Sources of Uncertainty in Project Management: a “Real Life” Account

Dominika Latusek, Kozminski University
Dariusz Jemielniak, Kozminski University

Available at: https://works.bepress.com/jemielniak/20/
Sources of Uncertainty in Project Management: A “Real Life” Account

Dominika Latusek and Dariusz Jemielniak
Sources of Uncertainty in Project Management: A “Real Life” Account

Dominika Latusek, Kozminski Business School, POLAND
Dariusz Jemielniak, Kozminski Business School, POLAND

Abstract: Although the studies of IT project management abound, they rarely present in one study the perspective of both the customers and the providers. The very relation between customers and providers has been rather rarely explored (Latusek and Jemielniak, 2007). It may be partially due to the fact that usually neither clients, nor providers, are willing to let outsiders into the details of the project. Through this paper we want to take advantage of our unique research setting in which we were allowed to interview representatives of both parties. Through presenting their stories we wish to cast light on the actual practices of organizing in the project work. At the starting point, we assume the equality of both parties: namely we see both parties, the suppliers and the client, as active and equal actors in their relationships. We see their relationships as interactional processes, created and re-created over time by all parties involved (Berger and Luckmann, 1966/83). In interpreting their stories we would like to draw upon the concept of translation (Callon, 1986; Latour, 1987; Law and Hassard, 1999) that, as we believe, may provide an insightful viewpoint on how relationships between suppliers and customers in IT project work develop. It should be also taken into consideration that the high-tech environment is quite often regarded as very stressful and uncertain (Kunda, 1992; Jemielniak, 2005). On the other hand, uncertainty has also been recognized in management and organization literature as an important factor shaping relationships between providers and customers. It is being consciously played out, especially by consultants in the field of IT (e.g. Sturdy, 1997). Apt management of uncertainty maximization and mitigation helps consultants exert control over the bonds with their customers. We would like to graft the theoretical perspective developed in existing studies onto our empirical research, to see the sources of uncertainty in actual project supplier - client encounters.

Keywords: IT, Project Management, Ethnography

Introduction

This study focuses on tailor-made software development projects. Software development, a typical example of knowledge-intensive field, constitutes a serious challenge for contemporary management theorists and practitioners (Nonaka, 1994; Nonaka, Toyama, & Nagata, 2000; Nurmi, 1999). This is largely because main activities in knowledge-intensive work are difficult to control and evaluate, as they are often oriented toward innovation and problem solving, and constitute a “black box” for any bystanders (Austin & Larkey, 2002; Ditillo, 2004; Winch & Schneider, 1993). Moreover, the organization of work in projects in knowledge-intensive environment produces pronounced asymmetries: it is based not only on information available to all parties involved in a project, but also on knowledge disparities between them, and relies inevitably on interaction between the knowledge-workers (Alvesson, 2004; Cross & Cummings, 2004). This discrepancy is reinforced by problems with observational control, due to immaterial nature of activities of knowledge workers (Austin & Larkey, 2002). Therefore, high-tech environment is quite often regarded as very stressful and riddled with uncertainty (Jemielniak, 2005; Kunda, 1992). Furthermore, as studies over the years have made evident, software development is one of the most unpredictable businesses in the world where only 25% of all projects is completed within the assumed criteria of timing, costs and functionality (Smith & Keil, 2003). Postponed deadlines, exceeded budgets, as well as discouragement of the involved participants, all constitute the everyday reality of software development projects (Goodwin, 2002; Humphrey, 1997; Kesteloot, 2003).

According to recent research, the picture emerging from the studies of software projects, especially from the point of view of the key organizational actors, is the one of distrust, suspicion, and confrontation (Latusek & Jemielniak, 2007). In the current article we explore the issue of cooperation between IT providers and their customers in project work by pointing out the sources of uncertainty in actual projects in supplier-client encounters. We would like to point out the sources of uncertainty in such relations, and then indicate how those affect the relationship development.

The reasons why we decided to focus on the notion of uncertainty are twofold. They flow directly from our experience as ethnographers of high-tech organis...
izations. In the field material (gathered over the course of two four-year ethnographic research projects), the issue of uncertainty was among key topics surfacing in every single bit of data. But when we turned to project management literature to seek explanations and interpretations we were left perplexed: indeed, one of the central themes there is risk management and practical techniques for estimating (calculating) risks in projects, but there is rarely even a mention of uncertainty (Craig & Jassim, 1995; Davies & Hobday, 2005; Kendrick, 2003; Well-Stam, 2004). Thus, our study expands the current body of knowledge on project management in high-tech environments, from the organizational theory perspective.

Drawing the line between notions of risk and uncertainty we resort to the classic distinction set out by Frank Knight (1921). In his view, risk pertains to cases where distribution of the outcome is known, whereas when it is impossible to calculate distribution of the outcome (because the situation dealt with is to a high degree unique) we should talk about uncertainty. In the light of these definitions, we experienced a sense of discomfort that stemmed from divergence between the first-hand accounts collected from people in the field and the professional publications intended to teach how to manage projects that talked about calculable risks, but in the same time did not seem to tackle the issue of uncertainty at all. In this paper we try to revisit this discrepancy through analysis of qualitative field material gathered in two ethnographic studies of software developers and managers in IT companies, as well as customers involved in tailor-made software development projects.

Reflecting our interpretative aspirations, the text is based on individual accounts elicited in the research, which gives it a distinctively qualitative, ethnographical character. In order to make this rich material more approachable to the Reader, we chose the strategy of presenting it as an account of our own reflections and interpretation of what we observed in the field. The text is also, as much as space constraints allow, illustrated with some interview excerpts. As we had several hundreds of transcript from interviews with 65 people, we decided to group interviewees according to their professional role so that they form three collective entities: managers, software engineers and customers.

Two unique features constitute contributions of our empirical study. First, it embraces all immediate participants in the relationship, namely software engineers, managers and customers, without assuming superiority of any of the parties involved. We have observed that there is little recognition of the pressures and insecurities experienced by providers themselves (software engineers and managers) as most of the existing studies focus on customer’s experience. We focus on all three groups and show how the sources of uncertainty are interconnected. Second, this study reports long-term empirical research that allowed us to capture dynamics of the relationship and its development over time.

The paper begins with description of our methods, and then the inductively generated model of sources of uncertainty is presented. In the empirical part we provide first-hand accounts of experience of uncertainty and illustrate the model with specific examples. We conclude with acknowledging the importance of the concept of uncertainty in project management and show possible avenues for further investigation.

**Method**

Empirical data that we draw upon in this paper were collected in the course of two research projects conducted by the authors in the years of 2002-2006 in several companies providing IT solutions and their clients from both the public and the private sector in Poland. The research was qualitative and ethnographical (Kostera, 2007; Rosen, 1991), and also inspired by grounded theory principles (Glaser & Strauss, 1967). It used the following techniques: observations, studies of professional publications and unstructured, open-ended interviews. Altogether we talked to 10 people who described themselves as managers, 40 who said they were software engineers, and 15 who identified themselves as clients. All of them were involved in various software development projects, where software was made directly to order, including design, production and implementation in the organization. All interviews lasted 50-80 minutes, were recorded and transcribed (by consent of the informants). The few presented excerpts are the ones we considered exemplary to many others, which for space limitations had to be excluded.

Interviews constitute, indeed, a default qualitative technique for collecting data (Silverman, 1998), but here they were consciously chosen also because we wanted to move beyond mere observation of practices of organizing, where the techniques of observation and analysis of organization documents were most informative. We opted for interviews, as we were interested in getting insight into how actors make sense of their collaboration in projects, elicit participants’ perceptions and beliefs (Schwartzman, 1993; Whyte & Whyte, 1984).

The empirical study in the paper is structured along the framework generated purely inductively, on the basis of numerous reading and re-reading of the field material. It is structured around two themes linked to the notion of uncertainty: knowledge and time.
Our ambition is to address the call from Bruno Latour for performative studies of organizational reality (Latour, 1986) through offering a reflective (“performative”), rather than analytical, perspective on project management. Emphasizing actual experiences of people in the field we assume the underprivileged role of the researcher (Greenwood & Levin, 1998).

Model

On the basis of the field data gathered during the research we generated the following heuristic to think about the sources of uncertainty in interaction of three parties in software development projects. These are depicted in the figure below.

![Figure 1: Sources of Uncertainty in Managing Software Projects](image)

In what follows, we illustrate the model and ground it in data collected in the field.

Time

The issue of time comes in various guises in everyday reality of software development project management. It is present in every bit of our interviews and in observations. Hectic pace of work and constant deficit of time are often recognized as an organizing principle of IT companies, and are a source of major animosities in this field (Jemielniak, 2007). Our thinking about time in IT can be summarized by a pitch by an IT manager in a public sector organization commenting on the issue of change in software development „There is a revolution happening every year here”. Our initial reaction was skeptical, as it sounded quite as a part of business jargon, or a statement taken directly from a business magazine that aims at attracting the public attention and boosting the sales. But, as the analysis of each and every interview reveals, as much as it may sound as a platitude, it finds a perfect reflection in the words of our interviewees. Indeed, the pace of change in the technological design of software is very rapid and it has its consequences in the practices of organizing. The technological change our informants were talking about is indeed “revolutionary” which implies that it is not about gradual refinements or improvements in existing technologies and processes, but rather abrupt, all-encompassing changes that radically alter the previously existing landscape. As our informants vividly pictured, whole products or brands may virtually vanish from the market within several months, only to be replaced by other products that last even shorter. Or, the majority of products that companies are working on may never actually be launched and become known to the public, as they are discontinued, changed or wrote off due to corporate policies, changing standards, or, most frequently, faster competitors.

“To grasp the degree of freedom allowed in contemporary software development is plainly beyond the abilities of the human mind” observed an employee of the IT department in a major Polish bank. From the software engineers’ perspective, one of the major problems within projects is the lack of standards and agreed-upon measures of quality for software engineering work. There are no clear standards in developing tailor-made IT solutions (as there are for example, as one of our interviewees noted, in assembling PCs), therefore it is literally impossible to assess the quality of a solution arbitrarily. This lack of standards causes a lot of trouble in project manage-
ment and is one of major frustration of both managers and software programmers. As we were told, there exist the so-called “methodologies” generally recognized as best practices within the industry, or developed within each IT company on the basis of accumulated experience, and dictating how projects should be run. But in reality even these are usually rather loosely followed as reality demands on-going adaptations.

“They [providers] are crazy out there, but what I need is simply a reliable stuff. I am tired by trying to be on the top of fashion and then hearing they have the newest stuff, it’s the same all the time. That’s vanity, that’s tiring. I don’t need that” – one of the customers told us reflecting upon the issue of change in technology. Customers seem to be well aware of the novelties coming to the market, but they clearly do not care to think much about them. There are so many new solutions, numerous technologies advertised as cutting-edge, another best, revolutionary item entering the market, to the point where it becomes a part of background noise. For the customer, it is neither feasible, nor even desired to keep pace with these changes. As they admit, they want reliability, predictability and functionality that win with the fuzz over “the newest hits” on the market. The “new” clearly does not equal the “best” and from the client’s point of view it simply does not matter.

On the other hand, technology develops so rapidly that organizations are simply lagging behind, and often are not able to accept some more advanced technological solutions. As one of our interviewees from IT company put it “clients… they are complex, human entities that need time to learn and to adapt”. The key for successful software development from this perspective seems to root in the knowledge of how to use certain technology, how to apply it, how to use it at its 100% percent capacity. Technologies, which progress at an extremely quick pace, must wait for people to absorb them. Here we see as the success of projects becomes more dependent on customers: their aptitudes and competences. But it is also the provider who is responsible for tailoring the technology as fittingly as possible to the real needs of the client organization. It becomes clear here that an IT firm may excel in technological field, but fail the market test of actually selling it to the customer. With aptly implemented IT solutions people in the client organization would not be overwhelmed, but they rather should be able to use the solution to actually improve the organizational performance. Technology is also expected to improve working conditions for customers. One of our informants reflected upon this issue in the following way:

Provider (manager): We witness that all the time that in reality, and it relates to all single persons, divisions or the entire organization, that one person needed some particular function, needed the system to help them in one particular domain, and once this is provided the very same person sees the next issues that had previously been prevented from noticing by the first problem. And here we go with the next one. (…) Another bottleneck comes about, for each and every organization has some bottlenecks and some stuff always needs improvement, and the system needs to embrace it. It is like the process of continuous improvement.

One of the clients described the process of designing and implementing a solution in cooperation with an IT company in metaphorical terms: “here, in the organization, it feels like being operated on without an anesthetic”. An organization cannot stop working for the time of implementing a new technology. This not only creates a particular working environment that requires very attentive and responsive attitude, but also increases the overall vulnerability to failure. In fact, it must be an extremely rare case (we have not come across such, but our informants were still mentioning these, even as purely hypothetical) that an organization without any technological history does exists. Most people, indeed, use PCs, some simple out-of-the-box software solutions, or free applications such as instant messengers. Pieces (tools, processes) already present in the organization must be at least taken into account in the process of designing new solution.

As time passes, the needs of focal organization change along the way. The organization grows, changes markets, develops and launches new products/services, etc. In this case, the ongoing software development projects must be flexible enough to embrace new developments. The story we heard from a project manager heading major cooperation with a public institution is quite representative in this context:

Provider (manager): It [project] takes several years… for instance with [the organization] we started in November 2003, the first version was launched in late March 2004, and it was accepted although it contained a lot of flaws. Now (September 2006) we have already the 15th version of this system, a lot to get done till the end of this year. So we still work on this system, we expand it, but it is in operation in some segments, now it embraces about 1000 users in this organization but it still grows. Such complex tailor-made systems, in any field, must respond to the requirements of the world out there. From the functional viewpoint they need alterations, updates.
On top of that, due to the long duration of projects, important changes occur within organizations and in the marketplace: among partners, customers or competitors. Interviews with providers are rift with narratives of overcoming challenges resulting from change happening at the client organization, within the provider organization, or in the environment. The common denominator for all these stories is that change, even if planned for and expected, at some point turns out uncontrollable and unexpected. Below is a picturesque and quite typical story from one of managers at the IT providing firm:

Provider (manager): The time from the moment when we file our offer to the point when we deliver the system may amount to several years. The longest project I ever have managed took 4.5 years. And you should know that during this time our customer organization transformed totally. Our client laid off 50% of its employees, changed the structure completely, changed all the departments, actually it was a brand new organization. The situation changed, and the climate around did change as well. People abandoned horse wagons and hopped on fancy scooters... and so on. The world was different. And, in a totally natural manner, this project needed to be adjusted to the changing conditions.

Knowledge

“Technology is invisible here. They [the management and members of organization] know about it only when it breaks down and they cannot send e-mails or hook their laptops to the network here. And then they see only costs again” – complained a head of the IT department at a public sector organization. IT is a part of taken-for-granted infrastructure: working IT systems are regarded obvious and, therefore, technology becomes a routine part of every day for participants of the organization. It comes to the center of attention when it breaks down and causes trouble, as the quote above has it. That induces a two-fold conclusion. First, technology is disliked by general management. By becoming visible only in the cases of breaking down, it makes an impression of being a trouble-maker and a source of constant costs. Second, it indicates how different the internal logic driving both parties in the relationship is. While for an IT firm technology is a core, and it is deeply in heart of many providers as they grew from technological culture; for customers it rather is, to use Michael Porter’s (1985) terms, a support activity. IT constitutes one more tool that should enable smoother running of everyday business, but it is always second to the core activities of the firm. It should support them and follow the needs of the business, but not necessarily be to the frontline of a change.

As software engineers we talked to claim, today’s technology offers opportunities which are virtually limitless. However, being able to take advantage of them requires certain skills and knowledge on the part of users, who should be able to use the technology and apply it in practice. Therefore, issues such as general technical literacy, proficiency and openness toward technology circumscribe the actual scope of freedom enjoyed by the provider in designing a solution. Software developers declare being aware that, when working on tailor-made solutions, they can only do as much as the client knowledge allows them to. The most advanced, technically beautiful and sophisticated solution fancied by engineers may fail and be rejected by a client when its intended users are not able to apply it. Quite often, as both managers and engineers are saying, they have to begin with fighting initial fears of technology at all, as well as organizational fears of change that application of new technology may bring about. It is not unusual that people who do not know technology are afraid of it. They fear it as they would fear the typical unknown (Heap, 1995).

On the other hand, knowledge about technology is crucial for the provider in creating the impression of being professional in their field of expertise (Latusek, 2008). As people in client organizations often fear technology and treat it as necessary evil or trouble-maker, through appearing as masters of technology providers, they strive for being perceived as those who may control it and actually help to turn the feared, the uncontrollable and the necessary evil into real support for the organization.

There is also another type of knowledge that is fleshed out in our field material. Although clients are perhaps not experts in technology, they have profound understanding of their business and industry they operate in. This knowledge is crucial in designing tailor-made solutions, as these must be carefully crafted to specific needs of the client organization and must take into account all the subtleties of their operation practices. Also, as one of the clients told us:

Customer: “Some stuff in IT infrastructure in our industry is just taken for granted. That’s clear and everybody has that, it’s not about competitive advantage, it’s about keeping pace with competitors”.

It is important for providers to understand each sector they intend to serve in order to be able to design offers that would truly make a difference for their customers. As it was highlighted by all of our informants, sectors in Poland differ significantly in this respect. For instance, finance and banking are regarded
as well-developed, demanding and sophisticated in respect to IT solutions, while chemical industry, heavy industry, as well as the entire public sector (education, healthcare, public administration) are described as still very unsaturated, in constant need for even most simple IT infrastructure.

In addition to that, there is the need for understanding of each individual organization that provider is intended to serve. This is a type of knowledge about everyday functioning of an organization, a kind of implicit, tacit (Polanyi, 1958) knowledge that is very hard to discern by outsiders. As providers complain, in their case it is even harder, as they are commonly perceived as strangers, constituting potential threat to organizational status quo. So, they have to win trust of members of customer’s organization and make them willing to share information and know-how. Another problem associated with knowledge of this kind is that quite a big portion of it is really intangible: it is very difficult to ferret out information about everyday work, since they often constitute taken-for-granted routines for organizational members. Therefore, even when asked about it in a conversation, people tend not to mention these procedures or practices, which they consider obvious. But at the end of the day this is the very piece of information that may lead to misunderstandings and even serious failures in the design of IT solution. Taking an inquisitive approach, when providers try to get to know their client by simply asking questions, may not be enough to get to know the organization. Another aspect of learning about the organization’s selected provider is partnering with, is the issue of potential vulnerability through revealing sensitive information. Devising and implementing a complete IT solution that would be truly tailored to the needs of specific business requires getting to know the focal organization natively well, which may include sharing secret information that constitutes competitive advantage for the client, like for example processes of developing new products or services, policies within organizations, or strategies regarding future moves on the market.

Conclusions

Uncertainty in projects in the dimension of time and of knowledge affects both parties involved in software development projects. It seems that the clash of interest - resulting in the atmosphere of mistrust and suspicion is inherent in this setting where orientations towards two key dimensions of uncertainty differ profoundly. Two main challenges regarding time seem to be related to each other. First, the tension between the pace of technological progress and the ability of customers to absorb it. Second, they concern changes in both organizations involved in project as these are usually long-term oriented and changes in staffing, employment structure, etc. may occur.

In regards to knowledge, it adds to the generalized uncertainty in two ways. First, it puts constraints on the actual array of possibilities of employing certain technological solutions, as their main assessment criteria for clients are usability and accessibility. Second, the issue of knowledge implies different frames of reference between professional groups involved in projects. Namely, clients, managers and programmers differ in the very perception of technological problems. For any IT corporation and in particular for software engineers, it constitutes a core area of interest and everyday activity, whereas for clients it’s a peripheral issue supporting everyday business.

Theoretically, it seems that uncertainties in categories of time as well as knowledge could be largely alleviated by better communication between partners. Academic management literature and project management professional publications abound in descriptions of virtues of knowledge-sharing and also provide techniques to do it within and between organizations. Generally, it is argued that cross-learning and integration of many types of knowledge that participants possess would help to overcome problems and reduce uncertainty (Boland Jr & Tenkasi, 1999; Grant, 1996) . Although it may seem that by integration and openness all parties would be better off, the pervasive atmosphere of suspicion prevents any efforts of integration or knowledge sharing, and forces the parties to guard their territories and maintain the equilibrium.

Also, there are other factors at play that prevent partners from more collaborative approach. These pertain to issues of exerting control over the other party, retaining power in the relationships between and within organizations, constructing identity of professional groups and political games within organizations. Disruptions, such as constant deficits of time, casual exceeding of budgets, hardly meeting deadlines, and extremely high pressure as the deadline of the project is approaching are institutionalized within organizations and taken for granted (Perlow, 1997), to the point that they form a major element of software development culture.

Empirical material presented in this text constitutes a strong argument for bringing the concept of uncertainty, in its classic Knightian (1921) conceptualization, back into the professional discourse about project management. We argue that what people in the field report is line with Knightian definition of uncertainty. While uncertainty occupies an important position in academic discourse about management, in case of software development project in professional literature it is almost nonexistent. Sometimes, if it
appears, it is practically treated interchangeably with the notion of risk. For example, a practitioner from Landmark Graphics, reflects upon his experience of running software development projects to share that with his community (Little, 2005). He provides a simple framework: there are two attributes affecting managing projects: complexity and uncertainty. Right after that he follows “to better quantify (emphasis added) these attributes (…)” (p. 28). Uncertainty then is treated as Knightian risk: as something that can be quantified, measured and then, consequently, managed. In this light, our empirical study may be seen as a call for recognition of uncertainty and a challenge for scholars to enable practitioners to cope with it. In organizational context, Knightian uncertainty is transformed into risk when it enters into management systems for their identification, assessment and mitigation. It seems that in many cases project management literature walks this path by talking about estimates and computational approach to managing projects. But despite this effort to make uncertainty appear manageable risk, our field study shows that the very experience of uncertainty is still the reality of project management.

The inductive perspective on the sources of uncertainty in project management developed in this paper offers insights into practice of software development projects and shows how sources of uncertainty manifest themselves in everyday reality. Our analysis shows that uncertainty is indeed not only academically attractive concept, but it is a crucial part of everyday experience of practitioners of project management and as such deserves to be brought back to project management study and teaching.

References


**About the Authors**

**Dr. Dominika Latusek**

Dominika Latusek is an assistant professor at Kozminski Business School in Warsaw, Poland. Her current research interests focuses on the dynamics of trust and distrust, and practices of cooperation in high-tech business.

**Dr. Dariusz Jemielniak**

Dariusz Jemielniak is an assistant professor at Kozminski Business School in Warsaw, Poland. His current research focuses on ethnographical analyses of knowledge-intensive workplace and culture, in particular in high-tech environments. He is also interested in action research.
EDITORS
Bill Cope, University of Illinois, Urbana-Champaign, USA.
Mary Kalantzis, University of Illinois, Urbana-Champaign, USA.

EDITORIAL ADVISORY BOARD
Darin Barney, McGill University, Montreal, Quebec, Canada.
Marcus Breen, Northeastern University, Boston, USA.
G.K. Chadha, Jawaharlal Nehru University, India.
Simon Cooper, Monash University, Australia.
Bill Dutton, University of Oxford, United Kingdom.
Amareswar Galla, The University of Queensland, Australia.
David Hakken, University of Indiana, Bloomington, Indiana, USA.
Michele Knobel, Montclair State University, New Jersey, USA.
Jeannette Shaffer, Edtech Leaders, VA, USA.
Ravi S. Sharma, Nanyang Technological University, Singapore.
Robin Stanton, Australian National University, Canberra, Australia.
Telle Whitney, Anita Borg Institute for Women and Technology.

Please visit the Journal website at http://www.Technology-Journal.com
for further information about the Journal or to subscribe.
THE UNIVERSITY PRESS JOURNALS

International Journal of the Arts in Society
Creates a space for dialogue on innovative theories and practices in the arts, and their inter-relationships with society.
ISSN: 1833-1866
http://www.Arts-Journal.com

International Journal of the Book
Explores the past, present and future of books, publishing, libraries, information, literacy and learning in the information society. ISSN: 1447-9567

Design Principles and Practices: An International Journal
Examines the meaning and purpose of ‘design’ while also speaking in grounded ways about the task of design and the use of designed artefacts and processes. ISSN: 1833-1874

International Journal of Diversity in Organisations, Communities and Nations
Provides a forum for discussion and builds a body of knowledge on the forms and dynamics of difference and diversity.
ISSN: 1447-9583

International Journal of Environmental, Cultural, Economic and Social Sustainability
Draws from the various fields and perspectives through which we can address fundamental questions of sustainability.
ISSN: 1832-2077
http://www.Sustainability-Journal.com

Global Studies Journal
Maps and interprets new trends and patterns in globalization. ISSN 1835-4432

International Journal of the Humanities
Discusses the role of the humanities in contemplating the future and the human, in an era otherwise dominated by scientific, technical and economic rationalisms. ISSN: 1447-9559

International Journal of the Inclusive Museum
Addresses the key question: How can the institution of the museum become more inclusive? ISSN 1835-2014

International Journal of Interdisciplinary Social Sciences
Discusses disciplinary and interdisciplinary approaches to knowledge creation within and across the various social sciences and between the social, natural and applied sciences.
ISSN: 1833-1892

International Journal of Knowledge, Culture and Change Management
Creates a space for discussion of the nature and future of organisations, in all their forms and manifestations.
ISSN: 1447-9575

International Journal of Learning
Sets out to foster inquiry, invite dialogue and build a body of knowledge on the nature and future of learning.
ISSN: 1447-9540

International Journal of Technology, Knowledge and Society
Focuses on a range of critically important themes in the various fields that address the complex and subtle relationships between technology, knowledge and society. ISSN: 1832-3669

Journal of the World Universities Forum
Explores the meaning and purpose of the academy in times of striking social transformation.
ISSN 1835-2030

FOR SUBSCRIPTION INFORMATION, PLEASE CONTACT
subscriptions@commonground.com.au