Intellectual Capital Management

Professor Al-Ali

24 Hours Take Home Exam

Spring 2003

Please read the following instructions carefully:

1. You may freely brainstorm and discuss the exam questions with your colleagues.
2. Your answer should be written individually and independently.
3. Type your answer with 1.5 lines space, in Times New Roman font pt 12.
4. Use your exam number.

Good Luck

Question One (35 marks – 50%)

You are approached by the newly appointed CKO, Mel, at Mad Max Auto Co. (Mad Max). Mad Max is a manufacturer of sports cars. Its mission is to "leverage the knowledge of its 60,000 employees scattered across 45 plants in 30 countries, to design and manufacture the cars of the future". Mel is entrusted with leading Mad Max' knowledge management efforts. He asks you to write a memo to review best practices, both in the automobile and other industries, for the management of knowledge and advise him on the most appropriate strategy for Mad Max.

In preparing your memo to Mel cover the following:

1. A brief definition of knowledge management and the objectives that management should aim for. (5 marks)
2. A review of knowledge management strategies and how they have been utilized by best performing companies in the automobile and other industries (you have to

refer to particular examples and you are expected to have covered the material in the knowledge management business cases). (20 marks)

3. Your recommendation on the strategy that Mad Max should implement and why. You may recommend an 80/20, or other, combination of the strategies you outlined in 2 above. (10 marks)

Recommended pages to answer this question: 6 - 7

Question Two (35 marks – 50%)

You have accepted the new job position of IP Strategist at Bayer's Corporate Center. Bayer is a group of 350 companies, arranged under 7 subgroups, extended all over the world with 123,000 employees. You report to the "Law & Patents" and the "Corporate Planning" officers in the Corporate Center (see Appendix A). On your first day, Heiker and Hartwig entrust you with the following task:

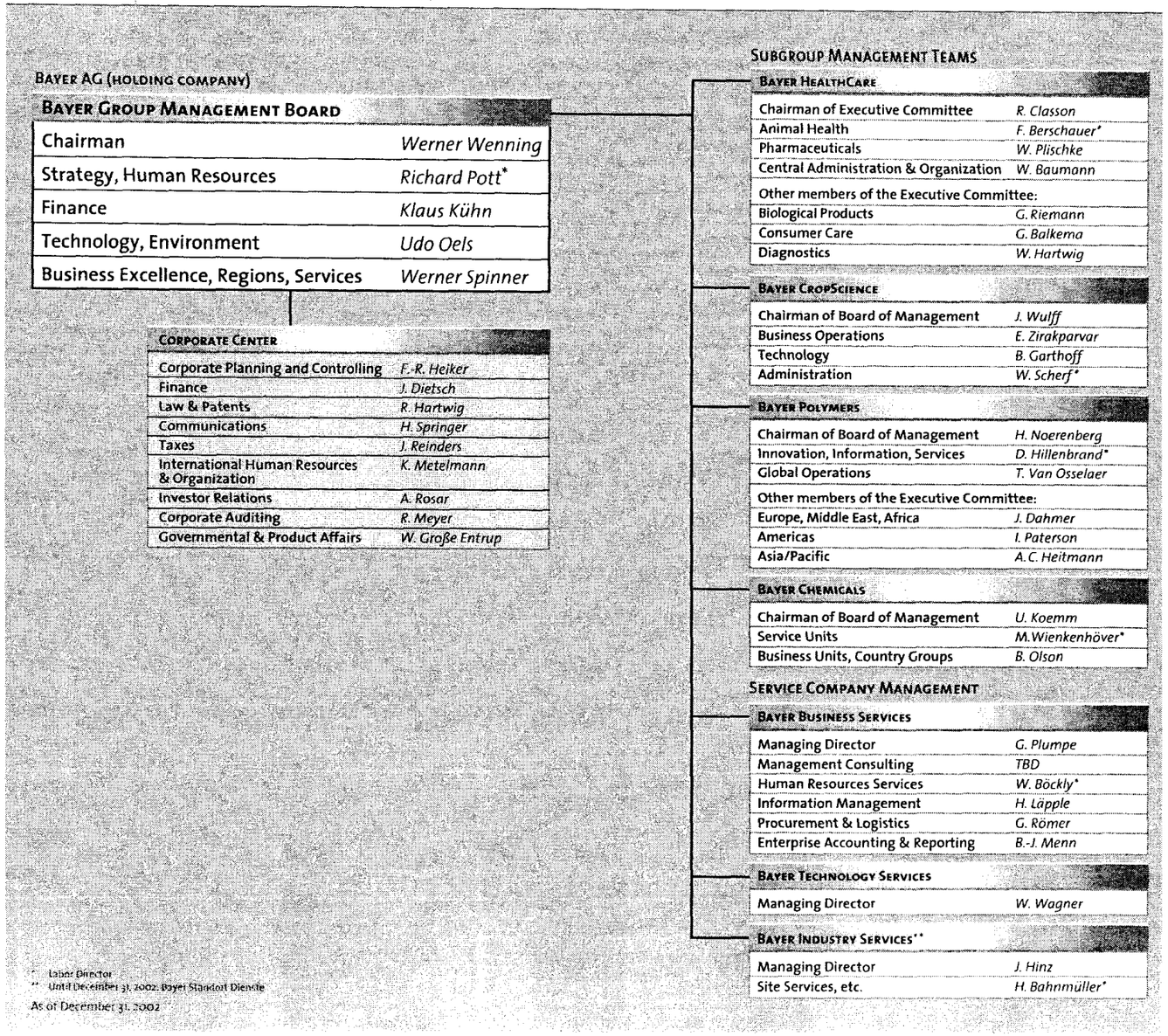
> "We have done a great job protecting all forms of IP at Bayer. As you know our subgroups include CorpScience, Polymers and Chemicals - where patents are of primary importance; Bayer Healthcare where brand awareness plays a major role; and our Business, Technology and Industry Services subgroups. Though our Business and Technology Services subgroups primarily offer services to Bayer's companies and partners, a substantial percentage of their revenue comes from external customers. Both subgroups develop a number of software programs that aid in automation of business processes, and other IT applications.
> As you would have gathered, one form or another of IP makes the core business asset of any of these subgroups. You can consult the company's guide to familiarize yourself with the subgroups (attached as Appendix B).
> What we want you to do, is to devise a strategy for the commercialization of patents, trademarks/brands, and copyrights for these subgroups to augment our strong IP protection system. We need to find a way to help these subgroups increase their revenues by capitalizing on their respective IP portfolios."

In your report provide the following:

1. A brief description of the various forms of IP as business assets for revenue generation targeted to managers (non-lawyers). (5 marks)
2. A guide for the subgroups on when to license, who they should offer a license to, and in what form. (10 marks)
3. Your recommendations as to the structure/organization and form of the commercialization function – should it be centralized as part of the corporate center or decentralized at the subgroup level or even further to the project team level. In your answer give examples of the practices of the best performing companies and their respective licensing revenues. (20 marks)

Recommended pages to answer this question: 6 -7

Organization Chart



Bayer AG (holding company)

Bayer Group Management Board	
Chairman	*Werner Wenning*
Strategy, Human Resources	*Richard Pott**
Finance	*Klaus Kühn*
Technology, Environment	*Udo Oels*
Business Excellence, Regions, Services	*Werner Spinner*

Corporate Center	
Corporate Planning and Controlling	*F.-R. Heiker*
Finance	*J. Dietsch*
Law & Patents	*R. Hartwig*
Communications	*H. Springer*
Taxes	*J. Reinders*
International Human Resources & Organization	*K. Metelmann*
Investor Relations	*A. Rosar*
Corporate Auditing	*R. Meyer*
Governmental & Product Affairs	*W. Große Entrup*

Subgroup Management Teams

Bayer HealthCare	
Chairman of Executive Committee	*R. Classon*
Animal Health	*F. Berschauer**
Pharmaceuticals	*W. Plischke*
Central Administration & Organization	*W. Baumann*
Other members of the Executive Committee:	
Biological Products	*G. Riemann*
Consumer Care	*G. Balkema*
Diagnostics	*W. Hartwig*

Bayer CropScience	
Chairman of Board of Management	*J. Wulff*
Business Operations	*E. Zirakparvar*
Technology	*B. Garthoff*
Administration	*W. Scherf**

Bayer Polymers	
Chairman of Board of Management	*H. Noerenberg*
Innovation, Information, Services	*D. Hillenbrand**
Global Operations	*T. Van Osselaer*
Other members of the Executive Committee:	
Europe, Middle East, Africa	*J. Dahmer*
Americas	*I. Paterson*
Asia/Pacific	*A.C. Heitmann*

Bayer Chemicals	
Chairman of Board of Management	*U. Koemm*
Service Units	*M. Wienkenhöver**
Business Units, Country Groups	*B. Olson*

Service Company Management

Bayer Business Services	
Managing Director	*G. Plumpe*
Management Consulting	*TBD*
Human Resources Services	*W. Böckly**
Information Management	*H. Läpple*
Procurement & Logistics	*G. Römer*
Enterprise Accounting & Reporting	*B.-J. Menn*

Bayer Technology Services	
Managing Director	*W. Wagner*

Bayer Industry Services**	
Managing Director	*J. Hinz*
Site Services, etc.	*H. Bahnmüller**

* Labor Director
** Until December 31, 2002: Bayer Standort Dienste

As of December 31, 2002

App. B (1)

Subgroups and Service Companies

The current business areas will be placed into the subgroups Bayer HealthCare AG, Bayer CropScience AG, Bayer Polymers AG and Bayer Chemicals AG. The functions of the current corporate and service divisions will be allocated to either the holding company, the four subgroups or the service companies Bayer Business Services GmbH, Bayer Technology Services GmbH and Bayer Industry Services GmbH & Co. OHG (named Bayer Standort Dienste GmbH & Co. OHG until December 31, 2002).

Wherever necessary, the existing Bayer country and country group organizations will be divided into legally independent companies for business areas. According to plans, central services for the individual country or country group will generally be brought together in a service company.

Subgroups

Bayer HealthCare

Bayer HealthCare brings together all health care activities worldwide in the Pharmaceuticals, Consumer Care, Biological Products, Diagnostics and Animal Health divisions, which recorded combined sales of approximately €11 billion in 2001. The new subgroup includes the affiliated companies Bayer Vital and KVP Kieler Pharma und Veterinärprodukte GmbH in Germany, as well as numerous international affiliates. Bayer HealthCare has more than 36,000 employees worldwide.

The Management Board Chairman of Bayer HealthCare AG also serves as Chairman of the Executive Committee, which is made up of the five HealthCare division heads and the Chief Administrative Officer. The Animal Health and Pharmaceuticals divisions are headquartered in Germany, while Consumer Care, Biological Products and Diagnostics are based in the United States.

The new company aims to consolidate the strengths of the five divisions, exploit synergies and increase corporate value.

The most important products of Bayer HealthCare AG are:

- **Advantage®** (flea control for pets)
- **ADVIA®** (immunology, hematology, clinical chemistry, laboratory automation)
- **Alka-Seltzer®** (pain, colds)
- **Ascensia®** (blood glucose measurement systems and services for diabetics)
- **Aspirin®** (pain, fever, inflammation)
- **Baytril®** (infectious diseases in animals)
- **Ciprobay® and Avalox®/Avelox®** (infectious diseases)
- **Glucobay®** (diabetes)
- **Kogenate®** (hemophilia)
- **Polyglobin®** (immune therapy)

Bayer CropScience

Bayer CropScience AG, headquartered in Monheim, Germany, became legally independent on October 1, 2002, with retroactive economic effect to January 1, 2002. The company was formed by combining Bayer's former Crop Protection Business Group with the newly acquired Aventis CropScience, and the integration process is scheduled to be largely completed by the end of 2002.

With approximately 22,000 employees and combined pro forma sales of roughly €6.5 billion following the required divestitures, Bayer CropScience AG has become the number two supplier in the industry. Subsidiaries or representations in 122 countries ensure short paths to the customer.

The new subgroup is headed by a four-member board of management based in Monheim. On June 4, 2002, Bayer CropScience became the first reorganized subgroup to launch business operations. Its

corporate structure is aligned according to operating, functional and regional requirements.

The Crop Protection, Bioscience and Environmental Science business groups have excellent research facilities at their disposal in Europe, Japan and North America.

The goal of Bayer CropScience AG is to achieve sustained profitable growth in all its fields of business. The acquisition of Aventis CropScience will enable Bayer to offer a complete product portfolio in all segments of the crop protection and non-agricultural pest control markets.

The most important products of Bayer CropScience AG are:

- **Admire®/Confidor®/Premise®** (insecticide)
- **Aliette®** (fungicide)
- **Atlantis®** (herbicide for cereals)
- **Basta®** (herbicide for field crops)
- **Betanal®** (herbicide for beets)
- **Calypso®** (insecticide)
- **Decis®** (insecticide)
- **Flint®** (fungicide)
- **Folicur®** (fungicide)
- **Gaucho®** (insecticidal seed dressing)
- **Herold®/Terano®/Axiom®** (herbicide for cereal and corn crops)
- **Melody®** (fungicide)
- **Puma super®** (herbicide for cereals)
- **Raxil®** (fungicidal seed dressing)
- **Sencor®** (herbicide for potatoes)
- **Teldor®** (fungicide)
- **Win®** (fungicide for rice)

Bayer Polymers

Leverkusen-based Bayer Polymers AG is one of the world's biggest polymer companies, with approximately 23,000 employees and sales in 2001 of about €11 billion. The company was formed by combining the former Plastics, Rubber, Polyurethanes, and Coatings and Colorants business groups, along with subsidiary Bayer Faser GmbH.

Its marketing activities are focused in the EMEA (Europe, Middle East, Africa), Americas (North and South America) and Asia/Pacific regions with regional service centers. Its planned headquarters are in Leverkusen, Germany; Pittsburgh, Pennsylvania, United States; and Shanghai, China.

Bayer Polymers is already a market leader in many areas and occupies very good positions in others. Engineering thermoplastics and isocyanates are a main focus, while Bayer Polymers aims to become the market leader in polycarbonates – a key plastic for applications such as CDs and DVDs.

This subgroup is headed by a three-member board of management. The board members and regional heads make up the Global Executive Committee. The further corporate structure is aligned according to global product areas, innovation, information and services, and regions.

The global operations of Bayer Polymers include:

- Polycarbonates
- Styrenics
- Semi-Crystalline Products
- MDI
- TDI
- Polyether
- Butadiene Rubber/Butyl
- Technical Rubber Products
- Rubber Chemicals
- Base and Modified Isocyanates

App B (2)

- Polyester, Thermoplastic Polyurethane, Films
- Inorganic Basic Chemicals
- Polymer Technology

Common technology structures – particularly in production, logistics and distribution – and a joint information technology platform yield considerable synergies.

Key brands of Bayer Polymers AG include:

- **Desmodur®/Desmophen®** (automotive and industrial coatings, anti-corrosion systems and floor coatings)
- **Makrolon®** (CDs, CD-Rs, DVDs, automotive, construction and optics applications)
- **Therban®** (automotive, oil, electronics, appliance manufacturing and shipbuilding industries)
- **Vulkollan®** (automotive, printing and mechanical engineering industries)

Bayer Chemicals

Bayer Chemicals is an amalgamation of the two former business groups Basic and Fine Chemicals and Specialty Products. It also includes the organic colorants and inorganic pigments activities of the former Coatings and Colorants Business Group and the cellulose derivatives of subsidiary Wolff Walsrode. The independent subgroup H.C. Starck is also assigned to Bayer Chemicals for organizational purposes.

With 14,500 employees and sales of more than €4 billion, Bayer Chemicals is one of the leading players in the chemicals market. It is represented in all major consumer countries and regions. Its core competencies are in applications-related R&D and the environmentally friendly manufacture of specialty, basic and fine chemicals. Expertise in the field of fine chemicals – particularly for pharmaceutical and agrochemical active ingredients – occupies a key position in the company's service portfolio.

The business units of Bayer Chemicals are:

- Basic Chemicals
- Colorants for Plastics & Specialities
- Fine Chemicals
- Inorganic Pigments
- Ion Exchange Resins
- Leather
- Material Protection
- Paper
- Performance Chemicals
- Textile Processing Chemicals
- Wolff Walsrode

Innovative products from Bayer Chemicals that have already received numerous environmental prizes from independent organizations include biodegradable dispersion agents used for water softening purposes in laundry and dishwashing detergents. Integrated environmental protection is also a feature of the new enzyme-based textile auxiliaries used, for example, in pre-treating cotton.

The most important products of Bayer Chemicals AG are:

- **Bayferrox®** (color pigments for the construction industry)
- **Baypure®** (detergents and cleaning products)
- **Preventol®** (material protection agents)

App B (4)

SERVICE COMPANIES

Bayer Business Services

Bayer Business Services (BBS) is an international supplier of competitive services. These include primarily business and administrative tasks for the Bayer Group and Chemical Park partners, as well as for external customers. A variety of services are also performed by BBS subsidiaries.

Bayer Business Services is headquartered in Leverkusen and represented at nearly all Bayer sites. The company has 7,000 employees and global sales of around €1.7 billion.

The service spectrum of BBS is organized in the following units:

- ▶ Procurement and Logistics
- ▶ Information Management
- ▶ Management Consulting
- ▶ Human Resources Services
- ▶ Legal Consulting (for Bayer Group companies only)
- ▶ Enterprise Accounting and Reporting

Bayer Technology Services

Bayer Technology Services (BTS) offers its technological expertise globally in development, planning, construction and process optimization for pharmaceutical and chemical production facilities. This service offering is available primarily to other Bayer companies and Chemical Park partners. BTS also procures utilities for the Bayer Group and provides consulting services in matters of utility and facility management.

The newly established service company headquartered in Leverkusen is organizationally aligned to meet the requirements of Bayer's business area companies. Its 1,800 German and 400 international employees ensure specialist and personnel continuity and efficient project processing. BTS anticipates annual sales of approximately €630 million, based on equivalent 2001 figures.

Bayer Industry Services

Bayer Industry Services* provides infrastructure services to Bayer's German production sites and Chemical Park partners. Its extensive service spectrum ranges from the technical inspection and maintenance of facilities, the supply of utilities, safety and analytics to infrastructure and the disposal of industrial waste and wastewater.

Based in Leverkusen, Bayer Industry Services is headed by two managing directors and has a workforce of approximately 7,400. The company's legal form is that of a general partnership whose sole partners are Bayer AG – which holds 100 percent of the partnership assets – and Bayer Industry Services GmbH, which is responsible for business management and representation.

Bayer Industry Services also serves as the Bayer Group's property administration company, and as the contractual partner for all Chemical Park partners.

* Until December 31, 2002: Bayer Standort Dienste