

# Business Innovation and Differentiation: Maturing the IT Capability

Marian Carcary, Eileen Doherty, and Clare Thornley, *Innovation Value Institute, Maynooth University, Ireland*

**The IT Capability Maturity Framework (IT-CMF) determines an organization's current and desired level of IT capability maturity and supports planning for improvement. Through capability improvement initiatives, organizations can more readily realize sustainable advantages through IT-enabled business innovation and differentiation.**

**T**o remain viable in today's digital economy, organizations must be able to adapt and keep pace with business landscape changes. Such changes are driven largely by technological advances that give rise to unprecedented business innovation and differentiation opportunities. However, the pace and manner with which an organization can proactively innovate and differentiate itself through technology depends on the maturity of its IT capabilities.<sup>1</sup> The construct of "capabilities"—which is closely aligned with the resource-based view of the firm<sup>2</sup>—refers to an organization's capacity to deploy its resources to achieve desired goals.<sup>3</sup> In other words, IT capabilities are the

firm's ability to mobilize and deploy its IT-based resources, creating value in combination with

other resources and capabilities, and the firm-specific IT enabled knowledge and routines that improve the value of non-IT resources.<sup>3</sup>

Here, we discuss the importance of adopting an IT capability approach that enables business innovation and differentiation. We show how the IT Capability Maturity Framework (IT-CMF)<sup>4</sup> can support the development of inimitable IT capabilities for strategic advantage.

## **Business Innovation and Differentiation**

The digital economy is driven by globalization, millennialization, prosumerization, business virtualization, and digital platforms,<sup>5</sup> all of which create opportunities for more agile and innovative

firms to gain market dominance. However, these forces also augment the challenges and threats firms face in remaining competitive and viable. The concept of “digital transformation”<sup>6</sup> reflects a fundamental change to the firm and how it understands its positioning in the wider ecosystem—that is, how it connects with customers, suppliers, and partners, and conceptualizes its organizational structure and business operating models. New success factors such as speed, flexibility, integration, innovation, and customer focus become more pivotal to business longevity in effectively sensing and responding to market dynamics.<sup>1</sup>

One certainty of the digital environment is that successes due to strategic positioning are short-lived<sup>7</sup>; the value that organizations derive from IT isn’t stable but is rather a “shifting and a moving target.”<sup>8</sup> In addressing this challenge, organizations must emphasize the innovation after the next and subsequent innovations, in essence focusing on what tomorrow’s customers will value.<sup>9</sup> Hence, organizations must continually differentiate and potentially transform themselves to gain an advantage or even keep pace with market changes.

IT is an essential driving force of business innovation and differentiation initiatives. IT supports organizational benefits such as improved decision making, productivity, operations efficiency, improved supply-chain management, and greater interconnections with business partners. Moreover, recent technological advances and emerging trends such as cloud computing, big data, social and mobile technologies, and the Internet of Things are giving rise to unprecedented business opportunities. Digital platforms are essentially replacing traditional intermediaries and bringing together customers, suppliers, and partners in what Gregory Gimpel and George Westerman term a “mutually-reinforcing synergy.”<sup>5</sup> Undoubtedly, IT offers new sources of advantage. However, an inherent duality in IT is that it simultaneously makes these sources more transparent, enabling competitors to more quickly respond to and erode the benefits of innovative products or technologies.<sup>10</sup>

Many organizations must fundamentally shift how they view IT’s role to one that not only supports the business but also enables and drives ongoing business innovation and differentiation.

To facilitate this, IT should be critical in shaping an organization’s business strategy,<sup>11</sup> and recognition is growing that a fusion of both IT and business strategies is required for effective strategic positioning.<sup>12</sup> Although this is critical in elevating IT to a strategic driver of business innovation and differentiation, adopting new technological innovations in itself isn’t sufficient because of competitors’ ability to imitate. By developing their ability to deploy and exploit such technologies, on the other hand, organizations can reap far greater potential benefits and sustain these into the future.

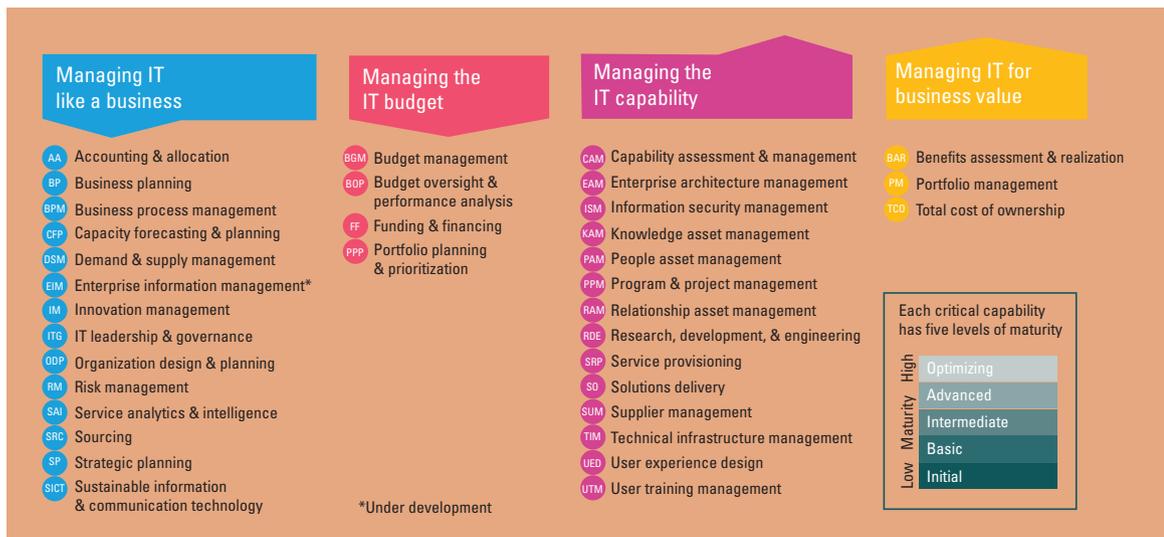
### The IT Capability Perspective

Considerable research has advocated that the creation of distinct and inimitable IT capabilities and how they are deployed—rather than technology itself—is what differentiates a company from its competitors.<sup>13,14</sup> For example, one study determined that information management capabilities play an important role in developing other business capabilities such as customer, performance, and process management.<sup>15</sup>

However, adopting a capability perspective involves a mindset shift for many organizations that have historically emphasized a process-centric view focused on an “ability to produce a desired, repeatable output to a predetermined quality and quantity”—in essence, “systemizing internal activities.”<sup>16</sup> The capability-centric view, on the other hand, requires organizations to develop an understanding of “what organizational abilities can and should be developed to support and build a unique and sustainable competitive advantage ... and effectively respond to (as yet undefined) external challenges.”<sup>16</sup> Although effective and efficient processes are critical in executing business operations, organizations derive sustainable value through their ability to regularly evaluate, modify, and mature these processes in line with their need to adapt to changing market and environmental forces.<sup>1</sup>

Positioning IT appropriately to enable business innovation and differentiation in line with market dynamics involves first understanding the level of sophistication of existing IT capabilities; second, determining which IT capabilities are the most strategically important; and finally, maturing the priority IT capabilities, thereby enabling the organization as a whole to move from a reactive to

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**Figure 1.** The IT-Capability Maturity Framework (IT-CMF).<sup>17</sup> The framework provides a modular view of 35 IT-related critical capabilities.

a proactive stance. Through awareness of the “as is” current maturity state and the desired “to be” position, the organization can focus on developing those core inimitable IT capabilities that are critical to achieving a strategic advantage. It can also identify those non-core capabilities that it might be advised to outsource to a reliable third party. This awareness helps to shape strategic and operational discussions around resource allocation and the timelines for the implementation of strategic objectives, and moves the focus from cost management to the strategic enablement of business competitiveness.<sup>1</sup>

## Leveraging the IT-Capability Maturity Framework

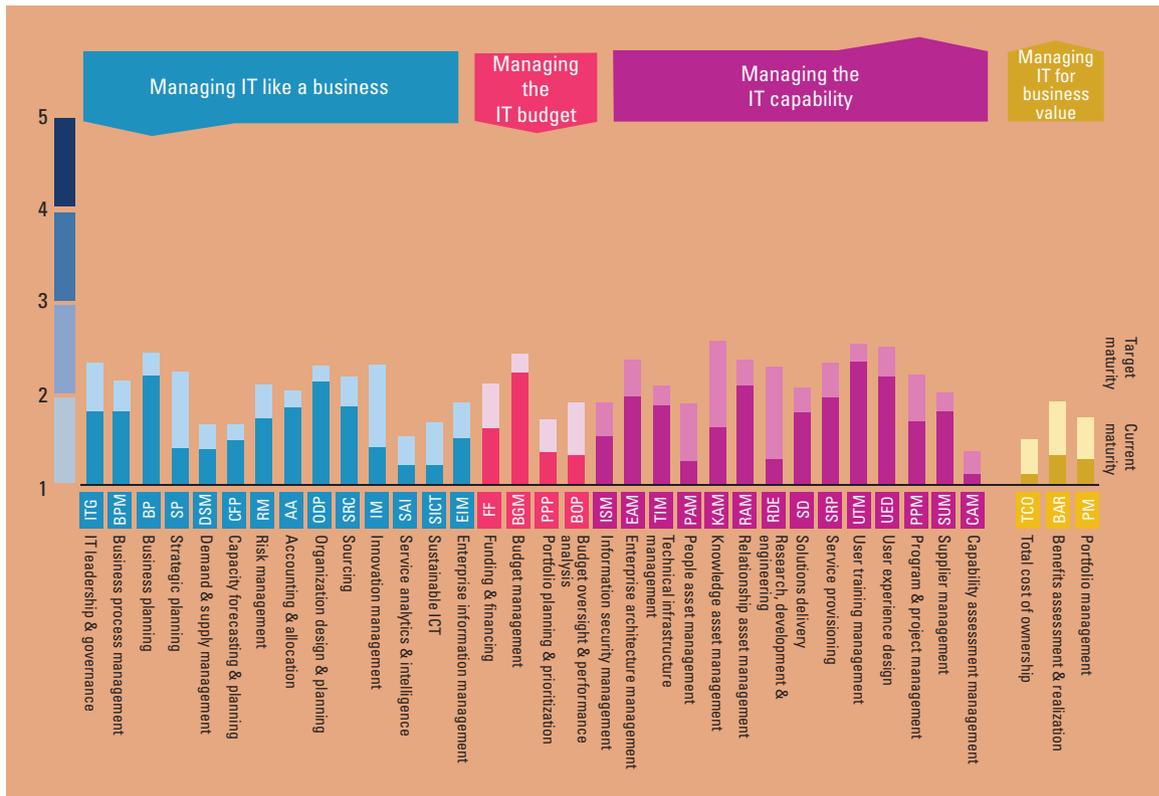
The Innovation Value Institute (IVI) developed the IT-CMF<sup>4</sup> using an open innovation, collaborative research approach. The IVI research entity is supported by a diverse international consortium of organizations, government agencies, and academic institutions and aims to address the challenges faced in optimizing the business value derived from applying IT.

IT-CMF (see Figure 1) provides a modular view of 35 IT-related *critical capabilities* that shape performance.<sup>17</sup> For each capability, IT-CMF develops a series of management insights, maturity roadmaps, assessment instruments, and improvement guidelines. The framework’s five-level maturity curve lets organizations systematically assess and understand their current IT capability maturity, strategically prioritize those capabilities that are

critical to enabling business innovation and differentiation, and move toward their desired target maturity state. In essence, IT-CMF serves as a holistic framework to help CIOs and key IT decision makers enhance the business value derived from IT through improving capability maturity. It also promotes a shared understanding among both business and IT stakeholders about the necessary key improvement initiatives required. Finally, the framework serves to complement other IT management frameworks and discrete approaches that the organization might use.

IT-CMF encompasses two types of capability assessments. The Executive Assessment provides a high-level view of overall IT capability maturity and identifies prioritized capabilities for more focused investigation and development. Critical Capability Deep Dive Assessments provide a granular and more focused view of a specific IT capability. Based on the IT-CMF assessments undertaken, the typical timeline for a maturity assessment is four weeks. The primary component of an assessment is an online survey, which typically takes each participant 30 to 40 minutes to complete. The survey data is validated by qualitative insights gathered from targeted, 30- to 90-minute interviews with key IT and business stakeholders. This data provides information on both the current and the target maturity state, thus revealing gaps where the organization should prioritize actions for improvement.

Figure 2 provides a consolidated view of the results of an organization’s Executive Assessment.



**Figure 2.** Example Executive Assessment results. These results outline the organization’s maturity ratings across 35 critical IT capabilities.

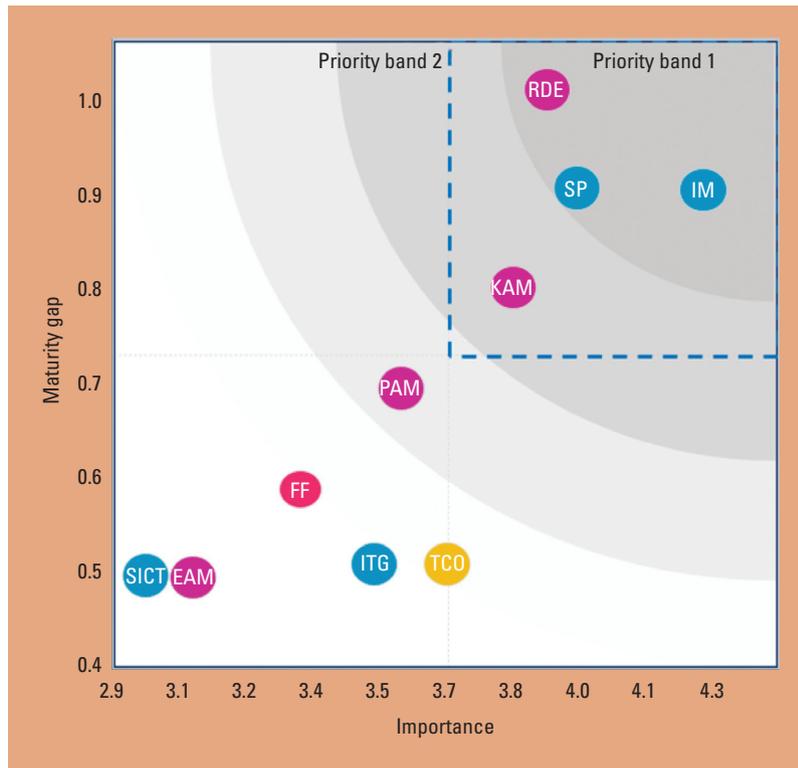
The assessment outlines the organization’s current and target IT capability maturity scores across the 35 IT capabilities. For each capability, the IVI assessment tool automatically generates the maturity results by averaging the scores of all survey participants across all questions pertaining to that capability. On average, the organization highlighted in Figure 2 reflects a level one (*initial*) current maturity status, but is less mature in some capabilities, such as strategic planning, demand and supply management, capacity forecasting and planning, and innovation management. Its desired target maturity state is maturity level two (*basic*).

Plotting current and target maturity and strategic importance levels helps an organization quickly identify gaps in capabilities, which becomes the foundation for capability improvement planning. Figure 3 reflects the organization’s gap between current and target maturity states, mapped against the importance attributed to the various capabilities (the figure outlines only those critical capabilities with the highest maturity gaps and importance ratings). The IVI assessment tool automatically generates these results

for each IT capability by averaging the current maturity scores, the target maturity scores, and the importance scores of all survey participants across all questions pertaining to that capability. The assessment results plot the distance, or gap, between the averaged current maturity score and the averaged target maturity score against the averaged importance scores. Those capabilities reflected in Figure 3’s top right-hand quadrant—specifically, research, development, and engineering, strategic planning, innovation management, and knowledge asset management—are highly important but have the largest gaps to bridge; as such, they are identified as priorities for future improvement. The organization can also use the assessment results to prioritize some “quick wins” in relation to those capabilities for which a smaller gap exists between current and target maturity.

The output from an IT-CMF assessment supports the organization in understanding the actions necessary to drive improvement and enable it to transition from its current to its target maturity. To achieve this, IT-CMF provides guidance on a series of industry-validated practices to help

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**Figure 3.** Example Executive Assessment results. These results show the organization's maturity gap vs. importance scores for various critical IT capabilities.

organizations improve incrementally. Furthermore, the assessments present a series of typical, value-oriented outcomes that result from implementing these practices and a series of metrics that let organizations monitor and track their progress over time.

## Enabling Business Innovation and Differentiation Initiatives

Using IT-CMF, organizations can objectively and strategically prioritize capabilities that are critical to business innovation and differentiation and assign stakeholder ownership to implement required improvement initiatives.

One key critical capability that's influential in positioning IT to enable business innovation and differentiation is *innovation management*. IVI's innovation management capability is the capability to create, identify, fund, and measure IT-based innovations to generate business value. This critical capability emphasizes the methods, processes, and best practices for promoting and stimulating IT innovation and focuses on the potential role IT innovation can play in the business from three core perspectives:

- driving core business products into new markets (for instance, embedding IT technology and systems into core products and services for consumers);
- providing innovative solutions to the business (providing connectivity and collaboration tools, and optimizing processes); and
- innovating within IT (developing new systems and applications and using collaboration- and productivity-enhancing tools).

The IT-CMF's critical capability structure divides the innovation management capability into a series of categories and building blocks, including collaboration, roles and responsibilities, risk taking acceptance, processes, and frameworks. In Figure 2, the organization is constrained in driving innovation and differentiation initiatives due to its low innovation management maturity. Figure 3 emphasizes this further, reflecting

the organization's comparative recognition of the critical capability's importance and maturity gap. By undertaking a deep dive critical capability assessment, an organization receives a granular view of the key aspects that are impairing the capability's maturity and the areas of focus that are a priority for progress. The organization also is supported in transitioning to the desired maturity state via practices that include developing a strategic vision for innovation and fostering employee support, aligning innovation activities with business priorities, and adopting a systematic approach to portfolio management. The organization further receives metrics to track progress in relation to practice implementation, which can include the number of ideas generated, percentage of ideas piloted, percentage of pilots commercialized, and percentage of new business generated by IT innovations.

In terms of driving IT-enabled business innovation and differentiation, implementing improvement initiatives in relation to the innovation management capability alone might not be sufficient. IT-CMF recognizes the interdependence that exists across capabilities, and as such,

interdependent capabilities' maturity influences the extent to which driving improvement initiatives in a specific critical capability might be enabled or constrained. For example, innovation management has close systematic dependencies with critical capabilities such as research development and engineering, user experience design, knowledge asset management, strategic planning, and business planning. Hence, decisions on improvement initiatives in a specific critical capability must be taken cognizant of the maturity state of systematically close critical capability relationships.

For the organization in Figure 2, improving the innovation management capability might be constrained by a lack of clarity in vision and strategy, as exemplified by the low strategic planning maturity; by limited investigation, acquisition, development, or testing of emerging technologies or solutions, as exemplified by low research, development, and engineering maturity; and by the limited ability to manage and exploit knowledge that can help enhance innovation processes, as reflected by low knowledge asset management maturity. So, for this organization, improving the strategic planning, research, development, and engineering, and knowledge asset management critical capabilities in tandem with the innovation management roadmap becomes pivotal. By adopting a holistic perspective that recognizes capability interdependencies, as opposed to a singular capability focus, organizations can more efficiently scale the business-enabling benefits that can be realized when an organization implements improvement initiatives.

### **IT-CMF Efficacy in Practice**

Since its inception, more than 400 organizations have adopted IT-CMF, and more than 500 formal assessments have been undertaken. As we outline here, several organizations have realized marked improvements, both tangible and intangible, resulting from the framework's deployment. For example, adopting IT-CMF within Merck resulted in an 8 percent savings on its technology innovation budget and 20 percent savings on its total budget for experiments. The "hit rate" of successful projects at Merck's research laboratory also improved by 20 percent, facilitating faster decision making and therefore flexibility and agility regarding project go/no-go decisions.<sup>18</sup>

Intel IT adopted IT-CMF as part of a new systematic approach toward IT strategic planning. From 2007 to 2009, a period characterized by budget and headcount reductions, Intel IT improved IT effectiveness and efficiency, overall IT capability (by 25 percent), conversion effectiveness (by 14 percent), and overall business value. New business value contributions increased to US\$1.4 million, and IT yield increased to 119 percent by 2008. Between 2007 and 2009, Intel IT moved from being a reactive to a proactive IT organization, with its CIO able to "focus on making IT a strategic partner or ... a corporate core competency, rather than having to focus on cost cutting and fight fires."<sup>19</sup> By having IT operate at this high strategic level, it could more readily contribute to business innovation and differentiation, as opposed to merely acting as a service or support function.

IT-CMF adoption within Beaumont Hospital in Ireland highlighted the need for a cultural mindset shift from one in which IT focused heavily on day-to-day operations toward one in which it supported change and innovation within the business. Low strategic planning maturity was evident, with much of the IT budget being allocated to "keeping the lights on." IT-CMF helped the IT department develop a solid business case for virtualizing the server estate and upgrading its storage infrastructure. As a result of these improvements, the infrastructure setup required to provide a new patient care records system for the cystic fibrosis unit took 1.5 hours—a project that would have previously taken six months.<sup>20</sup>

IT-CMF adoption by the Central Bank of Ireland, the Irish Financial Regulator, helped integrate the IT department with the bank's evolving agenda by repositioning it away from being a technology factory and by demonstrating enhanced organizational value through business process improvement. IT-CMF provided a common vocabulary between IT and the business. It allowed both stakeholder groups to meaningfully converse regarding processes, capabilities, and differences in how IT and the business operate,<sup>20</sup> thereby enabling enhanced integration between IT and the rest of the organization.

The realization of the benefits outlined in these examples links closely with the new success factors of speed, flexibility, integration, innovation, and customer focus that are important in sensing

and responding to market dynamics.<sup>1</sup> In addition to improved efficiency and effectiveness, IT-CMF helps organizations make faster and more agile decisions, better integrate IT within the business, support innovation and change, and position IT as a strategic partner.

**T**he turbulent nature of the business landscape, the business opportunities that technological advances afford, and IT's pervasiveness dictate the strategic imperative for its effective use.<sup>13,21</sup> Within organizations, both business and IT stakeholders must close the gap between the need for IT to deliver value, its ability to deliver, and the pace and manner by which it can deliver.<sup>22</sup> Employing technological advances alone is insufficient because such strategic positioning quickly erodes in the face of competitive moves. However, being more adept at using technological advances to help organizations innovate and differentiate is where we can derive IT-enabled business value. Developing IT's ability to deploy and exploit such advances becomes a competitive imperative. The capability approach helps focus organizations on continually evaluating, re-evaluating, and developing new and existing capabilities in line with environmental changes and new opportunities and threats.

Identifying and developing the core IT capabilities required to stay competitive is difficult because key decision makers must manage the IT capabilities required now while trying to identify those required for the future. Employing a capability maturity approach and regularly re-evaluating capability importance and maturity can facilitate this task. As we highlighted here, the IT-CMF "periodic table" of IT capability elements provides a toolkit for driving IT capability maturity. The framework's efficacy is evident through its growing adoption rates and the significant value derived by the case study organizations reported in this article. By understanding current and future state maturity, prioritizing critical capabilities for focused development, and implementing improvements cognizant of systemic relationships that exist across various capabilities, IT-CMF reflects a practical and action-oriented tool. Moreover, it addresses IT-enabled business innovation and differentiation as part of

an overall process of maximizing IT's capability to grow the business. ■

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*Marian Carcary is a senior lead researcher with the Innovation Value Institute, Maynooth University, Ireland, where she researches the development of the IT Capability*

*Maturity Framework (IT-CMF). Her research interests center on cloud computing and drivers and challenges surrounding business value realization by small and medium-sized enterprises. Carcary has presented her research at numerous international conferences, and published in peer-reviewed academic journals. She holds an MSc in enterprise software and a PhD in ICT evaluation. Contact her at [marian.carcary@nuim.ie](mailto:marian.carcary@nuim.ie).*

*Eileen Doherty is a research fellow at the Innovation Value Institute, Maynooth University, Ireland. Her research areas include IT-CMF development, cloud computing, IT strategic planning, business planning, user experience design, and research, development, and engineering. Doherty recently managed the European Commission funded "e-Skills and the impact of Globalization" project in conjunction with Empirica, IDC, and CEPIS and has almost 10 years industry experience in a variety of IT roles, such as product and marketing management and as an independent IT consultant in Ireland and the UK. She holds an MSc, and a PhD in business and management studies. Contact her at [eileen.doherty@nuim.ie](mailto:eileen.doherty@nuim.ie).*

*Clare Thornley is a senior lead researcher at the Innovation Value Institute, Maynooth University, Ireland. Her research interests include information retrieval, new ways of measuring research impact and its influence on policy and practice, information management for improved performance, information ethics, and the philosophy of information. Thornley is a team member with the University of Strathclyde, the University of Canberra, and the Centre for Applied Philosophy and Public Ethics in Australia, examining the new ethical issues in policy and practice that emerging technologies are bringing to information science. She holds an MA, an MSc in information management, and a PhD in information retrieval. Contact her at [clare.thornley@nuim.ie](mailto:clare.thornley@nuim.ie).*



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