Spring 4-5-2017

Mapping IS value across stakeholder groups: process improvement and strategic alignment, reputational effects and radical organisational change (6)

Raluca Bunduchi
University of Edinburgh, Raluca.Bunduchi@ed.ac.uk

MAPPING IS VALUE ACROSS STAKEHOLDER GROUPS: PROCESS IMPROVEMENT AND STRATEGIC ALIGNMENT, REPUTATIONAL EFFECTS AND RADICAL ORGANISATION CHANGE

Raluca Bunduchi

University of Edinburgh Business School, 29 Buccleuch Place, EH8 9JS, Edinburgh, UK; email: raluca.bunduchi@ed.ac.uk

Abstract

Despite decades of IS research, most returns on IS investment continue to disappoint. IS research addressed this problem by quantifying IS value in terms of its contribution to organisational performance and then prescribing frameworks to clarify this value as organisational benefits associated with IS use. Multiple organisational stakeholders are however involved in IS innovations, with different interests, power, and access to resources which cannot be easily reconciled within one single "organisational" beneficiary. Both a generic benefit framework and an approach to consider value solely as economic contribution to organisational performance obscure these differences. This research maps the outcomes of a particular IS innovation – a course visualisation tool within a large European university - across three types of stakeholders: users, developers and sponsors. The study finds that IS value varies across audiences: process improvements and strategic alignment for users, reputational effects for developers and sponsors, and radical organisational change for sponsors.

Keywords: IS benefits, IS value, IS implementation

1.0. Introduction

There is a large and growing body of literature examining the outcomes of IS innovation (Schryen, 2013; Shang and Seddon, 2002). Despite decades of research on IS implementations, most returns from IS investment are still disappointing (Doherty et al., 2012). By and large, research on the outcome of IS implementation attempts to quantify the efficiency and strategic impacts of IS use on organizational performance (Melville et al., 2004). Research focuses on quantifying the contribution of IS use to the economic value (cf. Schryen, 2013), and prescribing different frameworks for measuring these benefits of IS (e.g. Doherty et al., 2012; Peppard et al., 2007; Shang and Seddon, 2002). A problem with quantifying IS outcomes is that the same IS has multiple user audiences, which need to be taken into account during its implementation (Shang and Seddon, 2002). Such audiences have different interests, status, power and access to resources, they are involved in different ways during the implementation process and might be affected differently by the organizational changes accompanying IS implementation. Thus, their perceptions of IS outcomes might vary considerably. Moreover, IS audiences extend beyond users to include at least developers and IS sponsors. Such multiple varied audiences are rarely considered together when examining the outcomes of IS. We therefore set out to map the outcomes of an IS across

multiple actors to identify whether variations in their perceptions of IS outcomes is present. The structure of the paper is as follows. The next section introduces the research on IS benefits that informs this study. The research design is discussed in the following section. The results and discussion sections examines the outcomes of the IS innovation under investigation. The concluding section discusses the significance of the findings and contributions to the literature.

2.0. Theoretical background

There is a vast body of research examining the organizational benefits of deploying IS innovations. By and large, IS implementation is considered to achieve benefits and create value for the adopting organization through applying "*the right IT*" to "*the right processes*" (Melville et al., 2004). IS thus generates value for organization through its deployment to improve existing processes, for example in terms of flexibility, speed and cost economy (Mithas et al., 2011) and better integration, business intelligence and cost reductions (Kim et al., 2011). IS benefits are thus realized as IS use contributes to the achievement of a firm's strategy objectives, either through the realization of competitive advantage in combination with other resources (Mata et al., 1995), or/and through alignment with the firm's overall business strategy (Henderson and Venkatraman, 1993).

A number of taxonomies of IS innovation benefits have been developed differentiating between benefits depending on their tangibility (tangible versus intangible), their effects at different organizational levels (e.g. strategic versus operational), the degree of relatedness to the user organization actions (first order and second order), and the degree of closeness to organizational outcomes (direct and indirect) (Bunduchi and Smart, 2010; Shang and Seddon, 2002).

Empirical studies of IS benefits however show that most benefits associated with IS implementation come not from the IS itself, but from the organizational changes that accompany IS implementation (Coombs et al, 2013). Value is created as people are using IT (Ashurst, 2015), and the implementation process itself incentivizes organizations to alter the way in which they do business (Coombs et al., 2013). As such, often benefits arise as unplanned outcomes following these organizational changes (Schubert and Williams, 2009). While there is an increasing amount of research examining the organizational changes accompanying IS implementation, a problem with considering the value of IS is that multiple actors are involved in IS implementation and the corresponding organizational changes. IS might affect different actors differently. For example, a recent study following the implementation of a large scale human resource IS in health found great variations in the perception of both expected and realized benefits of actors operating at different levels: the government (at national level), the health regional boards and local hospitals (organizational level) and end users (individual level) (Tursunbayeva et al., 2016). Consequently, different actors may have different and possibly contradicting assessments of both the benefits and the nature of IS change (Doherty et al., 2012). Therefore, while taxonomies of IS outcomes provide a generic and broad view of the types of possible avenues through which IS creates value (Shan and Seddon, 2002), they obscure the differences in the perspectives of multiple actors involved in the system's implementation and its subsequent use. To understand IS benefits, research needs to consider the perspective of multiple actors involved in IS implementation and use. This paper aims to map the

value arising from IS implementation across the different categories of actors involved in its implementation and use.

3.0. Research Design

The research is exploratory and consider a single case study: the development, implementation and use of IS innovation in one organisation.

3.1. Research setting

The case involves the development, implementation and use of a new student led IS in a large European university. The IS, TRACK, is a corporate wide service implemented across the entire university which displays course and degree information. TRACK was originally envisaged as a way of providing existing students with a better tool to visualize and experiment with different course combinations for different tracks through a degree, and thus allowing them to make their course options. The system is perceived as being widely successful both within the university, in terms of users' feedback, and IS and student service professional discourse where it is portrayed as a widely successful project, and externally, having received the national industry professional award.

TRACK originated in 2011 as a student led project in the School of Math [Stage 1]. From May – Nov 2012, the students gained funding to support TRACK development from the national student association and the head of IS department within the university. This initial funding supported TRACK development and its rolling out of within the School of Math [Stage 2]. As the student developers graduated in May 2013, they were employed for three months over the summer by the IS department to pilot the system to two further schools. A Board containing senior management from the IS, and Student Service (SS) departments and the Principal's Office was set up to supervise the pilot. By August 2013, TRACK was deployed within three schools, and by November 2013 the students finished working on rebuilding the system on the assumption that funding will be secured for to roll out the system to the whole university [Stage 3]. Following the success of the pilot within the three schools, in April 2014, the SS department took over the system, and the two developers joined the IS team. In August 2014 the system was rolled out to all existing students (years 2-4) within the university, and formally adopted by over half of all the Schools, and in September 2014 opened up to new students (year 1) [Stage 4]. Over the next academic year, by June 2015, all Schools within the university bar two whose degrees include no option courses formally adopted TRACK.

3.2. Data collection and analysis

Primary data involved semi structured interviews conducted during May-June 2015 with thirteen respondents involved in TRACK development, implementation and use. The respondents include the two student developers, two senior management academic champions, four senior representatives of the IS department, two senior representatives of the SS department, two academic users within two Schools, and one administrative staff involved in deploying TRACK with new students. The interviews were transcribed, and the transcriptions were sent back to respondents for verification. The students' perspective on TRACK was gathered through secondary data, relying on the results of surveys conducted by the development team to gather student feedback

following the extension of TRACK to the three schools in 2014 (during Stage 3 of development). Data collection also included participant observation of a student idea competition by the TRACK team emblematic of the university efforts to replicate TRACK's success through encouraging further student led innovations. Further secondary data involving extensive project documentation covering the duration of the project from 2012-2015 was used to triangulate the interview data.

Data analysis began with descriptive codes as soon as the first interviews were transcribed, and was done inductively, seeking to closely reflect the data, by using the respondents' language as faithfully as possible. This stage led to the identification of over 600 descriptive codes. These descriptive codes were first organized into 18 different categories representing the early interpretative codes, and including adoption, approach to development, concerns raised regarding the system, content of the system, context of development and content of use, development, drivers, outcomes, perspective, promotion of the system, reception, requirements of different stakeholders, resistance, serendipity, support, use of the system, value and reasons for success each with different subcategories. Iterative rounds of analysis collapsed some of these categories and supported re-coding of others around emerging themes, finally leading to the identification of three broad themes: innovation domain, reflecting the innovation content and process and including most of the content, adoption, development and use early interpretative codes; the institutional landscape domain, reflecting the contextual spaces and transition mechanisms, including primarily the context codes and the action related codes such as resistance and support; and the outcome domain, reflecting the perception of value realised by the different categories of stakeholders, and including mostly the original outcome categories. This paper is based on the analysis of the outcomes theme, mapped across different stakeholders.

4.0. Case study analysis: TRACK Outcomes

TRACK is the only example of student led IS innovation within the university. The development and implementation of TRACK was a unique process, characterised by separation between the IT innovation and the university IS development during the early stages [Stage 1-2-3], followed by a gradual embedding of the development process within the university organisational and technical systems, processes and practices. This approach afforded the development process with very different characteristics. First, the clear separation between TRACK and the normal IS systems, processes and practices (1) allowed the team to focus on functionality development and fast scaling up of the system; (2) provided them with full control over development and freedom to experiment which allowed a firm focus on usability; (3) required a frugal approach to development which fostered bricolage (creative bundling of available resources) and improvisation (drawing upon available resources and combining planning with execution); and (4) enabled organic development which provided credibility to the innovation with Schools encouraging its subsequent adoption.

As development progresses, the innovation becomes gradually embedded within the university: with development being brought into the IS team and part of the normal university processes and practices, and the system itself becoming part the of hierarchy of organisational IS systems. Organisational embeddedness both widens and increases the complexity of access to university resources, eliminating the need for a frugal approach and thus the need for finding creative solutions to lack of resource. As

development progresses, embeddedness intensifies and developers lose full control over the development meaning that the space for exercising creativity during the system development gradually narrows down together with the scope of development from radical to non-controversial and incremental improvements in the system. Technical embeddedness introduces additional constrains limiting the space for creative exploration, as it creates pressures for focusing efforts on considering supportability and maintenance issues, and building resilience into the system rather than investing in radical feature development.

Development was fast, especially during the early stages [Stage 1-2-3] as separation speeded both development and rolling up to School by eliminating technical and organisational constraints and giving developers full control over the process. Development was speeded up initially also by the knowledge that the development team had of the user and user context and by the narrowed scope of application to a few (similar) schools only (all the three Schools involved in the pilot stage were from the same College). The innovation's relative technical simplicity, modular design and the stand-alone nature of the task also speeded up both development and adoption. During the later stages [Stages 4-5], as the scope of application increased to contain wider scenarios of use and embeddedness introduced constrains into the process, both development and implementation slowed down.

A key feature of development was the user centric approach which went beyond simply considering the usability of the system, for example through ensuring that technical choices are driven by the need to achieve ease of use, but critically through empowering users both during development, by engaging and being responsive to users' feedback, and during use, by giving users control in how to deploy the system.

The outcomes of TRACK can be classified depending on the categories of actors involved: outcomes for users covering different areas of use, outcomes of developers, who are developing the system, such as the student developer, and outcomes for sponsors, in particular the university. Most developers playing a dual role both as developers of the system, and as sponsors of the project, for example the IS department both developed the system, and funded its development earlier on, and the SS department that took over the funding of the system at Stage 4, but was also involved in its development through coordinating the IS and SS based developers and business analysist involved in TRACK development. Due to the overlap between these two categories, developer and sponsor actors are treated together.

4.1. Users and areas of use

There are two main categories of users: academics, both as [1] teachers and as [2] personal tutors, and students, both [3] existing and [4] new students.

For **all users**, whether academics or students, the system was seen as creating added value: the system was described as being "fit for purpose" and "filling in a genuine need" by significantly improving on the current system and on the processes surrounding the provision of course information. These improvements creating value added were due to the ease of use vis-à-vis the current system which stored the degree and course information data, and displayed it using a hierarchy of links.

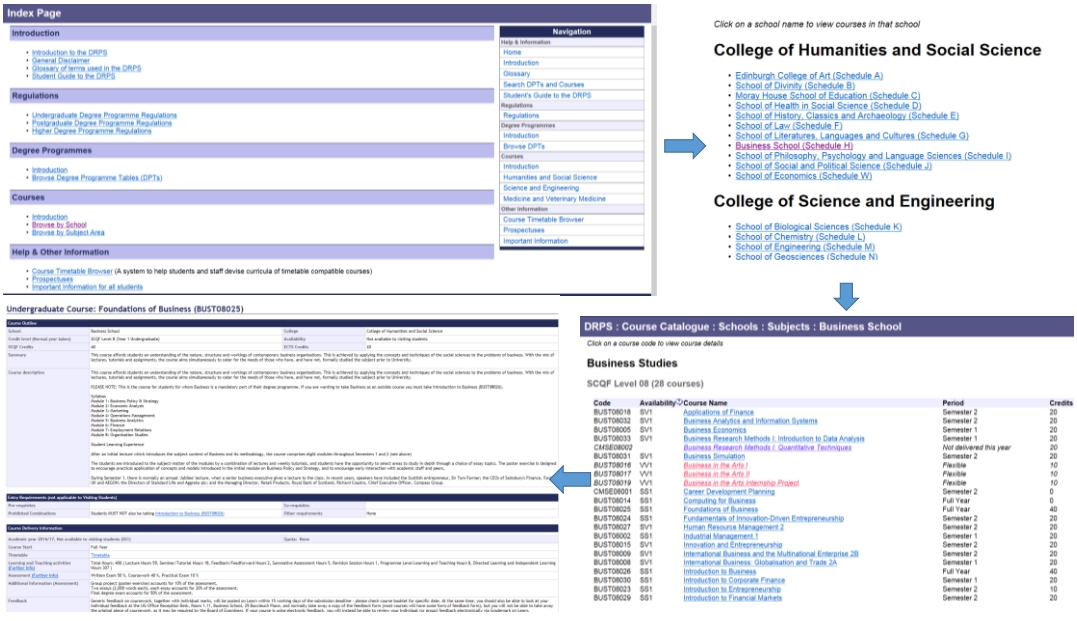

Figure 1. Current system: steps to find information on a specific course

In contrast, TRACK (see figure 2 below) was simpler to use, more user friendly, including direct search capabilities for specific courses and degrees (figure 2, top right), interactive features which allowed the users to experiment with different course combinations across the four years of a degree (bottom left, also directly from home page, top left), and easy to read visualisation of course information such as pre-requisite and co-requisite courses, future courses, assessments and course information (bottom right).

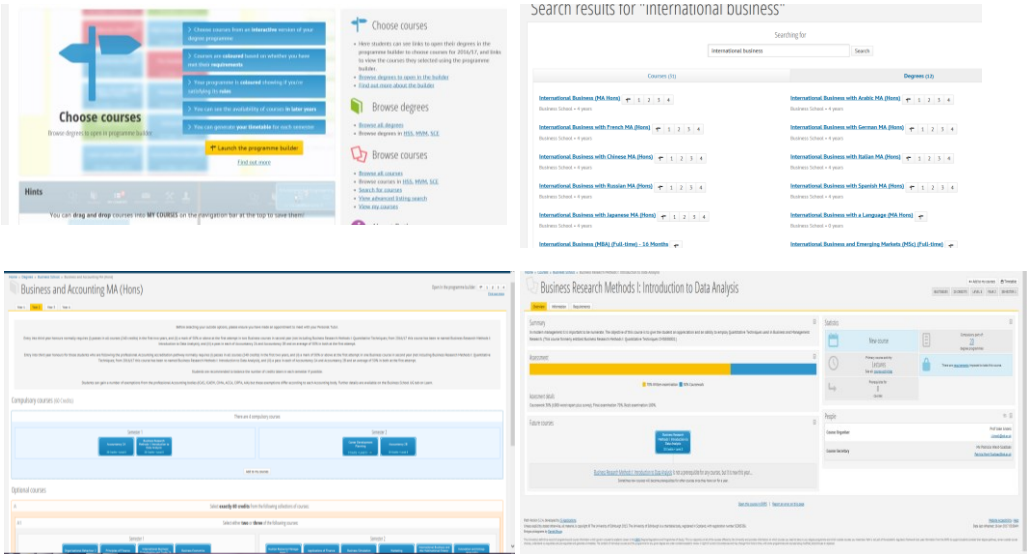

Figure 1. TRACK: modern display and easy to understand visualisation, searching and interactive capabilities

Ease of use meant that it was easier for the user to access information which enhanced his / her understanding of course information. Thus ease of use created value through improving the visibility of course information which in turn improved users' knowledge of course information, supporting their ability to complete their task, whether that involves deciding on course options for their degree, advising students about course

options, or seeking student feedback information on courses to improve teaching. The collection of student feedback on courses via the system was anonymous and involved either moderation by the development team (in the school of Math) or by the senior tutors (which was considered as an option in some of the other schools).

An unforeseen consequence of the increased usability of the new system vis-à-vis existing IT systems was the increase in users' expectations of the systems provided by the university.

For **academics as teachers**, the system had two main outcomes, both relating to the increase in the visibility of information that was made possible by the new system's usability. First, the course information is much more easily accessible and thus visible on the new system, meaning that teachers are incentivized to improve their course description information. Second, when the system involves collecting student feedback on courses, this feedback is much easily accessible and thus visible to the teachers, who are thus better positioned to act on this feedback and respond to students' feedback on courses by improving their teaching.

An unexpected outcome of the system was its uptake by a new category of users: **personal tutors**, and the benefit that it generated for them through facilitating student support. The system eased the ability of personal tutors to guide students course choices both during the meeting itself, and by allowing the student to easily gather information and consider various choices prior to the meeting. By speeding up the students' decision process involving option courses, the system allowed personal tutors to focus on other elements of supports during the meeting, rather than on explaining courses information, allowing more efficient use of time. These changes are however incremental, rather than radical: while the tutoring process is improved, the nature of the tutoring process remains the same.

First, the student centric approach to development meant that from its inception the system was geared towards student consumption, with the **existing students** being seen as the main users, not administration staff or academics. This meant the system was tailor maid to students' needs, fitting with students' wants and needs. More broadly the modern design and interactive features meant the system fits with the modern students' expectations of what an information system should look and feel like.

Second, the combination of modern design and interactive features giving a modern feel to the system with the graphic display to make the system more user friendly, meant students had faster and easier access to information comparing with the existing system. Higher visibility of course information for existing students meant that they are in a position both to make better informed decisions and to be empowered to make course choice decisions by themselves as they could easily see the consequences of their own choices without relying on personal tutors' advice. This empowerment had a broader dimension, in that it aligned with the changes in the macro-level context as students were increasingly coming to university driven by the purpose to fulfil a mission, not to gain a degree. Thus increasingly, their aim for coming to university is to acquire a range of skills that allows them to fulfil that mission, with the university being expected to provide them with the ability to make their own choices between course options that are aligned with these skills, rather than based on how courses fit with a degree programme structure.

Thirdly, the system improved the tutoring process from students' perspective as well as from that of personal tutors. Although the system was perceived not to have changed dramatically student behaviour during tutoring, its ability to empower students to make better informed decisions was seen as facilitating student support during tutoring. A negative outcome of the ability of the system to facilitate students' choices was its potential to guide students' choices based on popular choices for their degree, thus biasing the students towards popular options. Nevertheless, through providing easy information on course options (as well as information regarding their popularity) the system allowed the students to make up their decision by themselves, and fast, thus speeding up the tutoring meeting.

Overall, the combination of these outcomes: fit with students wants, needs and expectations, empowered to make better informed decisions, and improved student support during tutoring meeting were seen as leading to improved overall student satisfaction / experience, which was one of the key objectives of the university.

The system also provided easy access to information on courses and degrees to **new students** coming to the university, information which cannot be easily provided during the academic fair which is where traditionally the students were first exposed to their course options within their chosen degree. Another unexpected use of the system was thus its ability to support new students in making better informed decision on their choices in year one. To the extent that the system was promoted through Schools' promotion information for the new students, it was able to increase new students' awareness of choices and encourage them to think about their choices prior to their arrival at the university. This was seen as increasing new students' satisfaction, who were often unaware of their need to choose options prior to their arrival. The system was also seen as potentially leading to a change in the university processes for supporting new students, in particular in the way in which the academic fair is organised to support new students.

4.2. Developers and sponsors

There are three types of actors involved in the development of the system, and in providing the funding to see the project through its completion: the user developers themselves (as developers), the IS and SS departments (as both developers and sponsors), and the university as a whole (as sponsor).

All developer and sponsor actors benefited from their involvement in the development of the system through an improvement in their reputation as being student focused: user developers, IS & SS and the university, as the success of the system and its student led approach to development meant they were seen both internally and externally as being aligned with the contextual demands and expectations for being student focused.

The **user developers** benefited primarily in terms of their professional reputation, as the success of the system meant they were recognised as being highly professional both by their peers within and outside the university, and by the users of the system.

For the **IS and SS departments**, the success of TRACK led to positive improvements in the software developing process in three different ways through focusing the

attention on the need to encourage experimentation and freedom during the development process to support creativity, to focus on design and usability of the system, and finally through demonstrating the necessity and success of listening and engaging students in the development process.

First, the system demonstrated the necessity to alter the software process internally to allow for experimentation and freedom and thus providing some space for developers to be creative, and for managers to take some risks and to bring in some new ideas, whether internally or externally, into the process.

Second, the success of the system highlighted the importance to consider design and usability in software development. Facilitated by knowledge transfer from the TRACK development team who gradually become involved in the design of other university systems, there was some evidence that the development process begins to consider design and usability important with a view to achieve a more modern feel of the products. This focus on design and usability was becoming more important as the success of TRACK meant that the students had raising expectations concerning the design of software services that they were using at the university.

Finally, the success of TRACK focused the attention on beginning of thinking about how to change the IS processes to engage and listen to students, and how to make it easier for students to engage with the IS and SS developers and to explore new ideas, and at the same time how to allow the SS to harvest these new ideas. More broadly, TRACK acted as a catalyst to incentivize IS & SS to consider how to replicate and develop a generic process to support student engagement that would be embedded within the university. These efforts to engage in formally supporting student led initiatives involved the departments seeking to liaise with other university initiatives around student engagement, and exploring other approach to engage students in development such as sponsoring student ideas competitions, as well as to learn from and replicate on how to transfer a student led initiative into a corporate service. The role of the system in supporting the development of a generic student led process was seen as being more that of a catalyst rather than an exemplar that can be replicated due to the fact that its approach to development was considered to be unique and not in fitting with the normal IS approach to software development.

The development of TRACK has four distinct outcomes for the **university** as a whole. First, the external visibility of TRACK's success improved the university reputation in the sector both as a student focused university, but on the basis of its professional IT services. TRACK's internal success lead to improved student support and satisfaction which is one of the university key strategic objectives; aligned with the university current policies on improving course satisfactions that were driven by government policy pressures; and finally it provided an exemplar for the university in how to manage innovation.

First, the success of the student led system improved the reputation of the university that not only supports and encourages student led innovations, but also that it offers IT services to students which are in keeping with modern design and professional standards.

Second, the system was seen as having improved student support and satisfaction both for existing students and for new students. For existing students, the benefits the TRACK brought in supporting tutoring and improving the interaction between students and personal tutors was seen as allowing all Schools to improve their student satisfaction with minimum effort. More satisfied students were also seen to potentially lead to improvements in the position of the university in the national student rankings, which was a key priority for the university. Similarly for new students the system increased their awareness of options prior to coming to the university.

Thirdly, the system increased the visibility of course information within degree programmes thus highlighting wide spread mistakes in the data held in the current data and incentivising Schools to improve the information. In this respect the system aligned with one of the current university wide initiatives to enhance course descriptor information which was part of the university efforts to respond to government policy pressures to enhance degree information to be student and skills focused. On the negative side, the visibility of the mistakes in the course descriptors could led to misinterpretations of the degrees by external stakeholders. While the degree information was publically available before, the lack of usability of the previous system meant that it was both difficult to understand and less likely to be used by external stakeholders to ascertain the degree structures.

Finally, the success of TRACK meant that it became an exemplar approach to how to manage innovation within the university structure, and as such it was perceived as high profile. However, the transient nature of student users within the university meant that while the success of system was highly visible to the current generation of students in honours levels that were knowledgeable of the previous system, it was obscure to the new students that were used from year one to use the system to make their choices. As the system was in keeping with their expectations of what a digital (modern) system should be, the innovation was being taken for granted for new students.

5. Discussions & Conclusions

We set off to examine the outcomes of the innovation mapped across the different stakeholders involved. We find that the key outcomes of the innovation are for **users,** the **creation of value added** through (1) facilitating existing processes, i.e. making choices, providing support to students or becoming aware of options within degree structures, and through (2) alignment with key objectives of the university, such as improving student satisfaction. For all **developers and sponsors** actors, the key benefits are **reputational effects**, while for **sponsors**, the IS and SS in particular and the university in general, an increase **sensitivity to the importance of changing current processes and practices involves in IS development** to allow for experimentation and creativity, to consider the design and usability of the systems, and to engage and listen to students. Efforts to explore other pathways to encourage student led engagement and innovations in the IS-SS processes are a major outcome of the success of TRACK, and where the radical potential of the system is highest. We thus find a range of different benefits for a range of different audiences, where users are only one of the recipients of IS value.

We also find that for users, as expected, the value of IS comes from improvements in existing processes (Melville et al., 2004) by incentivising users to change how the do

their business (Ashurst, 2015), and through alignment with the organisations' strategic objectives (cf. Henderson and Venkatraman, 1993). While these user benefits tend to be emphasized in existing research considering IS benfits frameworks (Shang and Seddon, 2002), we found that for TRACK the key value is generated for the organizational sponsors through being widely recognised within the university and beyond as a student led innovation success story, and used as an exemplar to encourage the development of other pathways to support student led innovations. In this respect, the team behind TRACK development can be seen as institutional intrapreneurs who have, maybe inadvertently at first, challenged the current model of organising information systems development within the university, by demonstrating the value of supporting alternative way of sponsoring, initiating, developing and sustaining new IT products through drawing on from an abundant but much underutilised university resource: the creativity and enthusiasm of the university existing student body. Thus the most significant outcome of the innovation is not the value added and strategic alignment for users, but the efforts of stakeholders involved in the development of the system to replicate the success of TRACK through promoting support student led innovation. The key outcome of TRACK was the shift in the focus of the corporate sponsors, going forward, on building upon the enthusiasm generated by the success of TRACK to encourage (1) change in existing processes to eliminate some of the existing constraints, to encourage some freedom and experimentation within the existing practice, and (2) exploration around the options for developing a process to engage students in generating ideas, identifying problems, offering potential solutions which would then be taken on and developed in house; and (3) encouraging exploration with other areas of the university that are engaged in student led innovation. Thus the main value of the IS innovation arises as the innovation becomes a catalyst for opening up the organisation to the opportunities for enacting wider radical organisational changes.

References

Ashurst, C. (2015) Competing with IT, Palgrave MacMillan, Basingstoke.

Bunduchi, R. and Smart, A. (2010) *Process innovation costs in supply networks: A synthesis*, International Journal of Management Reviews, 12 365-383.

Coombs, C.R., Doherty, N.F. and Neaga, I. (2013) *Measuring and managing the benefits from IT projects: A review and research agenda*. In Transforming Field and Service Operations. (Ed. Owusu, G. et al.) Springer-Verlag, Berlin Heidelberg, pp. 257-269.

Doherty, N., Ashurst, C. and Peppard, J. (2012) *Factors affecting the successful realisation of benefits from systems development projects: findings from three case studies*, Journal of Information Technology, 27 1-16.

Henderson, J.C. and Venkatraman, N. (1993) *Strategic alignment: Leveraging information technology for transforming organizations*, IBM Systems Journal, 32 4-16.

Kim, G., Shin, B., Kim, K.K. and Lee, H.G. (2011) *IT capabilities, process-oriented dynamic capabilities, and firm financial performance*, Journal of the Association for Information Systems, 12 487-517.

Mata, F.J., Fuerst, W.L. and Barney, J.B. (1995) *Information technology and sustained competitive advantage: A resource-based analysis*, MIS Quarterly 19 487-505.

Melville, N., Kraemer, K. and Gurbaxani, V. (2004) *Information technology and organizational performance: An integrative model of IT business value*, MIS Quarterly, 28 283-322.

Mithas, S., Ramasubbu, N. and Sambamurthy, V. (2011) *How information management capability influences firm performance*, MIS Quarterly, 35 237-256.

Peppard, J., Ward, J. and Daniel, E. (2007) *Managing the realization of business benefits from IT investments*, MIS Quarterly, 6 1-11.

Schryen, G. (2013). *Revisiting IS business value research: what we already know, what we still need to know and how we can get there*, European Journal of Information Systems, 22 139-169.

Schubert, P. and Williams, S.P. (2009) *Constructing a fraemwrok for investigating and visualizing ERP benefits and business change*, In Proceedings of BLED 2009, available at: http://aisel.aisnet.org/bled2009/20

Shang, S. and Seddon, P.B. (2002) *Assessing and managing the benefits of enterprise systems: the business manager's perspective*, Information Systems Journal, 12, 271-299

Tursunbayeva, A., Pagliari, C., Bunduchi, R. and Franco, M. (2016) *What does it take to implement Human Resource Information System (HRIS) at scale? Analysis of the expected benefits and actual outcomes*, In Proceedings of 31st Workshop on Strategic Human Resource Management, Segovia, Spain.