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## Legal Engineering in Comparative Law – An Introduction

### 1. Introduction

Over the past 25 years, the Swiss Institute of Comparative Law in Lausanne (Switzerland) has been called upon to draft expert opinions about the legal systems of most countries in the world. Some opinions were simple presentations of the workings of legal mechanisms in a specific jurisdiction.<sup>1</sup> Many opinions however entailed the abstract deconstruction of a specific foreign legal institution, to adapt it within court proceedings, either to Swiss legal terminology and understanding, or even to enable the transplantation of such legal institutions to a foreign jurisdiction.<sup>2</sup> One recent case in this respect includes the creation *sui generis* of a structure under Portuguese law that would have had the same effect in Portugal as the Liechtenstein *Treuhand*. Mechanisms taken from contract law, the law of successions, company law, and property law were used to create this specific legal entity. Another example can be taken from the certification activity of transnational company transfers to Switzerland, where the compatibility of such a transfer is examined under both Swiss and foreign law.

Lawyers at the Institute have, thus, perfected over the years a specific methodology, essentially in private law, that takes into account all sources of law, and allows for the creation of abstract legal structures that fulfil particular functional and practical purposes. This (re-)engineering of legal concepts and legal sources has given the scientific team in Lausanne a rare technical competence where both the scientific aspects of legal reasoning are taken into account and the complex practical issues are addressed in a pragmatic client-oriented manner. As a result, the phrase “legal engineering in comparative law” seems to describe in a very accurate way the scientific activity of the Swiss Institute of Comparative Law.

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<sup>1</sup> VOGENAUER, S., “Sources of Law and Legal Method in Comparative Law”, in M. Reimann, R. Zimmermann (eds.) *The Oxford Handbook of Comparative Law*, Oxford, Oxford University Press, 2006, pp. 869-898 (872): “*bloße Auslandsrechtskunde*”.

<sup>2</sup> Using also the terms of deconstructing and reconstructing legal systems: ÖRUCÜ, E., “Family Trees for Legal Systems: Towards a Contemporary Approach” in M. van Hoëcke (ed.), *Epistemology and Methodology of Comparative Law*, Oxford, Hart Publishing, 2004, pp. 359-375 (375).

Yet it is not common to apply the concept of “legal engineering” to comparative law<sup>3</sup> or even to law in general.<sup>4</sup> Consequently, the concept of legal engineering *stricto sensu* is largely unknown to legal scholars. Notwithstanding this terminological hurdle, methods used on the one hand in engineering and on the other hand in applied comparative law research<sup>5</sup> are similar.<sup>6</sup> This book aims to show how engineering methods are used in comparative law research and practice.<sup>7</sup> Many different empirical approaches are examined showing how a general theory on legal engineering in comparative law could be construed. This book, and specifically this introduction, does not however have the ambition to analyse all existing comparative law theories, but only to show how comparative legal research can create legal constructs to solve practical needs.

This short introduction proposes to demonstrate how legal engineering plays a major part in comparative law practice, even though very few lawyers are aware of this fact.<sup>8</sup>

To understand how these two fields interact, it is essential to define first the nature and scope of each field (2) before examining the structures and methods used in comparative law as a result of legal engineering (3).

## 2. Nature and Scope of Legal Engineering in Comparative Law

As in any comparative research project, one of the first steps entails analysing the situation and then identifying similarities and differences between engineering

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<sup>3</sup> Only very few authors have breached the subject, without developing a general theory. See KARHU, J., “How to Make Comparable Things: Legal Engineering at the Service of Comparative Law”, in M. Hoecke (ed.), *Epistemology and Methodology of Comparative Law*, Oxford, Hart Publishing, 2004, pp. 79-89.

<sup>4</sup> See however VOGENAUER, S., *supra* note 1, pp. 869-898 who uses terms that indicate a construction process: “tools” (p. 875), “building blocks” (p. 897).

<sup>5</sup> JANSEN, N., “Comparative Law and Comparative Knowledge”, in M. Reimann, R. Zimmermann (eds.) *The Oxford Handbook of Comparative Law*, Oxford, Oxford University Press 2006, pp. 305-338 (307) states that “the question of what comparison really means has until recently never been seriously asked, let alone answered”.

<sup>6</sup> See also JANSEN, N., *supra* note 5, pp. 305-338 (309) who looks to other comparative disciplines in the humanities and in social science to determine the essence and processes of comparative law methodology.

<sup>7</sup> Most contributions concentrate on issues of private law, the main field of expertise of the Institute.

<sup>8</sup> Cf. The play by MOLIÈRE, *Le bourgeois gentilhomme* (acte I, scène 5), where Monsieur Jourdain discovers he has been speaking *prosa* (plain language) all his life: «*Par ma foi ! il y a plus de quarante ans que je dis de la prose sans que j'en susse rien, et je vous suis le plus obligé du monde de m'avoir appris cela*». – Cf. JANSEN, N., *supra* note 5, pp. 305-338 (308): “It is debatable whether it is more dangerous to be knowingly ill or to be entirely ignorant of one’s ailment”.

methods and comparative law methods of research.<sup>9</sup> Differences result essentially from the nature of the subject matter: legal research imagines abstract, incorporeal structures; engineering aims at creating physical (corporeal) structures. Similarities can be found with respect to the methods of reasoning and to the application of a scientific method. Yet before we try to combine engineering concepts with comparative law, some basic definitions must be laid down.

## 2.1. Some Definitions

### 2.1.1. Comparative Law

Comparative law is the academic study of separate legal systems, each one analysed in its constitutive elements.<sup>10</sup> This analysis aims to establish how they differ or converge and how their elements combine into a system (legal family theory).

The principal purposes of comparative law have notably been to attain a deeper knowledge of other legal systems in order to perfect the domestic legal system<sup>11</sup> and perhaps to contribute to a unification or harmonisation of legal systems. Comparative law may also help to solve particular problems, where the domestic lawyer (or judge) does not have a solution. Comparative law is also useful when private international law rules require that courts apply foreign legal concepts.<sup>12</sup>

Comparative law does not apply a universal interpretation method,<sup>13</sup> but rather many methods,<sup>14</sup> and comparative law uses different techniques depending who applies it.<sup>15</sup>

<sup>9</sup> VOGENAUER, S., *supra* note 1, pp. 869-898.

<sup>10</sup> Cf., Montesquieu's comparative approach (The Spirit of Laws, 2nd ed. 1752, translation Thomas Nugent, Chapter XIII of Book XXIX): "As the civil laws depend on the political institutions, because they are made for the same society, whenever there is a design of adopting the civil law of another nation, it would be proper to examine beforehand whether they have both the same institutions and the same political law."

<sup>11</sup> DANNEMANN, G., "Comparative Law: Study of Similarities or Differences", in M. Reimann, R. Zimmermann (eds.) *The Oxford Handbook of Comparative Law*, Oxford, Oxford University Press, 2006, pp. 383-419 [403].

<sup>12</sup> DANNEMANN, G., *supra* note 11, pp. 383-419 [403]. – WERRO, F., «La jurisprudence et le droit comparé», in Swiss Institute of Comparative Law (ed.), *Perméabilité des ordres juridiques*, Schulthess, 1992, pp. 165-172. – And also *infra*, ROMANO, G.P., «Les justiciables face à la comparaison des droits: vers la démocratisation d'un droit savant?»

<sup>13</sup> ZWEIGERT, K., „Rechtsvergleichung als universale Interpretationsmethode“, *RebelsZ* 15 (1949/50), pp. 5-21.

<sup>14</sup> VAN DER HELM, A.J., MEYER, V.M., *Comparer en Droit – Essai méthodologique*, Strasbourg, Cerdic Publications, 1991. – See the case-based analysis by MARKESINIS, B., *A Comparative Introduction to the German Law of Torts*, 3<sup>rd</sup> ed., Oxford, Oxford University Press, 1994.

<sup>15</sup> VON BAR, Ch., "Comparative Law of Obligations: Methodology and Epistemology", in M. van Hoecke (ed.) *Epistemology and Methodology of Comparative Law*, Oxford, Hart Publishing,

In most countries however, comparative law plays a very limited scientific role in legal science. Many universities do not teach comparative law, or only assign a very marginal role to comparative law in their curriculum.<sup>16</sup> As a paradox, often more time is spent discovering the historical roots of law that can explain national legal solutions *de lege lata*,<sup>17</sup> than considering legal reasoning of neighbouring States that may shed some light on domestic legal issues *de lege feranda*.<sup>18</sup>

In contrast, both national and supranational legislators are demonstrating a growing interest in comparative law studies. The Council of the European Union thus decided on the 19/20<sup>th</sup> of April 2007, to define a Council position on the fundamental aspects of a possible Common Frame of Reference (CFR) for European contract law.<sup>19</sup>

### 2.1.2. Engineering

The Compact Oxford English Dictionary defines *engineering* as “the branch of science and technology concerned with the design, building, and use of engines, machines, and structures”. An engineer fulfils the tasks of designing and building products to meet the needs of mankind.<sup>20</sup>

According to the American National Society of Professional Engineers (NSPE) the difference between science and engineering can be explained as follows: “Science is knowledge based on observed facts and tested truths arranged in an orderly system that can be validated and communicated to other people. Engineering is

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2004, p. 123, distinguishing between academics, courts and advisors to legislators and governments.

<sup>16</sup> FAUVARQUE-COSSON, B., “The Rise of Comparative Law: a Challenge for Legal Education in Europe”, 7<sup>th</sup> Walter van Gerven Lecture, Europa Law Publishing, 2007. – Also ZIMMERMANN, R., “Comparative Law and the Europeanization of Private Law”, in M. Reimann, R. Zimmermann (eds.) *The Oxford Handbook of Comparative Law*, Oxford, Oxford University Press, 2006, pp. 539-578 (548).

<sup>17</sup> i.e. Roman law.

<sup>18</sup> See in this book, FRANCK, L., «Droit comparé comme pierre angulaire des processus législatif et jurisprudentiel».

<sup>19</sup> REICH, N., “A Common Frame of Reference (CFR) - Ghost or Host for Integration?”, ZERP-Diskussionspapier 7/2006, also at *Wisconsin International L. J.* 24 (2006), 425. – STAUDENMAYER, D., “The Way Forward in European Contract Law”, *Eur. Rev. of Private Law* 2-2005, p. 95-104. – HESSELINK, M., “The European Commission’s Action Plan: Towards a More Coherent European Contract Law?”, *Eur. Rev. of Private Law*, 4-2004, p. 397-419. – SCHMIDT-KESSEL, M., „Auf dem Weg zum Gemeinsamen Referenzrahmen: Anmerkungen zur Mitteilung der Kommission vom 11. Oktober 2004”, GPR 1/05, S. 2-8. – See also Note from the Presidency to the Committee on Civil Law Matters (General Questions), Doc. 10235/07, 07.06.07, p. 3.

<sup>20</sup> <http://www.nspe.org/Media/Resources/faqs.html> [21.07.08]: “Engineers take abstract ideas and apply science and mathematics to build products to meet the needs of mankind.”

the creative application of scientific principles used to plan, build, direct, guide, manage, or work on systems to maintain and improve our daily lives.”<sup>21</sup>

The Compact Oxford English Dictionary defines *reverse engineering* as “the reproduction of another manufacturer’s product after detailed examination of its construction or composition.”<sup>22</sup>

The use of the term engineer has long left the field of natural sciences<sup>23</sup> and is currently used in as diverse activities as financial engineering,<sup>24</sup> social engineering,<sup>25</sup> language engineering,<sup>26</sup> knowledge engineering<sup>27</sup> or legal engineering.<sup>28</sup>

### 2.1.3. Legal Engineering

In the legal field, practitioners sometimes use the term “engineering” to describe certain very specific activities. Financial engineering, social engineering,<sup>29</sup> company engineering are thus business propositions of major law firms throughout the world.

<sup>21</sup> <http://www.nspe.org/Media/Resources/faqs.html> (21.07.08).

<sup>22</sup> Such an analysis could be applied to the concept of legal transplants, see *infra* n° 3.2.1.

<sup>23</sup> The NSPE lists following specialities: Aerospace, Agricultural, Biomedical, Chemical, Civil (General and Structural), Computer, Control Systems, Electrical and Electronics, Environmental, Fire Protection, Geotechnical, Industrial, Manufacturing, Mechanical, Mining, Nuclear, Petroleum, Sanitary, and Traffic. See <http://www.nspe.org/Media/Resources/faqs.html> (21.07.08). - Cf. in this book, BASSIN, M., GENOUD, CH., REY, D., «Ingénieurs “en esthétique” au service du droit comparé ?».

<sup>24</sup> Computational finance or financial engineering is a cross-disciplinary field which relies on mathematical finance, numerical methods and computer simulations to make trading, hedging and investment decisions, as well as facilitating the risk management of those decisions. Utilising various methods, practitioners of computational finance aim to precisely determine the financial risk that certain financial instruments create. Financial engineering is thus the quantitative analysis of financial markets using mathematical, statistical, and computational models.

<sup>25</sup> *Shorter Oxford English Dictionary*: “the application of sociological principles to specific social problems”.

<sup>26</sup> Language engineering according to the *Compact Oxford English Dictionary*, is the use of computers to process language for purposes such as speech recognition, speech synthesis, and machine translation.

<sup>27</sup> VAN ENGERS, T. M., “Legal Engineering: A Knowledge Engineering Approach to Improving Legal Quality”, in Padget, Neira, De León, (ed.), *eGovernment and eDemocracy: Progress and Challenges*, pp. 189-206: on automated quality control in legislation.

<sup>28</sup> KARHU, J., *supra* note 3, pp. 79-89. – MASSON, A., «Le paradoxe fondateur des stratégies juridiques – Essai de théorie des stratégies juridiques», RRJ 2008-1, pp. 443-449. – BERTREL, J.-P., «L’ingénierie juridique – Dimension émergente du droit des affaires», Les Petites Affiches n° 554, 6 mai 1996, p. 14. – ALIOUT, B., ROQUILLY, Ch., «Projet d’innovation et gestion des risques: les stratégies d’innovation dans une perspective d’ingénierie juridique», *Gestion 2000*, n° 3, 1996, p. 15.

<sup>29</sup> See *infra* in this book, VON SENGER, H., “Law as a Secondary Tool of Political and Social Engineering in the People’s Republic of China”.

“Legal engineering” is a growing field of legal practice, yet there is no clear theoretical definition of the concept.<sup>30</sup> Some authors use the concept of legal engineering with respect to engineering expertise within court proceedings.<sup>31</sup> Others use the term to describe the way law shapes social change.<sup>32</sup> Depending on what side of the double proposal one stands, the choice is open to insist on the engineering side,<sup>33</sup> or on the legal side. Very few authors however combine the two in a way that would allow lawyers to qualify as engineers in the same creative way.<sup>34</sup> It seemed accordingly an original and un-mapped field of research to have a team of legal scientists at the Swiss Institute of Comparative Law to confront from a methodological standpoint these issues in a way that would allow for the identification of similar mechanisms of thought, and thus confirm the current role of comparative law as a model of legal creativity.

## 2.2. The Scientific Nature of Both Fields

The starting point of the comparison was as follows: both engineering and legal research are considered to apply scientific methods,<sup>35</sup> even if on some occasions the concept of legal science<sup>36</sup> has been disputed.<sup>37</sup>

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<sup>30</sup> See *infra*, in this book, JEANNERET-DRUCKMAN, K., “Legal Engineering in the United States Legal System”.

<sup>31</sup> EDMOND, G., “Legal Engineering: Contested Representation of Law, Science (and Non-Science) and Society”, *Social Studies of Science* 2002, 32, p. 371.

<sup>32</sup> BECKSTROM, J.H., “Handicaps of Legal-Social Engineering in a Developing Nation”, *Am. J. Comp. L.*, vol. 22, No. 4, 1974, pp. 697-712.

<sup>33</sup> See SPROWL, J.A., “Automating the Legal Reasoning Process: A Computer That Uses Regulations and Statutes to Draft Legal Documents”, *Amer. Bar Foundation Research J.*, vol. 4, No 1, 1979, pp. 1-81. – PYRAS, V., “On Formalisation of the Goal Concept in Law”, Elsevier 2006 at [www.sciencedirect.com](http://www.sciencedirect.com) [30.04.08] who examines specific questions of legal knowledge engineering and the links with computer science.

<sup>34</sup> See KARHU, J., *supra* note 3, pp. 79-89.

<sup>35</sup> Cf. *Merriam-Webster on-line dictionary*: scientific method: principles and procedures for the systematic pursuit of knowledge involving the recognition and formulation of a problem, the collection of data through observation and experiment, and the formulation and testing of hypotheses [on line], <http://www.merriam-webster.com/dictionary/> [21.07.08].

<sup>36</sup> *Black's Law Dictionary*, 8<sup>th</sup> Edition, 2004, Bryan A. Garner: legal science is “the field of study that, as one of the social sciences, deals with the institutions and principles that particular societies have developed (1) for defining the claims and liabilities of persons against one another in various circumstances, and (2) for peaceably resolving disputes and controversies in accordance with principles accepted as fair and right in the particular community at a given time”.

<sup>37</sup> Cf. SCHWEBER, H., “The “Science” of Legal Science: The Model of the Natural Sciences in Nineteenth-Century American Legal Education”, *Law and History Review*, vol. 17 No. 3, 1999: p. 94 [on line], <<http://www.historycooperative.org/journals/lhr/17.3/schweber.html>> – Specifically for an analysis of the scientific nature of comparative law: VAN DER HELM, A.J., MEYER, V.M., *supra* note 14, pp. 53-57.

The word science is derived from the Latin word *scientia* for knowledge, the nominal form of the verb *scire*, "to know". From the Middle Ages to the Enlightenment, science or *scientia* meant any systematic recorded and reliable knowledge.<sup>38</sup> A narrow approach to science associates science exclusively with the study of the natural physical world.<sup>39</sup> A broad approach to science allowed including social sciences in this definition.

Legal science is at the crossroads of social sciences in general. The study of law crosses the boundaries between the social sciences and humanities, and it is a completely central social institution. Legal policy reflects the practical manifestation of thinking from almost every field in the social sciences and humanities. Laws are politics, because legal rules are voted by politicians.<sup>40</sup> Law is rooted in philosophy, because moral and ethical persuasions shape the underlying concepts. Law reflects history, because statutes, case law and codifications build up over time and change all the time. And law is paramount to economics, because many rules about contract, tort, property, labour, company and succession law can have long lasting effects on the distribution of wealth creating a capitalist or socialist economy.

As such, legal science is a compound of organised knowledge. However, law borders on many disciplines: Law has been defined as a rule which (unlike a rule of ethics) can be enforced by public institutions.<sup>41</sup> Law in general has been construed as a "system of rules",<sup>42</sup> as an "interpretive concept"<sup>43</sup> to achieve justice,

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<sup>38</sup> MACMORRIS, N., *The Natures of Science*, New York, Fairleigh Dickinson University Press, 1989, pp. 31–33.

<sup>39</sup> However POST, D.G., EISEN, M.B., "How Long is the Coastline of the Law? Thoughts on the Fractal Nature of Legal Systems", *The Journal of Legal Systems*, vol. 29, No. 1, *Interpreting Legal Citations*, 2000, pp. 545–584, comparing legal reasoning to fractal geometry figures similar to tree-like structures.

<sup>40</sup> Cf. the Chinese conception of law as the expression of the Communist party's political interests: VON SENGER, H., Einführung in das Recht der Volksrepublik China, Conference June 2004, also *infra* in this book, VON SENGER, H., "Law as a Secondary Tool of Political and Social Engineering in the People's Republic of China".

<sup>41</sup> CORNU, G., *Vocabulaire juridique*, Association Capitant, PUF, 2002, p. 752. – GUILLIEN, R., VINCENT, J., *Termes juridiques* (dir. Serge Guinchard), 10<sup>e</sup> éd., Dalloz, 1995. – MANKOWSKI, P., "Stillschweigendes Rechtswahl und wählbares Recht", in: Leible (Hrsg.), *Das Grünbuch zum Internationalen Vertragsrecht*, Sellier, München 2004, 63–107 (86–87 et 94–95). – VOGENAUER, S., *supra* note 1, pp. 869–898 (870).

<sup>42</sup> HART, H.L.A., *The Concept of Law*, Oxford, Oxford University Press, 2<sup>nd</sup> ed., 1994, p. 79–99. – PORTMANN, U., "Les contrats internationaux – techniques et défis d'une harmonisation internationale", in: Ch. Chappuis, B. Foëx, T. Kadner Graziano, *L'harmonisation internationale du droit*, Coll. 3<sup>e</sup> cycle de droit, Schulthess, 2007, pp. 191–207 (195).

<sup>43</sup> DWORKIN, R., *Law's Empire*, Cambridge, Harvard University Press, 1986, Chapter 3.

as an "authority"<sup>44</sup> to mediate people's interests, and even as the command of a sovereign, backed by the threat of a sanction.<sup>45</sup>

In both the narrow and the broad conception of science, a specific scientific method is applied. This method seeks first to explain the events of nature in a reproducible way, applying objective processes; then to use these reproductions to make useful predictions (by creating a model of phenomena or offering hypotheses).

Legal science is an atypical field of 'scientific' research where no experiences are performed<sup>46</sup> and little empirical data is collected.<sup>47</sup> However, natural sciences and legal sciences have some common features. The main common trait between natural sciences and law relies on the methods of reasoning inherited from Aristotle. The Greek philosopher distinguished the threefold scheme of abductive, deductive, and inductive inference, and also treated some compound forms such as reasoning by analogy. Legal reasoning generally applies either of two types of logic: deductive and inductive techniques.<sup>48</sup>

Deductive logic is the reasoning of proof, or of logical implications. It is the logic used in mathematics and in other axiom based systems (i.e. physics or chemistry). A type of such deductive reasoning is the simple syllogism. Such reasoning is common to all civil law systems, and to all systems which apply a "top down approach". Here the law exists *ex ante*, and its pre-existing conditions are compared to the case. Deduction also appears in a minor form as in analogy reasoning where one assumes that since two things are alike in several respects, they are likely to be similar in another respect and perhaps produce similar effects.

Inductive reasoning or inductive logic forms the mortar of theory building. An observer makes a set of observations, and seeks to describe and to explain what he sees. Such reasoning is the basis of common law systems, where the case law "bottom up" approach tends to enable in a retrospective manner (*ex post*) the discovery of the law. The law thus appears as the common (non-case specific) feature of many judicial precedents. Mixed legal systems,<sup>49</sup> such as Scotland, Quebec, Louisiana, use a combination of both forms of reasoning.

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<sup>44</sup> RAZ, J., *The Authority of Law - Essays on Law and Morality*, Oxford, Oxford University Press, 1979, pp. 1-33.

<sup>45</sup> AUSTIN J., *The Province of Jurisprudence Determined*, 1832, Lecture I, p. 13.

<sup>46</sup> Yet, comparison is seen as the social sciences' equivalent of experiments: see JANSEN N., *supra* note 5, pp. 305-338 (319-320).

<sup>47</sup> Except perhaps when case law is collected to create a general theory of a specific legal institution.

<sup>48</sup> BERGEL, J.-L., *Théorie Générale du Droit*, Dalloz, 3<sup>e</sup> éd., 1999, p. 265, n° 244 seq.

<sup>49</sup> DU PLESSIS, J., "Comparative Law and the Study of Mixed Legal Systems", in M. Reimann, R. Zimmermann (eds.) *The Oxford Handbook of Comparative Law*, Oxford, Oxford University Press, 2006, pp. 477-512 (482), listing ten sub-groupings of mixed systems.

The term “legal method” is used to refer to the ‘path’ from an existing source of law to the decision on a particular legal issue in a given situation;<sup>50</sup> “it concerns the application and the interpretation of the law and is a synonym for the expression ‘legal reasoning’ that is more frequently used in common law systems”.<sup>51</sup>

Some leading authors rebut the qualification of true science to comparative law, arguing that there is no scientific method to justify such a qualification.<sup>52</sup> Such a statement is certainly wrong<sup>53</sup> even though admittedly, applied comparative law adopts a very pragmatic approach to legal situations.

## 2.3. The Pragmatic Nature of Both Fields

### 2.3.1. Applied Comparative Law

Comparative law can be understood as a deconstruction of legal concepts, of a legal situation, of a set of rules, to understand at a deep level<sup>54</sup> all the implications and functions of national legal systems. A comparative lawyer must therefore conceive or define a system of building blocks in one legal system that he can then compare to the building blocks of another legal system.

In law, building blocks are made of legal classifications, legal definitions, and descriptions of social situations. Building rules are set by classifications both national, into legal categories (tort, contract, property...), and international, into family trees, understood as a ‘didactic device’.<sup>55</sup>

The legal engineer may thus build many constructions if he takes into account the intrinsic nature of each building block and the fundamental rules on legal constructs. Mixing is conceivable, and has always been done throughout legal history,<sup>56</sup> but when legal concepts are mixed, interpretation and application of law becomes more complex, because lawyers need to take into account more *criteria*. In such cases, (legal) engineering processes can be usefully applied, and the link between engineering and comparative law becomes more apparent.

<sup>50</sup> Perceiving law as an abstract model: HAGE, J., VERHEIJ, B., “The Law as a Dynamic Interconnected System of States of Affairs: a Legal Top Ontology”, *Int. J. Human-Computer Studies*, 51, 1999, pp. 1043-1077.

<sup>51</sup> VOGENAUER, S., *supra* note 1, pp. 869-898 [885].

<sup>52</sup> CARBONNIER, J., *Droit civil, Introduction*, Paris, PUF, 27<sup>e</sup> ed., 2002, p. 78, n° 31, considering comparative law to be a collateral science as opposed to the truly legal sciences (*sciences proprement juridiques*).

<sup>53</sup> See, ZIMMERMANN, R., “Savigny’s Legacy: Legal History, Comparative Law and the Emergence of a European Legal Science”, 112 *LQR*, 1996, p. 576 seq.

<sup>54</sup> See VAN HOECKE, M., “Deep Level Comparative Law”, in M. van Hoecke (ed.), *Epistemology and Methodology of Comparative Law*, Oxford, Hart Publishing, 2004, pp. 165-195.

<sup>55</sup> ÖRUCÜ, E., *supra* note 2, pp. 359-375.

<sup>56</sup> ÖRUCÜ, E., “Mixed and Mixing Systems: A Conceptual Search”, in E. Örucü, E. Attwooll and S. Coyle (eds.), *Studies in Legal Systems: Mixed and Mixing*, London, Kluwer Law International 1996, p. 344.

### 2.3.2. The Link Between Engineering and Comparative Law

The proposal to join legal engineering and comparative law is based on a simple statement. An engineer must know all the parts of the creation he is going to build and be able to transpose them to various new situations; in the same manner, a comparative lawyer must know all the building stones of the (future) legal concept so as to be able to articulate them for the legal purpose identified.

An engineer must have a pragmatic creative approach to a factual situation whilst applying basic scientific rules. In the same way as a child can use building blocks differently, an engineer must use construction concepts and materials in various manners. Whatever bridge is built, similar engineering concepts are used, only the building materials are different.

In the legal field, the building blocks can be found within the so-called “sources of law” that define rules and that can be combined in infinite ways.<sup>57</sup> Sources of law are very different from one jurisdiction to another: continental civil law relies on statutes to establish a legal situation, whereas insular common law uses the judicial precedent to determine the content of the law. Other jurisdictions refer to God-made law, such as the Qur’an.<sup>58</sup> The materials used by the comparative lawyer are therefore very diverse.

In all jurisdictions, it is recognised that the application and interpretation of law can be a creative process that generates new law.<sup>59</sup> This statement is even more accurate in a comparative context. However, this creative approach must fulfil certain conditions pertaining to a rational method of law making and legal reasoning.<sup>60</sup> As a result, one of the main challenges faced by a comparative lawyer is to identify which of the legal sources is a main building block in a given jurisdiction<sup>61</sup> and what methods are used to interpret and apply the law.<sup>62</sup> Once this analysis has been done, the comparative lawyer may conceive new structures.

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<sup>57</sup> Rodolfo Sacco speaks of “legal formants”: see SACCO R., “Legal Formants: a Dynamic Approach to Comparative Law”, [1993] 39 Am. J. Comp. L., p. 1 ff and p. 343 seqq.

<sup>58</sup> Cf. *infra*, ALDEEB ABU-SAHLIEH, S., “L’ingénierie de l’alliage entre le droit positif et le droit musulman dans les pays arabes, notamment en Egypte”. – LALANI, S., “The Pakistan *Offence of Zina* Ordinance: A Failed Attempt at Legal Engineering”.

<sup>59</sup> VOGENAUER, S., *supra* note 1, pp. 869-898 (885).

<sup>60</sup> See the concept of ‘palm tree justice’, where judicial decisions are not founded on any rational method of reasoning: WALUCHOW, W. J., “Hart, Legal Rules and Palm Tree Justice”, *Law and Philosophy*, vol. 4, No. 1, Apr. 1985, pp. 41-70.

<sup>61</sup> Cf. *infra* in this book, SYCHOLD, M., “Legal Engineering as a Method for Determining the Law in Force in a Foreign Commonwealth Jurisdiction – the Nigerian Example”.

<sup>62</sup> See POILLLOT PERUZZETTO, S., «La diversification des méthodes de coordination des normes nationales», Université de Toulouse, 24 oct. 2003.

### 3. Types of New Legal Structures

Comparing foreign laws should not be only an academic goal furthering legal thinking. Legal engineering in comparative law is essential specifically within the European legal system as a practical answer to transnational legal problems. In such a European context, the current research into European private law is “concerned with collecting arguments and presenting them in one single concept or system, and if need be a new one”.<sup>63</sup> Doing so, the goal of harmonising or unifying law across Europe is ever present.

If an analogy were to be found with engineering, the underlying mechanics of the system thus imagined should be described at two levels. Internally, a type of “software” or infrastructure is necessary to make the system work (3.1), whereas from the external standpoint, the “hardware” or superstructure (3.2.) gives the system its *raison d’être*.

#### 3.1. Legal Infrastructures in Comparative Law

Infrastructure is considered to provide organising structure and support for the system or organisation it serves. Applied to comparative law, it simply entails a specific methodology.

A good example of comparative law infrastructures or methodologies can be found in the Common Frame of Reference Project.<sup>64</sup> Numerous actors are involved in this project,<sup>65</sup> and playing the main part, the Joint Network on European Private Law (CoPECL).<sup>66</sup> This network includes, in particular,<sup>67</sup> the Study Group on a European

<sup>63</sup> VON BAR, Ch., *supra* note 15, p. 123.

<sup>64</sup> Cf. *infra* LEIN, E., “Legal Transplants in European Private Law”.

<sup>65</sup> See also many similar projects such as the “European Casebook” project led by scholars at the University of Maastricht. – VAN GERVEN, W., “Casebooks for the Common Law of Europe: Presentation of the Project”, 4 *Eur. Rev. Private L.* 67, 68, 1996. – It is also necessary to distinguish the types of actors involved. RÖTTINGER, M., “Towards a European Code Napoleon/ABGB/BGB? Recent EC Activities for a European Contract Law”, *European Law Journal*, vol. 12, No. 6, November 2006, pp. 807-827 [820], describes the “three instruments the Commission has put in place: research teams, CFR-net (made up of stakeholder experts), and a consultative group of Member States’ experts”.

<sup>66</sup> <http://www.copecl.org> [24.07.08]. – MICKLITZ, H.-W., „(Selbst-) Reflektionen über die wissenschaftliche Ansätze zur Vorbereitung einer europäischen Vertragsrechtskodifikation“, GPR 1/07, S. 2-15 [6-8] criticises this organisation and the methods used to find the CFR.

<sup>67</sup> Other members include (as stated on the web site of CoPECL): The Project Group on a Restatement of European Insurance Contract Law, or “Insurance Group”; The Association Henri Capitant together with the Société de Législation Comparée and the Conseil Supérieur du Notariat; The Research Group on the Economic Assessment of Contract Law Rules, or “Economic Impact Group”(TILEC - Tilburg Law and Economics Center); The “Database Group”; and The Academy of European Law (ERA).

Civil Code,<sup>68</sup> chaired by Professor Christian von Bar, and the Research Group on the Existing EC Private Law, or "Acquis Group", as well as the Trento Common Core Group.

The Study Group on a European Civil Code is "a network of academics, from across the EU, conducting comparative law research on private law in the various legal jurisdictions of the Member States" that aims "to produce a codified set of Principles of European Law for the law of obligations and core aspects of the law of property. The published principles will be complete with commentary and comparative notes."<sup>69</sup>

The Acquis Group "targets a systematic arrangement of existing Community law which will help to elucidate the common structures of the emerging Community private law."<sup>70</sup> The Acquis approach also tends to give a European perspective to the rules as apposed to a simple comparison of the national systems throughout Europe, as is done in the Study Group.<sup>71</sup>

The Trento Common Core group<sup>72</sup> aims to: "unearth [...] what is already common, if anything, among the different legal systems of European Union Member States [...] in order to obtain at least the main lines of a reliable geographical 'map' of the law of Europe" and thus contribute to "building a common legal culture".<sup>73</sup>

The Trento Common Core group focuses on a functional approach requiring an unorthodox approach to legal concepts<sup>74</sup> and aiming only to describe legal issues,<sup>75</sup> whereas the Study Group and the Acquis Group aim at drafting a set of rules.

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<sup>68</sup> This group continues the work of the former Lando Commission (Commission on European Contract Law), [on line], <http://www.sgecc.net/> [24.07.08].

<sup>69</sup> [on line], <http://www.sgecc.net/> [24.07.08].

<sup>70</sup> [on line], <http://www.acquis-group.org/> [24.07.08].

<sup>71</sup> SCHULZE, R., „Die "Acquis-Grundregeln" und der Gemeinsame Referenzrahmen", *ZEuP* 2007, S. 731-734 [732].

<sup>72</sup> [on line], <http://www.jus.unitn.it/dsg/common-core/> [24.07.08]. - See M. Bussani, U. Mattei (eds.), *The Common Core of European Private Law*, Kluwer Law International, 2003, Vol. 1. - LANDO O., "The Common Core of European Private Law and the Principles of European Contract Law", 21 *Hastings Int'l & Comp. L. Rev.*, 809 (1997-1998) stressing the functional approach of the Common Core methodology.

<sup>73</sup> BUSSANI, M., MATTEI, U., "The Common Core Approach to European Private Law", 3 *Colum. J. Eur. L.*, 339, 1996-1997, p. 340.

<sup>74</sup> LANDO, O., *supra* note 72, p. 814.

<sup>75</sup> Summarising the methodology: KÖTZ, H., "The Common Core for European Private Law: Presented at the Third General Meeting of the Trento Project", 21 *Hastings Int'l & Comp. L. Rev.*, 803, 1997-1998, pp. 804-805. - See also BUSSANI, M., "Current Trends in European Comparative Law: The Common Core Approach", 21 *Hastings Int'l & Comp. L. Rev.*, 785, 1997-1998, and GERBER, D. J., "The Common Core of European Private Law: The Project and Its Books", 52 *Am. J. Comp. L.* 995, 2004.

The considerable work accomplished by these academic groups has led to a Draft Common Frame of Reference (DCFR) of European Private Law, published in March 2008.<sup>76</sup>

As hinted at, these groups have used very different methods to determine the content of common European legal concepts. One of the most famous methods is the functional approach applied by Trento Common Core group. Yet, the functional method of comparative law is disputed today, as the processes used are more pragmatic than methodological, and because in reality there is no single functional method.<sup>77</sup> However, comparative lawyers use this method, in its various forms, as a practical approach to understanding and structuring their research. Such a method is paramount for legal engineering, as it enables the comparatist to fulfil the practical aims of the comparison, tailoring the legal constructs to the needs of society.

As a *sub* product of the functional method, case-based analysis allows for a *micro* approach to comparative law. The “*Ius Commune* Casebooks for the Common Law of Europe” project “aims to produce a collection of casebooks, covering each of the main fields of law. The casebooks comprise *cases and other materials* (legislative materials, international materials, draft model principles, restatements and excerpts from books or articles, as appropriate). Those materials relate, as much as possible, to similar problems or factual situations under the various legal systems under study. The materials will be accompanied by short *introductory and explanatory notes* to situate them in context. At the end of each section, a *comparative overview* ties together the materials included under that section, with emphasis, where possible, on existing or emerging general principles in the national and supranational legal systems of Europe”.<sup>78</sup> This project is also a good example of a functional approach to comparative law that can contribute to creating new legal constructs or “superstructures”.

### 3.2. Legal Superstructures in Comparative Law

The concept of superstructure is manifold.<sup>79</sup> In the context of this paper, legal superstructures are to be understood as the products of comparative law engineering, *i.e.* whenever a structural (quasi-physical) link is made between two or more legal systems. In this respect, both legal transplants (3.2.1) and legal

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<sup>76</sup> The full text of the DCFR [on line], <http://www.law-net.eu/> [24.07.08].

<sup>77</sup> MICHAELS, R., “The Functional Method of Comparative Law”, in M. Reimann, R. Zimmermann (eds.) *The Oxford Handbook of Comparative Law*, Oxford, Oxford University Press, 2006, pp. 339-382 [342].

<sup>78</sup> [on line], <http://www.casebooks.eu/> [24.07.08].

<sup>79</sup> *Shorter Oxford English Dictionary*: “a material structure resting on something else”; “a concept or an idea built or founded on something else”.

bridges (3.2.2) are good examples of the products created by applied comparative law research.

### 3.2.1. Legal Transplants

Legal transplants<sup>80</sup> can be defined as the movement of laws and legal institutions between States.<sup>81</sup> Such transplants have often happened throughout history,<sup>82</sup> yet today in a globalised world,<sup>83</sup> legal transplants, specifically in private law,<sup>84</sup> are more and more frequent. The concept of legal transplants should be clearly distinguished from the reception of foreign legal solutions, which are a very minor type of transplant.<sup>85</sup> Such solutions are often adopted by courts to solve specific legal issues.<sup>86</sup>

Such transplants occur in all fields of law, and they can be classified into four main types depending on the intentions of the recipient:<sup>87</sup> the cost-saving transplant, the externally dictated transplant, the entrepreneurial transplant and the legitimacy-generating transplant.

The *cost-saving transplant* aims to borrow a legal concept from another jurisdiction to solve similar issues in one's own jurisdiction. A functional approach is often used in such a transplant<sup>88</sup> as the borrower will examine if the same function exists in the two legal systems and whether the foreign model may be adapted efficiently

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<sup>80</sup> Cf. *infra* LEIN, E., "Legal Transplants in European Private Law".

<sup>81</sup> MILLER, J.M., "A Typology of Legal Transplants: Using Sociology, Legal History and Argentine Examples to Explain the Transplant Process", 51 *Am. J. Comp. L.*, No. 4, Autumn 2003, pp. 839-885.

<sup>82</sup> Cf. Code of Hammurabi (17th century BC) cited by WATSON A., *Legal Transplants: An Approach to Comparative Law*, 2<sup>nd</sup> ed., 1993, pp. 22-24.

<sup>83</sup> MUIR WATT, H., "Globalization and Comparative Law", in Reimann M., Zimmermann R. (eds.) *The Oxford Handbook of Comparative Law*, Oxford, Oxford University Press, 2006, pp. 579-607. – See *infra* in this book, MAITRE ARNAUD, E., «Le droit comparé et la globalisation des échanges - le cas des flux transfrontières de données personnelles». – Also *infra*, MEURLING, E., «La globalisation et le rapprochement des droits - le cas particulier des droits nordiques».

<sup>84</sup> For public law issues, see SYCHOLD, M., "Comparing Federal Constitutions: A History of New States Borrowing from Old", in Swiss Institute of Comparative Law (ed.), *Perméabilité des ordres juridiques*, Schulthess 1992, pp. 87-101.

<sup>85</sup> SAMUEL, G., "La réception du droit communautaire en droit anglais des contrats", in Bergé J.-S. et Niboyet M.-L. (eds.), *La réception du droit communautaire en droit privé des Etats membres*, préf. Marc Fallon, Bruylant, 2003, p. 112.

<sup>86</sup> Cf. *infra*, FRANCK, L., «Droit comparé: pierre angulaire des processus législatif et jurisprudentiel». – Also *infra*, ARONOVITZ, A., "Legal Engineering and Comparative Law: A Method of Building Bridges over Legal Lacunae".

<sup>87</sup> MILLER, J.M., *supra* note 81, pp. 839-885 (843-867) describing these categories. – *Contra*, WATSON, A., "Aspects of Reception of Law", 44 *Am. J. Comp. L.*, 1996, p. 335.

<sup>88</sup> TUSHNET, M., "The Possibilities of Comparative Constitutional Law", 108 *Yale L.J.*, 1999, pp. 1225, 1229 and 1237.

to be used in his own legal system.<sup>89</sup> Such a cost-saving transplant can be found today in Western Africa, where the OHADA organisation has based its projects for a uniform contract law on the Unidroit Principles of International Commercial Contracts.<sup>90</sup> In Europe, many of the new EU member States also use this type of transplant to comply rapidly with EU legislation.<sup>91</sup>

The *externally dictated transplant* reflects a direct intervention of a foreign entity in a domestic legal system. The foreign entity requires compliance of the domestic legal system with a certain legal model. A recent example of such an externally dictated transplant was the generalisation of biometric passport legislation throughout most industrialised countries, due to American pressures. Similar transplants can be found for example, when compliance to specific money laundering legislation is required of a jurisdiction applying for international funding. Such transplants may disappear if the external pressure is released.

The *entrepreneurial transplant* is a direct effect of individual or public endeavours to bring a foreign legal institution into domestic legal (business) practice. Organisations like UNIDROIT in Rome or UNCITRAL in Vienna create model laws and principles favouring international business. Such model rules or principles can be adopted by States, who accordingly are certain of an international understanding and recognition of their legislation.

The *legitimacy-generating transplant* follows from the prestige of a foreign legislation. Such foreign legislation is considered to be particularly efficient.<sup>92</sup> This justification can be used for the wide influence of many European civil codes outside Europe.<sup>93</sup> For example, the Swiss Code of obligations was exported to Turkey and is still used there, albeit with certain recent legislative modifications. Today, both German and American laws are used to forge future Chinese business law.

However some authors firmly contest the concept of legal transplants. Professor Pierre Legrand thus considers that rules cannot travel as they must always be considered in their social context.<sup>94</sup>

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<sup>89</sup> DU PLESSIS, J., *supra* note 49, pp. 477-512 (487), listing the interests of economy and efficiency.

<sup>90</sup> See the special issue on this topic at Uniform Law Review 2008-3.

<sup>91</sup> Cf. *infra* LEIN, E., "Legal Transplants in European Private Law" and SKALA, J., "Legal Engineering in Eastern European Laws".

<sup>92</sup> Speaking of economic efficiency: MATTEI, U., "Efficiency in Legal Transplants: An Essay in Comparative Law and Economics", 14 *Int'l Rev. L. & Econ.*, 1994, p. 3 (8).

<sup>93</sup> The use of codes in colonised countries is not considered here, as the transplant of such codes was simply an external measure of the colonising country.

<sup>94</sup> LEGRAND, P., "The Impossibility of Legal Transplants", 4 *Maast. J. Europ. & Comp. L.*, 1997, p. 111, 121. – *Contra*, DU PLESSIS, J., *supra* note 49, pp. 477-512 (488).

Whenever a legal transplant is identified, the grafting of the new legal structure in the target country can be problematic. In most cases, the legal transplant leads a new life, distinct from the original legal system. For example, the German civil code was exported to Japan at the turn of the 20<sup>th</sup> century, yet the interpretations on many legal issues are different from current German law. Similar observations may be made with respect to the use of the Swiss Code of obligations in Turkey. In some rare cases, the transplant does not thrive and is slowly rejected.<sup>95</sup>

With respect to legal engineering, the technique of a legal transplant is an application of *reverse engineering* i.e. “the reproduction of another [manufacturer’s] product after detailed examination of its construction or composition.”<sup>96</sup>

### 3.2.2. Building Legal Bridges: the Essence of Legal Engineering

Building legal bridges<sup>97</sup> is a main task of comparative law. As in current European projects, the main aim today of comparing law throughout Europe is to find a common understanding of how the law stands and then perhaps unify or at least harmonise specific economy-relevant legal norms. Comparative research has shown, notably in the Draft Common Frame of Reference (DFCR) that many social issues are given the same legal treatment, even though structures and methods diverge within the European legal systems. A sort of teleological reasoning that concentrates on the solutions alone spans an intellectual bridge between legal systems.

Sometimes however, the solutions are fundamentally different, yet the practitioner must find a way to bridge the gap. Such a case occurs when the recognition of foreign legal institutions is discussed. Comparative law may show the similarities or simply target the differences and thus allow or deny recognition. Such a method is used in the application of private international law rules, where the practitioner must understand the domestic perception of a legal institution and compare it to the foreign legal institution taking into account both the *lex fori* qualification of the institution and the foreign lawyer’s analysis. Here, a reverse and re-engineering process takes place in a very mechanical manner, consequently building bridges between the two systems. However these bridges can only be built if there is a common understanding about the fundamentals and the nature of the law<sup>98</sup> because bridges need to be constructed on solid foundations on both

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<sup>95</sup> Cf. *infra* LEIN, E., “Legal Transplants in European Private Law”.

<sup>96</sup> Cf. definitions *supra* n° 2.1.

<sup>97</sup> Also ZIMMERMANN, R., *supra* note 16, pp. 539-578 [558] who speaks of “Bridging the Channel” in respect to the differences between civilian systems and the Anglo-Irish common law .

<sup>98</sup> Cf. as an example, The Statute of the International Court of Justice, part of the Charter of the United Nations, defines the sources of international law in the following language:  
Article 38. (1) The Court, whose function is to decide in accordance with international law such disputes as are submitted to it, shall apply:  
(a) international conventions, whether general or particular, establishing rules expressly recognized by the contesting states;

sides. Here the legal engineer will have to test the building ground by confronting the different “sources of law” to see whether these “building blocks” will enable the construction of a solid bridge, recognised by all as a fine piece of mechanical engineering, and specifically by the courts that have to judge the (legal) solidity of the construct.

### 4. Conclusion

Comparative law has generated numerous studies on methodological and epistemological issues over recent years. Most authors provide a very structured and theoretical approach to how things should be done in comparative law. This paper and the subsequent chapters of this book have adopted another standpoint. All of the authors in this book have extensive experience in applied comparative law, as the tasks of the Swiss Institute of Comparative Law are to provide legal opinions on foreign law to legal practitioners. This pragmatic approach does not preclude a theoretical analysis of the methodology, though such an approach is taken in a very practical way.

Engineers are the practitioners of natural sciences, creating new products; legal engineers are the practitioners of applied comparative law – those who can build bridges between legal systems. As a consequence, such atypical legal practitioners should be recognised with a *sui generis status* as “legal engineers in comparative law”.

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(b) international custom, as evidence of a general practice accepted as law;

(c) the general principles of law recognized by civilized nations;

(d) subject to the provisions of Article 59, judicial decisions and the teachings of the most highly qualified publicists of the various nations, as subsidiary means for the determination of rules of law,

(2) This provision shall not prejudice the power of the Court to decide a case *ex aequo et bono*, if the parties agree thereto.