

CV Joints*

A case study for use in teaching in Engineering Ethics

Abstract

This scenario examines issues around the intellectual property of an idea possibly inspired by working at a company.

Teaching Format

1 hour session, small group discussions

Practicalities

This case study is aimed at students who have not studied ethics before.

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Relevant Ethical Concepts & Issues

- Professionalism
- Intellectual Property
- Employer-Employee Relations

More information about these concepts and issues can be found in the 'Glossary for Engineers' document

* The scenario for this case study was originally part of the course "The Professional Responsibility of Engineers", developed and taught by Professor Ian Howard in department of Mechanical Engineering, University of Sheffield 1999 – 2005. Dr Heather Fotheringham is author of the tutor notes

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CV Joints

You graduated as a mechanical engineer five years ago, taking a job as a trainee engineer with a major automotive manufacturer. Since you were not happy with this company, you left three years ago to work for Hallmark, a large UK-based engineering consultancy company with several important offices worldwide. Hallmark commonly contract-out their employees to other companies (many consultancies do this). These often involve Hallmark engineers working for many months (sometimes years) at the other company, forming close working relationships with the company's engineers and other staff, and being party to information and data that are confidential to the company.

Soon after you started at Hallmark, they contracted you to work for PartCo Ltd, a large company that designs and manufactures automotive parts (PartCo often contract with Hallmark for engineers when PartCo has important work that requires extra staff). PartCo is a worldwide organisation and does business with most UK, European and Japanese automobile manufacturers. You joined a group doing relatively routine, but highly demanding, work on clarifying the design details for a new range of constant velocity (CV) joints for front-wheel drives. This required computer-based engineering simulations of the parts, testing of prototypes, and final assurance of the products before the designs were released for manufacturing.

Whilst you have been doing this, you got a really good idea for a completely new type of CV joint. You have worked on the idea at week-ends and now believe that it could revolutionise vehicle propulsion. You have continued to work privately on this idea after returning to Hallmark to work on other, non-automotive, jobs.

You have told no-one at either PartCo or Hallmark of your private activities on the new CV joints.

Questions

- (i) What intellectual property (IP) is involved here?
- (ii) Who owns it?
- (iii) If you wished to secure and exploit rights to the new CV joint, how would you go about it?
- (iv) Could you justify your actions ethically?

Tutor Notes

The tutor's role is as a facilitator of discussion. This means that if discussion is measured, intelligent and relevant then you may have to do nothing while the groups discuss the case (However, this rarely happens!). Your main role is to ensure that people are talking. If they are not, you can prompt them with leading questions ("What do you think IP is?" etc.) or simply get them to be clear about what they are saying ("summarise your view in no more than one sentence"). If people are talking, but not talking about the right thing, or straying from the point then you should gently intervene and steer them back to the issue ("You seem to be focussing on ... but I think the more relevant issue is ...") If students fixate on the legal issues surrounding IP then supply them with a copy of the intellectual property handout found later in this document. This should clarify the legal facts and allow students to concentrate in the ethical dimensions of the case.

Introduction (5 minutes or less for this section)

To begin the class, give each student a handout and give them time to read the text.

Small Group Discussions (15-20 minutes)

Next split the students into groups of 4-6 (These are ideal numbers but larger groups are workable. There should really be no more than 5 groups in a class and larger group sizes are preferable to greater numbers of groups so expand group sizes if necessary) and get them to discuss the questions. Encourage students to move chairs or themselves around where possible so that group members can hear each other and so that the different groups are sufficiently distinct from one another. It is often useful to split up groups of friends and put students with people with whom they would not normally converse. While this might make the students awkward to begin with, it helps them to focus on the task and usually ensures that a broad range of opinions are represented within each group making the discussion livelier and more involved. Tell each group that are going to have to report back the class; perhaps each group could nominate a 'scribe' at this point to jot down what points each members of the group make. Get the groups to discuss the questions given after the scenario. Explain that the questions are phrased so that justification for answers must be given and that you will be expecting to hear why groups thought what they did as well as what they thought when they report back.

Feedback (15 minutes)

Bring the students back into a large group, moving chairs where necessary, and ask one member of each group to report back to the class as a whole. Give each spokesperson a few minutes in which to give their report, and move on to the next group when they are finished. There should be no discussion at this point- if any students interrupt tell them to record their thoughts on paper for the time being, and that there will be time to discuss this after each group has presented. Record what each group says on a board or flipchart. Here are the main points that should get covered:

(i) What intellectual property (IP) is involved here?

This question is simply asking students to identify the 'outputs of intellectual activity' that are present in this case. We are **not yet** asking whether anything ethically wrong has occurred.

This may be an appropriate point at which to discuss what students take the term 'intellectual property' to mean. I think it refers to *any* product of intellectual activity, regardless of whether or not it is protected by law but students may disagree.

The IP present in this case is:

- Design of CV joints for PartCo (including drawings, calculations etc.)
- Data concerned with testing of these joints (e.g. methods, data, models, assurance methods etc.)
- 'New' design of CV joint (including drawings, calculations etc.)

(ii) Who owns it?

The design for the CV joints that you are working on is owned by PartCo. Whether considering the design as protected by copyright or design right, the design belongs to the employer.

The data concerned with the testing etc. of the CV joints is not protected under IP law. However, morally, one would argue that this data belongs to PartCo unless it is in the public domain.

Legally, the issue of who owns the **new idea** is dependent on the nature of the contract between you, Hallmark & PartCo. The contract between PartCo and Hallmark (and therefore PartCo and you, as an employee of Hallmark) may state that any of your output related to the job in hand belongs to PartCo, irrespective of whether it was completed in work hours or not. In this case, PartCo could argue that the new idea belongs to them. However, a contract which takes away people's 'natural rights' cannot be legally binding- if it can be argued that this contract takes away your natural right then PartCo cannot claim a legal right to the new idea.

It will be useful to share this legal information with students to lead them on to a discussion of what one's 'natural rights' are. 'Natural rights' are usually construed as those rights that one has automatically, simply in virtue of being a member of the human race (e.g. right to life, liberty and the pursuit of happiness) Perhaps one has the natural right to the fruit of one's own labour and this cannot be forfeited simply by taking a job with a particular company. However, you signed the contract and so must have been fully aware of this at the time- does this mean that you are bound by its terms even if those terms are unfair?

However, the contract may not contain such a clause. In this case, the idea belongs to you, as long as you have not used PartCo resources to help your design (this would mean that it was effectively developed while 'at work') **and** only if the design is sufficiently different to the ones you are working on for PartCo (if not, this would breach design right and possibly copyright).

Morally, it is not clear who owns the new idea. This is really dependent upon whether the idea really is a new one, and whether you coming up with the idea can be deemed as and act independent from your work. This issue can be explored further when discussing question (d).

(iii) If you wished to secure and exploit rights to the new CV joint, how would you go about it?

There are two choices here really: Go it alone, or approach a company (PartCo/Hallmark/other) and get the financial backing to make the design a commercial success. There will be legal and practical considerations related to each choice:

Go it alone: The chances of you having enough money to exploit the design are very small, unless you are a multi-millionaire. Also, PartCo are likely to try and claim that the design is theirs (either by arguing that you developed it at work or by arguing that it is sufficiently similar to their existing designs). Pursuing this will probably lead to a lengthy and expensive court case.

Approach a company: Approaching anyone other than PartCo may have the same result as going it alone: Although another backer will have the financial resources to pursue a court case, they are unlikely to be willing to do so unless they are assured of winning (which they should not be for the reasons given above) or that they are convinced that the design is going to be so lucrative that it is worth them taking a chance and fighting it out in court (again, a bit risky). Taking it to Hallmark might work- they may be able to argue that as the design was being worked on after the contract with PartCo had ended that they were your employer and that the design therefore legitimately belongs to them. However, it seems most prudent to approach PartCo and sell them the design.

(iv) Could you justify your actions ethically?

The answer to this question really depends upon whether or not the new idea can be legitimately regarded as your own. Perhaps get students to clarify their views on this issue before attempting to address this question. It is a difficult question to answer and here are some considerations to support both sides of the argument:

The new idea is yours: Whilst you may have been inspired by the work that you were doing, the idea was genuinely new. Even if the initial spark of an idea occurred whilst at work, the development of the design occurred outside of work time, and that is the most important aspect of the design (1% inspiration, 99% perspiration)

The idea is not yours: If you had not been working for PartCo on the CV project at that time then the idea would never have occurred to you. Working for PartCo is responsible for you having the thoughts and ideas that you did. Also, these ideas will be dependent upon the work you are doing for PartCo- you will be drawing upon the knowledge and experience gained in the workplace to develop the new design.

If I had to support either view then I would go for the first one, simply because I think that it is difficult to argue that the output of any activity remotely connected to your work legitimately belongs to your employer. Whilst there may be borderline cases like this one where the employer may have a claim, on the whole it is difficult to draw the line between where work ends and leisure or personal time begins. In light of this, I think that the default position should be that unless activities can clearly be defined as ‘work’ activities, then they should be regarded as personal. This way, it is much less likely that people’s autonomy will be infringed, and this is important, even if the cost is that some employers lose out.

So, could you justify your actions ethically? Whether going it alone or approaching a company, if you regard the idea for the new CV joint as your own, then it looks like you have every right to use the idea as you see fit, including the right to profit from it financially. However, this would involve having to defend and prove the claim that the idea was genuinely your own, and that it had been completed during your own time and this is difficult. If the new idea is not your own then both going it alone and approaching another company is an act of betrayal. PartCo has trusted you with knowledge and information and you have used this to your own financial gain. In fact, if the new idea belongs to PartCo or Hallmark then you really have a moral obligation to hand it over.

It also might be worth discussing whether any of the above actions can be regarded as *unprofessional*, whether or not they are immoral.

After the questions have been discussed, it is time to **conclude the lesson**. The main themes that this case study raises are issues surrounding intellectual property, duty to employers (including past employers) and professionalism (more information on these issues can be found in the Glossary for Engineers). You can talk through the notes on the flipchart to reiterate what has been discussed.

If this is the first time that students have encountered ethics then you may wish to talk briefly about what ethics is. This is much easier to do after students have had some experience of the subject. Ethics can be defined as follows:

- The study of the principles, rules and considerations that inform our moral judgements - judgements about what is right or wrong.
- Looking at whether we have good reasons for our beliefs about what is right and wrong by analysing those principles, rules and considerations.

You can mention how this case study involved identifying what principles of behaviour apply to employees and whether or not these principles are sufficient to justify marketing the idea for the CV joint.

Student Handout: Intellectual Property

WHAT IS IT?

'Intellectual property' generally refers to any output of intellectual activity which legitimately belongs to some individual, group of individuals or organisation. However, 'intellectual property' is sometimes used to refer only to those outputs of intellectual activity that are protected by law. (Legal) Intellectual property is divided into four main types, based on the kind of material covered; these are given in the table below. Some of these kinds of intellectual property are automatically protected under by the law whereas others need to be registered to acquire protection. Those which need to be registered will have to satisfy some kind of registration requirement; usually that the intellectual property in question is 'new' or 'original' in some way.

IP TYPE	MATERIAL COVERED	KIND OF PROTECTION
Copyright	Literature, art, music, sound recordings, films, broadcasts, drawings, original text, photographs	Automatic
Trade Mark	Signs & logos that distinguish the goods & services of one trader from those of another	Registered
Designs	Visual appearance or 'eye appeal' of products	Copyright- Automatic Design right- Automatic Registered Design-registered
Patent	Technical & functional aspects of products & processes	Registered

WHAT IS THE LAW?

COPYRIGHT

Copyright is the exclusive right given by law for a certain number of years to an author, composer, designer etc. (or assignee) to print, publish and sell copies of his/her original work. This covers works of the kind listed above but does not cover facts, data or ideas.

Lengths of copyright differ according to the kind of work in question (70 years from death of author/artist for literary and artistic works, 50 years from time of recording for sound recordings). There are some exemptions to copyright. The principle of fair dealing allows people to copy a small amount of copyright material without permission (extracts of 400 words). People are allowed to make temporary copies of works, read out the works of others in public, or photograph works of art that are on public display, for example. Some institutions have special licenses allowing them to copy material without seeking the author's permission (libraries, educational establishments, copying for use in legal proceedings).

TRADE MARKS

A trade mark protects any sign or symbol that allows customers to tell businesses apart from their competitors. Names, logos, slogans, domain names, shapes, colours and sounds can be registered.

To be registered, a trade mark must be:

- distinctive for the goods and services applied for
- not similar or identical to any earlier marks for the same or similar goods and services
- not deceptive, or contrary to law or morality.

Once a trademark has been registered, it is against the law to reproduce this trademark without the owner's permission.

DESIGNS

Design protection covers the outward appearance of a product, including decoration, lines, contours, colours, shape, texture and materials. Because the term 'design' refers to the diagrams used to depict the design as well as the 'look' of the product in question, designs can be protected in three ways:

Copyright: As an artistic product, diagrams, plans and drawings of a product are automatically protected under copyright laws.

Design Right: Design right gives a creator automatic protection for the internal or external shape or configuration of an original design. This stops anyone from copying the shape or configuration of the product, but does not protect against any of the two-dimensional aspects such as patterns. Two-dimensional designs can be protected using copyright or registered designs. Design right lasts either 10 years or 15 years. For the first 5 years no one can copy the design. For the rest of the time the design is subject to a license of right. This means that anyone is entitled to a licence to make and sell products copying the design. Design right only gives protection in the United Kingdom.

Registered Design: A registered design gives the creator a monopoly right for the look of a product, protecting both the shape and the pattern or decoration. A registered design will cover the lines, contours, colours, shape, texture and materials of the product or its ornamentation. This right must be applied for and approved before protection of this kind under the law is given. To be registered, a design must:

- be new
- have individual character; it should not remind an informed person of an existing design.

PATENTS

A patent protects new inventions and covers how things work, what they do, how they do it, what they are made of and how they are made. It gives the owner the right to prevent others from making, using, importing or selling the invention without permission. Patents must be applied for and approved before any protection under the law is given.

To qualify for a patent an invention must:

- be new
- have an inventive step that is not obvious to someone with knowledge and experience in the subject
- be capable of being made or used in some kind of industry
- **not** be:
 - a scientific or mathematical discovery, theory or method
 - a literary, dramatic, musical or artistic work
 - a way of performing a mental act, playing a game or doing business
 - the presentation of information, or some computer programs
 - an animal or plant variety
- a method of medical treatment or diagnosis
- against public policy or morality

WHO OWNS IT?

It depends on the type, circumstances and prior contractual agreements. However, the general rules (and exceptions to them) are given below.

IP TYPE	GENERAL RULE	EXCEPTION
Copyright	Author	Joint Ownership, Employees
Trade Mark	Registered Proprietor	Copyright owner
Design Right	Designer	Employees, Commissioned work
Registered Design	Registered Proprietor	Employees, Commissioned work
Patent	Inventor	Employees, Assignees

Further Reading

Professionalism

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- Harris, C., Pritchard, M. & Rabins, H. (1995) *Engineering Ethics: Concepts & Cases*, New York: Wadsworth. Chapter 2.

Duty to Employers

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- Scrag, B. (2001) 'The Moral Significance of Employee Loyalty', *Business Ethics Quarterly* **11(1)**: 41-66
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Date: November 2007

How to Cite this Case Study: Fotheringham, H. & Howard, I. (2007), 'CV Joints', *Engineering Ethics Case Studies Database*, University of Leeds, viewed (date month year)

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