construction and commissioning. Its main clients are: National Health Service (NHS) Estates, Universities throughout England, Scotland and Wales, Scottish Prison Service, Royal Bank of Scotland, Pfizer, BAE Systems, Ford Motor Company

6) **Mansell** was acquired by the Balfour Beatty Group at the end of 2003 and is one of the leading construction and property services provider. Its activities are focused on selected markets: social housing, education, health, heritage, interior solutions, airports, defence and telecoms. Its main clients are BAA, BT, Ministry of Defence, Department for Work and Pensions, Unite and a number of major UK housing associations.

- **Civil and Specialist Engineering and Services Division**

7) **Balfour Beatty Ground Engineering** operates two organisations: Balfour Beatty Regional Civil Engineering, which works on the regional market, and Balfour Beatty Major Civil Engineering, which operates large-scale complex projects. In the regional civil engineering business, the acquisition of Birse in July 2006, extended its regional coverage throughout the UK. Its main clients include the Highways Agency, Transport for London and Network Rail.

8) **Balfour Beatty Management** is an integrated business services company which provides management and consultancy for the infrastructure, engineering and commercial building sectors.
9) **Balfour Beatty Utility Solutions** is the UK’s largest multi-utility solutions provider. It has a strong position in international markets. It works provides services for the maintenance of essential utility assets (water, wastewater, gas and electricity).